

**SONG AND STORYTELLING-ENHANCED STIMULATION AND PRE-PRIMARY
SCHOOL CHILDREN'S MATHEMATICS COMMUNICATION SKILL AND
KNOWLEDGE IN THE IBADAN METROPOLIS, NIGERIA**

BY

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CERTIFICATION

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DEDICATION

This thesis is dedicated to my late mother and all the Africa Children.

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ABSTRACT

Mathematical Communication Skill (MCS) and Mathematical Knowledge (MK), the traits that reflect the understanding of mathematics ideas and concepts, are crucial to further mathematics education of children. Extant literature has shown that many pre-primary school children are deficient in MCS and MK in the Ibadan metropolis. Past studies on learning outcomes in mathematics are mostly survey, while few interventions concentrated more on the use of activity-based instructional methods than on the use of Song-enhanced Stimulation (SoeS) and Storytelling-enhanced Stimulation (SeS). This study, therefore, was carried out to determine the effects of SoeS and SeS on the MCS and MK among pre-primary school children. It also examined the moderating effects of Language Acquisition (LA) and school type.

The David Kolb's Experiential Learning and Howard Gardner's Multiple Intelligences theories provided the framework, while the study adopted the mixed methods (Pretest-posttest control group quasi-experimental with a 3X2X3 factorial matrix and phenomenological approach) design. The simple random sampling technique was used to select three Local Government Areas (LGAs) from the Ibadan metropolis, while six schools (three public and three private) that adopted Nigerian curriculum and had children who were five years old in the pre-primary section were purposively selected. The instruments used were Pre-primary School Children Mathematical Knowledge Test ($\alpha = 0.89$), Pre-primary School Children Language Acquisition Rating Scale ($r = 0.80$), Mathematics Communication Skill Rubric for Pre-primary School Children ($r = 0.78$) and instructional guides. In-depth interviews were conducted with four teachers. Treatment lasted eight week. The quantitative data were analysed using descriptive and Analysis of covariance at 0.05 level of significance, while the qualitative data were content analysed.

Majority of the children (51.8%) were from public schools and 71.9% had low language acquisition provide the threshold. There was a significant main effect of treatment on pre-primary children's MCS ($F_{(2;97)} = 45.36$; partial $\eta^2 = 0.48$). Children exposed to SoeS had the highest MCS mean score (85.73), followed by those exposed to SeS (83.20) and conventional (40.08) methods. There was a significant main effect of treatment on pre-primary children's MK ($F_{(2;97)} = 6.65$; partial $\eta^2 = 0.12$). Children exposed to SeS had the highest MK mean score (52.62), as against those exposed to SoeS (50.83), and conventional (40.22) methods. There was a significant main effect of school type on pre-primary children's MK ($F_{(1;97)} = 4.57$; partial $\eta^2 = 0.05$). Private school children had a higher MK mean score (52.81) than their public (43.01) counterparts. There was a significant main effect of LA on pre-primary children's MCS ($F_{(2;97)} = 3.39$; partial $\eta^2 = 0.07$). Children with average LA had the highest MCS mean score (74.35), followed by those with low (70.47) and high (58.62) LA. Other two-way and three-way interaction effects were not significant. The two stimulations were fun-filled activities for the children.

Song and storytelling-enhanced stimulations were effective in impacting mathematics communication skills and mathematics knowledge. Pre-primary school teachers should adopt these stimulations.

Keywords: Song and storytelling-enhanced stimulations, Pre-primary school children, Mathematics communication skill.

Word counts: 467

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LIST OF ABBREVIATIONS

ANCOVA	Analysis of Covariance
CSIG	Conventional Strategy Instructional Guide
ECE	Early Childhood Education
FCT	Federal Capital Territory
FME	Federal Ministry of Education
ESSPIN	Education Sector Support Programme in Nigeria
MCS_RPC	Mathematics Communication Skill Rubric for Pre-primary School Children
MLA	Monitoring of Learning Achievements
NCTM	National Council for Teachers of Mathematics
NPE	National Policy of Education
NERDC	Nigerian Educational Research and Development Council
TEMA-3	Test of Early Mathematics Ability, Third Edition
Se_StiG	Song-Enhanced Stimulation Guide
Ste_StiG	Storytelling-Enhanced Stimulation Guide
MCS_RPC	Mathematics Communication Skill Rubric of Pre-primary School Children
PCMKT	Pre-primary School Children Mathematical Knowledge Test

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Early childhood is the most critical moment of development, especially in the intellectual development of a child. Brain formation and development at this stage can influence acquiring all necessary skills, especially mathematical knowledge and communication skills (Clements and Sarama, 2010). The exposure to and learning experience of mathematics at the preschool level of formal education form the basis for future mathematics learning and academic achievements. Application of mathematical skills and knowledge is needed for daily life activities and effectiveness. This is why every child needs to acquire basic mathematics fundamentals to live and work in society and carry out everyday transactions (FME, 2015).

Mathematics, as a subject, gives children room to think logically, strategically, creatively, and critically in solving life's situations and challenges. This subject helps children acquire essential problem-solving skills needed in daily life. Duncan et al. (2007) noted that children's academic performance in every subject could be improved by applying and transferring mathematics skills into other fields of life. This shows the importance of developing mathematical skills and knowledge in the first years. Learning activities for kids at the preschool level of education serve as a determinant of their achievement and interest in learning other subjects (Sylvia, 2009; Glauert and Manches, 2013).

Various researchers have submitted that early mathematics skills and knowledge determine children's learning and success (Greenes et al., 2004; Praet, et al., 2013). In line with this, studies on early childhood learning conducted in New Zealand and worldwide also emphasised that children's early experience in mathematics is a determinant of future educational success (Duncan et al., 2007). Exposure to mathematical concepts at an early age

has a lasting effect on a child's mathematics learning at other levels of education (Mulligan et al. 2012). Research by Jordan et al. (2009) showed that early mathematical learning could forecast the growth rate in mathematical learning between the first and third grades of later school years.

Mathematical knowledge can be described as how children express their understanding of mathematical ideas and concepts learned. According to the National Research Council (1989), children only acquire a solid grasp of mathematics when they build it themselves. This understanding necessitates that they study, depict, transform, solve, apply, verify, and communicate. The National Council for Teachers of Mathematics proposed in 1989 that the goals of mathematics education for all children should be: developing an appreciation for mathematics, developing self-assurance in one's abilities, developing problem-solving skills in mathematics, developing mathematical communication, and developing mathematical reasoning.

Despite the immense benefits of acquiring mathematics knowledge during early childhood, observations have shown that many children seem unable to display appropriate mathematical knowledge and cannot communicate it, especially when transitioning to primary classes and beyond. Furthermore, in a report by Education Sector Support Programme in Nigeria (ESSPIN, 2016), it was shown that there is low achievements of children in mathematics in the upper primary class throughout all learner groups, regardless of gender (male or female), kind of school (private or public), location (rural or urban), and status as a preschooler (whether they attended nursery school or not). This is an indication that there is a need for children to acquire adequate mathematical knowledge at the pre-primary level of education. Table 1.1 shows the numeracy results of children in primary four for three years (1996, 2003, and 2011). Table 1.1 shows the results of Monitoring of Learning Achievements (MLA) assessments carried out in all 36 states and the FCT. It was revealed that male and female children have a percentage not up to 50% in numeracy over the selected three years.

Table 1.1: FME Primary 4 (MLA) Numeracy Percentage Mean Scores 1996, 2003 and 2011

Indicators	Numeracy		
	1996	2003	2011
National mean score (%)	32.20	43.81	36.28
Mean score Girls (%)	31.89	33.74	37.00
Mean Score Boys (%)	32.42	33.52	36.98
Mean Score Urban (%)	35.00	34.33	38.29
Mean Score Rural (%)	30.33	35.21	36.28
Mean Score Public (%)	30.13	30.63	39.78
Mean Score Private (%)	43.08	43.12	36.25
Mean Score Attended Nursery (%)	NA	36.88	33.19
Mean Score Not attended nursery (%)	NA	33.31	32.29

Table 1.2 shows the numeracy results of children in primary six for two years (2003 and 2011). The table shows that both male and female children have a percentage not up to 50% in numeracy over the selected three years Monitoring of Learning Achievements (MLA) assessments were carried out in all 36 states and the FCT.

Table 1.2: FME Primary 6 (MLA) Numeracy Percentage Mean Scores 2003 and 2011

Indicators	Numeracy	
	2003	2011
National mean score (%)	35.73	31.19
Mean score Girls (%)	35.25	NA
Mean Score Boys (%)	35.56	NA
Mean Score Urban (%)	37.19	34.53
Mean Score Rural (%)	33.51	32.90
Mean Score Public (%)	35.09	35.79
Mean Score Private (%)	40.35	32.84
Mean Score Nursery (%)	40.05	33.19
Mean Score Not attended	34.91	32.29

The result in Table 1.2 indicates that many children lack mathematical knowledge. With this performance shown in mathematics for primary pupils, children need to acquire mathematical knowledge at the preschool stage of learning to aid their understanding. This poor performance of children led to a clarion call to stakeholders, policymakers, and researchers in the field of education on the need to pay more attention to children learning mathematics (National Research Council, 2009). Children with inadequate mathematical knowledge at the preschool level may find it difficult as they advance from one educational level to another. According to Mwinshekke (2003), children were experiencing difficulties in learning mathematics, resulting in a negative attitude towards the subject and reducing performance in various countries. There is a need to ensure that this problem is addressed to avoid hindrances to children's future academic endeavours since other levels of education depend on pre-primary school education.

One of the objectives of mathematics instruction in school is for children to be able to communicate mathematical ideas (Febry et al., 2017). In line with this, Strayer and Brown (2012) pointed out that, interactions and communication can help to foster effective learning. Children need to be taught how to communicate mathematical ideas and can comment on the responses offered by others so that learning will be meaningful (Febry et al., 2017). In this study, communication of mathematical knowledge relates to a child's capacity to communicate and discuss their understanding of mathematical ideas and concepts coherently and clearly that reflect step-by-step procedures which will lead to final solutions to mathematics problems. It is believed that when children communicate mathematics knowledge this way, they can prove that they have fully grasped the mathematics ideas and concepts they are taught.

According to Nartani et. al,(2015), the acquisition of communication of mathematical skills will enable children to express their mathematical ideas and understand the concepts. Pre-primary school children need to acquire communication of mathematical skills to allow students to comprehend the material more thoroughly. Mathematics communication skills are multidimensional, such as, questions and answers, understanding, and logical thinking (Zevenbergen et al., 2004). Challenging children to communicate orally can help to enhance their mathematical ability, broaden their mental grasp, and lessen their fear of mathematics (Laila et al., 2016). Children's ability to communicate mathematical ideas is important to

teachers and children. The teacher can assess the children's knowledge of the mathematics concept taught while the children can have a deep understanding (Manouchehri, 2007; Manouchehri and St. John, 2006).

Despite the need for children to be able to communicate mathematical knowledge, it is observed that some children in Nigeria cannot do so. Close observation by the researcher revealed that most of the children memorise the answers to mathematics questions without explaining how they derived the solution or the process of arriving at the answer. This same observation has earlier been raised by Hirschfeld-Cotton (2008); Freeman et al. (2016); Rustam and Ramlan (2017), who noted that students could not communicate mathematical knowledge the way they ought to. In this vein, Paridjo and St. Budi (2017) submitted that many children still need to be able to communicate mathematical knowledge. The best time and period to address this type of problem is at the preschool level, where children are learning at a fast rate and can still be guided to develop a better capacity for and interest in mathematics. However, majority of these issues were raised from outside the shore of Nigeria. However, failure to address this problem at this level could make children keep experiencing difficulties in mathematics as they progress from one educational level to the next. This is why a study of this nature becomes imperative.

Scholars and educators have found why the learning process should be examined on how teachers teach mathematics and how learners learn (Kafyulilo, 2011). This shows that the method of instruction adopted by the teacher is of great importance to the success, understanding, and acquisition of mathematical skills and knowledge of learners. The applications of inappropriate instructional strategies have been a major factor that contributed to children's inability to acquire Mathematics knowledge and skills (Poyo, 2012). The difficulties in learning and reducing the performance of children experience at their primary level of education is because of the approaches used to teach children at the preschool level (Westwood, 2004). This is why pre-primary teachers must ensure that any method adopted to teach the children is suitable for their learning, needs, level, and interest to ensure that children acquire basic mathematical skills and knowledge.

The observation by various scholars as regards the teaching and learning situation of pre-primary school children reveals that the method of instruction adopted by teachers at this level of education is the conventional strategy which is not appropriate for their learning,

interest, and needs (Onu et al., 2010; Oduolowu and Oyesomi, 2012; Salami, 2015). A preliminary report on the survey of pre-primary classes in public schools in Ibadan North Local Government revealed that the method of teaching is strictly conventional. The conventional method involves a process where the instructor delivers the lesson on the board, reads out the lesson, and asks the children to repeat after him/her (Oduolowu and Akintemi, 2019). This process does not permit children to participate well in their learning and acquire the necessary skills and knowledge. This is against how children can acquire mathematical knowledge.

The evidence indicates that the conventional method of teaching mathematics does not properly care for children's learning and acquiring skills and knowledge (Haghighi et al., 2005). This conventional method adopted by teachers in teaching mathematics includes the chalk and board (the topic is written by the instructor on the chalkboard and gives one or two examples, then ask the children to solve the exercises in their textbooks) and rote learning (the teacher ask the children to recite what they are taught (Abdulwahed et al., 2012, Tularam, 2016). This necessitates exposing children to a child-centred form of learning mathematics, enabling them to understand and acquire adequate skills properly. Since the conventional strategy is deficient in helping preschool children acquire mathematical knowledge and the skills of communicating mathematical knowledge, song and story-telling enhanced stimulations were considered.

Song-enhanced stimulation is an instructional strategy that combines melody, lyrics, sounds, and various activities to impart knowledge and skills to learners. This study is a strategy imbued with fun-filled activities to improve mathematics knowledge and communication of mathematics ideas in pre-primary school children. Song-enhanced stimulation aid the neural connection of the brain cells during learning activities and helps children acquire mathematics skills and knowledge (Gardiner, 2000). Song-enhanced stimulation connects with the brain synapses and neurons, enabling the child to understand and retain information. It may help to promotes communication of mathematical skills which is a prerequisite for their understanding and learning of Mathematics as a subject since it serves as a mode of interaction seen in their singing and application to solve problems (Holland, 2011). Song-enhanced stimulation improves memory, attention, and language

skills, and improvements in mathematics performance are made, along with social and communication abilities (Du Sautoy, 2004).

After singing, the children can reflect on and apply the song to solve mathematical problems. Song-enhanced stimulation provides a smooth and suitable environment for children to acquire skills necessary for success (Wiggins, 2007). Past studies have trodden the path of using song-enhanced stimulation in raising kids' academic performance while neglecting the ability to communicate mathematics operations, which will show the depth of understanding. Despite the efficacy of song-enhanced stimulation in facilitating children's communication ability, the extent to which this could help enhance communication mathematics ideas and knowledge among children has not yet been established.

Past studies have proved the effectiveness of song-enhanced stimulation on learners' outcomes in other subjects. For instance, AyferKocabaú (2009) findings revealed that song-enhanced stimulation profoundly impacted the pupils, achievements, and multiple intelligences in a mathematics course. Also, Charlyn et al. (2016) discovered a significant effect of integer song-aided instruction on students' performance in mathematics. Despite the much research ground covered by these past studies, none of them specifically investigated the impact of song-enhanced stimulation on the performance of preschoolers' acquisition of mathematical knowledge and communication of mathematical skills. Besides, the past studies relied heavily on the already composed song and not new or newly self-composed by the researchers based on the new mathematics topics taught. All these gaps necessitated the need to carry out the present study. Another child-centred method considered appropriate for teaching mathematics at the pre-primary level is storytelling-enhanced stimulation.

Storytelling-enhanced stimulation is an instructional strategy that combines language, gestures, singing, actions, picture reading, drawing, and activities to impart mathematics knowledge and skills to learners. Storytelling-enhanced stimulation combines fun-filled activities to improve mathematics knowledge and communication of mathematics ideas in pre-primary school children. Storytelling-enhanced stimulation derives its features from storytelling. These features include the use of an oral form of communication, the language used to communicate the message to the listener; it revolves around engaging in activities alongside the storyline, sometimes combines singing, actions, and gestures, involves the use of pictures, activities, drawing to present a scene, the scene can be created in sequence and

among others. Storytelling-enhanced stimulation is a form of play activity used to teach many subjects like English, Social Studies, CRK/IRK, and so on (Sim, 2017). But the use of storytelling in mathematics seems rare. However, when teaching, the storytelling process should be suitable to children's abilities, interests, subject matter and concepts. During the adoption of storytelling-enhanced stimulation to other subjects, pre-primary school children participate actively in the lesson, retain much information, improve their listening, problem-solving, and logical thinking skills, and comprehend the lesson taught (Wakonse et al., 2015). These authors acknowledged that storytelling-enhanced stimulation could aid the acquisition of communication skills and knowledge of the subject matter. The extent to which this could happen in enhancing communicating mathematics ideas and knowledge of mathematics has not yet been established.

Adopting storytelling-enhanced stimulation in mathematics classrooms might foster an atmosphere of logical thought, emotion, and imagination that could help students remember and appreciate arithmetic (Modi, 2012). Storytelling-enhanced stimulation, when employed, helps to enhance the acquisition of mathematical skills and knowledge in children since children learn in a relaxed environment, actively participate in the lesson and logically follow the storyline, think logically to add clarification to the questions while completing the story, and have a proper understanding of the lesson. Teaching mathematics through storytelling-enhanced stimulation engages the 'being' of children in mathematics (Amanjot and Joyce, 2015). This participation enables children to be fully involved in their learning and development of communication of mathematical skills and knowledge.

Past studies have investigated the effectiveness of storytelling-enhanced stimulation in improving children's performance in mathematics and ability in foreign countries. A few existing studies include Albool (2012), who found significant effects on pupils' success and motivation for learning mathematics when the narrative is used. Also, Green (2014) discovered that storytelling-enhanced stimulation and enhanced pre-primary school children's mathematical ability. Similarly, Young-Loveridge (2004) found that storytelling strategy significantly improved children's numeracy skills. Despite the much research ground covered by these past studies to examine the effect of storytelling-enhanced stimulation on both children and children learning mathematics, none of them specifically investigated the impact of story-enhanced stimulation on pre-primary school children's acquisition of mathematical

knowledge and communication of Mathematical skills. Besides, the past studies relied heavily on already-written stories and not newly written ones used in this study. All these gaps necessitated the need to carry out the present study.

It has been noted that some factors could moderate the acquisition of pre-primary school children's mathematical knowledge. Some of these factors include socio-economic background, school type, gender, language acquisition, parental involvement in children learning, and ethnicity, among others. Two of these factors are of interest to this study. These are school type and language acquisition. School type as used in this research means the status of a pre-primary school in terms of its ownership viz government or individual ownership. School type is considered one of the factors to be considered because children in private schools are likely to be used to learning through song and storytelling, and this may influence their outcome in this study. Also, children in public schools seem to have less opportunity to learn in a stimulating environment, which may influence their ability to display a high level of performance in this study.

Past studies examining the moderating effect of school type on study participants have revealed conflicting results. Studies such as John, et al. (2016); Sunday (2014) showed that pupils in private primary schools outperformed their public school counterparts in mathematics and other academic areas. On the other hand, Lubienski and Lubienski (2013) revealed that public school kids outperformed private schools in mathematics. Because there are conflicting results, it was therefore considered necessary to study the moderating impact of a school's type on the participants of this study to support or negate the findings from previous studies.

Another factor to be considered in the study is language acquisition. Language acquisition in the study is examined with respect to the rate at which children use language in expressing their mathematical knowledge and communication skills which will be measured at three levels (high, medium, and low). There is considerable evidence that language is crucial for developing numeracy, which is rarely highlighted in early numeracy research (Purpura and Reid, 2016). Numeracy and language have a strong connection. This demonstrates that children's language and numeracy abilities are inextricably linked (Hooper et al., 2010; Purpura et al., 2011; Romanno et al., 2010). It is believed that language abilities aid in developing pupils numbers acquisition (Miura and Okamoto, 2003). Children can

improve their grasp of quantity using language skills, especially number words (Spelke, 2003). Purpura and Ganley (2014) discovered that early numeracy skills in children were primarily predicted by linguistic skills, accounting for significant variance. However, it is assumed that these connections begin even before preschool because much evidence supports that language and numeracy processing employ similar brain regions, indicating that they share some shared neurological connections (Baldo and Dronkers, 2007; Dehaene et al., 1999). Consequently, this study aims to provide evidence for assessing children's language acquisition regarding mathematical knowledge and mathematical knowledge communication.

The discussion above reveals that pre-primary school children must acquire mathematical knowledge and communication skills. It is not only enough to possess mathematical knowledge, but the ability to communicate it is very important. Numerous academics inside and outside Nigeria have tried to make learning mathematics fun for children through various teaching and learning methods. However, few of such studies have considered using storytelling and song enhancement to develop mathematical knowledge and communication at this preschool level of education in Nigeria. Despite various studies on mathematics, the impact of school type and language acquisition on exposing children to mathematics knowledge and communication skill through song and storytelling have not received adequate attention. Likewise, this study will present empirical data that will enhance the body of knowledge already in existence or start a new body of knowledge that future researchers can infer from.

1.2 Statement of the problem

The preschool stage is when children are expected to acquire various Mathematical knowledge and skills since it is the period of brain formation and development. Children's lack of interest in mathematics and persistently subpar performance from upper primary and beyond have been attributed to a lack of basic children's mathematical aptitude and knowledge at the preschool stage of learning. However, studies have confirmed that if children acquire this knowledge and skills appropriately, child-friendly Mathematics stimulation is needed during preschool years. Literature has shown that song, and storytelling-enhanced stimulation can be used to encourage pre-primary school kids' intellectual development. But there is a dearth of empirical studies on the effectiveness of

song and storytelling in acquiring mathematical knowledge and communicating mathematics ideas in the Nigerian classroom. This might result from the fact that song and storytelling are associated with literacy skills more than numeracy. But song and storytelling can enhance the acquisition, retention, and recall of facts and rules. Therefore, since mathematics is a rule-governed discipline, song and storytelling might enhance its skills and knowledge acquisition, retention, and recall, especially for pre-primary school children that last throughout their educational lives. Therefore, in light of these circumstances, our study sought to determine the effects of song and storytelling-enhanced stimulation on acquiring and communicating mathematical knowledge and skills among children in pre-primary schools. The effects of language acquisition and school type on acquiring mathematical skills and knowledge were investigated.

1.3 Objectives of the study

The objective of the study includes the following:

- Provide room for children to learn mathematics in a fun-filled environment, thereby stimulating their interest in learning mathematics as a subject;
- Develop children's mathematical knowledge and communication skill;
- Lay a basis for children learning mathematics at the early stage so that they will not experience difficulties at other levels of learning;
- Provide instructional packages (song-enhanced stimulation, storytelling-enhanced stimulation, and conventional) for teachers to teach children Mathematics;
- Stimulate the teachers' interest in using song and storytelling-enhanced stimulation to teach mathematics and
- Check the effectiveness of using song-enhanced stimulation and storytelling enhanced in developing children's mathematical knowledge and communication of mathematical knowledge.

1.4 Research questions

The following research questions guided the study

1. How will pre-primary school teachers view the use of song-enhanced and storytelling-enhanced stimulation for teaching mathematics to pre-primary school children?
2. What possible experience will pre-primary school children have concerning the use of songs and storytelling-enhanced stimulation
3. What possible challenges will pre-primary school teachers face in the course of using songs and storytelling-enhanced stimulation to facilitate mathematics lessons?
4. What other observable skills can pre-primary school children develop when the song and storytelling-enhanced stimulation is used?

1.5 Hypotheses

The following hypotheses were developed and evaluated at a significance level of 0.05.

H₀₁: There is no significant main effect of treatment on pre-primary school children's acquisition of:

- (a) Mathematical knowledge
- (b) Communication of mathematical knowledge.

H₀₂: There is no significant main effect of school type on pre-primary school children's acquisition of:

- (a) Mathematical knowledge
- (b) Communication of mathematical knowledge.

H₀₃: There is no significant main effect of language acquisition on pre-primary school children's acquisition of:

- (a) Mathematical knowledge
- (b) Communication of mathematical knowledge.

H₀₄: There are no significant interaction effects of treatment and school type on pre-primary school children's acquisition of:

- (a) Mathematical knowledge
- (b) Communication of mathematical knowledge.

H₀₅: There is no significant interaction effect of treatment and language acquisition on pre-primary school children's acquisition of:

- (a) Mathematical knowledge

(b) Communication of mathematical knowledge.

H06: There are no significant interaction effects of school type and language acquisition on pre-primary school children's acquisition of:

(a) Mathematical knowledge

(b) Communication of mathematical knowledge.

H07: There are no significant interaction effects of treatment, school type and language acquisition on pre-primary school children's acquisition of:

(a) Mathematical knowledge

(b) Communication of mathematical knowledge.

1.6 Scope of the study

This study focuses on acquiring mathematical knowledge and communicating mathematics ideas by children at the preschool level through song and storytelling-enhanced stimulation. The moderator effects of school type and language acquisition of the children on the knowledge and communication of mathematics knowledge and skills were examined. The study covered pupils in pre-primary classes at public and private schools within Ibadan Metropolis, Oyo State. The mathematical concepts taught during the experiments, including numerical counting, writing of numbers, addition of numbers, subtraction of numbers, colours, shapes, and construction of shapes, they were chosen from the pre-primary education curriculum's one-year course of study (NERDC, 2014).

1.7 Significance of the study

The acquisition of mathematical knowledge and communication skills at the preschool level of education would lay a good foundation for children learning in the early stages of life before formal schooling. Children's interest may also be stimulated toward learning mathematics which can sustain their interest in other levels of education. The possibility of raising children who will not only be scoring high marks but have an in-depth understanding of mathematics and will enrol in science/technology-based programmes in post-secondary school will also be created in the preschools.

The findings of this study would be very significant for those involved in schooling; this will enable them to know the extent to which song and storytelling-enhanced stimulation can be used to improve the acquisition of communication of mathematical skill and

knowledge of pre-primary school children. This will serve as a basis for addressing the problem children encounter when learning mathematics if the use of the song and storytelling-enhanced stimulation is proven effective and efficient for developing children's mathematical knowledge and communication skill at the end of the study.

The interest of pre-primary teachers can also be stimulated towards using this enhanced stimulation in making learning child-centred and fun-filled. It is expected that their exposure during the implementation process would lead to a change in the teacher's attitude toward the adoption of the method of teaching to be applied to teaching children. This is because the study will expose preschool teachers to using song and storytelling-enhanced stimulation to enhance children's mathematical knowledge and communication skills. During the implementation stage, the pre-primary teachers will be given a well-prepared instructional guide to assist teachers in knowing how to prepare their lessons using these enhanced stimulations. The study's findings would benefit aspiring teachers because they would realise the importance of using song and storytelling-enhanced stimulation to teach different subjects, but more importantly, mathematics. This would guide their classroom teaching towards using song-enhanced and storytelling-enhanced stimulation and also help them create a child-friendly learning atmosphere using songs and stories. The study's findings will "provide empirical data on the utilisation of song and storytelling stimulation on the acquisition of mathematical skills and communication of mathematical knowledge by pre-primary school children, also how language acquisition and school type influences children's learning of mathematics revealed. The results will contribute to the existing knowledge on the use of this enhanced stimulation in teaching children and also be made available to be consulted by various researchers in the field of education, individuals and organisation, and so on.

The research results would be of immeasurable benefit to the government, researchers, and policymakers in the educational sector as it would reveal the extent to which song and storytelling-enhanced stimulation can be used to develop the mathematical knowledge, communication, and intellectual skills of children. This may arouse the need to encourage education experts to produce storybooks and songbooks geared towards teaching mathematical themes in the curriculum at the preschool level of education.

Society would benefit from the study because when children's mathematical communication skills and knowledge are enhanced, they can organise their ideas and think accurately in other fields of life. Mathematical knowledge and communication skills will contribute to industrial expansion, technological advancement, and economic and social development of the nation. Adequate efforts would be made by the researchers through seminars, conferences, and publications to make available the various findings from the study to pre-primary school teachers to educate them on how to apply these enhanced stimulations to the teaching-learning process.

The researcher would benefit from the result of this research in that the researcher would be able to take a decisive position on the extent to which song and storytelling-enhanced stimulation can be adopted to improve the development of pre-primary school children's knowledge and skills in mathematics in Oyo State. If the findings show a significant improvement, the researcher will have a basis for composing songs and writing stories books for preschool mathematics and making this available to teachers. These could be lifetime activities for the researcher.

1.8 Operational definitions of terms

The following concepts/terms are operationally defined as follows for the purpose of this study.

Pre-school children: These are children below the statutory age of 6 in both public and private schools.

Mathematical knowledge: Refers to the level of understanding children display about mathematic concepts during the research activities. This was measured by their academic performance in the Pre-primary School Children's Mathematical Knowledge Test" (PCMKT).

Communication of mathematical skill: Refers to children's ability to express, describe and discuss their understanding of mathematical ideas and concepts coherently and clearly that reflect step-by-step procedures that lead to a final solution to mathematics problems. This was measured using the Mathematics Communication Skill Rubric for Pre-primary School Children (MCS_RPC).

School type: This refers to the status of a pre-primary school involved in the study in terms of its ownership, that is, whether the government, individuals or corporate/faith based organisation own the schools. It is considered as public and private schools in this study.

Language acquisition: This is the rate at which children use language to express their mathematical knowledge and communication skills, measured on three levels (High, Medium, and low).

Song-enhanced stimulation: This refers to a teaching strategy that is made up of melody, lyrics, dance, gestures, and activities used to improve pre-primary school children's mathematics knowledge and communication of mathematics ideas/knowledge.

Storytelling-enhanced stimulation: This refers to a teaching strategy comprising stories combined with various activities to improve pre-primary school children's mathematics knowledge and communication of mathematics ideas/knowledge.

Research assistants: This refers to both the pre-primary class teachers and the early childhood Masters Graduates involved in the teaching and data collection during the experimental process. The class teacher will help with applying the stimulus-response package, while the early childhood graduates will help with administering the stimulus responses package.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter presents the theoretical background, conceptual review, empirical review and appraisal of literature.

2.1 Theoretical background

This study pines on two educational theories. The first focuses on the Theory of Multiple Intelligences propounded by Howard Gardner in 1983, and the second is on the Experiential Learning Theory propounded by David Kolb (1984).

2.1.1 Theory of multiple intelligences

Howard Gardner first put forth the multiple intelligences (MI) theory in 1983 (Gardner, 2004). The theory states that different people have different learning styles, preferences, and intelligence (eight other intelligences) and that everyone possesses them to vary degrees. The theory of multiple intelligences, first published in his book *Frames of Mind*, states that there are seven different forms of intelligence: verbal, musical, logical-mathematical, spatial, bodily-motor, introspective, and interpersonal.

This was later revised in 1999 in his book *"Intelligence Refactored"*, which added two additional forms of intelligence: natural and existential intelligence. In his last revision in 2004, he proposed two additional bits of intelligence, Mental Projector Intelligence and Laser Intelligence. He notes that each intelligence comprises of sub-intelligences and that various parts of the brain control each intelligence; Gardner reports that “neuroscientists study the nature of the fundamental operations of each intelligence” (Gardner, 2004). Intelligence is interdependent and complementary and can be utilised concurrently to aid children in developing different skills or solving problems at different times. According to the theory of multiple intelligences, human intelligence can be divided into at least eleven categories: language/linguistic intelligence, mathematical/logical intelligence, spatial/visual intelligence, kinesthetic/physical intelligence, musical/rhythmic intelligence, and interpersonal intelligence. (understanding by others)), Introspective Intelligence (self-understanding),

Natural Intelligence, Existential Intelligence, Projective Psychological Intelligence and Laser Intelligence.

1. Linguistic intelligence: The capacity to acquire a language, linguistic awareness, and utilising language to attain particular goals. This intelligence entails the capacity to memorise knowledge through language and the ability to express oneself rhetorically or poetically.

2. Logical-mathematical intelligence: Include the capacity to conduct mathematical operations, make logical analyses and conduct scientific investigations. It also comprises recognising patterns, deductive reasoning, and logical thinking. This intelligence is primarily linked to mathematics and scientific reasoning.

3. Musical intelligence: The skills needed to play, compose, and appreciate musical patterns. It involves recognising and creating musical tones, pitches, and rhythms.

4. Kinesthetic bodily intelligence: Involves having the capacity to employ one's entire body or specific body parts to solve difficulties. It is the ability to use mental abilities to achieve good physical coordination and movement. It allows people to cooperate and get along effectively.

7. Introspective intelligence: Includes understanding a person's character. Man can appreciate his feelings, fears, and motivations.

8. Natural intelligence: Learn to identify and categorise different types of plants, animals, and other natural objects.

9. Existential intelligence: Human intuition and capacity to answer existentially significant concerns, such as what life is all about. What causes death? Where did we come from?

11. Intelligence of mental searchlights: People with high IQ test scores possess "mental searchlights" that allow them to effectively scan large areas, thus allowing them to run society smoothly (Gardner, 2004).

12. Laser intelligence: This intelligence enables humans to produce the "social progress (and disaster)" often associated with the arts, sciences, and business (Gardner, 2004). Children's play through songs and stories can explain their multimodal whole. Engage vocal, physical, language, cognitive, and emotional.

This study is based on a theoretical framework that incorporates Gardner's (2004) theory of multiple intelligences to enhance classroom instruction and the use of aesthetics as a means of providing nurturing and emotionally stimulating learning environments for

students in Mathematics (Sylwester, 1995; Witherell, 2000; Eisner, 2002). This research was conducted within the framework of Gardner's principles of multiple intelligences, as it recognises the responsibility of teachers to consider theory and recognises all different types of intelligence. It also incorporates reinforcement stimuli such as singing and storytelling to help children build math knowledge and communication skills in the situational teaching process. Encourage the development of multiple intelligences and welcome student diversity by using multiple intelligence theory to develop teaching methods tailored to children's learning styles. Gardner's beliefs are based on the fact that children should be offered various educational opportunities and that children's knowledge and skill development should be presented in various ways to reflect the different intelligences and learning styles children learn.

The theory of multiple intelligences provides a strong background for this research, particularly in applying stimuli promoting song and storytelling, which have been shown to enhance various forms of intelligence in children. The depth of the storybook's pictures and information and the range of activities it presents in the story notes allow teachers to meet the needs of all types of learners and all intelligence and make the learning experience relevant for every child. The increased stimulation of songs and storytelling can create and increase the level of children's next form of intelligence (verbal intelligence) in the process of telling and telling mathematical stories as well as singing, which helps to develop children's mathematical communication skills and language in children. (Logic-Math) involves applying songs and stories to solve math problems. (Musical Intelligence) is to learn and sing a math song that helps children learn and memorise various math concepts and achieve better understanding. (Body Kinesthetic Intelligence) uses songs and stories with enhanced stimuli, including the movement of various body parts during activities, to supplement the lesson. Singing-reinforced stimuli can be used to develop verbal intelligence. Speech is one of the skills children benefit from when songs are introduced to enhance stimulation (Cebula, 2003; Orlova, 2003; Read, 2007; and Yuliana, 2003).

According to Yuliana (2003), children try to sing the song after hearing it. This combination makes the song memorable because the words of the chorus are repeated many times and can become part of a child's linguistics as the song is sung. Therefore, the refrain makes it easier for the child to remember the word so that it can be produced or pronounced

without hesitation. In this way, songs can help improve fluency. Students can develop their speaking skills, improve their pronunciation, and increase their linguistic awareness when they use songs to enhance stimulation, using a mix of activities, chants, songs, and rhymes (Klancar, 2006). Songs help strengthen a child's language skills. Children can learn several tenses and grammar concepts through songs (Blodget, 2000; Murphey, 1992; Saricoban and Metin, 2000; Yoo, 2002). Singing and rhyming are great for helping young learners hear the syllables of words and distinguish simple sounds from difficult sounds, such as vowels, consonants or smaller diphthongs (Cebula, 2003; Paquette and Rieg, 2008; Read, 2007).

Bodily-Kinesthetic Intelligence can also be taught to children through the use of enhanced stimuli through the use of songs and storytelling. Children engage in singing and other activities during class that allows them to use different parts of their bodies. The results also suggest that when children sing, they use their communicative musical instincts to seek opportunities to communicate and socialise with adults and/or peers (Malloch and Trevarthen 2009). Children develop auditory skills (hearing), and when they dance, clap and gesture, they exercise both large muscles (gross muscle activity) and small muscles (fine muscle activity). This is necessary for their full development. Children always show interest in activities that require them to use many parts of the body (Akinbote et al., 2001). Storytelling can become an essential activity in schools because it stirs and connects mental, interpersonal, and emotional processes. It benefits from the children's linguistic and cultural assets and advances writing, speaking and reading abilities (Gretsch, 2014; Kirsch, 2014).

2.1.2 Experiential learning theory

David Kolb propounded his learning styles model in 1984. The theory claims that "learning is the process through which knowledge is formed by transforming experience". When children are provided with suitable learning environments and stimulating teaching methods, they acquire knowledge through various learning experiences. Experiential learning brings together observation, creativity and active interactions in the preschool classroom, and learning occurs through learning experiences. Kolb's experiential learning theory works on two levels: The experiential learning cycle and experiential learning styles. The experiential learning cycle has a four-stage process of learning, while the experiential learning styles have four stages of learning styles and both of them are concerned with the learner's internal cognitive process.



Fig. 2.1 **The Experiential Learning Cycle**

An experiential learning cycle is often represented by a four-phase learning cycle in which learners are “hit all the way”. Concrete experience: encountering new experience; reflective observation: new experience and understanding occur. Abstract conceptualisation: modification of existing abstract concepts.

Active Experimentation: Applying experience to life situations. Whatever factors affect a child's learning (social environment, educational experience, or basic cognitive structure), every child has a learning style. The diagram also describes four learning styles: Divergent, Assimilation, Integrative and Inclusive. Divergent (feel and see - CE/RO): Children can see things from different angles. During story time, the children watched the teacher while listening to the class. They can glean information from lessons and use their imaginations to solve problems. They would rather see than do.

Assimilation (Observation and Reflection - AC/OR): Assimilation of learning options is a concise and logical approach. Preschoolers who fall into this category need clear explanations, not real opportunities. They are adept at taking a wide variety of information and organising it into a clear, logical format. Songs and stories can be used to achieve this with learners. Convergent (Doing and Thinking - AC/EA): Convergent learners can find solutions to issues by applying what they have learned to actual issues. Learners with converging learning styles are more likely to find practical uses for ideas and theories. Reinforcing songs and stories also caters to this learning style, as preschoolers can engage in activities while applying these teaching strategies and gaining knowledge.

Adaptive (Do and Feel - CE/AE): The "hands-on" adaptive learning approach depends more on intuition than logic. Learners prefer to follow a practical, experiential strategy. They enjoy new experiences and challenges and see things through to completion. Adaptive (Do and Feel - CE/AE): Adaptive learning styles are "practical" and rely on intuition rather than logic. Learners prefer to follow a hands-on experiential approach.

This study is based on the experiential learning theory because it involves pre-primary school children in an active learning process (to 'do'), reflecting on their knowledge and ability to communicate the knowledge ('think') and participating in their lesson through various activities provided by the teacher ('active experimentation'). The experiential learning theory provides a strong framework for this study, especially in how children learn and comprehend

through the provision of various learning experiences the teacher provides during the lesson. Through song and storytelling enhanced stimulation, teachers can provide children with various activities that suit their needs and interest, considering their different learning styles. Children can also apply the knowledge gained from the lesson when engaging in various activities; they can also reflect on their learning by communicating mathematical knowledge through detailed explanations.

2.2 Conceptual review

2.2.1 Early years and early childhood education

The preschool years are the period where solid foundations are laid in the life of children. According to Mghases and Williams (2016), the aim of this education received is geared toward their holistic development (social, physical, emotional, moral, spiritual, and cognitive). During the early years, children receive care and education from birth to their statutory age of formal schooling. It entails their overall development in every area, such as cognitive, social, spiritual, moral, physical, and emotional (Ojamerruaye, 2010). The child is expected to be provided with adequate care and stimulation at this stage of learning to attain his holistic development.

Early childhood education aims to promote young children's development in various aspects, such as cognitive, social, moral, and physical, among others which help them in their learning (Essay, 2012). With an emphasis on integrating crucial and necessary skills, such as skills in mobility, language/communication, social interaction, reasoning, and numeracy, as well as the development of morality and ethics, development for children in this age group should be the foundation of knowledge across many disciplines (PanidaGutkrung, 2010). Early life is crucial for developing ideas, abilities, and attitudes that lay the groundwork for lifelong learning (Cunha et al. 2006). The period of early childhood is when a child's brain develops at a rate faster than any other stage (Halfon et al. 2001). There is a need to expose children to various forms of stimulation. Heckman (2007) thinks skills development is more accessible in children at an early period because the skills grow along with the development of their brain neurons. Campbell et al., (2001) emphasized that the impact of early childhood schooling on cognitive and affective characteristics is significant, which is important for future academic success.

The National Policy of Education (2013) claims that (2013), ECE is referred to the instruction provided to students before they reach primary school age (6 years). This means that the education given to children at this stage serves as the basis for another level of education. Therefore, this is the right time to expose and help children to acquire all the basic and necessary learning skills, such as language/communication skill, social skill, thinking skill, mathematics skill, reading skills, and so on, which serves as a prerequisite for them to cope in other levels of learning. Children ought to have a solid foundation at the stage of learning so that other levels of education will have a basis to stand firmly on. Early childhood is an important period for children to develop all the essentials core competencies (physical, social, numeracy, literacy) needed for their learning and development (Chambers and Sugden, 2002; Duncan et al., 2007; National Research Council, 2009; Clements and Sarama, 2011).

Early childhood education, according to Akinbote et al. (2001), is a semi-formal educational setting where young children are exposed to play-like activities, usually outside the house (such as "song," demonstration, storytelling, memorisation, and activities-based method) in a group setting starting at about the age of three and continuing until the compulsory age of government-approved schooling. The importance of pre-primary education cannot be overemphasised; preschool period and education are very vital to children, it promotes a smooth transition from home to school, enables the child to have access to relates with children from various ethical background, children's opinion, aware of other feelings), emotionally (have good self-worth and fulfilment and cope with stressful situations) and physically (body coordination and posture, fine motor and gross motor skills). These give room for the holistic development of children in every aspect of life. There are various benefits children enjoy during their preschool years. This includes the development of the brain due to various experiences and stimulation provided by the teacher, physical development due to various body exercises and activities, and social development in interaction and relationship with peers (Olds, 2009; Nancy, 2010).

The development of children is multi-dimensional since no aspect of development is independent of another. Children's holistic development is essential for achieving their full potential. Various studies have shown that the holistic development of children brings about multiple benefits to children, society at large, and the nation. The development (physical,

moral, language, emotional, psychomotor, relational, intellectual, and spiritual) and learning goals (achievement, acquisition of knowledge and development of skills, and change in behaviour) of children are, therefore, multi-dimensional (Essays, 2013). To attain this development, adequate care, nutrition, protection, and stimulation are needed for their learning. To ensure a smooth transition to the formal learning stage by setting the pace for child readiness, the pre-school years are intended to serve the following purposes in children: provide them with comfort and satisfaction, enhance holistic development, promote the acquisition of skills, allow for the identification of learning difficulties, and provide a remedial solution to the identified problems (Al-Otaibi, 2007; Al-Sunbl et al., 2008).

Literature has shown that differences exist between children who were exposed to preschool education and children who were not exposed to preschool education. Osakwe (2009) indicates in the research carried out in Delta State that Nigerian children who had access to early childhood education were better intellectually, socially, and physically than children who had no access to Early Childhood Education. Nafi'u (2016) reported in the research carried out in Kano state that there were variations in the academic results of children who were privileged to attend preschool in the following subjects (Basic Technology, Mathematics, Basic Science, and English Language) than their counterparts who had no access to preschool education.

2.2.2 Characteristics of pre-primary school children

Due to the peculiarity of children, they exhibit some characteristics as regards their age, level, and interest. According to Nedomová (2007), children have a limited attention span; they are unable to pay attention in a lesson for more than 10-20 minutes; after the passage of these minutes, they feel bored and lose interest the lesson. The teacher's expertise needs to come to play by ensuring that the interest and consecration of these children are sustained in the lesson. This can be achieved by applying adequate enhanced stimulation during the lesson. Despite their short attention spans, kids are very patient regarding tactics that involve repeating activities (Slattery and Willis, 2001). According to Setiaryni (2011), children differ in their surroundings, needs, interests, and cognitive development. These variations encourage educators to incorporate fun and interesting activities into teaching and learning processes for young learners.

Children have various forms of characteristics due to their nature and peculiarities. Children at the preschool level of education are in their critical period of brain development and formation; they are full of life and actively participate in every learning activity that suits their learning experiences and interest because they have short attention spans (Curtain and Dahlberg, 2009). It is expected of the teacher to make the classroom environment child-centred. The teacher is expected to consider the nature of children while employing any form of teaching method which will make learning suitable to learners and interests. Some of the pre-primary school children's characteristics include: little attention span, are very active and inquisitive, learn through fun, require interaction and participation in learning activities, love to be fully involved in their learning, mostly rely on speaking, experience rapid growth of development and acquire language acquisition at various pace, learn in different ways: by watching, listening, singing, imitating, hand-on activities, practice what they see, imitate what they hear, learn and think in their mother tongue, love emphases of words and repetition of activities by their teachers (Slattery and Willis 2001; Scott and Ytreberg, 2010; Farwaniya 2010). The teacher must consider these various characteristics of children when planning his lesson with respect to the various activities and learning tasks and the method of instruction to be employed.

In dealing with children concerning their characteristics, “song and storytelling-enhanced stimulation have a great tendency to consider children’s nature, need and interest when employed by the teacher. Learning takes in children in various ways, including play, song, drama, storytelling, experiment, discovery, and inquiry (Akinbote et al. 2001). These authors recognise song and storytelling as suitably enhanced stimulation appropriate for learning at this level of education. The ability of the teacher to create a learning environment for children to express themselves through physical demonstration during song and storytelling activities, children can positively express their emotions, learning is fun, retention of the lesson is granted, and listening skills are enhanced. Early childhood education should give kids regular learning opportunities; play will help them develop in various ways. Additionally, young students are constantly eager to hear stories and naturally desire to comprehend the plot and delight in perusing and reading children's books, which fuels their desire to learn the meaning of new words (Rokhayani 2010)

Various learning experiences and stimulating environments should be created for children to learn. Pre-primary kids need proper outlets to channel their energy, which they typically do positively and creatively. Pre-primary school students are very spirited, emotional, and feeling; this is why a teacher should employ song and storytelling-enhanced stimulation to make them active participants in the lesson and not passive (Poddiakov, 2011). The peculiarity of children's nature should be one of the determinants of the choice of stimulation, learning style, and learning materials to be adopted by the teacher to meet the child's needs and interests. The goal of preschool education is to support each child's individual development at their rate, whether intellectual, moral, social, emotional, spiritual, or physical. Therefore, the teachers must use different stimulation to enhance learning; the stimulation may be in the form of different activities, such as song, storytelling, play, games, discussion, etc. Children are expected to learn in a fun-fair atmosphere. The teacher needs to employ various forms of stimulation to provide children with a friendly environment (National Policy of Education, 2013).

Slattery and Willis (2001) indicates that children like singing and performing. Through song, children can repeat the words as they do the actions when they are speaking with the teacher, which helps build confidence and a feeling of achievement. They respond best to tasks and lessons relevant to their experiences and areas of interest. According to Erickson (2001), the application of arts (song and storytelling) in children's learning can be used to achieve the following: (a) transform learning environments; (b) promote active participation, (c) increase the communication rates among children (d) used to make learning easy, (e) gives room for deep learning. (f) higher levels of thinking are created as children connect with the knowledge gained in the lesson, and (g) apply knowledge gained to real-life situations. Teaching storytelling (2007), children love learning through stories. This is demonstrated in their disposition to assume characters from the stories they hear and re-enact scenes that capture their imaginations.

2.2.3 Reasons for developing mathematical knowledge and communication of math knowledge at the pre-primary level of education

The early years period provides pre-primary school children with quality learning experiences in all areas. Exposing pre-primary school children to learning through fun-filled

activities enables them to gain adequate foundational Mathematics skills applied to another level of education. Studies have shown that early mathematics proficiency in children before formal schooling varies greatly (Aubrey et al. 2006). The learning period needs to be utilised appropriately to ensure that the best foundation is laid. Exposing pre-primary school children to early mathematical knowledge allows them to relate the knowledge to their daily lives and have a better understanding as they go higher in learning (Williams, 2008). There is a long-term benefit for pre-primary school children when they develop adequate mathematical knowledge and communication skills at this level of education (Albert Shanker Institute, 2009; Brenneman, 2009). Pre-primary school children's math competencies are at a higher rate in learning. In line with this, Duncan (2007) shows a significant correlation between early intellectual prowess and later academic success. These results show statistically significant correlations between early mathematics knowledge and skills related to their performance in math skills assessments.

Acquiring adequate mathematical knowledge and communication skills at the foundational level is essential to kids' long-term growth and academic results (Clements and Sarama, 2013). Pre-primary school students' growth in mathematical communication abilities is a determinant for them in other subject areas (Schoenfeld, 2016). Different levels of education build on the early years of learning, so developing early mathematics knowledge and communication skills in pre-primary school children predicts later Mathematics learning and their academic performance (Carmichael et al. 2013; Duncan et al. 2007). The results from a meta-analysis of six longitudinal studies by Duncan et al. (2007) reflected that the acquisition of preschool mathematical knowledge and skills was the strongest predictive power to their academic performance in other subject areas. Results from another study by Jordan et al. (2009) on monitoring children's academic performance in mathematics between first and third grade show that early mathematical learning affected their learning in later school years. Other research findings reveal that acquiring mathematical knowledge and skills at the preschool level of education is a determinant for later Mathematical learning (Aunola et al. 2004; Toll et al. 2011).

A large body of evidence shows that despite controlling some factors such as (family characteristics, early Intelligent Quotient, reading achievement, and so on) the result of the study demonstrates a substantial correlation between pre-primary school children's

mathematics performance and their foundational knowledge in Mathematics (Sarama et al. 2012; Geary et al. 2013). The benefits of early years learning are the eradication of the performance gap between students from different socio-economic backgrounds and also serves as predictive for children's performance in mathematics (Clements et al. 2013). Children's math performance in pre-primary school significantly affects how they do in other subjects at higher education levels (Jordan et al., 2007). The foundational knowledge of preschool children and the acquisition of mathematical skills are the strongest predictor of their performance in both the English Language and Mathematics at other levels of education (Clements and Sarama, 2014, Duncan and Magnuson, 2011).

Mathematics enables children to manage their lives through problem-solving, communication, and creativity; mathematics is a crucial education component. Therefore, it is crucial that children receive a high-quality mathematics education to develop their mathematical thinking and problem-solving skills (NCTM, 1989; National Research Council, 1989). The development of Mathematical knowledge and skills in children at the early stage of learning is essential since it serves as the foundation for learning in the field. The knowledge of mathematics and skills enhances the development of an analytic mind and assists in better organisation of ideas and accurate expression of thoughts (Roohi, 2014). Daily life's problems can be solved by applying mathematical knowledge and knowledge.

Salami (2015) submitted that today's demand requires the application of Mathematics knowledge and skills and/or technology in every field of life since almost all kinds of jobs have been computerised. For anyone to function effectively in society at large, mathematical knowledge and the application of mathematical skills to solve, daily challenges are essential. Education in mathematics is to a country what protein is to a developing human body. As an essential instrument for comprehending and using science and technology, the foundation of scientific and technological knowledge, which is crucial for the nation's social and economic progress, is seen by society as mathematics. Every field of human activity needs mathematics, which plays a crucial role in science and technology because of this, primary and secondary school students must take mathematics in Nigeria (Akinsola et al., 2007).

Mathematics sets the pace for science and is an indispensable tool without which science cannot advance much. The levels of mathematics advancement predominate for any nation's science and technological components (Kurumeh and Chainson, 2012). The extent to

which a nation can attain its set objectives towards technology and industrial development is based on the level of mathematical skills and knowledge its learners acquire. Mathematics serves as a connecting link between science and technology for the advancement of a nation's development. To achieve the nation's technological and industrial development objectives, mathematical knowledge needs to be developed and mathematical skills must be acquired (Alutu and Eraikhuemen, 2004). The application of mathematical knowledge and skills is an essential tool needed for industrial expansion, technological advancement, and economic and social development of the nation. Mathematics plays a predominant and unique role in human life, as it enables man to give the actual interpretation of all his ideas. The application of mathematical skills and knowledge acquired by humans enables him to develop problem-solving skills and logical thinking, which are applied to solve his challenges and meet his daily needs.

2.2.4 Mathematical knowledge

Mathematical knowledge includes the knowledge, abilities, attitudes, and behaviours required to utilise mathematics in various contexts (ACARA 2013). The acquisition of mathematical knowledge is essential for pre-primary school children. Mathematical knowledge is also a key competency for effective and successful involvement in industrialised economics, social and economic life (OECD 2013). Pre-primary school kids must be provided with basic mathematical knowledge in counting, measurements, sequences, time, and arithmetic, among others. Korthhagen et al. (2001) outline four pairs of principles that can be used in teaching mathematics geared towards the increase of academic performance; these principles are: to build and concretise levels and models, reflection and production, and social context and interaction as the final principles. These principles are geared towards making learners fully involved in learning and acquiring mathematical knowledge. The purpose of teaching mathematics is to foster in students a greater sense of independence, critical thinking, and understanding of mathematics and then apply the mathematical knowledge acquired at various stages of learning and in meeting the demands of daily lives (Halai, 1998). The mathematical knowledge gained by pre-primary school children at this level forms the basis for other stages of learning.

Mathematics is an indispensable subject that children need to acquire basic knowledge and understanding early to prepare them for other levels of learning. The NCTM (1989) suggests that the goals of mathematics education for all students should be: learning to appreciate mathematics, gaining self-assurance in one's abilities, developing mathematical problem-solving skills, learning to speak mathematically, and developing mathematical reasoning to achieve the goal of improving children's mathematical knowledge and ability. These objectives can be met in students if the teacher uses the proper pedagogy suitable for students at different levels of education. This will spark their interest, boost their self-esteem, encourage the development of their problem-solving abilities, and increase their mathematical knowledge. Since it incorporates various educational goals, song and storytelling-enhanced stimulation can be used to accomplish these objectives with pre-primary school pupils.

The ability to use mathematics in various contexts is part of what is referred to as mathematical knowledge (ACARA, 2013). Additionally, proficiency in mathematics is a prerequisite for successful participation in society and the economy of advanced economies (OECD, 2013). According to Australia's Office of the Chief Scientist, the world is becoming increasingly dependent on knowledge in these fields. These fields are a crucial foundation for the future of innovative economies. "Part of the essential path to a future that is broadly socially, culturally, and economically prosperous" are mathematics, engineering, and science (Office of the Chief Scientist, 2012).

Despite the need for children to acquire mathematical knowledge, there is evidence that shows that children lack mathematical knowledge. This is supported by the results presented by the Education Sector Support Programme in Nigeria (ESSPIN, 2016) during the Monitoring of Learning Achievements (MLA) for primary four and six, the FME Primary 4 (MLA) Numeracy Mean Scores. The details reveal that primary four children have the highest national mean score in the year 2003 (43.8%) and 2011 (36.3%) is higher than 1996 (32.2%). Primary 4 children have the highest mean score for girls in the year 2011 (37%), and 2003 (33.7%) is higher than 1996 (31.9%). Children have the highest mean score for boys in the years 2011 (37%) and 2003 (33.5%), higher than (32.4%). Primary four children in urban have the highest mean score in the year 2011 (38.3%), while 1996 (35%) is higher than 2003 (34.3%). Primary four children in rural have the highest mean score in the year 2011 (36.3%),

while 2003 (35.2%) is higher than 1996 (30.3%). Primary four children in public schools have the highest mean score in the year 2011 (39.8%), while 2003 (30.6%) is higher than 1996 (30.1%). Primary four children in private schools have the highest mean score in the year 1996 (43.1%), while 2003 (43.1%) is higher than 2011 (36.3%). Primary four children that attended nursery had higher mean scores in 2003 (36.9%) than in 2011 (33.2%), while 1996 is unavailable. Primary four children that did not attend the nursery have a higher mean score in 2003 (33.3%) than in 2011 (32.3%), while 1996 is unavailable. The information is further explained with the line graphs below.

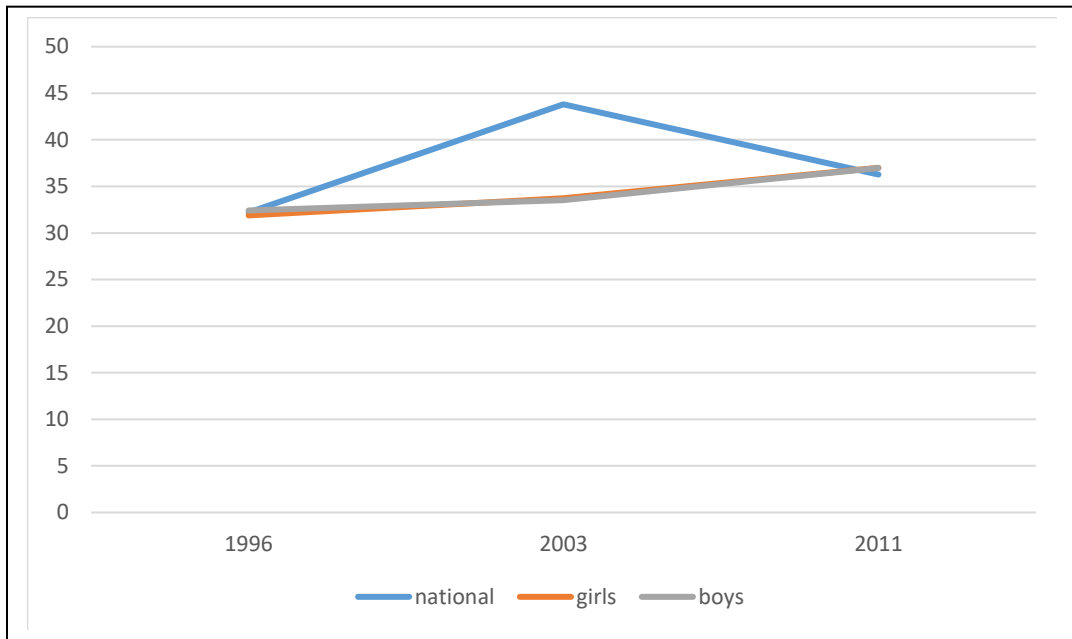


Fig 2.2 Primary 4 children’s performance in numeracy according to gender in the year 1996, 2003 and 2011

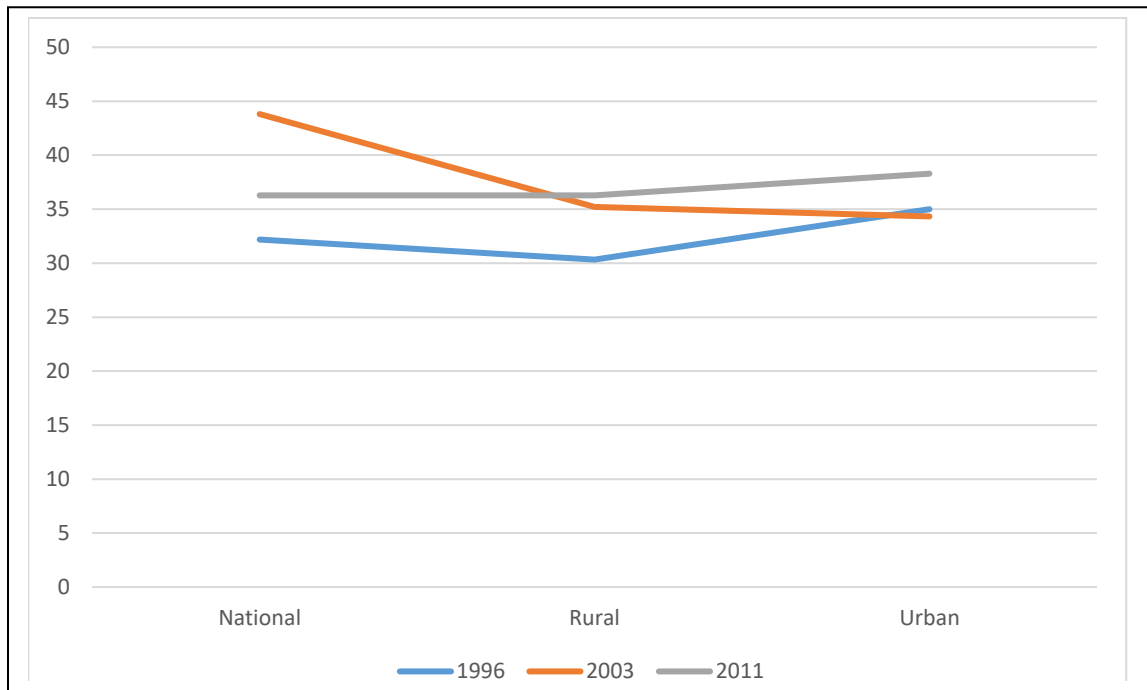


Fig 2.3 primary 4 children’s numeracy performance according to location in the year 1996, 2003 and 2011

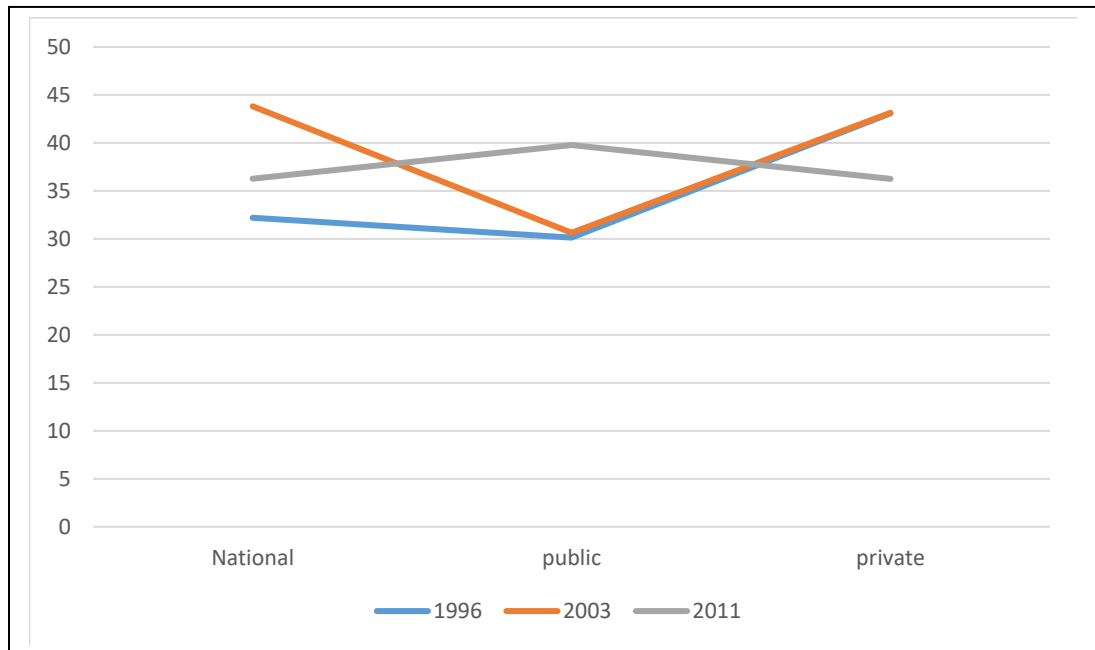


Fig 2.4 primary 4 children's numeracy performance according to school type in the year 1996, 2003 and 2011

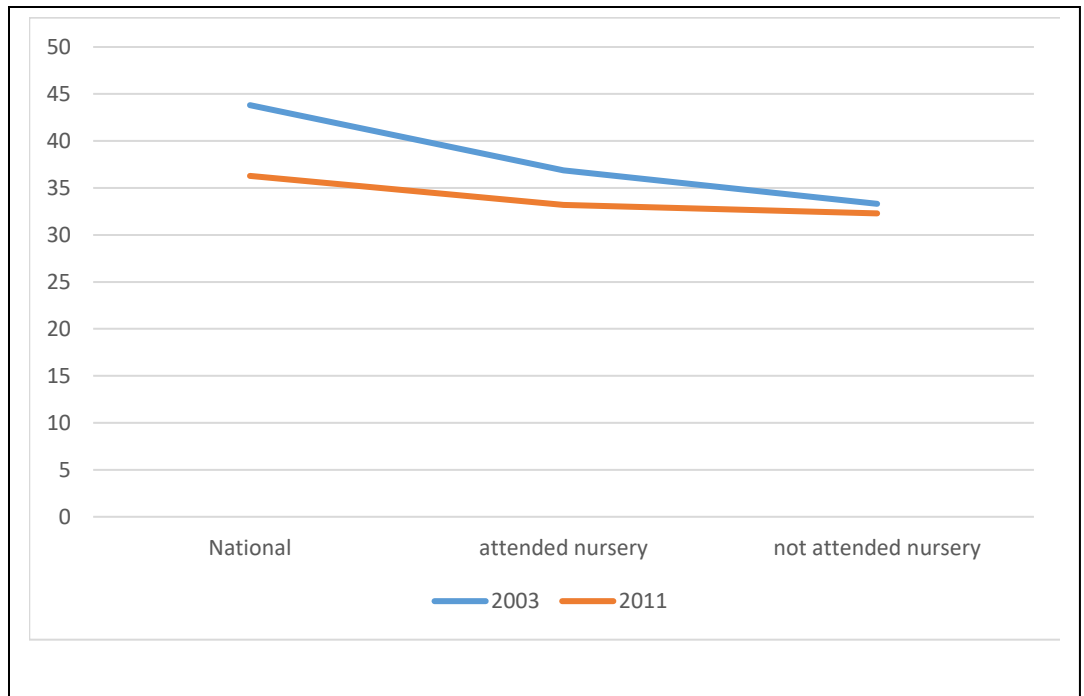


Fig 2.5 Primary 4 children's numeracy performance among those who did not attend nursery school within the year 2003 and 2011

The FME Primary 6 (MLA) Numeracy Mean Scores. The details reveal that primary 6 pupils have higher national mean score in the year 2003 (35.7%) than 2011 (31.2%). Primary 6 pupils have higher mean score girls in the year 2003 (35.3%) while 2011 is not available. Primary 6 pupils have higher mean score boys in the year 2003 (35.6%) while 2011 is not available. Primary 6 pupils in urban have higher mean score in the year 2003 (37.23%) than 2003 (34.5%). Primary 6 pupils in rural have higher mean score in the year 2003 (33.5%) than 2011 (32.29%). Primary 6 pupils in public schools have higher mean score in the year 2011 (35.8%) than 2003 (35.61%). Primary 6 pupils in private schools have higher mean score in the year 2003 (40.4%) than 2011 (32.8%). Primary 6 pupils that attended nursery have higher mean score in 2003 (40.1%) than 2011 (33.2%). Primary 6 pupils that did not attend nursery have higher mean score in 2003(34.9%) than 2011 (32.3%). The information is further explained with the line graph in fig 2.3 above.

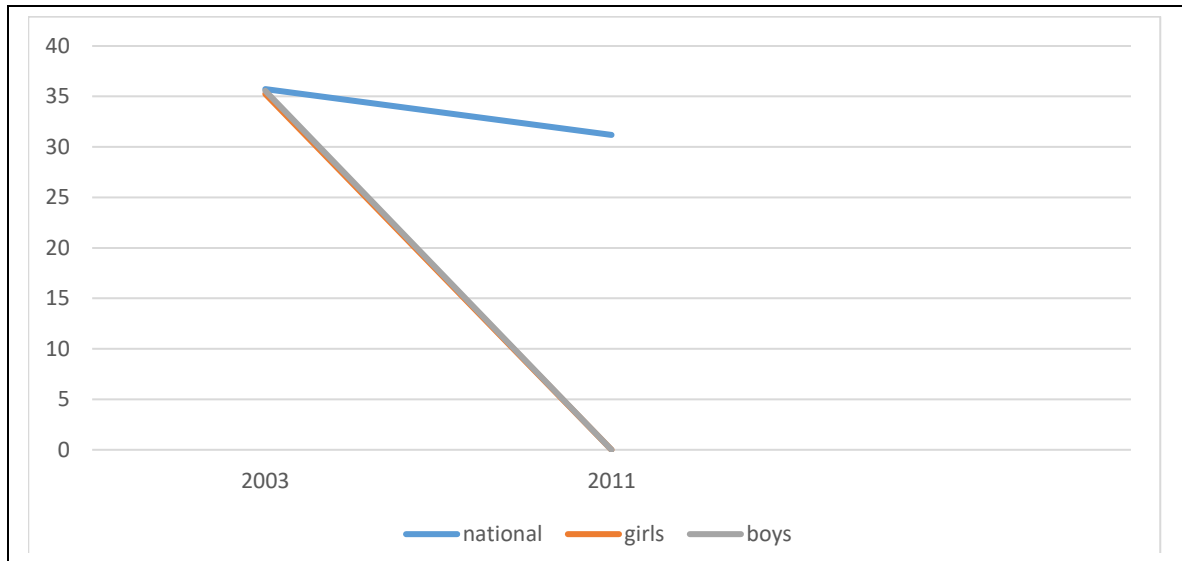


Fig 2.6 Primary 6 children's performance in numeracy according to gender in the year 2003 and 2011

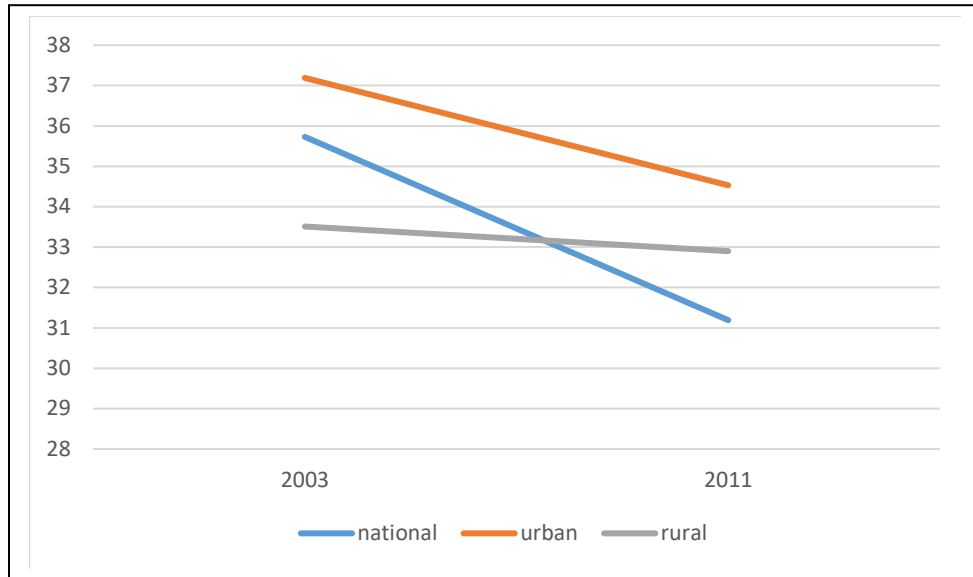


Fig 2.7 Primary 6 children's performance in numeracy according to school location in the year 2003 and 2011

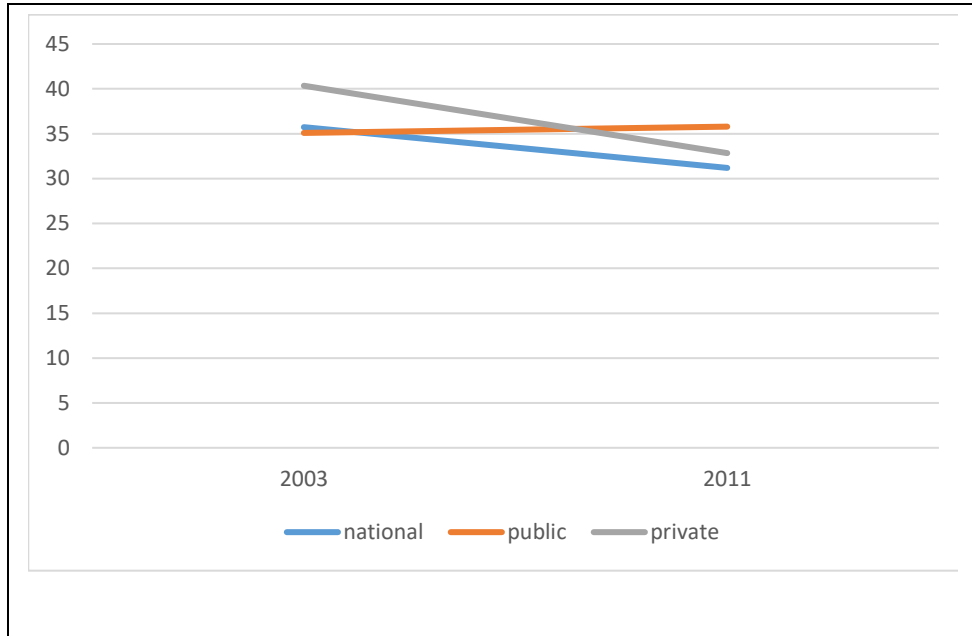


Fig 2.8 Primary 6 children's performance in numeracy according to school type in the year 2003 and 2011

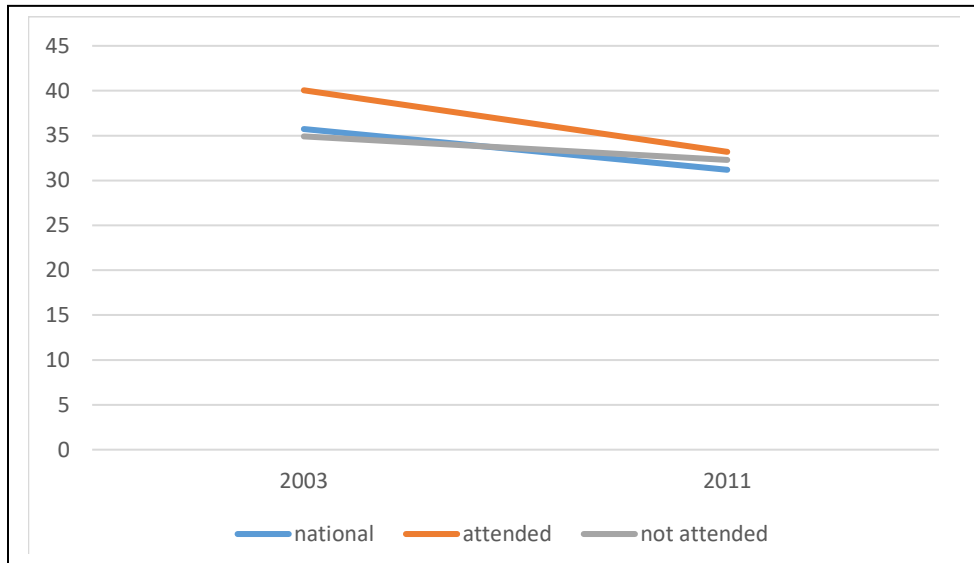


Fig 2.9 Primary 6 children's numeracy performance among those who did not attend nursery school within the year 2003 and 2011

2.5 Communication of Mathematical Knowledge

The level of children acquisition of mathematical communication skill can be reflected in their ability in the use of mathematical language in oral, written, or visual form when communicating mathematics ideas (Kennedy and Tipps, 1994). Children should be able to explain the principles behind the mathematical concepts learnt using Mathematics based language on their level of understanding (NCTM, 2000). Nartani et al., (2015) the acquisition of Mathematics communication skills in children can be indicated by: their ability to express ideas with Mathematics verbally in a sentence, active involvement of children during the lesson and being able to explain Mathematics tasks based on their understanding of the concepts.

Communication of mathematical skills enables children to reflect upon, and clarify their ideas, their understanding of mathematical concepts and explanation (Ministry of Education, 2005). **It is essential that children are able to communicate mathematically, and involving them in learning processes helps to develop their understanding and also give the opportunity to express their reasoning by explaining or speaking aloud, particularly when they are expected to analyze the answer to a particular task (Amanda, 2006).** When children are able to communicate their understanding of mathematical concepts to their teachers and peers, children retain 90% of what they say and do as they engage in discussions (Ezrailson et al., 2006). According to the Ontario Mathematics Curriculum (2005), “Mathematical ideas and comprehension are expressed orally, graphically, and in writing through the use of numbers, symbols, drawings, graphs, diagrams, and phrases”. The acquisition of mathematical communication skills enables children to gain conceptual understandings of mathematics (Marylina, 2010).

In examining the acquisition of communication of mathematical skills in primary grade children, Joy et al (2002), noted that children were able to acquire communication of mathematical skills through active participation in the lesson. The learning atmosphere enables children to justify their thinking of mathematical ideas on how they derived at their final answer. When the teacher aim at developing communication of mathematical skills in children, children thoughts are changed from derivation of final answers but explanation of step by steps on how they derived at their final answer. Instead of encouraging children to give just the final answers, they should be provided more chances to express their creativity

in ideas and thoughts that deepen their comprehension of mathematical ideas and procedures. Small (2013), a researcher in the area of mathematics in kindergarten to grade 12, noted that teachers are able to make proper assessment of children knowledge of mathematics through communication of mathematical skills (communication skills can be reflected through their interaction through their peers or teachers).

2.2.6 Causes of athenatical failure

There are various reasons why children have challenges with learning Mathematics as a subject. Studies reveal that children are experiencing a challenge in learning mathematics at the primary and other levels of education; this is due to a gap created for children in learning at the preschool level of education since other levels of education depend on it (Tulia, 2013). Several problems have also been identified as causes of failure for children in Mathematics. Literatureshows that low mathematical skills and knowledge are caused by the situation and context, the nature of instructional strategies adopted, limited resources and so on (Dowker, 2004). Pupils' poor performance in mathematics and lack of skills is a result of the following; lack of a stimulating learning environment, instructional strategies adopted which are teacher related, the wide gap created in mathematical learning at the foundational level and so forth (Tulia, 2013). Most of the causes of Mathematics difficulties experienced by children at primary school can be properly looked into and reduced to a minimum or eradicated at the foundational level if adequate attention is paid to teaching and learning processes.

Traditional instructional methods, such as textbooks and only using paper and pencil to solve problems, are insufficient to help them understand and remember mathematical concepts. "The textbook explanation does not correspond to the auditory or kinesthetic learner's learning style," Gardner writes (2004). Alternative instructional methods and learning strategies are required to enhance the learning of pupils who have struggled with past teaching strategies. Several factors have been identified by Van Kraayenoord and Elkins (1998) and Brown et al. (1999) as contributing to poor mathematics performance, including the whole-class teaching approach, the failure to apply mathematics-related information, language, a lack of flexibility, beliefs, and the calibre of educator-student interaction. Pupils are typically taught more mathematically and linguistically, ignoring other types of intelligence in which they may excel (Ozdemir et al. 2006).

The conventional instructional strategies also consist of assigning a given task to everyone in the classroom at once to solve, teaching from the textbook, ensuring that children follow a particular pattern to solve Mathematical problems and neglecting conceptual understanding of mathematics. These have contributed to poor performance of children in mathematics, lack of communication of mathematical skills and understanding, lack of interest, and lack of in-depth knowledge of mathematics at the foundational level of education (Furner and Berman, 2005; TIMSS, 2003). Pre-primary school children learn appropriately when fully involved in their learning, and the learning situation suits their interests and needs. The traditional method of instruction is less efficient in giving children a proper and in-depth understanding of mathematics because it does not take care of their needs and interests collectively. Adopting adequate stimulation and discoveries instructional strategy during lessons enables the children to acquire conceptual mathematical skills and proper understanding (Vinner, 1997; NCTM, 2006). The performance of children in Mathematics calls for urgent attention.

Improved mathematics instruction methods, curricula, and materials are required for low-performing students with and without disabilities (Witzel, 2007). However, researchers have long been concerned about how mathematics is taught in schools and its applicability to everyday life. For instance, Boaler (2009) points out that the way mathematics is taught in schools does not accurately reflect how mathematics actually is. As a result, a more comprehensive view of mathematics as it is used in daily life should be presented to the general public.

This research is part of a body of work that contends that math educators need to adopt and create a more thorough and connected curriculum (Kjellstrom et al., 2012). As a result of the emphasis placed heavily on preparing students for high stakes, standards-based tests, the arts have suffered in the K–12 curriculum. Only subjects like math and language arts that have undergone rigorous state or national evaluation are given priority in the curriculum (Oelkers and Klee, 2007). The present study reveals that primary pupils can learn mathematics using music as a setting and educational resource. The current study's findings offer suggestions for the potential focus of future educational research advancing this line of investigation. The traditional instructional strategies and curricula used to teach pupils mathematics in the United States have a number of flaws, according to researchers studying

mathematics pedagogy, including the fact that most pupils there exhibit low math achievement and frequently experience anxiety related to math (Furner and Berman, 2005 and Scott, 2005).

This research is part of a body of work arguing that mathematics educators need to embrace and create more comprehensive and connected curricula (Kjellstrom et al., 2012). With a heavy emphasis on preparing students for high-stakes, standards-based tests, the arts suffered in the K-12 curriculum. Only subjects such as mathematics and language arts that have passed rigorous state or national assessments are given priority in the curriculum (Oelkers and Klee, 2007). According to recent studies, elementary school students can be taught mathematics using music as a setting and educational resource. This study's findings indicate the potential scope for future educational research to advance this research direction. Researchers studying mathematics pedagogy have identified many shortcomings in traditional teaching methods and curricula used to teach mathematics to students in the United States, including that students generally show lower mathematics scores while frequently experiencing mathematics-related anxiety (Furner and Berman, 2005; Scott, 2005).

The current study proves that music can be utilised as a teaching tool and environment for elementary students learning mathematics. The current study's findings offer recommendations for the potential scope of subsequent educational research that advances this study area. The conventional teaching strategies and materials in use in the United States for mathematics education have a number of drawbacks, according to researchers studying mathematics pedagogy, including the fact that students frequently experience anxiety related to mathematics while generally achieving poorly in mathematics (Furner and Berman, 2005).

2.2.7 The Place of teacher in pre-primary school children's acquisition of mathematical knowledge and communication skills

The preschool year is when children acquire basic mathematical skills and knowledge proficiency, which continues over the years in an educational setting. This implies that caregivers and teachers working with children at this stage of learning need to develop and apply instructional strategies that will give children a good Mathematics learning experience (National Council for Curriculum Assessment, 2014). Clements et al., (2013) states that

Early Childhood Mathematics Education has major interrelated goals for preschool mathematics. The first is content-related goals, which are geared towards children's gaining a mathematical understanding and thinking. The second goal is about children's Mathematics learning experiences. For these goals to be achieved, the teacher needs to plan his lesson adequately towards these goals and ensure that adequate enhanced stimulation is adopted to meet the children's learning needs.

Early childhood education teachers need to be equipped with adequate knowledge and teaching skills in mathematics, children's nature as regards their needs, ability and interest and knowledge about developmentally appropriate strategies of teaching Mathematics instruction to children if children will get the best out of learning (Baroody, 2003; Clements, 2004). Teachers play an essential role in Children's Learning of Mathematics in the preschool setting. However, these roles can only be effective and efficient if they possess adequate knowledge of developmentally appropriate teaching methods (Copley, 2010; Copple and Bredekamp, 2009). Williams, (2008) argues that effective early year's education requires a mathematical pedagogy that assists kids in gaining new abilities, deepening their grasp of ideas and processes, and employing, consolidating, and refining those skills and understanding. The Professional Standards for Teaching Mathematics emphasises that teachers need to change from an inappropriate approach to teaching mathematics to an appropriate approach, which is a child-centred approach to teaching Mathematics (Van de Walle, 2007).

Williams, (2008) recommended that practitioners working with children at the foundation stage need specialised skills and preparation to ensure that children receive high-quality mathematical instruction by implementing the appropriate instructional strategies. These specialized abilities and training for practitioners include:

- Practitioner enthusiasm for, confidence in, and understanding of mathematics;
- Capability to impart information and skills in mathematics in meaningful circumstances;
- Application of mathematics to everyday tasks and play, where kids use their knowledge, abilities, and understanding.
- Opportunities to explore reasoning, open-ended conversations of solutions, and mathematical calculations.
- A variety of mathematical experiences;

- A comprehension of the connections in mathematics;

For teachers, caregivers, and child educators to properly understand and acquire skills in mathematics, preschool education researchers have raised awareness of the need to create effective teaching strategies. (Clements and Sarama, 2004; Pound and Lee, 2011). The guidelines laid down for educators by (NAEYC/NCTM, 2002/2010) and AAMT/ECA (2006) outline that, for proper early mathematics learning to be meaningful to children, teachers need to adopt a variety of approaches and stimulations to support their teaching. The teacher is seen as an important factor in the child's learning. The enabling learning environment provided by the teacher and various activities allows the children to have good learning experiences (Pound, 1999). Creating a stimulating learning environment is necessary for pre-primary school children to enjoy learning (Moroye, 2009).

Teachers need adequate preparation in planning their lessons to suit the application of various instructional strategies and also be able to create a stimulating learning environment that encourages children to learn (Fu, 2010). Children must be taught mathematics using fun-fill activities to have meaningful learning experiences. Song and storytelling-enhanced stimulation can serve the purpose since it allows children to be actively involved in their learning. Teachers are expected to adopt appropriate and suitable strategies to expose children to new skills, develop their knowledge of concepts and processes, and consolidate and refine skills and knowledge (Williams, 2008). Children with inadequate Mathematical knowledge at the preschool level may struggle to cope at primary school and beyond.

Literature shows that children are experiencing difficulties in learning Mathematics. This shows in their approach to learning the subject and a reduction in their performance in Mathematics in various countries of the world (Mwinshekke, 2003; Ma and Kishor, 2003 2010; Rikhotso, 2015). There is a need to ensure that this problem is tackled and resolved so that it does not pose hindrances to their learning since other levels of education depend on this level.

2.2.8 Song-enhanced stimulation

Song-enhanced stimulation is an effective instructional strategy **that cheer up** a classroom and stimulates pre-primary school children learning in a fun-fill manner. Creating a positive and enjoyable atmosphere helps children develop a feeling of involvement and

learning value since they are part of their learning. The song's lyrics and tunes help children recall lessons they had been taught, which enhances their performance (Binkiewicz, 2006). One advantage of using song-enhanced stimulation in preschool classrooms is the flexibility the lesson takes (Millington, 2011). Song-enhanced stimulation offers an excellent opportunity to help children change their classroom routine because the repetition of particular methods makes the lesson boring and lacks fun (Ara, 2009). Song-enhanced stimulation can be applied in a lesson to give students a purposeful break, "refresh their minds, and unleash their creativity" (Shen, 2009). Song-enhanced stimulation allows children to collaborate, feel at ease, and gain more confidence, which "may result in higher involvement and language development." It can be a fantastic opportunity for reducing children's nervousness (Crandall, 2007). Song-enhanced stimulation can sustain children's interest in the lesson by creating an opportunity to participate in the lesson and activities actively. The application of song-enhanced stimulation enables the teacher to incorporate children's passion and natural energy into instructive activities (Ara, 2009).

Various forms of development take place in the child as a result of the use of song-enhanced stimulation. For physical development, in the course of singing: the mouth and tongue muscles are strengthened during repetition and pronunciation of different sounds and words in the song, as body coordination, muscularity and posture in the course of demonstrating the song. For social/emotional development: children develop their imaginative sense, express themselves, and sense of humour; clapping and singing songs with other children form a bond between the children and teacher. For cognitive development, music-enhanced stimulation helps children learn easily and recall and memorise lesson. Nursery rhymes and song use patterns and sequences; this enables children to begin to learn simple mathematics skills such as (numbers, counting and mathematical concept). Language development: this takes place during the singing of the song, answering questions by the teacher and asking the teacher question in the classroom; children can form sentences, increasing their vocabulary. When children listen to songs, they can hear the sounds of vowels and consonants, which help them form words. (Kenney, 2005; Monro, 2010).

Song-enhanced stimulation helps to create a warm learning atmosphere for children as it gives room for fun-filled activities and provides opportunities for active involvement of

children through singing, body movement, keen attention, communication and practical performance. Song-enhanced stimulation is an effective way to ensure that children benefit in various aspects of development (Kenny, 2005; Monro, 2010). Children derive various benefits from using songs as an enhanced stimulation in terms of development and learning (Monro, 2010). Songs positively influence children's brain growth and bodily system for physical development. It can be used to reduce stress, calm the learning atmosphere and makes it a more relaxing and comfortable classroom environment by altering the mood of the children from a dull mood or passive one; it enhances the function of the immune system and also helps in the body heart rate and blood pressure while improving blood flow (Hirsh 2004). For emotional and social benefits, it can accelerate children's sensitivity and create bonds and feelings for participating in a learning group (Paquette and Rieg 2008). "For intellectual development, song-enhanced stimulation helps children to expand their attention span and memory." Song and movement are considered "brilliant neurological exercises" that support intellectual development (Hirsh 2004).

It has been reported that song-enhanced stimulation is appropriate for pre-primary school children learning and understanding; it helps in making learning easy and fun full activities, creates a relaxing learning environment, arouses their interest, aids the retention and attention of children (Schoepp, 2001; Salcedo, 2002; Rosová, 2007; Sigurðardóttir 2012). In the process of using song-enhanced stimulation, children are involved in the form of play through various activities that accomplish the song, which promotes children's learning, strengthens the child's emotion, intellectual, physical, and social skills in ways that go beyond what can be learned in a traditional classroom setting (Kendrick, 2005; Sevinc, 2004). Children, by nature, love to sing, which accounts for their physical, linguistic, cognitive, social, intellectual and emotional development since song accompanies various activities (Niland, 2005). The choice of song selection has to be suitable for the children's level of cognition, and be in line with their interest, need and social context. When song-enhanced stimulation is employed in the learning process, the melody, activities and rhythmic presentation of the song aid children's memory, especially when the lyrics are meaningful to the subject matter (Salcedo, 2002; Laura and Laura, 2016). The research study shows the positive effects of song-enhanced stimulation on the brain activities of children (Zhang et al., 2011).

Over the past several decades, research programs have linked singing for active participation to cognitive growth and academic skills, including improved long-term memory, language and communication, mathematics and reading skills, creative thinking skill and writing fluency (Geist and Geist, 2008). All of these skills start to develop in the first few years of everyone's life, which is known as infancy and begins at birth all of these skills start to develop in the first few years of everyone's life, which is known as infancy and begins at birth (or, as some researchers advocate, from the moment of conception) to 6-8 years. Song-enhanced stimulation is a highly social, natural, and developmentally appropriate form of stimulation that engages young children in learning. Since one of the primary needs of preschoolers is nurturing environment that helps stimulate memory, attention, language skills, gross and fine motor skills, social and communication skills, and improved performance in mathematics and reading (Du Sautoy, 2004; Henriksson-Macaulay, 2014).

Song-enhanced stimuli can also be a source of human emotional experience; thus, “from a psychological perspective, emotions are complex responses to events of personal importance that involve cognitive appraisal” (Clarke et al., 2010) and may influence children’s attitudes towards learning. Song-enhanced stimulation is a medium through which children can pick up new information in an enjoyable way, and they can also serve as mnemonic tools to help others remember what they have learned (Hare and Smallwood, 2002). There is a connection between brain functioning and song-enhanced stimulation. This will enable pre-primary school children to acquire mathematics knowledge. According to Linder et al. (2011), the use of song-enhanced stimulation is viable in supporting the development of mathematical knowledge in children from infancy to 5 years old since the melody and the rhythmic patterns can be accomplished with an activity (Zentner and Eerola, 2010). The adoption of song-enhanced instructional helps children acquire mathematical knowledge when singing and involving in different activities alongside the song in a playful manner. Children learn to notice patterns through song, which encourages mathematics learning even when unaware (Awopetu, 2016). Children acquire mathematical knowledge in a fun-filled manner, which can arouse their interest towards mathematics as a subject.

Children’s involvement in the song gives room for them to sing and demonstrate the song, relate with the teacher and peers, acquire language and communication skills, memorise and recall the song, and learn in a relaxed atmosphere. Read (2007) submitted that

song-enhanced stimulation could be employed in the lesson differently depending on how the teacher planned his lessons. It can be used at the lesson's beginning, during, or at the end. It can also be utilised to advance the knowledge and skills of children in various curriculum areas and subjects. Song-enhanced stimulation is seen an effective strategy for children learning since it can be employed to meet the various needs of children and be introduced at any time in the learning process. Kailani (2007) outlined three categories of song: communication songs have a language very similar to how people usually speak. Language song: entails the repetition of one structure or much lexis. Action song: involves action to perform it.

These various forms of song require a unique step of presenting them; this includes telling the children briefly, in their mother tongue, what the song is all about, singing the song or reading the lyrics to children. While they are listening, hum the song (without the lyrics), have the class sing each line individually, and present illustrations or visuals (if any are available) for each line, demonstrating activities alongside the song, repeating the song over and over for the children to assimilate the song, practice the song three or four lines at a time if the lyrics are lengthy, give room for children to sing the complete song and use the gestures where necessary. Song-enhanced stimulation can be presented logically to suit the learning process and activities so the children can learn and actively participate. The following principles should be followed when using song-enhanced stimulation in learning: song should not too be short or too long, have clear language, lyrics should be familiar with the content of the subject matter, have rhythm and melody and also be appropriate to the content and the children level of cognition and culture (Al Shenawi, 2001).

2.2.9 Storytelling enhanced stimulation

Storytelling-enhanced stimulation has been one of the ways of passing customs, traditions, beliefs, and history from one generation to the other. Narration served as the only method of transmitting culture, history, and other values from one generation to the next prior to the development of technology (Rajaa, 2012). Storytelling-enhanced stimulation taught children traditions, beliefs and history across the generations (Habibi, 2009). Storytelling telling enhanced stimulation can take various forms such as prose, song, singing with or without song, illustration or without illustration or not along with images and other

tools. During the old days, history, traditions, religion, customs, and ethnic pride were transmitted from generation to generation by storytellers (Hejazi, 2005). In recent times, storytelling-enhanced stimulation is an effective instructional strategy that can be applied to children's learning to make it fun-fill since children learn best through play activities. One of the means to make learning interesting and sustain children's attention in learning situations is through storytelling-enhanced stimulation (Diaw, 2009). Storytelling-enhanced stimulation is suitable for children of all ages. Egan (2001) opines that storytelling-enhanced stimulation can sustain children's interest in learning particular concepts. The atmosphere of learning can be made to be conducive for children when adequate stimulation is provided.

Storytelling-enhanced stimulation is an excellent educational method that may be included in instruction to raise students' abilities in all subject areas (Hejazi, 2005; Habibi, 2009). Storytelling-enhanced stimulation can be used for various purposes in learning and teaching situations; these include: arousing the interest of learners, making learning accessible, full of fun and memorable, and enabling children to learn in a relaxed environment (Melanie, 2004). This justifies that storytelling-enhanced stimulation could be much more appropriate for appropriate, for the needs, interests and learning of preschool children. "Storytelling-enhanced stimulation can arouse creativity and logical thinking in children, and this would prepare them to be able to solve problems in the future (Eder and Cajete, 2010). Children learn many lessons during story time, depending on what the story is targeted towards. Storytelling-enhanced stimulation arouses children's curiosity about their world, enabling them to acquire survival skills in coping with such problems and challenges (Hassan and Mahkameh, 2013). **Storytelling-enhanced stimulation promotes logical and critical thinking in children, enabling them to meet daily life demands.**

Also, Fi (2008) Storytelling-enhanced stimulation is a required method that encourages listeners to interact with each other and share their language-learning experiences. Storytelling-enhanced stimulation can help children in developing their mathematics communication skills. When it is applied in teaching mathematics, children can have an in-depth understanding, process their thinking and thoughts, and tell and explain mathematics in a sample way. Storytelling-enhanced stimulation can be a means of developing children's mathematics knowledge and communication skills.

This is because when storytelling-enhanced stimulation is used to teach any subject, children can develop language skills that will help them think, participate in discussions, and acquire other abilities. Their imagination level is also developed because, through telling or listening, children can develop new ideas and have a better understanding (Fikriah, 2016). Storytelling-enhanced stimulation can be a discussion, song, illustration, display of images, oral, printed or digital demonstration (Hejazi, 2005). These activities that accomplish storytelling-enhanced stimulation make it suitable for pre-primary school children since learning is not structured in a one-way process. The application of storytelling-enhanced stimulation in teaching mathematics can help pre-primary school children understand complex thoughts and ideas. It encourages critical thinking and communication of mathematical skills between the teacher and children to their peers (Zazkis and Liljedahl, 2009). Children can fully participate in the mathematical lesson when the elements in the stories adopted capture their imagination and interest (Schiro, 2004). Storytelling-enhanced stimulation promotes logical and critical thinking in children, enabling them to meet daily life demands.

The submission of Diaw (2009) regarding the learning atmosphere revealed that storytelling-enhanced stimulation creates a relaxing environment for children to learn and increases their assimilation rates. Due to the nature of children, storytelling-enhanced stimulation enables children to participate in the lesson actively. Storytelling-enhanced stimulation would allow children to participate actively by asking and answering questions that arise from the storylines and is also suitable for children with limited attention spans (National Teachers Institute, 2009). Storytelling-enhanced stimulation can create meaningful learning experiences for children (Gadanidis and Hoogland, 2003). Rokhayani (2010) opines that storytelling-enhanced stimulation can be used to develop the following in children: (language skills, listening, thinking, mathematical knowledge and communication of mathematical skills). Storytelling-enhanced stimulation can be used to achieve the following: motivate, arouse, increase imagination and interests, provide meaningful contexts, retaining of information learnt and development of various skills such as language skills for communication, listening, critical thinking, and problem-solving in children (Wright, 2004).

Storytelling-enhanced stimulation is a powerful tool in children learning and activities because it is an effective pedagogical strategy that can be woven into instruction to support children of all ages to increase their competencies in all areas, develop new ideas and spark

their thinking outside the box (Eder and Cajete, 2010). Storytelling-enhanced stimulation can be applied to teach various types of learners and at various levels of education to teach any concept or subject matter. Seifert (1993) reinforces this claim by referencing studies on memory that reveals how much easier young toddlers learn when given a task as a tale rather than just a list of instructions. Various forms of development take place in children as a result of the use of story-enhanced stimulation. For social/emotional development, children develop their imaginative sense, express themselves and sense of humour. During story time, children are made to think and contribute to the lesson, and it is the process of sharing their opinions; when this is done, a bond is also created between the children and the teacher. For cognitive development, storytelling-enhanced stimulation helps children learn easily and recall and memorise lessons. Stories are usually sequenced, commencing with the first, middle, and last. This teaches kids that things happen in a certain order, and they start learning to comprehend stories and follow on. Stories employ patterns and sequences to help kids learn basic mathematics abilities (including numbers and counting) and vocabularies they should know, such as size and weight) as they retell them. Language development takes place by answering questions and retelling the story in the classroom; children can form sentences to increase their vocabulary (Kenney, (2005) and Monro, (2010).

The utilisation of storytelling-enhanced stimulation as a pedagogical tool enables children to acquire communication of mathematical skills (Cindy, 2006). "Storytelling-enhanced stimulation aids the learning of preschool communicating mathematical skills because children can think and make connections between the questions raised by the teacher after the story session. Storytelling-enhanced stimulation in teaching mathematics can help pre-primary school children understand complex thoughts and ideas since it encourages critical thinking (Zazkis and Liljedahl, 2009). This enables them to properly understand the concepts, communicate mathematically, and explain how they derive the answers.

2.3 Empirical review

2.3.1 Song-enhanced stimulation and pre-primary school children's acquisition of mathematical knowledge

Children's informal mathematical knowledge comes from the course of their daily activities that traditionally take place within them. For example, infants learn about time and

patterns through nursery rhymes and songs and develop spatial skills and awareness as they move through their environment (Antony and Walshaw, 2009). Reinforced stimulation through song has been shown to positively affect children's performance, as it is believed to be one of the ways children learn easily. The link between singing and cognitive benefits, particularly about mathematics skills, often dates back to the ancient Greek Pythagoras in the 5th century. BC Showed that mathematical relationships are an integral part of physical properties, including those of music (Southgate and Roscigno, 2009).

Applying song-enhanced stimuli to children's learning improves children's performance, interest, and attitudes toward topics because teaching strategies are tailored to their age and interests. Learning also enriches when children are fully engaged (An Capraro, 2011). Reinforced stimulation through song improves children's mathematical performance by providing space for understanding and applying mathematical concepts in teaching (Cox and Stephens, 2006). The song-reinforced stimulus intrinsically motivates children to learn mathematics, reflected in their performance (Glastra et al., 2004). The study's results investigating the effects of song-enhanced stimuli on students' attitudes, achievements, and multiple intelligences showed that the experimental group had significant differences in students' attitudes and math scores during Pre-test and post-test results compared and calculated. Apply a pre-test-post-test experimental design with two different groups (experimental and control) and use a time series design. The research sample consisted of 286 third-grade elementary school students.

The instruments used for data collection included: the Mathematics Attitude Scale, the 5-Unit Mathematics Achievement Test, and the Multiple Intelligences Scale for Students (Ayfer Kocaba, 2009). This study by Campebello et al. (2002) used singing reinforcement stimuli in different content domains of a learning situation with preschoolers and children in second and fifth grades. The results showed that the children developed a better understanding of the subject, as it reflected their performance and their level of engagement in the learning activities increased significantly. Findings related to song-assisted stimulation and learners' mathematical performance showed consistent evidence that song-assisted stimulation improved learners' mathematical cognitive abilities, including mental visualisation of three-dimensional figures, mathematical problem solving and memory capacity (Rauscher and Zupan, 2000)

Preschoolers gain mathematical knowledge and understanding through exposure to enhanced stimulation through song. Teachers can use song-reinforcing stimuli to help children acquire mathematical knowledge because of their association with reasoning skills (Hetland, 2000). The song-enhanced stimulation allows children to learn mathematics in an environment that also promotes a child's other types of thinking and problem-solving. By promoting children's important mathematical concepts and acquiring mathematical knowledge, singing-assisted stimulation is appropriate for children to achieve these goals because these concepts are introduced to children indirectly in a playful way during the singing and modeled singing (Avope Figure, 2016). In past and recent years, researchers have conducted studies to determine the relationship between learners' mathematics performance and their receptivity to song reinforcement stimuli and music (An et al., 2008; Bilhartz et al., 2000; Omniewski, 1999) showed that singing-reinforced stimuli facilitated the acquisition of mathematical knowledge.

The acquisition of mathematical knowledge is a developmental process influenced by children's physical, socio-emotional and cognitive learning and development and nurtured by a stimulating mathematical environment (Geist 2009). The song-enhanced stimuli create a fluid, friendly, and fun environment for children to learn mathematics skills through various activities that implement the song. Previous studies have explored the incorporation of singing-reinforcing stimuli into mathematics education as a way to improve children's mathematical performance. The results of these studies suggest that stimulation by singing reinforcement has a positive effect on children's school performance (An et al., 2008; An et al., 2011; Bilhartz et al., 2000; Costa-Giomi, 2005). Eady and Wilson (2004) studied the effect of song reinforcers on children's performance and showed that song reinforcers positively affected children's academic performance and learning abilities.

Rossini (2000) investigated the effect of song-reinforced stimuli on children's academic performance, as measured by achievement tests in reading, language arts, and mathematics. The results presented were declared inconclusive because, although the achievement levels of students in the study group improved, their scores were not significantly higher than those of students in the control group. Jennifer (2015) conducted a study to determine the relationship between the reinforcement stimulus of singing and the achievement of learners in mathematics. Provides an answer to the research question: Do

young children associate learning to sing with learning mathematics? ' and 'Is there a relationship between emergent rhythmic development and emergent numerical development in young children? The study design was a concurrently integrated mixed method, with quantitative data integrated into the main qualitative analysis.

In the spring of 2012, 10 full-class preschoolers were observed at pre-determined times for 11 weeks through participant observation and video clips of the children's daily classroom interactions and weekly music lessons. Interventions by classroom teachers and music specialists aimed to promote appropriate music and mathematics practice based on Gordon's music learning theory (2012) and Clements and Sarama's (2009) Mathematics learning trajectory. The results showed correlations between musical ability, rhythmic performance, and numeracy scores, supporting evidence for a relationship between early rhythm and math development. Investigation of the effects of song-reinforced stimuli on student attitudes, achievement, and multiple intelligences in a third-grade elementary mathematics program. Song-reinforced stimuli have been found to significantly affect students' attitudes, performance, and multiple intelligences in math lessons (Ayfer Kocabaau, 2009).

Charlyn et al. (2016) also investigated the effect of whole-song support instruction on students' math performance in grade 7K to 12 primary education lessons. This study used a mixed method combining qualitative and quantitative methods. The study's results showed that song-assisted instruction with whole numbers significantly affected students' math performance. Fredrick-Jonal (2014) investigated the impact of intensive poetry teaching strategies on children's mathematics learning outcomes in Bayelsa State, Nigeria. Using a pre-test post-control quasi-experimental design, the study involved 334 schools with 6th graders. The results showed that intensive poetry teaching strategies significantly impacted children's math learning outcomes.

2.3.2 Song stimulation and acquisition for pre-primary school children mathematics communication

One of the skills children need to master is the ability to understand and communicate math. The song-enhanced stimulation facilitated the communication of mathematical skills, a prerequisite for their understanding and learning of mathematics as a

subject, as it provided a mode of interaction observed in their singing and the application of problem-solving (Holland, 2011). Song-enhanced stimulation improves memory, attention, language, social and communication skills, and math performance (Du Sautoy, 2004; Venriksson-Macaulay, 2014). After singing, children should be able to think about and use the song to solve mathematics problems. Increasing song stimulation provides an enjoyable and appropriate environment for children to learn the skills necessary for success (Wiggins, 2007).

Communicating mathematics skills enables children to engage in interactions and conversations, listen to stories while answering questions, participate in problem-solving activities in stories, and have conversations moving and engaging with peers, classmates and teachers. Teachers use songs to enhance stimulation (Goral and Gnadinger, 2006; National Council of Teachers of Mathematics, 2000). To study the results of song-enhanced stimulation on the acquisition of children's communication skills. Mohammad, Bahman, and Imansafari, (2012) investigated the effects of song reinforcement stimuli on vocabulary learning in advanced gender-based language learners. For these purposes, 105 male and female students studying English in Ahvaz, Iran, were tested for their language skills through multiple-choice questions on vocabulary and structure. Finally, sixty advanced language students were chosen and randomly separated into two similar groups for the musical and non-musical mode tests. Participants were examined based on a multiple-choice post-test investigating learners' vocabulary acquisition with song-reinforcing stimuli. The outcomes revealed that word recall and retention were better for the experimental group.

Research by Hilda (2013), confirmed that ESL learners are inspired by applying song-enhancing stimuli, which leads to better performance, creativity, and improved performance linguistics in literature as a discipline. A group of teachers used another study on the stimulation of reinforcing songs to apply various activities to motivate children to learn and speak English. The results show that the children could pronounce many words freely and accurately in a non-threatening environment (Mnica et al., 2012). Additionally, a study by Kittiya and Metas (2016) investigates the effectiveness of song reinforcement stimuli on students' vocabulary learning and memory. This study's teaching and research materials are singing activities, a pre-test and two post-tests. The two posttests are Posttest I (taken immediately) and Posttest II or retention test (taken two weeks later). Analyses

included means, standard deviations, and significance of differences (paired t-test). The results show a significant difference between the pretest and posttest I in the English vocabulary scores of 01 student, but there was no significant difference between posttest I and posttest 2. One can conclude that learning English through singing activities can encourage students to develop and maintain their vocabulary knowledge.

2.3.3 Storytelling-enhanced stimulation and pre-primary school children acquisition of mathematical knowledge

When Mathematical storybooks are appropriately chosen to teach concepts in the mathematics classroom, they can enhance pre-primary school children's mathematics learning and support children with disabilities and low self-efficacy for learning mathematics (Courtade et al, 2013). Adopting storytelling-enhanced stimulation helps pre-primary school children acquire mathematical thinking and knowledge. It also provides enjoyable and meaningful contexts in which mathematical content and concepts are taught to children (Casey et al., 2004; Van den Heuvel-Panhuizen, 2012). Hong (1996) stated that storybooks efficiently stimulate pre-primary school children to acquire mathematical knowledge and skills. In line with this submission, Griffiths and Clyne (1991) also submitted that the application of storybooks in teaching and learning situations provides a model, gives room for a proper explanation of concepts, is used to pose a problem and stimulates an investigation to answer the problem. This activity contributes to building an appropriate understanding of mathematical knowledge and rejuvenates children's interest towards the subjects.

Previous studies' results have shown that storytelling-enhanced stimulation has the potential to help pre-primary school children learn various mathematical concepts. These include areas of measurement (Van et al., 2011) geometry (Casey, Erkut, Ceder, and Young, 2008; Hong, 1996; Skoumpourdi and Mpakopoulou, 2011), estimation (Whitin, 1994), mathematics vocabulary (Jennings et al., 1992). This shows that storytelling-enhanced stimulation is an efficient instructional strategy that can improve children's mathematics learning. Other studies emphasized the benefits of using storytelling-enhanced stimulation to teach pre-primary school children mathematics (O'Neill et al., 2004; Van and Elia, 2012). Storytelling-enhanced stimulation provides kids with a purposeful framework for learning

maths (Mooren, 2000; Murphy, 2000). A suitable learning environment is also provided for pre-primary school children to learn and construct Mathematical knowledge when storytelling-enhanced stimulation is adopted (Phillips, 1995).

Young-Loveridge's (2004) research showed that numeracy skills improved significantly when participating in an intervention program that focused on listening to adult-told numeric stories and rhymes, compared to 5-year-olds who had not participated in the program. This is supported by Elia et al. (2010) because they noticed that kids learned about mathematical ideas from storybook images without researchers' intervention. The use of storytelling reinforcement stimuli also helps to develop positive attitudes towards mathematics in children. Numerous research has looked at the usefulness of reading children's arithmetic books (Anderson et al., 2004; 2007).

Green's (2014), findings investigate the effect of story-augmenting stimuli on numeracy skills in preschool children with disabilities. This study adopted a quasi-experimental design. Fifty preschool children with disabilities participated in the study. The intervention, conducted three days a week for six weeks, consisted of reading an interactive shared story book with mathematics content through written questions and story-related mathematics discussions and activities after reading the history. Based on Test of Early Mathematics Ability, Third Edition (TEMA-3) scores, children who received the intervention scored significantly higher than the control group on total math ability, quantitative comparisons, one-to-one match scores and language scores and the Personal Growth and Development Indicators Early Computational Capabilities (IGDIS-EN).

Hong (1996) analyze the effectiveness of storytelling in enhancing stimulation and supplementing mathematics activity during free play in 57 preschoolers. The children in the placebo group participated in a typical story hour. They got to engage in mathematical games that had nothing to do with the stories they were hearing. Hong, (1996)found that compared to children in the control group, Children in the experimental group spent more time in the math area and enjoyed using math-related toys more when they were free to play. The experimental group also achieved higher qualitative results in learning mathematical concepts such as (categorisation, combination of numbers and shape tasks) was stimulated. Shared storybook reading was provided to preschoolers with a researcher-created picture book and related activities in math classes. Researchers found that the storybook and activity

intervention improved mathematics knowledge in preschoolers. Learn mathematics to learn and identify mathematical shapes.

During a five-month intervention, Jennings et al. (1992) found that story-enriched stimuli improved early computational ability in preschoolers. After a story-reading session emphasizing implicit mathematics and extra activities, developing preschoolers improved their vocabulary and interest in mathematics. They use the engaging storytelling method to help improve understanding and acquisition of mathematical knowledge and improve performance in preschool children. The results suggest that applying storytelling-enhancing stimuli may help improve preschoolers' performance in mathematical tasks. The study lasted three months, and eight storybooks were used to teach the mathematical concept of measurement. At the end of the study, the preschoolers performed better on the measurement task (Van et al. 2011). The results of a study by Young-Loveridge (2004) on the effects of increased storytelling stimulation and the acquisition of preschool mathematical knowledge showed a significant improvement in numeracy in 5-year-olds compared to children who did not participate in the program. Intervention Have 5-year-olds listen to number stories and rhymes and play number games set by adults during mathematics tasks.

2.3.4 Storytelling enhances stimulation and Learning in Preschool Children Communicating Mathematical Knowledge

Pramling and Pramling-Samuelsson, (2008) conducts a study in which children were asked to solve a mathematical task in which they were asked to represent their answers using illustrations. The study's recommendations suggest that there is a need to encourage children to express their responses differently than just providing a final answer. By incorporating mathematical concepts into storybooks, children have a better learning experience and can build their knowledge naturally by asking questions (Whitin, 2002). Narrative reinforcement stimuli improved children's ability to communicate mathematically with their parents (Anderson et al., 2004; Anderson et al., 2005; Van and Boogard, 2008; Van and Elia, 2013) and children's ability to communicate mathematically improves their early numeracy (Gunderson and Levine, 2011; Levine et al.2010; Suriyakham et al. 2006)

Another study examines the effectiveness of storytelling in improving children's math stimulation and learning. Four parent-child pairs were examined using a multiple-frame

single-case model, and the Computational Early Mathematics Assessment was used to gauge the children's early numeracy abilities. The study also measures mathematical conversations to determine whether early childhood numeracy improvements were due to the intervention rather than other confounding variables. Results from visual analysis and hierarchical linear modeling revealed that participants' prior calculations were not statistically significant. Masked visual analysis revealed significant differences in children's scores on calculated ordinal place measures but not other outcome measures. The findings of this study demonstrated the efficacy of a parent-led shared mathematical storytelling solution in boosting mathematical communication between parents and kids (Lindahl., 2016). A study designed to investigate the effectiveness of storytelling as a reinforcement stimulus on early computer skills in preschool children. It takes place in the context of families supporting early math development, helping parents integrate math concepts and vocabulary into their children's reading. Six parent-child pairs, aged 40 to 68 months, participated in the study.

The researchers utilized a multi-baseline strategy to enable participation from all six dyads, linking dyads between three baselines. During the baseline and intervention phases, parents received three books per week and had to record themselves reading them to their children. Results from a multiple-base yoke design with 6 dyads showed variability between dyads with 2 general patterns. Mathematical speech increased after training on 3 of the dyads, while the other 3 dyads showed no consistent change in verbal or mathematical behaviour. The results are discussed in the context of family support for early mathematics development (Hojnoski et al., 2014). Another study examined the effects of shared story reading (SSR) during mathematics instruction on the behavioural outcomes of four elementary school students with academic difficulties and challenging behaviours.

Additionally, the study examines the impact of the implementation of SSR in mathematics education on teachers' use of opportunity responses (OTR). A multi-participant, multi-base design was implemented to examine the effect of this curricular approach on increasing teacher OTR, increasing student engagement, and reducing disruptive behaviours. The results show an increase in OTR during the SSR session. They suggested that implementing SSR during math instruction effectively increased engagement for students with academic difficulties and challenging behaviours (Todd et al., 2017). Another study was conducted to investigate the effectiveness of digital storytelling on children's oral

language comprehension. The researchers used a quantitative study design with varied data collection. To assess the effectiveness of the materials for children, a quasi-experiment with pre-test and post-test was used.

The results showed that the experimental group achieved very high scores on the language listening comprehension test after the material was implemented, showing a significant difference between the control and experimental groups (Aslina, Mazlina and Amor, 2018). Following this study, Mokhtar et al. (2011) conducted a study on the effectiveness of story-enhanced stimulation in developing communication skills. The results were as follows: Through storytelling, students improved their language skills such as vocabulary, comprehension, story sequencing and story recall. They also progressed in their communication skills in areas such as messaging and non-verbal language. In addition, a study was conducted on using storytelling as an augmented stimulus to facilitate student learning in social research. The teacher shows four stories from a social studies class in a secondary school in Singapore, illustrating how the teacher used the stories for various purposes. Stories have been observed to be used to teach morality, inspire empathy and cultural understanding, engage students, and help them develop thinking skills such as assessing the reliability of sources. When used effectively, stories can serve various purposes, many of which align with the citizenship qualities and skills we want to develop in learners of all ages (Shuyi, 2017).

Another study looked at storytelling's effect on elementary school children's listening skills. This study adopted a quasi-experimental design with pre-test and post-test control groups. Two public elementary schools were deliberately selected and randomly assigned to the experimental and control groups. The experimental group received a narration with illustrations, while the control group received a narration without illustrations. Morrow's Retelling Analysis 10-point scale measured children's listening skills before and after listening to Yoruba stories. ANCOVA analysed the data collected. There was a significant main treatment effect on listening skill in primary school children (Oduolowu and Akintemi, 2014).

Isbell et al. (2004) conducts a study on the effects of story reading on the oral complexity and story comprehension of young learners. The results showed that both groups of young learners experienced improvements in comprehension and storytelling after using

the storytelling strategies. Learners in the story-reading group saw an increase in their linguistic complexity, conducted a study to investigate the impact of storytelling on the development of female students' communication skills in English as a Foreign Language (EFL) and their attitudes towards it (Isbell et al. 2004). The research sample consisted of 46 students. The samples were divided into two equal groups. The research instruments were compiled by the researchers. They included (a) a test of written communication skills, (b) oral and interpersonal communication columns (c) student attitudes towards the use of storytelling to develop a communication skills quiz.

The study showed a statistically significant difference between the experimental and control groups in developing written communication skills (Reem and Mahdi,, 2016). Additionally, one study showed the effectiveness of digital storytelling on children's oral comprehension. The researchers used a quantitative study design with varied data collection. To assess the effectiveness of the materials for children, a quasi-experiment with pre-test and post-test was used. The results showed that the experimental group achieved very high scores in their language listening comprehension tests after the material was implemented, showing significant differences between the control and experimental groups (Amor et al., 2018). Another study investigated whether stimulation using storytelling could be used to improve students' speaking skills. The following were investigated during the study: (1) instructor activities, (2) student activities, and (3) student responses when the storytelling reinforcement stimulus was applied in the conversation class. The subjects were 23 students from class N, semester 2, Tebuireng Jombang Intensive English Program, HasyimAsy'ari University (UNHAS) Tebuireng Jombang, the academic year 2016/2017. The data for this study come from the employee's observation and oral expression test. The results showed that storytelling improved their comprehension, fluency, vocabulary, grammar and pronunciation (Mukminat, 2017). Albool (2012) investigates the effects of storytelling strategies in mathematics education on fourth graders' mathematics achievement and motivation. Three research instruments were developed; a mathematics test to measure student performance on relevant fractions concepts, a quiz to measure student motivation to learn mathematics, relevant literature and a fractions unit rewritten in a storytelling format.

2.3.5 School Type and Preschool Communication in Mathematics Acquisition of Skills and Knowledge

Many studies have compared students' performance in public schools with those in private schools, but the evidence from these studies is not convincing. For example, the National Assessment of Educational Progress (NAEP) study, a nationally representative assessment of the knowledge of American students in various subjects, indicates that private schools outperform public schools in all major subjects, including mathematics and science (United States, Ministry of Education, 2012). Moreover, another study analysing the mathematics performance of American students pointed out that, in most cases, private schools performed better, while public schools performed well after taking the facts into account (Lubienski 2006; Peterson and Llaudet 2006). Over the years, a series of surveys have been conducted to determine the differences in performance between students in the state (public) and private schools, and these surveys have understandably produced mixed results. Some studies show no statistical difference in student performance, but some characteristics, such as teaching methods, would differ (Al-Duwaila, 2012).

Similarly, a study by Braun, Jenkins and Grigg, (2006) shows similar conclusions, claiming that private school kids outperformed public school students. Supporting findings were also found in Olasehinde and John (2014), comparing secondary schools in Nigeria. The authors report that students in private schools outperformed pupils in public schools. The research investigated performance differences between private and public schools in Thailand. A total of 100 pupils from public and private primary schools were screened. The results of the analysis showed those private schools outperformed public schools. Analysis of variance was used to analyse the results by comparing the differences between two public schools and one private school. The results show that private schools outperformed public schools. However, low-income families scored higher than high-income families in public schools. This document also discusses limitations and recommendations (Hareesol et al., 2016).

In addition, a study was conducted among students from poor families in the sixth year of primary school (beneficiaries of the Opportunities program) who participated in the Evaluation of the Test of Educational Quality and Performance 2009 (EXCALE 06-2009) to assess whether private schools are beneficial to Mexico Mathematically prepared for the

poor. The results showed that private school students who benefited from the Opportunities program outperformed their public school peers by an average of 48 test points, or 48% of the standard deviation. The results pass various robustness tests and are technically sound (Trevino and German, 2015). Another study examined independent variables (gender and type of school) and their effects on the dependent variable, academic performance. The sample size was 343 college students who participated in this study. Data were collected using personal information questionnaires and school results obtained from school records. Data were analysed using calculations of means and standard deviations, analyses of standard errors, and t-tests to measure the significance of differences between means. Student achievement levels are low in private and public schools. Private school Class IX boys outperformed their government school peers in academic performance. In schools across all subjects, private school girls did better than public school girls in all subjects (Ali et al.2016).

Another study compared the corporate learning performance of public and private Junior Secondary School Certificate Examination (JSSCE) students in the South West Local Government Council area of Ovia, in Edo State, Nigeria. It was revealed that between 2008 and 2011, there was a significant disparity in academic achievement in business studies between public and private schools. The finding shows that public schools performed better than private schools for boys and girls (Igbinedion and Epumepu, 2011).

A longitudinal study of teaching effectiveness was conducted in a sample of 73 primary schools in Ghana in grade 6 while investigating the impact of a child's school type on their academic success in mathematics. The findings indicate that private school kids did better than public school kids (John et al., 2016). Also, in Nigeria, a study conducted in Osun State on Sunday (2014) found that private primary school children performed better than public school children, leading to calls for improvements in schools.

2.3.6 Language Acquisition and Pre-primary School Children's Acquisition of Mathematics Knowledge

Language plays a key role in children's mathematical thinking and learning development (Schleppegrell, 2010). There is a complex relationship between language acquisition and growth in mathematics learning. As children grow and develop, their familiarity and use of language increases. Everyday situations support and facilitate

children's use of math-related language, especially when interacting with adults and peers (Awoyemi, 2016). As children grow, language supports their ability to learn to recognise and understand the symbolic nature of numbers. For example, a caregiver or teacher would point to the number 1, use their name, and point to an object or picture. Children then learn to recognise numbers as symbols that represent an object. Language continues to help students move from concrete math skills based on physical objects to more symbolic math skills focused on numbers (Kolkman et al., 2013).

There is evidence that language can be used to mediate thought processes in various ways, from teaching practice to conceptual learning. From a language acquisition perspective, the progression of listening, speaking, reading, and writing from the major modes of communication is clear. However, it must be recognised that when mathematical fluency is a pedagogical goal, such advances also apply to learning mathematics (Bossé et al., 2019). Purpura and Ganley, (2014), finds that language skills significantly differed in predicting almost all early numeracy skills. However, these connections are thought to begin even earlier than the preschool years, as substantial evidence suggests that numeracy and language processing activate similar areas of the brain, suggesting that they share some common neural pathways (Baldo and Dronkers, 2007; Dehaene et al., 1999).

While research on language acquisition and math learning has mostly followed separate trajectories, existing research examines the link between language and math skills (Thompson and Rubenstein, 2014) and the function of language in mathematics classrooms (Moschkovich, 2005). To this end, Bossé et al. (2018) and Bossé et al. (2018), Suggests a link between language acquisition and math learning. Language distinguishes symbolic number systems (usually beginning to develop between 18 and 24 months); Mix, 2009; Sarama and Clements, 2009) from more primitive non-symbolic approximate number discrimination systems. The essential characteristics of thought are present from childhood (Dehaene et al., 1999; Spelke and Tsivkin, 2001; Starr et al., 2017). Children need to be introduced to the language and conventions of mathematics while remaining connected to their informal knowledge and language (Purpura and Reid, 2016). Also, LeFevre et al. (2010) linked numeracy and language skills in their pathway model, while (Aunio et al., 2006; Krajewski and Schneider, 2009; Purpura et al., 2011) hypothesise that language skills directly related to numeracy development are general in nature, measured by literacy and

language components such as lexical and/or phonological awareness. It is clear that children acquire the language of mathematics early in their development, as children appear to acquire a substantial amount of it by age three (Purpura and Reid, 2016).

2.3.7 Language Acquisition and Pre-primary School Children's Acquisition of Mathematics Communication Skills

Mathematics is closely related to language, and to be successful in mathematics, students must be able to understand language proficiently (Anthony and Walshaw, 2007; Boero et al., 2008; Kosopoulos, 2007; Schleppegrer, 2011). Boero et al. (2008). The use of language as a bridge between theoretical system development and mathematical objects, attributes, and concepts. The relationship between language and mathematics in the study of mathematics is undeniable. Students of all levels use the mathematical language not only to read, speak, and write but also to create their work (National Council of Teachers of Mathematics, 2000). Students not only comprehend mathematical ideas but also show that they can communicate what they know to others and apply what they know to real-world situations (Franke, Kazemi, and Battey, 2007). Even after controlling for certain important factors, the findings indicate that language is a major predictor of numeracy (Aunio et al., 2006; Krajewski and Schneider, 2009; LeFevre et al., 2010, Purpura et al., 2011).

By studying the intersection of theories of mathematical learning and language acquisition, Bossé et al. (2018a) and Bossé et al. (2018b) proposed the Mathematics Acquisition Framework, a multistage theory of mathematical learning that could have profound implications for education. The stages of this framework include reception, reproduction, negotiation of meaning and production. Mathematical learning frameworks were first proposed (Bossé et al., 2018b).

Receiving Mathematics: During the early math learning process, children begin simply by listening to the teacher communicate and imitate what they can do. They have a limited understanding of mathematical concepts. They can only provide one or two answers to simple, predictable questions.

Replicating Mathematics: Children communicate simple conceptual information at this stage of mathematics learning. They have not yet established a mathematical relationship. Mathematical communication lacks both verbal precision and conceptual understanding.

They read mathematical examples and try to repeat orally and in writing what they have observed from their teacher.

Negotiation Meaning: At this stage, speaking becomes dominant in student learning. Most mathematical communication in class is understandable. In negotiating personal meaning, they apply mathematical concepts to their interests but through a limited repertoire of concepts.

Producing Mathematics: Children communicate mathematical ideas fluently. Mathematical concepts become interdependent, and multiple mathematical representations convey mathematical ideas. More importantly, students at this stage produce mathematics that is new to the student beyond what they encounter in the classroom. There is still a need to apply this structure empirically to deepen student understanding and learning in other areas of mathematics and mathematics in general.

2.4 Appraisal of literature

There is a need for pre-primary school children to develop all necessary skills and knowledge in the early years of learning since the early stage is an essential stage in children's development. Learning of pre-primary school children should be fun-filled so that it can meet the children's needs, interests and developmental appropriateness. It has been established by literature that students have numerous difficulties in Mathematics. This is reflected in their academic performance at other levels of education. This problem has been traced to a lack of adequate mathematical knowledge and mathematical communication skill at the preschool level of education. It is evident that if the problem is solved, the teachers have an important role to play in making learning situations child-centred and stimulating. The adoption of song and storytelling-enhanced stimulation can serve the purpose.

Studies on the influence of school type and language acquisition on pre-primary school children's mathematical knowledge and skill acquisition are inconsistent. Some researchers found a significant difference, while others did not find a significant difference between them. There are some gaps in the literature on the effects of song and storytelling-enhanced stimulation on the acquisition of mathematical knowledge and communication skill in pre-primary school children and the extent of influence of school type and language acquisition on pre-primary school children.

CHAPTER THREE

METHODOLOGY

This chapter discusses the experimental method that was used in carrying out this research. The following will be discussed in this chapter: research design, study variables, participant selection, research instruments, validity and reliability of research instruments, data gathering process, and data analysis techniques.

3.1 Research Paradigm, Approach and Research Design

This study adopted the embedded design within mixed methods research type. That is the combination of both qualitative and quantitative research types. The design is appropriate when the researcher intends to apply a qualitative data collection process in the treatment phase of an experimental study (Ary, Jacobs and Sorensen, 2010; Creswell, 2012). The study employed the weighting priority of QUAN + qual which implies that the quantitative approach was extensively used more than the qualitative approach to determine the impact of the independent variable (song-enhanced stimulation, storytelling-enhanced stimulation and conventional method) on the dependent variables (acquisition of mathematical knowledge and Mathematics communication skills. Some of the research questions raised to guide the study could not be answered with the use of quantitative data, so there was a need to employ qualitative data also.

This study adopted positivism as a paradigm for the qualitative aspect of the study. The qualitative aspect of the study employed the phenomenology research method. Therefore, the phenomenological design was employed for the qualitative aspect. The design enabled the researcher to describe the experiences of the participating teachers and pre-primary children during the study. This was examined qualitatively. The qualitative data were collected with the use of field notes, observation, key information interviews, and audio and visual materials. The quantitative aspect of the study employed the pre-test-post-test control

group quasi-experimental research design. The design is represented schematically as follows:

O ₁	X ₁	O ₂E ₁
O ₃	X ₂	O ₄E ₂
O ₅	X ₃	O ₆C

Where O₁, O₃, and O₅ represent the pre-test measures

O₂, O₄, and O₆ represent the post-test measures

X₁ represents song-enhanced stimulation (Experimental I)

X₂ represents storytelling-enhanced stimulation (Experimental II)

X₃ represents the conventional teaching (control group).

The study adopts a 3x2x3 factorial matrix which consists of enhanced stimulation at three levels (two treatment groups and one control group), school type at two levels (public and private) language acquisition at three levels (high, medium and low).

Table 3.1: 3x 2x 3 Factorial Matrix

Treatment	School Type	Language Acquisition		
		High	Medium	low
Experimental Group I (E ₁)	Private			
	Public			
Experimental Group II (E ₂)	Private			
	Public			
Control Group (C)	Private			
	Public			

3.1.2 Variables of the Study

Independent variable:

The study's independent variable is enhanced stimulation, which was altered at three different levels:

- Song-enhanced stimulation
- Storytelling Enhanced Stimulation
- Conventional Method

Moderator variables:

Two moderator variables were considered in the study, these are;

1. School Type at two levels (private and public)
2. Level of Language Acquisition (high, medium and low)

Dependent variables

Two dependent variables were considered. These are:

1. Mathematical knowledge
2. Mathematics communication skills

3.3 Selection of participants for the quantitative aspect

A multi-stage sampling procedure was adopted in the selection of participants for the study. A simple random sample technique was used to select three Local Government Areas (LGAs) out of the five in the Ibadan metropolis. At the end of this, six primary schools (three public and three private) were purposively selected for this study. One public and one private primary school from each of the LGAs was purposively selected. The criteria for selecting both the public and private schools were listed below.

- i. The school that has up to 25 children in the pre-primary class.
- ii. The school that admits children who are age 4 -5 years plus old for pre-primary class.
- iii. Both schools must use the same curriculum.
- iv. Willingness of teachers to participate in the study.

All the children in the pre-primary level of the selected schools were involved in the study. It was expected that there would be a minimum of 25 children in each of the schools.

Therefore, it was projected that the sample of this study was 150 pre-primary children. The schools were randomly assigned to treatment groups based on school type.

3.3.1 Selection of participants for the qualitative aspect

The participants for the qualitative aspect comprised of all the participating teachers in the experimental groups who were automatically chosen to participate in the interview session. Total enumeration was adopted to select all of the preschoolers in the test group. The respondents were interviewed by the researcher and research assistants one after the other.

3.4 Research instruments

The research instruments were grouped into two sessions (stimulus and response). Stimulus instruments comprise six instruments while response instruments comprise five instruments).

Stimulus instruments

- a. Song-Enhanced Stimulation Guide (Se _StiG)
- b. Storytelling-Enhanced Stimulation Guide (Ste _StiG)
- c. Conventional Strategy Instructional Guide (CSIG)
- d. Mathematics Story Book
- e. Mathematics Song Book
- f. Training Guide for Research Assistants

Response instruments

- a. Mathematics Communication skill Rubric of children in pre-primary schools (MCS_RPC).
- b. Pre-primary School Children Mathematical Knowledge Test” (PCMKT).
- c. The Pre-primary School Children Language Acquisition Rating Scale.
- d. Key Indepth Interview with Participating Pre-primary School Teachers.
- e. Key Indepth Interview with Participating Pre-primary School children

3.4.1 Song-enhanced stimulation guide (Se _StiG)

The Song-enhanced stimulation Instructional Guide is one of the important instruments in this study. The Activity-Based Lesson Plan structure used for this instrument was created by Salami (2014). The lesson plan was adopted to teach the pre-service teachers

that participated in the study carried out at the (three Colleges of Education in Southwestern Nigeria). The items on the Activity-Based Lesson Plan format were followed to give direction and supervision to the study participants, including research assistants and teachers. However, the contents were based on the focus of this current study to make the lesson plan achieve the desired purpose. All the songs were composed by the researcher in the course of this study and were also included in this guide and translated into the Yoruba language.

Eight lessons were prepared in the guide. The guide as also to be broken down into weeks, subjects, classes, topics, sub-topics, duration, previous knowledge, instrumental materials, Educational goals, song, introductions, reference books, procedural steps, teacher activities, conclusion, evaluation, assignment children activities, scaffolding activities and question and answer.

Validation of song-enhanced stimulation guide (Se _StiG)

Song-enhanced Stimulation Guide, was validated by experts and lecturers in the Department of Music, University of Ibadan who subjected it to face and content validity to ensure the structuring, appropriateness, and content of the guide. Their comments and suggestion were affects to the latter before the final production of the instrument approval was sorted from the supervisor.

3.4.2 Storytelling-enhanced stimulation guide (Ste _StiG)

The Storytelling-enhanced Stimulation Instructional Guide is another instrument that was used in this study. This instrument adapted the Activity-Based Lesson Plan format by Salami (2014). This is the lesson plan that was used as a teaching guide for pre-service teachers during the study (three Colleges of Education in Southwestern Nigeria). The items on the Activity-Based Lesson Plan format were followed to offer advice and direction for the research assistants and educators who took part in the study. However, the contents were based on the focus of this current study to make the lesson plan achieve the desired purpose. All the stories written by the researcher in the course of this study are also included in this guide. The stories were translated into Yoruba Language.

Eight lessons were prepared in the guide. The guide was also broken down into weeks, subjects, classes, topics, sub-topics, duration, previous knowledge, instrumental materials, educational goals, song, introductions, reference books, procedural steps, teacher

activities, conclusion, evaluation, assignment children activities, scaffolding activities, question and answer.

Validation of storytelling-enhanced stimulation guide (Ste _StiG)

For validation process, the instrument was presented to Lecturers in the Faculty of Art: (Department of Language and Communication; Department of Linguistics and African Studies) for criticism. Their comments and suggestion were presented to the supervisor after corrections were made to the instrument before approval was given to the researcher for final production.

3.4.3 Conventional strategy instructional guide (CSIG)

The Conventional Strategy Instructional Guide instrument was also used in the course of this study. This instrument adapted the Activity-Based Lesson Plan format by Salami (2014). This is the lesson plan that was used in teaching pre-service teachers that participated in the study (three Colleges of Education in Southwestern Nigeria). The items on the Activity-Based Lesson Plan format were followed to give direction and supervision to the study participants, including research assistants and teachers. The contents and some of the items on the Activity-Based Lesson Plan formats were disregarded while the researcher developed the new contents and additional items to make the lesson plan suitable for the lesson.

Eight lessons were prepared in the guide. The guide was broken down into weeks, subjects, classes, topics, sub-topics, duration, previous knowledge, instrumental materials, educational goals, song, introduction, reference books, procedural steps, teacher activities, conclusion, evaluation, assignment, children activities, scaffolding activities and question and answer.

Validation of conventional strategy instructional guide (CSIG)

In other to assure the construct, content, and face validity of these instruments, the instruments was presented to Lecturers at the University of Ibadan's Department of Early Childhood and Educational Foundations for assessment. Their comments and suggestions were imputed in the instrument after which it was shown to the supervisor for final approval.

3.4.4 Mathematics storybook

The mathematics storybook was written by the researcher. In writing the stories, Mental Development Domain as specified in the One Year Pre-primary School curriculum

developed by the Nigerian Educational Research and Development Council (NERDC, 2014) was followed to the latter. The title of each story was tailored to the pre-primary school children's mathematics themes like, numerical counting, the addition of numbers, subtraction of numbers, classification of objects, identification of shapes, construction of shapes and time and season

Validation of mathematics storybook

In other to make the instrument valid and also in accordance to the children's level of learning in teaching the listed theme in developing the mental domain as stated in the One Year Pre-primary School curriculum developed by the Nigerian Educational Research and Development Council (NERDC, 2014). The instrument was presented to Lecturers in the Faculty of Art: (Department of Language and Communication; Department of Linguistics and African Studies) for assessment. Their comments and suggestions were imputed in the instrument after which it was shown to the supervisor for final approval and production.

3.4.5 Mathematics songbook

The songbook contained songs composed by the researcher. The themes specified in the One Year Pre-primary School curriculum developed by the Nigerian Educational Research and Development Council (NERDC, 2014) formed the template for the writing of the songbook.

Validation of mathematics songbook

To ensure that the songbook is in accordance with the children's level of learning and appropriate to teach the listed themes as stated in the Year Pre-primary School curriculum developed by the Nigerian Educational Research and Development Council (NERDC, 2014). The draft was shown to a few experts and lecturers at the University of Ibadan's Department of Music who subjected it to face and content validity to ensure the structuring, appropriateness, and content of the guide. Their suggestions and criticisms helped to create the final document which was shown to the researcher's supervisor for final approval.

3.4.6 Training guide for research assistants

This was created independently by the researcher to help both groups' instructors and research assistants (control and experimental). This guide reflected the step-by-step

procedures of the training and it is designed in a tabular form. The training guide was in three forms: (a) Training guide for research assistants who assessed the children's mathematical knowledge (b) Training guide for research assistants who assessed the children's mathematical communication skills (c) Training guide for research assistants who assessed the children language acquisition. The various items listed include the activities, welcoming/ introduction, brief explanation of the study, distribution of instruments, a micro-teaching assessment session for the teachers using the two treatments in the study (song-enhanced stimulation and storytelling), training on administration of pretest, training for administration of posttest and conclusion.

Validation of research assistants training guide (RATG)

To ensure that these instruments had face, content and construct validity, the instruments were presented to Lecturers in the Department of Early Childhood and Educational Foundations, and Lecturers in the Faculty of Arts, University of Ibadan for criticism. Their comments and suggestion were presented to the supervisor after corrections were made to the instrument before approval was given to the researcher for final production.

3.4.7 Key indepth interview guide with participating pre-primary school teachers

This was a self-developed instrument by the researcher, to elicit responses from the participating teachers in the course of the intervention process on the teacher perception of the use of the enhanced stimulations (song and storytelling). It has two session A and B. The purpose of Section A was to collect demographic data from participating teachers like school type, class and gender. Section B comprises the interviewer's questions. The following questions were answered: What is your general view about the mathematics activities? Do you consider the use of enhanced stimulation (song and storytelling) in teaching pre-primary school children mathematics as worthwhile? Do you prefer the use of enhanced stimulations (song and storytelling) to the use of the conventional method in teaching mathematics? What are the various challenges encountered during the lesson? Do you notice or observe your classroom atmosphere during the lesson? What suggestion will you give, if the stimulation should be employed to teach various subjects in school? What other skills can children developed when enhanced stimulations are applied in teaching apart from communication of mathematical ideas.

Validation of key indepth interview guide with participating pre-primary school teachers

To ensure that this instrument had a face, content and construct validity, the tool was provided to lecturers in the early childhood and educational foundations department, University of Ibadan for criticism. The comments and suggestions made on the instrument were critically looked into by the researcher and supervisor before the final production was made.

3.4.8 Mathematics communication skill rubric for pre-primary school children (MCS_RPC)

This was a self-designed instrument that measured the children's ability to communicate their mathematics knowledge correctly. The instrument contained seven sections and five items each and was measured under each of the elements of mathematical communication during the question and answer period. The sections include; (counting of numbers, addition of numbers, subtraction of numbers, colours, shapes, classification of objects and time). The measuring scale used a Likert- type scale (6-point rating scale) of N- No Performance, L- Low Performance, M- Moderate Performance, S- Satisfactory Performance, G- Good performance and E- Excellent Performance.

Validation of Mathematics communication skill rubric for pre-primary school children (MCS_RPC)

Based on the validity of the instrument, the researcher extracts the mathematical communication elements and criteria of the rubric from the literature. The rubric was designed based on these and tailored towards measuring the mathematical communication skill of children.

3.4.9 Pre-primary school children mathematical knowledge test (PCMKT)

The assessment test on pre-primary school children's mathematical knowledge was a self-designed instrument by the researcher which was used to measure the basic mathematical knowledge of children based on the following mathematical concepts: addition of numbers, subtraction of numbers, time and the classification and ordering of objects. The

instrument contained two sections A and B. Section A contained the demography of the pre-primary school children. The items in the section are type of school (either private or public), gender, name of the child, age, and class. Section B of the instrument contained 20 items which were in line with the Theme: Mental Development in the One Year Pre-primary School Education Curriculum and cut across all the listed mathematics concepts.

Validation and Reliability of (PCMKT)

To ensure that these instruments had a face, content and construct validity, the instruments were given to three experts in early childhood education. The corrections from various experts and the researcher's supervisor were imputed in the instrument before it was produced. A pilot study was carried out by administering the instruments on sixty pre-primary school children in both private and public schools that were not part of the study in Ido local government area, Oyo State. The reliability of the instrument was tested using Cronbach's Alpha techniques and the co-efficient obtained was 0.89.

3.4.10 The Pre-primary School Children Language Acquisition Rating Scale

The instrument was adapted from the Student Oral Language Observation Matrix (SOLOM) which was developed by the California Department of Education, Ballard and Tighe's Idea Proficiency Test (IPT). The SOLOM was a rating scale used to assess their children's command of oral language on the basis of what they observe on a continual basis in a variety of situations - class discussions, playground interactions, and encounters between classes. The teacher matches a children's language performance in five dimensions (comprehension, vocabulary, fluency, grammar, and pronunciation). The instrument was adapted and modified in a simple and clear language that the teachers easily understood without too much explanation. In scoring this rating scale, five levels were identified from 1 to 5, on how well the statement will assess the pre-primary school language acquisition in each of five dimensions (1 point) - No proficiency, (2 points) - Low proficiency, (3 points) Moderate proficiency, (4 points) High proficiency, and (5 points). Very proficiency

Validation and Reliability of PSCLARS

In other to validate the rating scale, the draft was distributed to a few professionals and lecturers in the field of early childhood and educational foundations who subjected it to both content and face legitimacy to the appropriateness of the structure and content of the items. Their observations were made known and useful suggestions for improvement of the

instrument which was noted and effected appropriately. Thus, the instrument was submitted to the research supervisor who made his final correction before the final copies were produced. Subsequently, field testing of the instruments was conducted to check the reliability of the rating scale. Children at pre-primary schools in both public and private institutions took the instrument's revised version. These respondents were excluded from the primary study. Testing was done on the instrument's dependability using inter-rate techniques and the co-efficient obtained was 0.89.

3.3.11 Key Indepth Interview with Participating Pre-Primary School Children

This was a self-developed instrument by the researcher, used to elicit responses from the participating pre-primary school children in the course of the intervention process on their view on the use of the enhanced stimulations (songs and storytelling). It has two parts A and B. Parts A was created to gather demographic data from participating teachers like school type, class taught, gender and the time allocated for the interview.

Part B comprised the interviewer's questions. The following questions were asked from children: Would you like to share your experience with me about the use of enhanced stimulations (song/Storytelling) in teaching activities? Is there anything you would like to tell me about the mathematics activities? How did you see the class? (very interesting/partially interesting/ not interesting)? Would you like your teacher to continue teaching you mathematics using the enhanced stimulations (song and storytelling)? If yes, can you tell me why? If not, can you give reasons?

Validation of Key informant Indepth with Participating Pre-primary School Children

In order to ensure that this instrument had a face, content and construct validity, the instrument was shown to lecturers in the Department of early childhood and educational foundations for criticism. Their comments and suggestion were effected and approval was sorted from the researcher's supervisor before copies of the instruments were produced.

3.5 Selection of Themes

The themes used in the course of the study were selected from the Nigerian Educational Research and Development Council's Year Pre-Primary School Curriculum (NERDC, 2014). The various themes and sub-themes are listed below and were geared

towards the acquisition of the mathematical skills and knowledge of pre-primary school children. The various themes and sub-themes are listed below:

Themes: Mental Development

Sub-themes: The sub-themes include:

- Numerical counting
- Writing of Numbers
- Addition of numbers,
- Subtraction of numbers,
- Colours
- Shapes
- Construction of shapes

3.6 The Research procedure

The research process was carried out in four phases. These phases are listed below.

1. Selection of schools and obtaining of parents' consent
2. Educating the research assistants
3. Introduction of the experimental process and administration of pretest measures
4. Post-experimental phase

3.6.1 Selection of schools and obtaining of parents' consent

The researcher selected six schools that were used for the study and assigned them to control and treatment groups. Permission was gotten from the head teachers of the school selected, along with the letter of recommendation from the University of Ibadan's Department of Early Childhood and Educational Foundation, to make use of their school, staff and pre-primary school children. The researcher appealed to the school head to seek the cooperation and support of the teachers on behalf of the researcher. A brief discussion was held with the members of staff that were involved in the study, at the end of the discussion, a convenient time, day and location was fixed for the training. Through their class teacher, a letter of agreement was delivered to the parents of the children who will be participating in the experiment. Before the kids could take part in the experiment, the letters were returned to the researcher

3.6.2 Educating the research assistants

This took the form of training organised for the research assistants and teachers that took part in the study. The research assistants were Early Childhood Education graduates and class teachers of various pre-primary schools children selected for the study. The training was used to explain the objectives of the study, acquaint the teachers and research assistants with the respectively enhanced stimulations (song and storytelling) that were employed in the course of the fieldwork, introduction of instructional guides, (song and storytelling enhanced stimulation), explanation of various procedures, a pattern of the lesson and how to make proper use of the instructional guide, exposing them to some activities involved in the study, demonstration of the mastery of the song and stories. The teachers made presentation and were assessed on their ability to deliver lessons using storytelling and songs-enhanced stimulation in order to ensure that necessary corrections were made where necessary. A re-presentation was made to ascertain their mastery. The guides were given to them at the end of the training, which lasted for two weeks.

3.6.3 Introduction of the experimental process and administration of pretest measures

The first week was used for the administration of the pretest test and the intimidating pre-primary school children that participated in the study since the classroom setting and teaching took a different dimension from their usual classroom practices. The contents of the lesson, themes and various forms, and classes used were explained to the pre-primary school children. The children were informed that they would be engaged in some mental activities and mathematical problems that would require them to make use of the application of song and storytelling-enhanced stimulation to provide the answers. The administration of the pretest took place in both the treatment groups and the control group.

3.6.3.1 Experimentation (Treatment Stage)

At this stage was when the implementation process (treatment) began for the study. It should be noted that the treatment took the structure of a classroom teaching process but song and storytelling enhanced stimulation, were adopted to teach the participants in the experimental groups on the various themes as stated in the Year Pre-primary School curriculum developed by the Nigerian Educational Research and Development Council (NERDC, 2014). The children in the monitoring group received the same instruction on the

same subjects using traditional methods. The duration of this was eight weeks and the teachers and research assistants experimented for three periods per week. The researcher moved around the groups during the lesson to do properly monitoring of the lessons. This is to guarantee that they adhere to the instructions provided to them.

3.6.3.2 Treatment procedure for song-enhanced stimulation

The teaching activities in the experimental group were carried out for a period of eight weeks. The following steps were followed.

Step I: The lesson was introduced to the children through the use of questioning to access their entry knowledge

Step II: The lesson was presented to the children.

Step III: The teacher explained the mathematical concepts to the children

Step IV: The teacher introduced the song and taught the children the song

Step V: The children were allowed to sing the song along

Step VI: The teacher gave the children some mathematical exercises, to work on using the principles embedded in the song.

Step VII: The children were given the opportunity to ask questions

Step VIII: Children were asked questions depending on the principles being taught by the teacher.

Evaluation: The instructor gave some mathematical tasks for the children to provide answers to them.

Summary and Conclusion: The teacher reminded the children of the song and its message.

Assignment: The teacher gave the children take home task.

3.6.3.3 Treatment procedure for storytelling enhanced stimulation

The teaching activities in the experimental group were carried out for a period of eight weeks. The following steps were followed.

Step I: In order to begin the subject, the teacher asked them questions based on what they already knew.

Step II: The lesson was introduced to the children by the teacher

Step III: The mathematical concepts were also explained to the kids

Step I V: The instructors made the pupils sit around the table while he/she tell the story, using illustrations, and gestures to captivate the attention of the children and also making some demonstrations to make the lesson exciting.

Step V: Teacher presented some mathematics exercises to children using content of the story.

Step VI: The teacher asked the children question to ensure that they understand the narration.

Step VII: Children posed questions, and the instructor responded appropriately

Conclusion: The youngsters were given the story's summary by the teacher

Evaluation: To enable the learners to respond to the mathematics problem, the teacher asked a series of questions in the correct order.

Assignment: The teacher gave the children some mathematical tasks to take home.

3.6.3.4 Control group (Conventional Method Group)

The teaching activities in the control group were carried out for a period of eight weeks. The following steps were followed.

Step 1: Teacher began the class by posing questions based on the pupils prior knowledge.

Step 11: The teacher introduced the lesson topic to the children.

Step I11: The teacher explained the mathematical concepts to the children

Step 1V: The teacher wrote one or two examples for the children on the board.

Step V: Children were permitted to ask questions

Step VI: Based on the lesson, the teacher quizzed the pupils

Evaluation: Children were to provide answers to some mathematical tasks by the teacher.

Summary and Conclusion: Children were reminded of the lesson taught.

Assignment: The teacher gives the children some mathematical tasks to take home.

3.6.4 Post-experimental phase

3.6.4.1 Administration of key indept interview with participating pre-primary school teachers

Key Informant Interview (KII) was conducted by the researcher, to elicit responses from the participating school teachers in the experimental group. The process was guided by

the KII Question Guide. The KII was used for the collection of qualitative data to answer the research questions. It lasted for a period of 60 minutes.

3.6.4.3 Administration of post-test measures

The administration of the posttest measure took place for a week. Under the direction of the research assistants and the researcher, posttests were given to participants after the treatment of the experimental groups and the control group using the same tools as the pretests and in the same order. Mathematics Communication Skill Rubric for Pre-Primary School Children (MCS_RPC) and Rating Scale for Pre-Primary School Children Mathematical Knowledge (RSPCMK).

Summary of Procedure and Time Schedule for Research Procedure

S/N	Activity	Duration
1	Identification of sample and visits to Local Government Education office and selected schools	1 week
2	Training of research assistants (classroom teachers and ECE masters graduates)	2 weeks
3	Administration of pre-test across all group	1 week
4	Treatment of experimental groups with songs enhanced stimulation and storytelling-enhanced stimulation while the control group will be exposed to convectional strategy. Collection of qualitative data using, key informant interview, video recording and field notes	8 weeks
5.	Administration of post-test across all groups	1 week
6.	Collection of qualitative data with key informant interview	1 week

3.7 Method of Data Analysis

To examine the information gathered for this study, both descriptive and inferential statistics were used. The demographic information was analyzed using descriptive statistics, such as frequency count and percentage. The null hypotheses were examined using an inferential statistic from Analysis of Covariance (ANCOVA). Scheffe post –hoc test was used to determine the sources of significant differences among the groups. All hypotheses were tested at a 0.05 level of significance ($P < 0.05$). Qualitative data were analysed using thematic analysis.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents the results and discussion of the study in order of research questions and hypotheses raised including discussion of findings. It contains five sections which are: Section A: Demographic analysis of the preschool children. Section B: Answer to the research questions. Section C: Testing of the hypotheses at 0.05 level of significance. Section D: Discussion of finding and Section E: Summary of findings.

Section A: Demographic analysis of the participants

Table 4.1: Demographic information of the participants

Variables	Frequency	Percentage
Gender		
Male	62	54.4
Female	52	45.6
Total	114	100.0
School Type		
Private	55	48.2
Public	59	51.8
Total	114	100.0
Language Acquisition		
Low	82	71.9
Average	19	16.7
High	13	11.4
Total	114	100.0

Table 4.1 shows the demographic information distribution of the kids in pre-primary school as follows. Gender distribution: Majority of the pre-primary school children who participated in this study were male, which accounted for 54.4% while female pre-primary school children accounted for 45.6%. School type: Majority of the pre-primary school children who participated in this study attend public schools, which accounted for 51.8% while those who attend private schools accounted for 48.2%. Language Acquisition revealed that majority of the pre-primary school children have low language acquisition which accounted for 71.9%, followed by those with average language acquisition which accounted for 16.7% while those with high language acquisition accounted for 11.4%.

Section B: Testing the Hypotheses

H₀1a: There is no significant main effect of treatment on pre-primary school children acquisition of

- (a) Mathematical knowledge

Table 4.2: Summary of analysis of covariance (ANCOVA) showing the main effect of treatment on pre-primary school children acquisition of mathematical knowledge

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	11145.951 ^a	16	696.622	4.314	.000	.416
Intercept	23455.252	1	23455.252	145.259	.000	.600
Pretest PCMKT	74.405	1	74.405	.461	.499	.005
Treatment	2147.860	2	1073.930	6.651	.002	.121
School type	738.397	1	738.397	4.573	.035	.045
Language	13.896	2	6.948	.043	.958	.001
Treatment * School type	1750.841	2	875.421	5.421	.006	.101
Treatment * Language	481.053	4	120.263	.745	.564	.030
School type * Language	467.415	2	233.708	1.447	.240	.029
Treatment * School type * Language	6.769	2	3.385	.021	.979	.000
Error	15662.829	97	161.472			
Total	282693.000	114				
Corrected Total	26808.781	113				

a. R Squared = .416 (Adjusted R Squared = .319)

Table 4.2 showed that there is a significant main effect of treatment on pre-primary school children acquisition of mathematical knowledge ($F_{(2;97)}= 6.65$; $p<0.05$; partial $\eta^2=0.12$). Therefore, hypothesis 1a is rejected. The magnitude of the significant main effect for each treatment group was calculated, the treatment groups' estimated marginal means are shown in table 4.3

Table 4.3: Estimated marginal means score of pre-primary school children acquisition of mathematical knowledge across all treatment groups

Treatment	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Song enhanced stimulation	50.830	3.028	44.821	56.838
Storytelling enhanced stimulation	52.620	2.761	47.140	58.100
Conventional	40.215	2.558	35.137	45.293
Intercept				
Pretest mathematical Knowledge	31.474	-		
Posttest mathematical Knowledge	47.297	1.615		

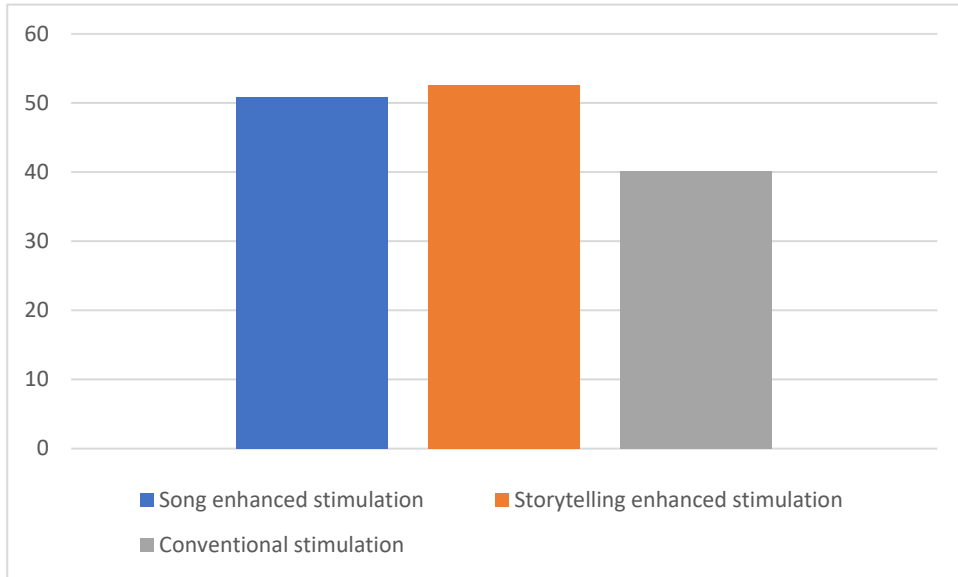


Figure 4.1: Bar chart showing mathematical knowledge scores across all the groups

Table 4.3 shows that pre-primary school children taught with storytelling-enhanced stimulation had the highest average rating (52.62), then those who were instructed using song-enhanced stimulation (50.83) while pre-primary school kids exposed to traditional stimulation had the lowest mean score (40.22). Further analysis of the table reveals that pre-primary school children's general performance in mathematical knowledge at the post-test with the mean (47.30) is higher than their pre-test (31.47). The significance of this finding is that students in pre-primary schools exposed to storytelling-enhanced stimulation acquired mathematical knowledge and performed better than those in song-enhanced stimulation and conventional stimulation and likewise those taught with song performed better than those exposed to conventional stimulation. Bar chart is used to further present the pre-primary school children's performance across all the treatment groups in Figure 4.1.

To reveal the source of the significance as revealed in Table 4.3, Scheffe' Post Hoc Pairwise comparison was used and an overviewis revealed in Table 4.4

Table 4.4: Scheffe' post hoc pairwise comparison on mathematical knowledge

Treatments	Storytelling enhanced stimulation	Song enhanced stimulation	Conventional Stimulation
Storytelling-enhanced stimulation		*	*
Song-enhanced stimulation	*		*
Conventional stimulation	*	*	

*Note: * implies that there is a significant difference*

Table 4.4 shows that Table 4.3's significant main effect, which was made clear by the difference between:

- i. Storytelling-enhanced stimulation and song-enhanced stimulation
- ii. Storytelling-enhanced stimulation and conventional stimulation
- iii. Song-enhanced stimulation and conventional stimulation

Therefore, it could be inferred that storytelling-enhanced stimulation improved Mathematics knowledge significantly better than song-enhanced stimulation while the two strategies improved mathematics knowledge significantly better than conventional strategy.

H₀1b: There is no significant main effect of treatment on pre-primary school children acquisition of communication of mathematical knowledge.

Table 4.5: Summary of analysis of covariance (ANCOVA) showing the main effect of treatment on pre-primary school children acquisition of communication of mathematical knowledge

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	63064.947 ^a	16	3941.559	14.272	.000	.702
Intercept	117872.126	1	117872.126	426.810	.000	.815
Pretest MCS_RPC	.632	1	.632	.002	.962	.000
Treatment	25055.977	2	12527.988	45.363	.000	.483
School type	48.057	1	48.057	.174	.677	.002
Language	1872.580	2	936.290	3.390	.038	.065
Treatment * School type	6838.760	2	3419.380	12.381	.000	.203
Treatment * Language	1062.797	4	265.699	.962	.432	.038
School type * Language	289.697	2	144.848	.524	.594	.011
Treatment * School type * Language	1875.306	2	937.653	3.395	.038	.065
Error	26788.491	97	276.170			
Total	638974.000	114				
Corrected Total	89853.439	113				

a. R Squared = .702 (Adjusted R Squared = .653)

Table 4.5 shows that there is a significant main effect of treatment on pre-primary school children acquisition of communication of mathematical knowledge ($F_{(2;97)}= 45.36$; $p<0.05$; partial $\eta^2=0.48$). Therefore, hypothesis 1b is rejected. The magnitude of the significant main effect for each treatment group was calculated, the predicted marginal averages of the treatment groups is presented in Table 4.6

Table 4.6: Estimated marginal means score of pre-primary school children acquisition of communication of mathematical knowledge across all treatment groups

Treatment	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Song enhanced stimulation	85.732	3.931	77.931	93.534
Storytelling enhanced stimulation	83.198	3.375	76.499	89.897
Conventional	40.078	3.357	33.415	46.740
Intercept				
Pretest Communication of Mathematical Knowledge	18.070	-		
Posttest Communication of mathematical Knowledge	67.978	2.098		

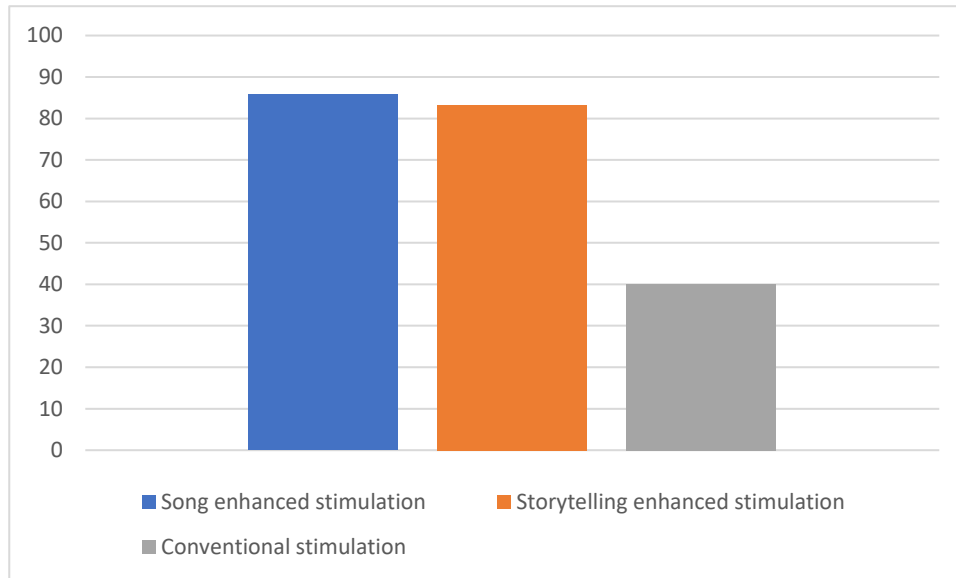


Fig 4.2: Bar chart showing pre-primary school children communication of mathematical knowledge across treatment groups

Table 4.6 shows that pre-primary school children taught with song enhanced stimulation had the highest mean score (85.73), followed by those taught with storytelling-enhanced stimulation (83.20) while pre-primary school children exposed to the lesson with the use of conventional stimulation had the lowest mean score (40.08). The further analysis of the table reveals that pre-primary school children general performance in communication of mathematical knowledge at the post-test with the mean (67.98) is higher than their pre-test (18.07). The significance of this result is that pupils in pre-primary school exposed to song enhanced stimulation acquired communication of mathematical knowledge performed better than both in storytelling-enhanced stimulation and conventional stimulation and likewise those exposed to storytelling-enhanced stimulation performed better than those exposed to conventional stimulation. Bar chart is used to further present the pre-primary school children performance across all the treatment groups in figure **4.2**

To reveal the source of the significance as revealed in the table 4.6, Scheffe' Post Hoc pairwise comparison was used and summary is reveals in the Table 4.7

Table 4.7: Scheffe' Post Hoc Pairwise Comparison on Communication of Mathematical Knowledge

Treatments	Song enhanced stimulation	Storytelling enhanced stimulation	Conventional Stimulation
Song enhanced stimulation		*	*
Storytelling enhanced stimulation	*		*
Conventional stimulation	*	*	

*Note: * implies that there is a significant difference*

Table 4.7 shows that the significant main effect that was revealed by Table 4.6 is due to significant difference between:

- i. Song-enhanced stimulation and Storytelling enhanced stimulation
- ii. Song-enhanced stimulation and Conventional stimulation
- iii. Storytelling-enhanced stimulation and Conventional stimulation

Therefore, it can be inferred that song-enhanced stimulation improved the communication of mathematics knowledge significantly better than storytelling-enhanced stimulation while the two strategies improved the communication of mathematics knowledge significantly better than the conventional strategy.

Ho2a: There is no significant main effect of school type on pre-primary school children acquisition of mathematical knowledge

Table 4.2 shows that there is a significant main effect of school type on pupils in pre-primary school acquisition of mathematical knowledge ($F_{(1;97)} = 4.57$; $p < 0.05$; partial $\eta^2 = 0.05$). Therefore, hypothesis 2a is rejected. In order to determine the school-type categories that have the higher mean score of mathematical knowledge, the estimated marginal means were used and a summary presented in Table 4.8

Table 4.8: Estimated Mean Score of Pre-primary School Children Mathematical knowledge across School type

School type	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Boundx,
Private	52.809	3.027	46.800	58.817
Public	43.010	2.606	37.838	48.181

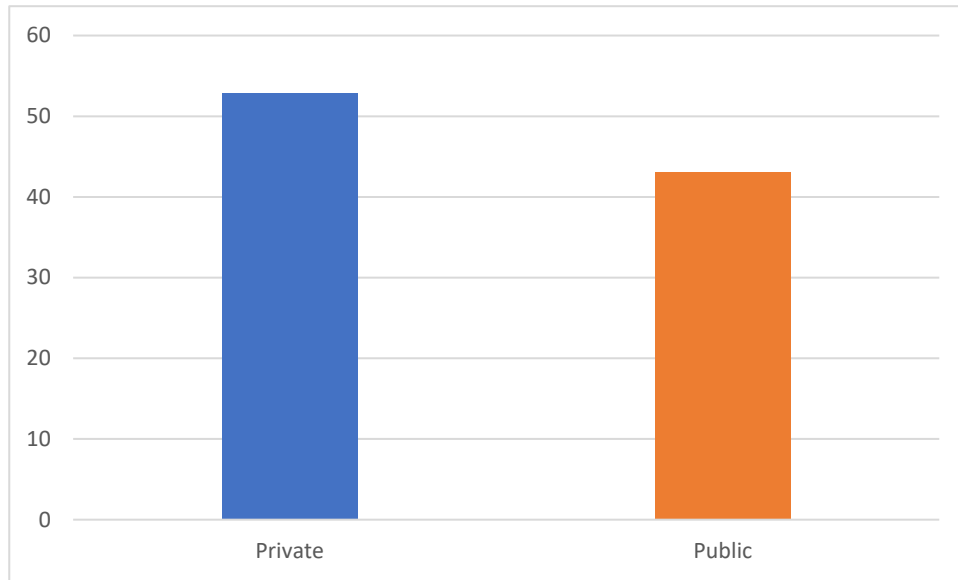


Figure 4.3: Bar chart on pre-primary school children mathematical knowledge across school types

Table 4.8 shows that private school pre-primary children acquired higher mathematical knowledge mean score (52.81) than public school pre-primary school children (43.01). It is depicted below with a bar chart in Figure 4.3.

Ho2b: There is no significant main effect of school type on kids in pre-primary school acquisition of communication of mathematical knowledge.

Table 4.5 shows that there is no significant main effect of school type on kids in pre-primary school acquisition of communication of mathematical knowledge ($F_{(1;97)}= 0.17; p>0.05$; partial $\eta^2=0.00$). Therefore, hypothesis 2b is not rejected.

Ho3a: There is no significant main effect of language acquisition on pre-primary school children's acquisition of mathematical knowledge.

Table 4.2 shows that there is no significant main effect of language acquisition on pre-primary school children's mathematical knowledge ($F_{(2;97)}= 0.43; p>0.05$; partial $\eta^2=0.00$). Therefore, hypothesis 3a is not rejected.

Ho3b: There is no significant main effect of language acquisition on pre-primary school children's acquisition of communication of mathematical knowledge.

Table 4.5 shows that there is a significant main effect of language acquisition on pre-primary school children's acquisition of communication of mathematical knowledge ($F_{(2;97)}= 3.39; p<0.05$; partial $\eta^2=0.07$). Therefore, hypothesis 3b is rejected. In order to determine which of the language acquisition categories has the highest communication of mathematical knowledge, the estimated marginal means were performed and its summary is presented in Table 4.9

Table 4.9: Estimated Marginal Means Scores of Pre-Primary School Children Communication of Mathematical Knowledge across Language Acquisitions

Language Acquisition	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
High	58.622	4.706	49.281	67.963
Average	74.346	4.065	66.278	82.413
Low	70.469	2.185	66.132	74.806

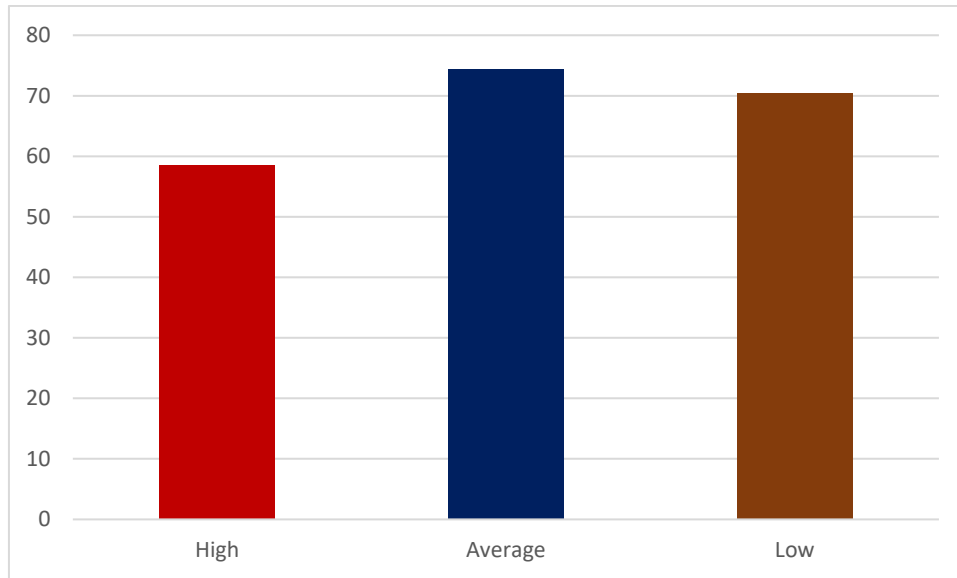


Figure 4.4: Bar chart showing the pre-primary school children communication of Mathematical knowledge across language acquisition

Table 4.9 shows that pre-primary school children with average language acquisition have the highest mean score (74.35), followed by pre-primary school children with low language acquisition (70.47) while pre-primary school children with high language acquisition have the lowest mean score (58.62).

Ho4a: There is no significant interaction effect of treatment and school type on children in pre-primary school children acquisition of mathematical knowledge

Table 4.2 shows that there is a significant interactive effect of treatment and school type on pre-primary school children's acquisition of mathematical knowledge ($F_{(2;97)}=5.421$; $p<0.05$; partial $\eta^2=0.10$). Therefore, hypothesis 4a is rejected. A line graph is used to display the line of interaction between treatment and school type. The line graph reveals that public school children had higher mean scores in experimental I and II but private school children had higher performance in control. Therefore, the interaction is disordinal.

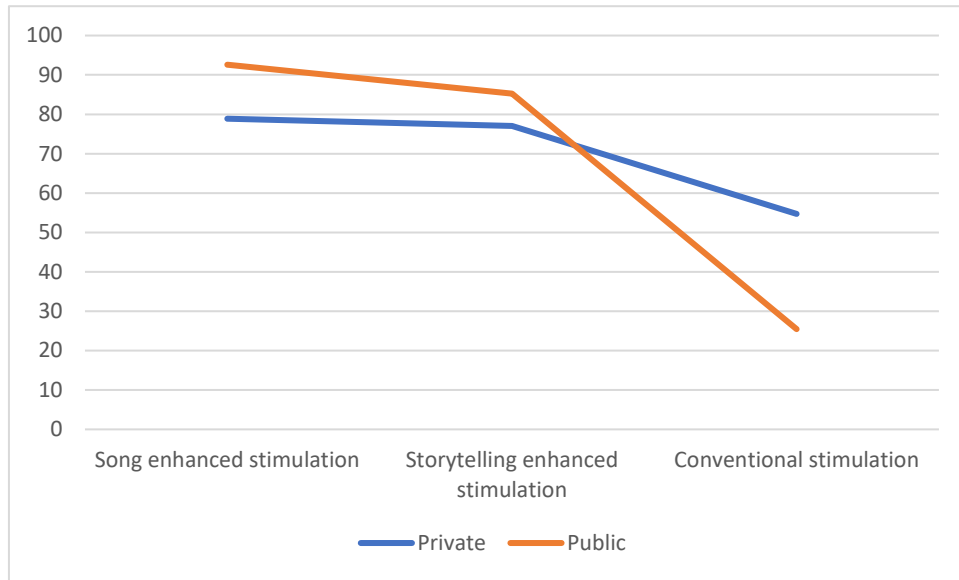


Fig 4.5: Interaction effects of treatment and school type on pre-primary school children's mathematical knowledge

Ho4b: There are no significant interactive effects of treatment and school type on pupils in pre-primary school acquisition of communication of mathematical knowledge.

Table 4.5 shows that there is a significant interactive effect between treatment and school type on children in pre-primary school acquisition of communication of mathematical knowledge ($F_{(2;97)} = 12.38$; $p < 0.05$; partial $\eta^2 = 0.20$). Therefore, hypothesis 4b is rejected. A line graph is used to display the line of interaction between treatment and school type. The line graph reveals that public school children had higher mean scores in experimental I and II but private school children had higher performance in control. Therefore, the interaction is disordinal.

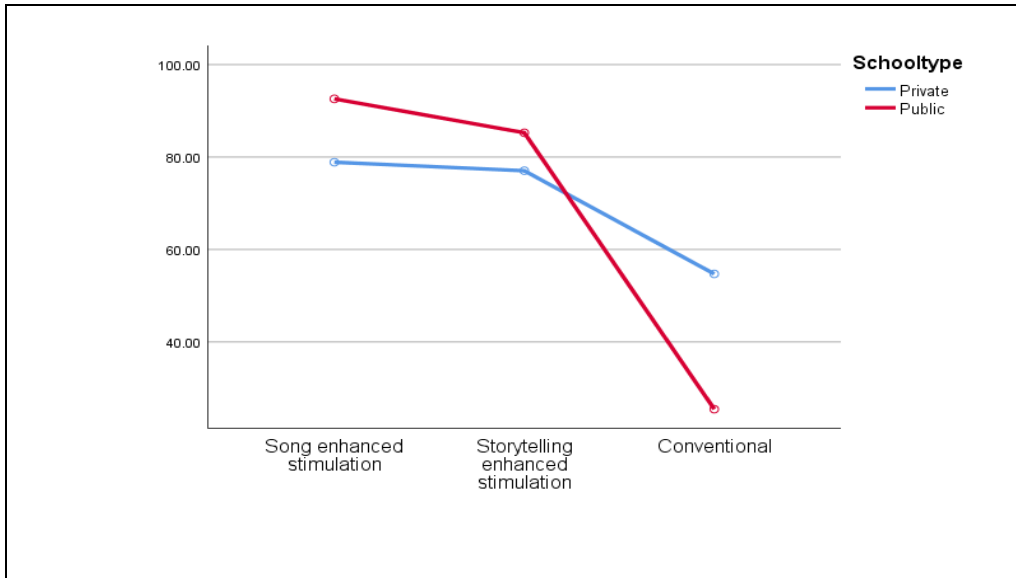


Fig 4.6: Interaction effect between treatment and school type on pre-primary school children communication of mathematical knowledge.

Ho5a: There is no significant interactive effect of treatment and language acquisition on children in pre-primary school children of mathematical knowledge

Table 4.2 shows that there is no significant interactive effect of treatment and language acquisition on kids in pre-primary school acquisition of mathematical knowledge ($F_{(4;97)} = 0.75; p > 0.05; \text{partial } \eta^2 = 0.03$). Therefore, hypothesis 5a is not rejected.

Ho5b: There is no significant interactive effect of treatment and language acquisition on children in pre-primary school acquisition of communication of mathematical knowledge.

Table 4.5 shows that there is no significant interaction effect between treatment and language acquisition on pre-primary school children's acquisition of communication of mathematical knowledge ($F_{(4;97)} = 0.96; P > 0.05; \eta^2 = 0.04$). Therefore, hypothesis 5b is not rejected.

Ho6a: There are no significant interactive effects of school type and language acquisition on pupils in pre-primary school acquisition of mathematical knowledge

Table 4.2 shows that there is no significant interaction effect of school type and language acquisition on pre-primary school children's acquisition of mathematical knowledge ($F_{(2;97)} = 1.45; p > 0.05; \text{partial } \eta^2 = 0.03$). Therefore, hypothesis 6a is not rejected.

Ho6b: There are no significant interaction effects of school type and language acquisition on pre-primary school children's acquisition of communication of mathematical knowledge.

Table 4.5 shows that there is no significant interactive effect between school type and language acquisition on pupils in pre-primary school acquisition of communication of mathematical knowledge ($F_{(2;97)} = 0.52; p > 0.05; \text{partial } \eta^2 = 0.01$). Therefore, hypothesis 6b is not rejected.

Ho7a: There is no significant interactive effect of treatment, school type and language acquisition on children in pre-primary school acquisition of mathematical knowledge

Table 4.2 reveals that there is no significant interactive effect of treatment, school type and language acquisition on pupils in pre-primary school acquisition of mathematical knowledge ($F_{(2;97)} = 0.021; p > 0.05; \text{partial } \eta^2 = 0.00$). Therefore, hypothesis 7a is not rejected.

Ho7b: There are no significant interaction effects of treatment, school type and language acquisition on kids in pre-primary school acquisition of communication of mathematical knowledge.

Table 4.5 shows that there is a significant interactive effect of treatment, school type and language acquisition on pre-primary school children's acquisition of communication of mathematical knowledge ($F_{(2;97)}=3.40;p<0.05;partial\eta^2=0.07$). Therefore, hypothesis 7b is rejected.

Section C: Answers to the research questions

Research question 1: How will pre-primary school teachers view the use of songs and storytelling stimulation for the teaching of mathematics to pre-primary school children?

To answer this question, a thematic approach of qualitative data analysis was adopted to present the findings from the information gathered from the participating pre-primary teachers during the intervention phase of the study.

Answer to research question 1a: This study categorised pre-primary teachers' views about the use of song-enhanced stimulation into two major themes namely, energizer and strategy.

Theme 1: Energizer

Responses from the teachers in both public and private schools found the use of song-enhanced stimulation as a tool to arouse pre-primary school children's interest in learning mathematics.

Teacher X, who is a teacher in a public school said, the method is very good in teaching the children, even the children that do not use to participate very well in my class were very active during the class activities because they wanted to interact with the materials and move their body instead of sitting down (**KII, female, Teacher, St Mathias Primary School, 2022**)

While responding to the same question, in addition to what Teacher X said, another teacher submitted that:

Teacher Y, who is a teacher, in the private school said, the uniqueness of the strategy also made children get excited any time we were about to learn mathematics because they were taught songs in their local language,

so it made it look so much different to them because they are not taught Yoruba until they get to the primary classes in our school. Even some of their parents expressed their joy in seeing the children count, and tell the colours, and shapes in the local language to the head teacher and me when they drop and pick up their wards in school (**KII, female, Teacher, B' Alpha Montessori School, 2022**)

Theme 2: Efficient strategy

Teacher X, who is a teacher in a public school said, songs help to improve the memory of children because when they sing, they remember what they are taught. The various activities added to the songs also made the children learn joyfully and also remembered what they were taught quickly. They learnt well while participating in the activities and singing the song in the classroom (**KII, female, Teacher, St Mathias Primary School, 2022**).

In addition to this, another teacher gave her own opinion thus.

Teacher Y who is a teacher in the private school said, children like songs naturally so I am not surprised at the outcome of the study, seeing how my children learned all the concepts so fast. I sometimes use songs too to teach them in the classroom (**KII, female, Teacher, B' Alpha Montessori School, 2022**).

Answer to research question 1 b

The responses gathered from the pre-primary school teachers in both public and private schools who participated in the study viewed storytelling-enhanced stimulation as fun-filled activities suitable to the children.

Theme 1: Fun-Filled Activities

Teacher X who is a teacher in a public school, said my children are always ready for math class because they want to listen to a story. The children participated in all the activities with joy and responded promptly to the questions asked. Even Brutus who does not participate

in the class participated well during the lesson. **(KII, female, Teacher, Saint Loes' Catholic School, 2022).**

Teacher Y who is a teacher in the public school said, the children were very excited and happy to participate in the various activities that accomplished the stories. Their interests were stimulated towards learning because of the materials that were provided for the learning of mathematics and the stories **(KII, female, lecturer, Temitope, International School, 2022).**

Theme 2: Suitable to the Children

Responses from the teachers in both public and private schools, who viewed the use of storytelling-enhanced stimulation as suitable to the children in teaching mathematics

Teacher X who is a teacher in a public school said, the method is very fine because it allowed the children to understand mathematics more than how they showed understanding before in mathematics. The children also participated very well and were active in the classroom. The children were neither sleeping nor tired during the class like some of them usually do **(KII, female, Teacher, Saint Loes' Catholic School, 2022).**

Teacher Y who is a teacher in a public school said, this method helps children learn mathematics without any stress. You can see the way they all rush out each time we want to learn mathematics because they know they will perform some activities with materials and also sings **(KII, female, lecturer, Temitope, International School, 2022).**

Research question 2: What possible experience will pre-primary school children have concerning the use of songs and storytelling-enhanced stimulation? To answer this question, a thematic approach of qualitative data analysis was adopted to present the findings from the information gathered from the participating pre-primary school children.

Answer to research question 2a

The data collected from the participating pre-primary school children to answer this question revealed two interesting themes which revealed that songs enhanced stimulation is very interesting and a shift from their conventional way of learning Mathematics,

Theme 1: Very interesting

Child A: who is a child in the public school said, the class is very interesting, I love the way we sing and move our bodies during mathematics class. I am very happy each time it is mathematics time because I know I will sing (**KII, female, child, St Mathias Primary School, 2022**).

Child B: who is a child in the private school said, we usually have objects to interact with during class teaching. I like the way they rolled the balls when we learnt addition. I am very happy each time it is mathematics time (**KII, female, child, B' Alpha Montessori School, 2022**).

Theme 2: Shift from their conventional learning of Mathematics,

Child A, who is a child in the public school said, our teacher does not use to sing for us during mathematics class before. She will just write the topic on the board and give us work to do (**KII, male, child, St Mathias Primary School, 2022**).

Child B, who is a child in the private school said, our teacher sometimes sings for us but she does not sing for us in Yoruba. I love the counting song so much. Ení, Eeji, Eeta ṛ- Jan se mole (**KII, male, child, B' Alpha Montessori School, 2022**).

Answer to Research Question 2b The data collected from the participating pre-primary school children to answer this question 3 revealed two interesting themes which revealed that storytelling-enhanced stimulation is enjoyable and full of activities.

Theme 1: Enjoyable

Child A, who is a child in the public school said, the way we usually sit on the mat to listen to stories and learn mathematics is very interesting to

me. We listen to stories at first and before we do the mathematics task (**KII, female, child, Saint Loes' Catholic School, 2022**).

Child B, who is a child in a private school said, I want my teacher to continue teaching me mathematics using different stories so that I can listen to more stories and play with an object during mathematics class. I like the math class (**KII, female, child, Temitope, International School, 2022**).

Theme 2: Filled with activities

Child A, who is a child in a public school said, *that he enjoyed playing with balls and straws when his teacher teaches mathematics* (**KII, male, child, Saint Loes' Catholic School, 2022**).

Child B, who is a child in the private school said, *after listening to the story for the class, my teacher usually gives us various objects to play with. After that, she asks us to tell her the answer to the question asked* (**KII, female, child, Temitope, International School, 2022**).

Research Question 3: What possible challenges will pre-primary school teachers face in the course of using song-enhanced stimulation to facilitate mathematics lessons? However, despite the advantage of using songs and storytelling-enhanced stimulation in teaching pre-primary school children mathematics, the teachers listed out some challenges they encountered while adopting the strategies to facilitate their mathematics lessons.

Answer to research question 3a

Some of the challenges of using song-enhanced stimulation were summarized into various themes, time-consuming and crowdedness of the classroom.

Theme 1: Time consuming,

Teacher X who is a teacher in a public school said, most of the time, the time we spent during mathematical class affects the teaching of other subjects in the timetable because we are unable to teach other subjects for that day. The children need to first learn how to sing the songs for the lesson so that they can flow well with the lesson (**KII, female, teacher, St Mathias Primary School, 2022**).

Teacher Y who is a teacher in a private school said, *it is time-consuming because the teacher needs to learn the song very well to be able to teach the children. That time could have been used to attend to other things in the classroom* (KII, male, teacher, B' Alpha Montessori School, 2022).

Theme 2: Crowdedness of the classroom

Teacher X, who is a teacher in a public school said, most of the children were distracted from the lesson because children from other classes usually surround the classroom window each time the mathematics period falls toward break period. The site of other children does not make the children concentrate on what you are teaching them. The class control was a big challenge for me initially when we started the class, but towards the middle of the experiment, it got better (KII, female, teacher, St Mathias Primary School, 2022).

Teacher Y, who is a teacher in a public school said, the children were more engrossed in the singing of the song and activities than learning the mathematical concept. Most time times, I will have to calm them down before we can continue the lesson (possible distraction that interfere with learning. I think the reason for this is the fact that the song was composed in their mother tongue (Yoruba) which is different from the normal songs we sing in the English language while we are learning (KII, male, child, B' Alpha Montessori School, 2022).

Answer to research question 3b

The teachers listed out some challenges they encountered while adopting storytelling strategies to facilitate their mathematics lessons. Some of these challenges were summarized into various themes such as additional tasks and language barriers.

Theme 1: Additional task

Teacher X, who is a teacher in the public school said, I have to write my lesson note for the week and also hold the hand's younger children within the class to write. Most of the time we have mathematics period it

usually consumes time because I must ensure that most of the children understand the story and participate in the activities before asking them questions (**KII, male, child, Saint Loes' Catholic School, 2022**).

Teacher Y, who is a teacher in a private school said, *I love this method that you introduce to us to learn mathematics but using it is time-consuming and requires extra effort on the part of the teacher to implement it* (**KII, female, child, Temitope, International School, 2022**).

Theme 2: Language barrier

Teacher X, who is a teacher in the public school said, most of the children in my class don't understand the Yoruba language because some of them are Hausa while the others are from the neighbouring country Benin Republic so we had to teach the children to sing the songs over and over again. Those looking at your mouth does not understand what you are saying and expect their peer who understands their language to interpret it for them, they are slowing the pace of the activities because they don't easily follow simple instruction (**KII, male, child, Saint Loes' Catholic School, 2022**).

Teacher Y, who is a teacher in the private school said, *some of the children are not Yoruba which is why they are not responding prompted to the stories and questions raised. So I have to interpret it for them to be carried along* (**KII, female, child, Temitope, International School, 2022**).

Research Question 4: What other observable skills can be developed by pre-primary school children when song and storytelling-enhanced stimulation is used? To answer this question, a thematic approach of qualitative data analysis was adopted to present the findings from the field notes of the research assistants in both songs and storytelling-enhanced stimulation groups. During the activities in both schools, some noticeable skills were observed in the children in the course of activities by the research assistants, teachers, and researchers.

Answer to research question 4a

Observable skills noticeable in the children in the course of songs enhanced stimulation activities by the research assistants, teachers, and researchers. The skills that were observed

in the pre-primary school children were classified into three namely: physical skills, socio-emotional skills, and leadership skills.

Theme 1: Physical skills

The application of song-enhanced stimulation involved various activities which gave room for the children to participate in the activities and make good use of the various parts of their bodies. For example, the children's hands were used for counting objects, throwing balls, and clapping, all these activities can help in the development of gross motor skills in their physical domain.

For the fine motor skills of children, the activities involve drawing shapes in the air and picking objects from one container to the other. The legs were used for movement and stamping of feet while other bodily movement includes shaking of the waist and nodding of the head among others.

Theme 2: Socio-emotional skills

The song-enhanced stimulation helped the pre-primary school children foster the development of socio-emotional skills. During the activities, the children were able to work together in groups, took turns, interact and tolerate each other, and related well.

Theme 3: Leadership skills

Most of the children were eager to distribute the materials such as balls, bottle corks, and straws among others to their peers in the classroom at the commencement of the class activities. After each class, some pre-primary schools took up the duties of always packing all the materials used back into the sack and keeping them in the classroom corner. Children helped each other. For instance, those who understand Yoruba helped to interpret those who do not understand Yoruba.

Answer to research question 4b

Observable skills are noticeable in the children in the course of storytelling-enhanced stimulation activities by the research assistants, teachers, and researchers. The skills that were observed in the pre-primary school children were classified into three namely: speaking skills, listening skills, and intellectual skills.

Theme 1: Speaking skills

During the experimental process, the teacher and research assistant engaged the children with stories and some activities during mathematics class. Children were asked to retell some of the stories that they were told. Their teacher and research assistants testified that some of the children who hardly talked in the class were so happy to participate in the lesson and well able to retell the stories.

Theme 2: Listening skills

During the lesson, the children listened to various stories from their teacher and researcher assistant. They were also compelled to follow the teacher's instructions to participate in class activities and interact with materials. The children paid attention to the lesson because they wanted to listen to stories. They were able to retell the stories to a large extent because they pay adequate attention.

Theme 3: Intellectual skills

The children were able to remember the stories and at the same time apply them to answer the mathematics questions asked by their teacher and research assistants and also perform some mathematics tasks in the course of the activities following the storyline.

Section D

Summary of findings for qualitative

- Pre-primary School Teachers viewed the use of song-enhanced stimulation as an effective strategy and energizer for children in teaching pre-primary school pupils mathematics at this level of education.
- Pre-primary school teachers viewed storytelling-enhanced stimulation as fun-filled activities suitable to the children and when applied as an instructional strategy to pre-primary school children's mathematical concepts.
- Pre-primary school children shared their experiences when songs enhanced stimulation are used to facilitate their mathematics lessons as a shift from the normal classroom and very interesting
- Pre-primary school children shared their experiences when storytelling-enhanced stimulation is used to facilitate their mathematics lessons as enjoyable and full of activities.

- Pre-primary school teachers listed some of the challenges encountered during adoption of songs enhanced stimulation to facilitate their mathematics lessons as time consuming, crowdedness of the class and additional task.
- Some of the challenges encounter during adopting storytelling-enhanced stimulation to facilitate their mathematics lessons as additional tasks and language barriers.
- Pre-primary school teachers listed some challenges they encountered while adopting storytelling strategies to facilitate their mathematics lessons. Some of these challenges were summarized into various themes time-consuming and language barrier.
- Some challenges they encountered while adopting storytelling strategies to facilitate their mathematics lessons. Some of these challenges were summarized into various themes time-consuming and language barrier.
- Observable skills by pre-primary school children, when songs enhanced stimulation, are used physical, socio-emotional and leadership skills.
- Observable skills by pre-primary school children when storytelling-enhanced stimulation are used are listing, speaking and intellectual skills.
- There is a significant main effect of treatment on pre-kids in pre-primary school acquisition of Mathematical Knowledge
- There is a significant main effect of treatment on kids in pre-primary school acquisition of Communication of Mathematical Knowledge
- There is a significant main effect of school type on kids in pre-primary school acquisition of Mathematical Knowledge
- There is no significant main effect of school type on kids in pre-primary school acquisition of Communication of Mathematical Knowledge
- There is no significant main effect of language acquisition on kids in pre-primary school acquisition of Mathematical knowledge
- There is a significant main effect of language acquisition on kids in pre-primary school acquisition of Communication of Mathematical knowledge
- There is a significant interactive effect of treatment and school type on pupils in pre-primary school acquisition of Mathematical knowledge

- There is a significant interactive effect between treatment and school type on pupils in pre-primary school acquisition of Communication of Mathematical knowledge
- There is a no significant interactive effect of treatment and language acquisition on children in pre-primary school acquisition of Mathematical knowledge
- There is no significant interactive effect between treatment and language acquisition on children of pre-primary school acquisition of Communication of Mathematical knowledge
- There is a no significant interactive effect of school type and language acquisition on kids in pre-primary school acquisition of Mathematical knowledge
- There is no significant interactive effect between school type and language acquisition on kids in pre-primary school acquisition of Communication of Mathematical knowledge
- There is no significant interactive effect of treatment, school type and language acquisition on kids in pre-primary school acquisition of Mathematical knowledge
- There is a significant interactive effect of treatment, school type and language acquisition on pre-primary school children acquisition of Communication of Mathematical knowledge.

4.2 Discussion of Findings

4.2.1a Pre-primary school teachers viewed about the use of song-enhanced stimulation.

The pre-primary school teachers' views the use of song-enhanced stimulation as an energizer. This may also be connected to the fact that song-enhanced stimulation enables children to learn in a fun-filled atmosphere. The finding may also be due to the fact that the method allowed the pre-primary school children to be fully engaged in their lessons with different activities. This is also in line with Schoepp, (2001), Salcedo, (2002), Rosová, (2007), and Sigurðardóttir (2012) who noted that songs enhanced stimulation is appropriate for pre-primary children learning and understanding because it arouses children's interest, helps them learn easily and create a relaxing learning environment for children to learn. The pre-primary school teacher's views the use of song-enhanced stimulation as an efficient strategy. This may be a result of the fact that song-enhanced stimulation is suitable for

children's interests, needs, and ages. The result supported the finding of (Hirsh, 2004), that songs enhanced stimulation helps children to expand their attention span and memory.

4.2.1b Pre-primary school teachers viewed about the use of storytelling-enhanced stimulation

The pre-primary school teacher's views the use of storytelling-enhanced stimulation as fun-filled activities. This accounted for reason being that storytelling-enhanced stimulation creates room for children to experience learning in an active and engaging form which is different from the way they have been exposed to their mathematics lesson previously.

The result is in line with (Casey et al, 2004; Hong, 1999; Van den Heuvel-Panhuizen, 2012), that storytelling-enhanced stimulation provides enjoyable and meaningful contexts in which mathematical content and concepts is taught to children. The pre-primary school teacher's views the use of storytelling-enhanced stimulation as suitable to the children. This may be as a result of the fact that children love to listen to stories, get involved with various activities, and interact with peers, all these may be possible during the use by story-telling enhanced stimulation in teaching mathematics. This outcome matched what was submitted of Eder and Cajete, (2010) Hassan and Mahkameh, (2013) that storytelling-enhanced stimulation is suitable for pre-primary children's needs, interest, and learning, arouses creativity, curiosity, and logical thinking in children, this prepares them to be able to solve problems in the future.

4.2.2a Pre-primary school children's experiences about song-enhanced stimulation

The pre-primary school children gave their view concerning the use of songs enhanced stimulation to teach mathematics as a shift in learning strategy from their conventional learning of Mathematics. This may be a result of the fact that the introduction of songs enhanced stimulation into the children's mathematics lessons created an atmosphere of learning that is different from the way their teachers use to teach them mathematics in their previous lesson, where they will just sit down to listen to the teacher and copy what is on the board into their notebook. The result is in line with Ara, (2009), that songs enhanced stimulation offers a great opportunity to help children change their classroom routine because their petition of a particular method makes the lesson boring and lacks fun. Songs enhanced stimulation can be applied in a lesson to give students a deliberate diversion to relax their thoughts and unleash their creativity (Shen, 2009). The pre-primary school children gave

their view concerning the use of songs enhanced stimulation to teach mathematics as very interesting. This may be a result that the song's enhanced stimulation allowing the children to sing and engage in various activities during the lesson. The children were also able to participate actively during the lesson in a joyful learning atmosphere. The result from the study was also in line with the submission of Hirsh (2004), that songs enhanced stimulation makes the learning atmosphere more relaxing and comfortable by altering the mood of the children from passive ones to active mood.

4.2.2b Pre-primary school children experience storytelling-enhanced stimulation

The pre-primary school children gave their view concerning the use of storytelling-enhanced stimulation to teach mathematics as a very enjoyable instructional strategy. This may be a result that storytelling-enhanced stimulation is one of the strategies that appeal to the level and interests of the children. This may also be a result of children's natural love for storytelling. The result is in line with Zazkis and Liljedahl, (2009) that the various activities that accomplish storytelling-enhanced simulation make it suitable for pre-primary school children since learning is not structured in a one-way process. Children fully participate in the mathematical lesson when the elements in the stories adopted capture their imagination and interest (Schiro, 2004). Also, the pre-primary school children gave their views concerning the use of storytelling-enhanced stimulation to teach mathematics as a method that is full of activities. This is due to the fact that storytelling-enhanced stimulation provided room for the active engagement of children due to the various instructional materials that were provided for them alongside the stories. The outcome is consistent with what was submitted of Fi (2008), that storytelling-enhanced stimulation is an important and effective technique that allows children to share and experience learning collaboratively with their peers. This is also in line with Wakonse et al, (2015) that storytelling-enhanced stimulation enables pre-primary school children to participate actively in the lesson.

4.2.3a Challenges encountered during adopting songs enhanced stimulation

The pre-primary school teachers listed some challenges they encountered during adopting of song-enhanced stimulation as time-consuming, crowdedness of the classroom, and additional tasks. Time consuming, this may be a result of the fact, not all the children were able to sing the songs as expected. Not all children in the classroom understand Yoruba

as a language, so the teacher will spend more time teaching the children the song before introducing the activities. This result is in line with Noor and Nur, (2020) that understanding and singing a song may be difficult for children, if they are not familiar with the language used in composing the song. For additional tasks, this may be a result that the teachers are not exposed to the use of songs enhanced stimulation in teaching mathematics, and this might take them some time to adjust to the new method being introduced. This is also in line with Akuno (2005) that music was considered an extracurricular activity but when it was introduced into learning, it became difficult for the teachers to implement.

4.2.3b Challenges encountered during adopting storytelling enhanced stimulation

The teachers listed out some challenges they encountered while adopting storytelling strategies to facilitate their Mathematics lessons. Some of these challenges were summarized into various themes as additional tasks and language barriers. This is maybe a result of the fact that, the method is new to the teachers and language is very essential in communicating ideas and knowledge to students. This result is in line with Hajah, Roslinawati. Masitah, and Hardimah (2020), who opined that language was a hurdle, and it was one of the main difficulties encountered by the teacher in expressing himself within the story. During the narration, code switching between English and many languages and sentence translations were frequently used, which increased the length of the sessions from nine to twenty minutes.

4.2.4a Observable skills in Pre-primary school children during the use of songs enhanced stimulation

The notable skills that were noticed in children include social skills, physical skills, and leadership. This may be a result of the fact that songs enhanced stimulation enables children to be involved in various physical activities, using different parts of their bodies. This may also be subject to the fact that when songs enhanced stimulation is applied in a lesson, it allows children to learn collaboratively with their peers, share, and also take turns. This is in line with Monro, (2010), that the use of song-enhanced stimulation enhanced children's development (bodily system) and learning. Song-enhanced stimulation allows children involved in a form of play through various activities that accomplish the song which promotes children's learning and improves the child's social, emotional, mental, and physical

abilities in ways that formal classroom instruction cannot teach (Kendrick, 2005; Lohfdahl 2005 and Sevinc, 2004).

4.2.4b Observable skills in Pre-primary school children during the use of storytelling enhanced stimulation

Some of the noticeable skills in the children during the use of storytelling-enhanced stimulation include listening, speaking, and intellectual skills. This may be a result of the fact that storytelling-enhanced stimulation involves various processes such as listening, retelling, and application of the story to solve and to construct their knowledge naturally through questioning. The results are in line with various studies as discussed below. For listening skills, this result is in line with Oduolowu and Akintemi, (2014), that storytelling improves the listening skills of primary one children. Storytelling improves the listening skills of children (Aslina and Mazlina, 2018) This result is also in line with Zazkis and Liljedahl (2009), that using storytelling-enhanced stimulus to teach Mathematics can aid young children in understanding complex ideas and thoughts since it encourages critical thinking and communication of mathematical skills between the teacher-children and children to their peers. For Intellectual skills, this is in line with (Fikriah, 2016) that, storytelling-enhanced stimulation develops the imagination level of children, in the process, either by telling or listening, children can come up with new ideas. Storytelling-enhanced stimulation produces a setting that is conducive for creativity, emotion, and reason which could increase students' enjoyment of and retention of Mathematics (Modi, 2012). Storytelling-enhanced stimulation help children learn in a relaxed environment, actively participate in the lesson and logically follow the storyline, think logically to provide answers to the questions accomplishing the story (Amanjot and Joyce, 2015).

4.2.5 Main effect of treatment on pre-primary school children acquisition of mathematical knowledge

The results showed that the treatment's main effect is indeed quite significant on pupil's in pre-primary school acquisition of mathematical knowledge. The two treatments used in the study are song-enhanced stimulation and storytelling- enhanced stimulation. The finding of the study may be as a result of the fact that song-enhanced stimulation are capable of helping children develop intellectually and also recall mathematical facts whenever they are needed.

When children sing songs, they also learn the lyrics of the song and consequently message from the song is passed unto them. This in line with AyferKocabaú (2009) who found that there was a significant effect of song-enhanced stimulation on students' attitudes, achievements and multiple intelligences in a mathematics course. Also, Charlyn et al (2016), discovered that there was significant effect of integer song aided-instruction on students' performance in mathematics. Also, storytelling-enhanced stimulation is one of the effective strategy that is appropriate for children at this stage of learning. When children listen to stories, it enable them to process the storyline and solve problems with it. The study collaborates various research results that storytelling-enhanced stimulation has potentials in helping pre-primary school children in learning various mathematical concepts which includes: geometry (Casey, Erkut, Ceder, and Young, 2008; Rosen and Hoffman, 2009; Skoumpourdi and Mpakopoulou, 2011) and mathematics vocabulary (Jennings et al., 1992).

4.2.6 Main effect of treatment on pre-primary school children acquisition of Communication of mathematical knowledge

The results showed that the treatment's main effect is indeed quite significant on children in pre-primary school acquisition of Communication of Mathematical Knowledge. The results revealed that both song-enhanced stimulation and storytelling-enhanced stimulation increase children acquisition of Communication of Mathematical Knowledge. For song-enhanced stimulation, this may be as a result of the fact that song-enhanced stimulation aid children language communication. For storytelling-enhanced stimulation, this may be as a result of the fact that children; storytelling-enhanced stimulation givens room for children to retell the story learnt, this process of retelling helps to improve pre-primary children communication of mathematical knowledge, since they need to tell how they arrived at the final answer. The investigation's finding follows with Anderson et al. (2005); Van and Boogard, (2008); Van and Elia, (2013), that storytelling-enhanced stimulation increases children ability to communicate mathematically.

4.2.7 Main effect of school type onpre-primary school children acquisition of mathematical knowledge

The study showed that there is a significant main effect of school type on children in pre-primary school acquisition of Mathematical knowledge.This may be due to face that,

during the training, the private school teachers are very receptive unlike the public schools teachers. This might have led to effective implementation of the two strategies (songs and storytelling-enhanced stimulation) during mathematics lessons which in return have helped the pre-primary school children in the private school to acquire of mathematical knowledge in the various concepts taught. This study, compliment with that of Braun, Jenkins and Griggs, (2006), who found that private school students outperformed their public schools peers.

Olasehinde and John (2014) came to similar conclusions after comparing secondary schools in Nigeria. According to the authors, private school students outperformed their public school peers.

4.2.8 Main effect of school type on pre-primary school children acquisition of communication of mathematical knowledge

The findings revealed that there is no significant main effect of school type on youngsters in pre-primary school acquisition of communication of mathematical knowledge. This may be as a result of the fact that, pre-primary school children in both public and private schools are not exposed to how to communicate their Mathematical knowledge. The result is line with National Centre for Education Statistics (NCES), by examining the mathematics NAEP 2003 statistics, it may be concluded that students in public schools outperform students in private schools. Several studies have been conducted over the years to examine whether pupils attending public (government-funded) and private schools perform differently, and the results have been mixed (Al-Duwaila, 2012).

4.2.9 Main effect of language acquisition on pre-primary school children acquisition of Mathematical knowledge.

The study showed that there is no significant main effect of language acquisition on pupils in pre-primary school acquisition of mathematical knowledge. This may be as a result of the fact that the language acquired by pre-primary school children in both public and private schools is pure literacy language and not mathematical terms or language which can help children in acquisition of mathematical knowledge. The finding was not in line with LeFevre et al. (2010), who in their pathways model connected numeracy and language skills while

(Aunio et al., 2006; Krajewski and Schneider, 2009; Purpura et al., 2011) assumed that the linguistic abilities directly associated with the growth of numeracy are of a general type, as measured by literacy and language components such as vocabulary and/or phonological awareness

4.2.10 Main effect of language acquisition on pre-primary school children acquisition of communication of mathematical knowledge.

The findings revealed that there is a significant main effect of language acquisition on children in pre-primary school acquisition of communication of mathematical knowledge. This may be as a result of the fact, that pre-primary school children in both public and private and public schools engage in mathematics activities in daily lives which give them room to communicate mathematically when being involve with these activities. This was further confirmed by research findings that shows that language remained a significant predictor of numeracy abilities even after accounting for a variety of important factors (Aunio et al., 2006; Krajewski and Schneider, 2009; LeFevre et al., 2010; Purpura et al., 2011).

4.2.11 Interaction effect of treatment and school type on preschool children acquisition of mathematical knowledge

The result of the study showed that there is a significant interaction effect of treatment and school type on youngsters in pre-primary schools acquisition of mathematical knowledge. This could be due to the fact that private school children are exposed to learning in a conducive atmosphere, so it gave room for teachers in private schools to properly engaged the pre-primary school children in the various activities that accomplished the mathematical songs and stories in teaching the mathematical concepts. The findings of this study are consistent with those of the National Assessment of Educational Progress (NAEP) study, which found that private schools outperformed public schools in all major subjects, including math and science. (U.S. Department of Education 2012). Another study of American students' mathematics performance found that private schools performed better in most cases (Lubienski 2006; Peterson and Llaudet, 2006)

4.2.11 Interaction effect of treatment and school type on pre-school children acquisition of communication of mathematical knowledge

The research showed that there is a significant interactive effect of treatment and school type on children in pre-primary schools acquisition of communication of mathematical knowledge. This may be as a results of the fact that private school teachers are often exposed to training of different pedagogies which helped them in assimilating the training effectively and using the two instructional strategies (songs and storytelling-enhanced stimulation) during the implementation of the experimental phrase which resulted into children ability to communicate their mathematical knowledge. The result is in line with Braun, Jenkins, and Griggs (2006) who reached a similar conclusion, claiming that students in private schools outperformed their peers in public schools. Also, results gathered from Olasehinde and John, (2014), showed that private schools students outperformed their peers in public schools.

4.2.12 Interaction effect of treatment and language acquisition on pre-school children acquisition of mathematical knowledge

Results gathered from the study also showed that there is no significant interaction effect of treatment and language acquisition on children in pre-primary schools acquisition of communication of mathematical knowledge. This may be as a result of the fact that pre-primary school children language acquisition helped them in their general daily communication and interaction with peers and adults not in the acquisition of mathematical knowledge. The finding was not in line with the research findings of Purpura and Ganley (2014) who discovered that language skills predicted nearly all early numeracy skills with significant variance. Significant evidence suggested that comparable regions of the brain are used for language and mathematics processing, implying that they have a few similar brain pathways (Baldo and Dronkers, 2007; Dehaene, 1999).

4.2.13 The interaction effect of treatment and language acquisition on primary school children communication of mathematical knowledge

There is no significant interactive effect between treatment and language acquisition on children of pre-primary school acquisition of Communication of Mathematical knowledge. This may be as a result of the fact that pre-primary school children interaction and communication with peers does not have to do with communication of mathematical concepts or terms. The result is in line with (Pramling and Pramling-Samuelsson, 2008) that

children should be required to resolve mathematical task, while communicating their answer by representing them through illustrations rather than just providing final answers.

4.2.14 The interaction effect of school type and language acquisition on preschool

Children acquisition of mathematical knowledge

The result from the study showed there is a no significant interactive effect of school type and language acquisition on pre-primary school children acquisition of Mathematical knowledge. This may be as a result of the fact, pre-primary schools children in both public and private schools communicated and interacted with peers which may increase their language acquisition but not in any way connected to their mathematical knowledge. The results in contrast with the finding of Thompson and Rubenstein, (2014), who opined that language acquisition and mathematics learning largely follow clear trajectories.

4.2.15 The interaction effect of school type and language acquisition on pre-primary school children acquisition of mathematical knowledge

There is no significant interactive effect of school type and language acquisition on pre-primary school children's acquisition of communication of mathematical knowledge. Thus means that both school type and language acquisition does not influence pre-primary school children acquisition of mathematical knowledge. Pre-primary school children in both private and public school make of language when communicating with one another and in their daily lives. This result is in construct with the evidence that language acquisition perspective, the progression of listening, speaking, reading, and writing from the major modes of communication when mathematical fluency is a pedagogical goal, such advances also apply to learning mathematics (Bossé et al., 2019). Purpura and Ganley, (2014), finds that language skills significantly differed in predicting almost all early numeracy skills.

4.2.16 Interaction effect of treatment, school type and language acquisition on pre-primary schools children of mathematical knowledge.

The research also showed that, there is no significant interactive effect of school type and language acquisition on children in pre-primary schools mathematical knowledge. This is an indication that the treatment, school type and language acquisition did not jointly interact to influence children in pre-primary schools mathematical knowledge. This discovery is an indication that the experiment, that is, the song-enhanced stimulation and storytelling enhanced stimulation were highly potent that it nullified the effect of other variables that could reduce the depth of its own impact on the pre-primary school children mathematical knowledge. This is in line with Gunderson and Levine, (2011); Levine et al. (2010); Suriyakham et al. (2006) that storytelling-enhanced stimulation increases the ability for children to communicate mathematically increases their early numeracy skills. The result is in line with (Pramling and Pramling-Samuelsson, 2008) that children should be made to resolve mathematical task, while communicating their answer by representing them through illustrations rather than just providing final answers.

4.2.17 Interaction effect of treatment, school type and language acquisition on pre-primary school children communication of mathematical knowledge.

The study also revealed that, there is no significant interactive effect of school type and language acquisition on pre-primary school children acquisition of communication of mathematical knowledge. This is an indication that the treatment, school type and language acquisition acted independently and did not interact to affect the communication of mathematical knowledge. This finding is an indication that the experiment, that is, the song-enhanced stimulation and storytelling enhanced stimulation were highly potent that it nullified the effect of other variables that could reduce the depth of its own effect on the pre-primary school children communication of mathematical knowledge. The result is in line with John et al., (2016), in examining how school type influences the academic performance of learners in Mathematics, a longitudinal study on teaching effectiveness in Ghana was carried out on a sample of 73 primary schools in grade 6. The result showed that, private school pupils outperformed their public school counterparts in academic performance. Also

in Nigeria, Sunday (2014), conducted a study in Osun State, as regards the mathematics performance of students in public and private schools. The result of the study revealed that, private schools took the lead in terms of performance.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Summary

This study determined the effect of song and storytelling-enhanced stimulation on pre-primary school children's mathematics communication skill and knowledge in the Ibadan Metropolis, Oyo State, Nigeria. The research was done due to a children's persistent underperformance in mathematics and lack of interest from upper primary and beyond that have been attributed to lack of basic mathematical skills and knowledge of children at the preschool stage of learning. Studies have confirmed that if children are to acquire this knowledge and skills appropriately there is a need for child-friendly Mathematics stimulation during preschool years. There are not enough empirical research on the effectiveness of song and storytelling in the acquisition of mathematical knowledge and the skill of communicating mathematics ideas in the Nigerian classroom. The effects of language acquisition and school type on mathematic knowledge and skill acquisition were also examined.

This study adopted the embedded design within mixed methods research type. The weighting priority of QUAN + qual implies that the quantitative approach was extensively used more than the qualitative approach to assess the effect of the independent variable (song-enhanced stimulation, storytelling-enhanced stimulation, and conventional method) on the dependent variables (acquisition of mathematical knowledge and Mathematics communication skills). The quantitative aspect used a quasi-experimental research approach with a control group for the pre- and post-test. The study adopted a 3X2X3 factorial matrix which consists of enhanced stimulation at three levels (two treatment groups and one control group), school type at two levels (public and private) language acquisition at three levels (high, medium, and low). The qualitative aspect of the study employed the phenomenology research method. Quantitative data collected in the course of this study were analysed using

percentage, mean, standard deviation, Analysis of Covariance while theme analysis was employed for qualitative data analysis. The results of this investigation are given in the sections below:

Qualitative

This study's finding demonstrated the following that, pre-primary school teachers viewed the use of song-enhanced stimulation as an effective strategy and energizer for children in teaching pre-primary school pupils mathematics at this level of education.

This study's conclusion revealed that, pre-primary school teachers viewed storytelling-enhanced stimulation as fun-filled activities suitable to the children and when applied as an instructional strategy to pre-primary school children's mathematical concepts.

This study's conclusion revealed that, pre-primary school children shared their experiences when songs enhanced stimulation are used to facilitate their mathematics lessons as a shift from the normal classroom and very interesting

This study's conclusion revealed that, pre-primary school children shared their experiences when storytelling-enhanced stimulation is used to facilitate their mathematics lessons as enjoyable and full of activities.

This study's conclusion revealed that, pre-primary school teachers listed some of the challenges they encountered during the adoption of songs enhanced stimulation to facilitate their mathematics lessons, this include time-consuming and crowdedness of the class.

This study's conclusion revealed that, pre-primary school teachers listed some challenges they encountered while adopting storytelling strategies to facilitate their mathematics lessons. Some of these challenges were summarized into various themes such as time additional task and language barrier.

This finding of the study showed that, observable skills that are noticeable in pre-primary school children when songs enhanced stimulation are used are physical, socio-emotional, and leadership skills.

This finding of the study showed that, observable skills that are noticeable in pre-primary school children when storytelling-enhanced stimulation are used are physical, socio-emotional, and leadership skills.

Quantitative

This finding of this study shows the following:

There is a significant main effect of treatment on pre-primary school children's acquisition of mathematical knowledge.

There is a significant main effect of treatment on pre-primary school children's acquisition of communication of mathematical knowledge.

There is a significant main effect of school type on pre-primary school children's acquisition of mathematical knowledge.

There is no significant main effect of school type on pre-primary school children's acquisition of communication of mathematical knowledge.

There is no significant main effect of language acquisition on pre-primary school children's acquisition of mathematical knowledge.

There is a significant main effect of language acquisition on pre-primary school children's acquisition of communication of mathematical knowledge.

There is a significant interactive effect of treatment and school type on pre-primary school children's acquisition of mathematical knowledge.

There is a significant interactive effect between treatment and school type on pre-primary school children's acquisition of communication of mathematical knowledge.

There is no significant interactive effect of treatment and language acquisition on pre-primary school children's acquisition of mathematical knowledge.

There is no significant interactive effect between treatment and language acquisition on pre-primary school children's acquisition of communication of mathematical knowledge.

There is no significant interactive effect of school type and language acquisition on pre-primary school children's acquisition of mathematical knowledge.

There is no significant interactive effect of school type and language acquisition on pre-primary school children's acquisition of communication of mathematical knowledge.

There is no significant interactive effect of treatment, school type, and language acquisition on pre-primary school children's acquisition of mathematical knowledge.

There is a significant interactive effect of treatment, school type, and language acquisition on pre-primary school children's acquisition of communication of mathematical knowledge.

5.2 Conclusion

The study's findings suggest that pre-primary school children that were taught mathematics with the use of songs and storytelling-telling stimulation, were able to be fully engaged in their lesson and also learnt in a suitable atmosphere. Song and storytelling-enhanced stimulation prove to be more effective in the acquisition of communication of mathematical skills and mathematical knowledge at the pre-primary school level of education than the conventional method. These strategies give room for pre-primary school children to be fully engaged in their learning. This is due to the fact that the strategies are appropriate and suitable for children at this age. School type influences the learning of pre-primary school children mathematics while language acquisition does not influence the communication of mathematical skills and mathematical knowledge.

5.3 Limitations to the study

The study was carried out only in some selected schools within Ibadan Metropolis, Oyo State.

- Getting approval from private school owners to participate in the study was challenging. Most of them claimed that getting involved in the research work will distort the activities of the school.
- Getting private schools that meet the listed criteria to participate in the study was also very tasking. Most schools combine their curriculum.
- The fieldwork was carried out at the third term and there were lots of public holidays within the school calendar.

5.4 Recommendations

Based on the findings of this study, the following recommendations are made:

- Government and school owners should provide electricity and low-cost ICT tools for the teacher to be able to play songs for the children to listen to and also play stories for the children to watch and learn. This may be achievable by providing laptops for pre-primary school classes.
- Since songs and storytelling-enhanced stimulation have been proven effective to teach mathematics, this should be incorporated to teach other subjects. This can be

achieved by teacher's conscious effort to select songs and stories that are applicable to the lesson they intend to teach the pre-primary children.

- Government, educational bodies, and school owners should organise seminars/workshops from time to time for all teachers at the pre-primary schools level of education both at the public and private schools to equip them with the knowledge and skills needed to implement the use of songs and storytelling-enhanced stimulation effectively to teach the children.
- Pre-primary school teachers both in the public and private schools should be encouraged to employ instructional strategies that are suitable for children learning such as songs and storytelling enhanced stimulation. This can be achieved by educating school owners and teachers through seminars, conferences on the child centred learning methods
- It will be of great necessity for school owners in private schools to employ professionals in the field of early childhood care and education at this level of education to teach children using these strategies. Since they have been exposed to the use of play-based instructional strategies (songs and storytelling enhanced stimulation) during their pre-service year.

5.5 Contributions to knowledge

The following are some ways that this work has added to the corpus of knowledge.

- The results from this study have provided insight into the effectiveness of the use of song and storytelling-enhanced stimulation to improve the acquisition of communication of Mathematics skills and knowledge of pre-primary school children.
- During the implementation stage, the study exposed the pre-primary school teachers to how to apply song and storytelling-enhanced stimulation in enhancing children's mathematical knowledge and communication skills.
- The study exposes pre-primary school teachers to how to prepare their lesson notes when planning to use song and storytelling-enhanced stimulation.
- A well-prepared instructional guide for teachers has been developed and it can be consulted at any time.

- The study provides empirical information on the use of song and storytelling stimulation on the acquisition of mathematical skills and communication of mathematical knowledge by pre-primary school children. Also, it shows the extent to which language acquisition and school type influence children learning of mathematics.
- The results of the study will be made available to be consulted by various researchers in the field of education, individuals and organization, and others.
- This would arouse the need of encouraging experts in the field of education in provision of a well-developed storybook and songs book geared towards the teaching of mathematical themes in the curriculum at the preschool level of education.

5.6 Suggestion for further studies

The following were suggested as potential topics for additional research based on the reported limitations of this study.

- The study scope only covers private and public schools in the Ibadan Metropolis, Oyo State. Further research could be extended to cover other local governments, southwest and geographical zones in Nigeria, for generalization of results.
- All preschoolers in Ibadan Metropolis, Oyo State, who attend both private and public schools were included in the study's population. The study should be replicated in other levels of education (primary and secondary).
- The effectiveness of songs and storytelling-enhanced stimulation should also be tested to teach other subjects at the pre-primary level of education.

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APPENDIX I

STORYTELLING-ENHANCED STIMULATION GUIDE (STESIG)

For

PRE-PRIMARY SCHOOL CHILDREN

A Stimulus Instructional Package for Pre-field Research Work in the Department of Early Childhood/Educational Foundations (ECE Unit), University of Ibadan.

Developed and produced by

Folashade Oluwatoyin **OWOLABI**

Under the supervision of

Dr. Ishola Akindele **SALAMI**

1st Edition, 2023

Introduction

This package is designed to be used in the teaching of the various mathematics themes in the One Year Pre-primary School curriculum developed by the Nigerian Educational Research and Development Council (NERDC, 2014). This package is strictly based on storytelling enhanced stimulation. It is expected that the children mathematical knowledge and communication skills will be developed in the course of the learning process.

Objectives:

- i. To develop the acquisition of mathematical communication skills of pre-primary school children
- ii. To develop mathematical knowledge of pre-primary school children

Various Themes

- Counting of Numbers
- Addition of Numbers
- Subtraction of Numbers
- Identification of Colours
- Identification of Shapes
- Identification by Sizes
- Classification of objects
- Time and Season

Methods

Storytelling enhanced stimulation

LESSON FORMAT FOR STORYTELLING INSTRUCTIONAL GUIDE

Week: Lesson..... **Date:**..... **Duration:**.....

Subject: **Class:**.....

Topic:..... **Sub-topic:**.....

Pre-assessment:

Entry Behaviour:.....

Learning Environment.....

Resources/ Materials:

Already Available:.....

To be Supplied:.....

Educational goals.....

PROCEDURE	Teacher’s Tasks	Children’s Tasks
Procedure 1		
Procedure 2		
Procedure 3		
Procedure 4	Presentation of story: Short relaxation activities:	
Procedure 5	.	
Procedure 6		
Procedure 7		

Evaluation:.....

Summary:

Assignment:

Lesson Plan 1

Week 1: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Introduction of the Research and Administration of Pre-test.

Sub-topic: Administration of Pre-test (Mathematical Knowledge)

Entry Behaviour: Children have been receiving maths lesson

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note book and pencils

To be supplied: Assessment sheet on pre-primary school children Mathematical knowledge

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i tell what the research is all about
- ii. state the enhanced stimulation that will be applied in the lesson.

STEP	Teacher's Tasks	Children's Tasks
Step 1	Introduces his/herself to the class and get familiarized with the children names.	Children settle down in the classroom to get acquainted with the teacher. Children introduces themselves one after the other to the teacher.
Step 2	Teacher relates the information to the children that hence forth that their mathematical classes will be fun-filled with the use of storytelling enhanced stimulation.	Children listen to the teacher. Children response to the teacher's comments.
Step 3	Teacher distributes the achievement test to the children to access their knowledge. The teacher also will provide the children with some objects to carry out some mathematical activity while assessing the mathematical knowledge.	Children collect the assessment of mathematical knowledge sheet from the teacher. Children settle down to provide answers to the question asked.
Step 4	Teacher collects the answer sheet from the children	Children return the answer sheet to the teacher

Step 5	Teacher calls out the children to ask them questions one after the other.	Children answer the questions ask by the teacher.
Step 6	Teacher permits the children to ask questions.	Children ask the teacher questions.

Evaluation: (i) How are we going to be learning maths (ii) What will be used to teach the lesson?

Summary: Teacher brings the assessment process to an end.

Assignment: None is given.

Lesson Plan 2

Week 1: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Administration of Pre-test **Sub-topic:** Administration of Communication of Mathematical Knowledge

Pre-assessment:

Entry Behaviour: Children have been introduces to some mathematical topics

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note book and pencils

To be supplied: Assessment on pre-primary school children mathematics communication skills

Educational goals: At the conclusion of period, pupils ought to understand how to :

- i discuss their mathematics communication skills

STEPS	Teacher's Tasks	Children's Tasks
Step 1	Welcome children to the classroom	Children responds to teacher greeting
Step 2	Teacher tells the children that their Mathematics communication skills will be assessed one after the other.	Children listen to the teacher. Children make their comments when necessary.
Step 3	Teacher call the children out one after the other to assess their mathematical communication skills	Children line up one after the other to assess their mathematical communication skills.
Step 4	Teacher record their performance	Children answer to the questions.
Step 5	Teacher calls out the children to ask them questions one after the other.	Children in the process of answering the teacher
Step 6	Teacher permits the children to ask questions	Children ask the teacher questions

Evaluation: (i) How are we going to be learning maths? (ii) What will be used to teach the lesson?

Summary: Teacher brings the assessment process to an end.

Assignment: None is given.

Lesson Plan 3

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject: Numeracy

Class: One year Pre-primary

Topic: Counting of Numbers

Sub-Topic: Rhythmic Counting of Numbers 1-12

Pre-assessment:

Entry Behaviour: Children can counts number 1-3

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books and pencils

To be supplied: Number flash cards, instructional guide and story book

Educational goals: At the conclusion of period, pupils ought to understand how to:

i counts numbers one to twelve rhythmically.

Steps	Teacher's Tasks	Children's Tasks
Step 1	Welcomes children to maths class. Teacher sings the song, 1, 2 buckle my shoes, 3, 4 knock at the door 5, 6, pickup sticks, 7,8 lay them straight, 9, 10 a big fat hen, 11, 12 run to school and don't be late.	Children respond to the greetings. Children sing along with the teacher while demonstrating to the instruction of the song.
Step 2	The teacher tells the children that they will be learning how to counts number 1-12.	Children listen to the teacher.
Step 3	Teacher ask the class to count the numbers	Children counts the number
Step 4	Story Title: TheNumber Tag Activity 1: Children are asked to count the number by Iyanu 1-6. Activity 2: Children are asked to count the number by Iyanu's brother 1-9. Activity 3: Children are asked to count the number by Iyanu's and his brother 1-12.	Children listen and participate to the story. Activity 1: Children count the number by Iyanu 1-6. Activity 2: Children count the number by Iyanu's brother 1-9. Activity 3: Children count the number by Iyanu's and his brother 1-12.

Step 5	Teacher gives the children the flash cards to count the number writing on it.	Children count the numbers written on the flash cards.
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher questions
Step 7	Teacher gives answers to children questions as appropriate	children asked the teacher questions

Evaluation: Count the numbers in their work sheet

Summary: Teacher leads the children to count numbers 1-12

Assignment: Children are to collect 12 straws, 12 bottle corks in their environment.

Lesson Plan 4

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Numbers

Sub-Topic: Rational Counting of Numbers 1-12

Pre-assessment:

Entry Behaviour: Children can count number 1-10 rhythmically

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils and Straws,

To be supplied: Bottle tops, plastic balls, work sheet, instructional guide and story book

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i counts numerals and object one to twelve

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher tells the children that, I have some coloured bottle corks for you and will be playing game with them. Are you ready?'	Children respond to the greetings. Children listen to teacher's introduction and respond affirmatively to the question asked.
Step 2	Teacher writes the topic and numbers on the chalkboard.	Children watch the teacher. Children listen to the teacher.
Step 3	Teacher calls few children out to play a game of throwing and catching.	Children participate in the throwing and catching game
Step 4	Story Title: The Number Tag Activity 1: Children are asked to count the numbers of red bottle corks by each group Question: Which of the group has the highest number of red bottle cork?	Children listen and participate to the story. Activity 1: Children count the numbers of red bottle corks by each group: group one has 1, group two has 2, group three has 3 and group four has 4.

	<p>Activity 2 Children are asked to count the numbers of blue bottle corks by each group Question: Which of the group has the highest number of blue bottle corks?</p> <p>Activity 3 Children are asked to count the numbers of orange bottle corks by each group Question: Which of the groups, has the highest number of orange bottle corks</p>	<p>Children answer the question of the teacher Activity 2: Children count the numbers of blue bottle corks by each group: group one has 8, group two has 6, group three has 7 and group four has 5. Children answer the question of the teacher Activity 3: Children count the numbers of blue bottle corks by each group: group one has 9, group two has 10, group three has 12 and group four has 11. Children answer the question of the teacher</p>
Step 5	Teacher presents plastic balls, pencils and straws for children to counts 1-12	Children count the objects provided by the teacher.
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher questions
Step 7	Teacher gives answers to children questions as appropriate	children asked the teacher questions

Evaluation: Count the numbers of objects and match them up in their work sheet.

Summary: Teacher ensure that every child participate in the counting exercise 1-12.

Assignment: Children are to collect 12 match sticks and stones in their environment.

Lesson Plan 5

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Numbers
Numbers 1-12

Sub-Topic: Rhythmic and Rational Counting of

Pre-assessment:

Entry Behaviour: Children can count number 1-12

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, stone and straw

To be supplied: Number tag, coloured bottle top, instructional guide and story book

Educational goals: At the conclusion of period, pupils ought to understand how to:

i counts numbers one to twelve rationally.

Steps	Teacher's Tasks	Children's Tasks
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Step 1	Teacher asks the children to run a spots.	Children run on a spot with the teacher
Step 2	Teacher writes the topic and numbers on the chalkboard.	Children watch and listen the teacher.
Step 3	Teacher instructs the children to pick a pack each on the table and count the number of objects in it.	Children listen to the teacher Children count the objects in the pack.
Step 4	<p>Story Title: TheNumber Tag</p> <p>Activity 1:</p> <p>Children are asked to count the numbers of red bottle corks by each group and place the corresponding number tags on it.</p> <p>Activity 2</p> <p>Children are asked to count the numbers of blue bottle corks by each group</p> <p>Activity 3</p> <p>Children are asked to count the numbers of orange bottle corks by each group</p>	<p>Children listen and participate to the story.</p> <p>Activity 1:</p> <p>Children count the numbers of red bottle corks by each group and place the corresponding number tags on it.: group one has 1, group two has 2, group three has 3 and group four has 4.</p> <p>Activity 2:</p> <p>Children count the numbers of blue bottle corks by each group and place the corresponding number tags on it.: group one has 8, group two has 6, group three has 7 and group four has 5.</p> <p>Activity 3:</p> <p>Children count the numbers of blue bottle corks by each group and place the corresponding number tags on it.: group one has 9, group two has 10, group three has 12 and group four has 11.</p>
Step 5	Teacher give straws, coloured bottle tops, plastic balls for the children to count 1-2	Children counts the objects provide by the teacher
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher questions
Step 7	Teacher gives answers to children questions as appropriate	children asked the teacher questions

Evaluation: Counts the number of objects in the work sheet.

Summary: Teacher leads the children to count numbers and objects 1-12

Assignment: Counts the numbers of cars and trees in your environment.

Lesson Plan 6

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Number 1- 25 **Sub-Topic:** Rhythmic Counting of Numbers up to 25

Pre-assessment:

Entry Behaviour: Children can count numbers 1-12

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, cherry seeds and stones

To be supplied: Number flash cards, numbers chat, instructional guide and story book

Educational goals: At the conclusion of period, pupils ought to understand how to:

i counts numbers one to twenty-five

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher start the class by introducing the energizer: 1, 2, 3,4, 5, catching fishing all alive 6, 7, 8, 9, 10 then I let them go away. Why did you let them go, because they bit my finger toes. Which finger did they bit, a little finger on my right.	Children sing along with the teacher 1, 2, 3,4, 5, catching fishing all alive 6, 7, 8, 9, 10 then I let them go away. Why did you let them go, because they bit my finger toes. Which finger did they bit, a little finger on my right
Step 2	Teacher writes the topic on the chalk board counting of numbers up to 25. Teacher ask the children to count 1-12	Children watch the teacher while writing on the board. Children listen and response to the teacher.
Step 3	The teacher gives the children the number tag to arrange.	Children collect the number tag from the teacher and arrange them on their table.
Bmm mmm mmm mmm m	Story Title: Skipping Time Activity 1: Children are asked to count the numbers of times Bayo skipped before making mistake 1-18 Activity 2: Children are asked to count the numbers of times Bose skipped before making mistake 1-22 Question: Between Bose and Bayo who can skip more? Activity 3: Children are asked to count the numbers of times Bola skipped 1-25 Question: Between the three children who can skip more?	Children listen and participate to the story. Activity 1: Children count the numbers of times Bayo skipped before making mistake 1-18 Activity 2: Children count the numbers of times Bose skipped before making mistake 1-22 The children answer the teacher question. Activity 3: Children count the numbers of times Bola skipped 1-25 The children answer the teacher question
Step 5	Teacher gives the children the number chat and flash chat to count the numbers.	Children count the numbers written on the flash cards and number chat,
...,Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher questions
,Step 7	Teacher gives answers to children questions as appropriate	Children asked the teacher questions

Evaluation: Count the numbers in their work sheet

Summary: Teacher leads the children to count numbers 1-25.

Assignment: Children are to collect 25 sticks 25 stones and 25 bottle corks in their environment.

Lesson Plan 7

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Number 1- 25

Sub-Topic: Rational Counting of Numbers up to 25

Pre-assessment:

Entry Behaviour: Children have been counting numbers 1-20 rhythmically

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, stones and cherry seeds.

To be supplied: Plastic balls, bottle tops, match sticks and instructional guide and story book

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i counts numerals and object from one to twenty-five

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher introduced the lesson by using a native energizersong: – “Eni bieni, eji bi eji, eta ntagba...”,	Children listened to the teacher Children sing along with the teacher.
Step 2	Teacher writes the topic and numbers on the chalkboard. We are learning how to count numbers 1-25	Watch the teacher while writing on the board. Children response to the teacher.
Step 3	Teacher asks the children to count the numbers to remind them of what they have being taught.	Children listen to the instruction of the teacher and count the numbers.

Step 4	<p>Story Title: The five Sweet</p> <p>Activity 1: Children are asked to count the balls brought by Dayo (1-15).</p> <p>Activity 2: Children count ball brought by Emeka from 1-18</p> <p>Question: Who has more balls, Dayo or Emeka?</p> <p>Activity 3: Children count the balls brought by Musa 1-25.</p> <p>Question: Who should the teacher give the sweets to?</p>	<p>Children listen and participate in the story.</p> <p>Activity 1: Children count the balls brought by Dayo (1-15)</p> <p>Activity 2: Children count the balls brought by Emeka (1-18).</p> <p>Children answer the question of the teacher</p> <p>Activity 3: Children count the balls brought by Musa (1-25).</p> <p>Children answer the question of the teacher.</p>
Step 5	<p>Teacher asks the children to pair themselves up two by two.</p> <p>Teacher asks the children to distribute bottle tops, match sticks and plastic balls to each of the group.</p> <p>Teacher ask the children to count each of the objects</p>	<p>Children pair themselves into two.</p> <p>Children distribute the learning materials to their peers.</p> <p>Children collect the various objects from their peers.</p> <p>Children counts the objects provided by the teacher.</p>
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher questions
Step 7	Teacher gives answers to children questions as appropriate	children asked the teacher questions

Evaluation: Children are asked to count the numbers objects and record in their work sheet.

Summary: Teacher guides the children in counting the numbers and objects

Assignment: Children are to collect 25 straws and 25 match sticks in their environment.

Lesson Plan 8

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Number 1- 25

Sub-Topic: Rhythmic and Rational Counting of

Numbers up to 25

Pre-assessment:

Entry Behaviour: Children have been counting numbers 1-25 rhythmically

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, stones and cherry seeds.

To be supplied: Worksheet, bottle corks, straws, beads, story book, number flash cards and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i. counts one to twenty-five both rhythmically and rationally.

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher engages the children in a body exercise: stand up and sit	Children engage in the body exercise of standing and sitting.
Step 2	Teacher writes the topic and numbers 1-25 on the chalkboard	Children watch the teacher writing on the chalk board.
Step 3	Teacher revise the last class and asks children to count 1-25	Children response to the teacher by counting the numbers
Step 4	<p>Story Title: Counting Time</p> <p>Activity 1: Children are asked to count number, 1, 2, 3, 4, 5, on the bead strings and attach the number tag to each of the number.</p> <p>Activity 2: Children are asked to count number, 6, 7, 8, 9, 10, on the bead strings and attach the number tag to each of the number.</p> <p>Activity 3: Children are asked to count number 11, 12, 13, 14, 15, on the bead strings and attach the number tag to each of the number.</p> <p>Activity 4: Children are asked to count number 16, 17, 18, 19, 20, on the bead strings and attach the number tag to each of the number.</p> <p>Activity 5: Children are asked to count number 21, 22, 23, 24, 25, on the bead strings and attach the number tag to each of the number.</p>	<p>Children listen and participate to the story.</p> <p>Activity 1: Children count number, 1, 2, 3, 4, 5, on the bead strings and attach the number tag to each of the number.</p> <p>Activity 2: Children count number, 6, 7, 8, 9, 10, on the bead strings and attach the number tag to each of the number.</p> <p>Activity 3: Children count number 11, 12, 13, 14, 15, on the bead strings and attach the number tag to each of the number.</p> <p>Activity 4: Children count number 16, 17, 18, 19, 20, on the bead strings and attach the number tag to each of the number.</p> <p>Activity 5: Children count number 21, 22, 23, 24, 25, on the bead strings and attach the number tag to each of the number.</p>
Step 5	<p>Teacher distributes bottle corks and straws beads to the children.</p> <p>Teacher ask the children to counts the objects in accordance to numbers 1-25</p>	<p>Children collect the learning materials from their teacher.</p> <p>Children counts the objects in accordance to each numbers</p>
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher questions
Step 7	Teacher gives answers to children questions as appropriate.	children asked th;e teacher questions

Evaluation: Children are asked to count and match the numbers of cars in their work sheet.

Summary: Teacher leads the children to count number 1-25

Assignment: Count the numbers of objects and tick it in their numbers in your work sheet.

Lesson Plan 9

Week 2: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Numbers

Sub-Topic: Rhythmic Counting of Numbers up to 50

Pre-assessment:

Entry Behaviour: Children can count 1-20 rhythmically.

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books and pencils

To be supplied: Flash cards, number tag, work sheets, story book and instructional guide.

Educational goals: At the conclusion of period, pupils ought to understand how to:

- ii. count numbers that are not more than fifty correctly.

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher welcomes the children to the class. Teacher engages the children with song: if you are happy and you know it clap your hands, stand up, shake your waste.	Children respond to the teacher. Children engage participate in the body exercise by singing the song.
Step 2	Teacher writes the topic and numbers 1-50 on the chalkboard.	Children watch the teacher writing on the chalk board.
Step 3	The teacher reviews the prior lesson, by asking the kids to count from 1 to 25,	Children response to the teacher by counting the numbers.
Step 4	Story Title: The Golden Pen. Activity 1: Children are asked to count the numbers by Emeka 1-37 Activity 2: Children are asked to count the numbers by Musa 1-44 Activity 2: Children are asked to count the numbers by Dayo 1-50. Question: Who will the golden pen be given to among the three children? Question: Give reason	Children listen and participate to the story. Activity 1: Children count the count the numbers by Emeka 1-37 Activity 2: Children count the count the numbers by Musa 1-44 Activity 3: Children count the count the numbers by Musa 1-50. Children answer the question of the teacher.
Step 5	Ask the children to distributes materials such as (bottle tops, cherry seed and match sticks) to count numbers (1-50) while in	Children provide answer to the mathematical task

	small groups	
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher questions.
Step 7	Teacher gives answers to children questions as appropriate.	children asked the teacher questions

Evaluation: Children are asked to count the numbers in their work sheet.

Summary: Teacher leads the children to count number 1-50

Assignment: Count the numbers in your work sheet.

Lesson Plan 10

Week 2: Lesson 2

Date: **Duration:** 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Number from **Sub-Topic:** Rational Counting of Numbers up to 50

Pre-assessment:

Entry Behaviour: Children can count objects from one to twenty

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, stones and cherry seeds.

To be supplied: Plastic balls, bottle tops, cherry seeds, flash cards, and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

iii. counts numbers and objects one to fifty

Steps	Teacher's Tasks	Children's Tasks
Step 1	Write topic and numbers to be counted on the board	Watch the teacher while writing on the board.
Step 2	We are learning how to count numbers 26-50	Children listen to the teacher. Children response to the teacher
Step 3	The teacher will explain to count of numbers 26-50 to the children	Children listen to the teacher
Step 4	Story Title: The Ball Game. Activity 1: Ask children to count the numbers of balls by the red team 1-25. Activity 2: Ask children to count the numbers of balls by the yellow team 1-37.	Children listen and participate in the story. Activity 1: Children count the numbers of balls bought by the red team 1-25 Activity 2: Children count the numbers of balls bought

	<p>Activity 3: Ask children to count the numbers of balls by the blue team 1-48.</p> <p>Activity 4: Ask children are asked to count the numbers of balls by the green team 1-50.</p> <p>Question: Who won the game?</p> <p>Question: Give reason</p>	<p>by the yellow team 1-37</p> <p>Activity 3: Children count the numbers of balls bought by the blue team 1-48</p> <p>Activity 4: Children count the numbers of balls bought by the green team 1-50.</p> <p>Children answer the question of the teacher. Children answer the question of the teacher.</p>
Step 5	Teacher provides children with bottle tops, cherry seeds and beads for children to count numbers.	Children distribute the learning materials to their peers. Children participate in the various counting 1-50 using other material such as beads, bottle corks and cherry seeds
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher questions.
Step 7	Teacher gives answers to children questions as appropriate	children asked the teacher questions

Evaluation: Count the objects and circle the numbers of objects in their work sheet.

Summary: Teacher leads the children to count number 1-50

Assignment: Count the objects and circle the numbers in your work sheet.

Lesson Plan 11

Week 2: Lesson 2

Date: **Duration:** 45 mins

Subject: Numeracy

Class One year Pre-primary

Topic: Counting of Number from **Sub-Topic:** Rhythmic and Rational Counting of
Numbers up to 50

Pre-assessment:

Entry Behaviour: Children can count numbers and objects from one to twenty

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books and pencils

To be supplied: Black twain, beads, cartoon, plastic balls, bottle tops, cherry seeds, flash cards, and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i. counts numbers and objects not more one to fifty

Steps	Teacher's Tasks	Children's Tasks
Step 1	Writes topic and numbers to be counted on the board. We are learning how to count numbers 26-50.	Children answer the teacher questions. Watch the teacher while writing on the board.
Step 2	Ask the children to count 1-25 rhythmically to ensure that they can counts.	Children listen to the teacher. Children counts 1-25 rhythmically.
Step 3	Explain how to count of numbers and objects 26-50 to the children.	Children listen to the teacher.
Step 4	<p>Story Title: Beading Making Time</p> <p>Activity 1; Children are asked to count the beads, arrange them on them on the twain and tie it with the number cartoon, 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10.</p> <p>Activity 2: Children are asked to count the beads, arrange them on them on the twain and tie it with the number cartoon 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20.</p> <p>Activity 3: Children are asked to count the beads, arrange them on them on the twain and tie it with the number cartoon 21, 22, 23, 24, 25, 26, 27, 28, 28, 29 and 30.</p> <p>Activity 4: Children are asked to count the beads, arrange them on them on the twain and tie it with the number cartoon 31, 32, 33, 34, 35, 36, 37, 38, 39 and 40.</p> <p>Activity 5: Children are asked to count the beads, arrange them on them on the twain and tie it with the number cartoon 41, 42, 43, 44, 45, 46, 47, 48, 49 and 50.</p>	<p>Children listen to the story. Children participate in the story.</p> <p>Activity 1: Children count the beads, arrange them on them on the twain and tie it with the number cartoon, 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10.</p> <p>Activity 2: Children count the beads, arrange them on them on the twain and tie it with the number cartoon 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20.</p> <p>Activity 3: Children count the beads, arrange them on them on the twain and tie it with the number cartoon 21, 22, 23, 24, 25, 26, 27, 28, 28, 29 and 30.</p> <p>Activity 4: Children count the beads, arrange them on them on the twain and tie it with the number cartoon 31, 32, 33, 34, 35, 36, 37, 38, 39 and 40.</p> <p>Activity 5:Children count the beads, arrange them on them on the twain and tie it with the number cartoon 41, 42, 43, 44, 45, 46, 47, 48, 49 and 50.</p>
Step 5	Provide children with learning materials to count numbers 1-50	Children collect the learning materials and participate in the counting 1-50.
Step 6	Asks children questions	Children answer the teacher questions.
Step 7	Teacher gives answers to children questions as appropriate	children asked the teacher questions

Evaluation: Count the objects and circle the numbers of objects in their work sheet.

Summary: Teacher leads the children to count number 1-50

Assignment: Count the objects and circle the numbers in your work sheet.

Lesson plan 12

Week 2: Lesson 2

Date: **Duration:** 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Writing of Number

Sub-Topic: Writing Patterns

Pre-assessment:

Entry Behaviour: Children can create pattern on a sheet.

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books and pencils

To be supplied: Work sheets, sand tray, storybook and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i. write the writing patterns

Steps	Teacher's Tasks	Children's Tasks
Step 1	Introduce the lesson by greeting the children and asking them to do a simple exercise (moving their hands faster)	Children respond to greeting Join the exercise of moving their hands faster.
Step 2	Asks the children to raise their hands and tells the children they will be engaging in writing exercises. Teacher demonstrate the various writing patterns (stroke, dash, curve and slant) by writing in the air.	Listen to the instruction of the teacher. Stand up as instructed by the teacher. Demonstrate the various writing patterns (stroke, dash, curve and slant) by moving their hands in the air along with their teacher.
Step 3	Teacher asks children to stand up and pick a sand tray from the table. Teacher demonstrates how to write the various writing patterns (stroke, dash, curve and slant) by writing on sand plate.	Children pick up the sand plate. Children demonstrate the various writing patterns (stroke, dash, curve and slant) by writing on the sand plate.
Step 4	Story Title: The Number Puzzle Activity 1 Children are asked to write the stroke pattern in the air and sand tray. Activity 2 Children are asked to write the slant pattern in the air and sand plate. Activity 3 Children are asked to write the dash pattern in the air and sand plate. Activity 4 Children are asked to write the backward	Children listen and participate in the story Activity 1 Children write the stroke pattern in the air and the sand tray. Activity 2 Children write the slant pattern in the air and sand plate. Activity 3 Children write the dash pattern in the air and sand plate. Activity 4 Children write the backward curve pattern in

	curve pattern in the air and sand plate. Activity 5 Children are asked to write the forward curve in the air and sand plate	the air and sand plate. Activity 5 Children write the forward curve in the air and sand plate
Step 5	Teacher call the children at random to demonstrate how to write the numbers on the sand plate	Children demonstrate how to write the numbers on the sand plate for the teacher.
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher questions.
Step 7	Teacher gives answers to children questions as appropriate.	Children asked the teacher questions .

Evaluation: Ask the children to trace the various writing patterns in their work sheet.

Summary: Teacher guides the children during the writing exercises.

Assignment: Trace the various writing patterns in their work sheet.

Lesson Plan 13

Week 2: Lesson 2

Date: **Duration:** 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Writing of Number

Sub-Topic: Writing Number 1 to 5

Pre-assessment:

Entry Behaviour: Children can write the various writing patterns

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books and pencils

To be supplied: Sand plate, work sheets, and storybook and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i. write numbers not more than 5

Steps	Teacher's Tasks	Children Activities
Step 1	Teacher gives an energizer song. <i>1 igi to duro, 2 okun to loso, 3 eeta to kako</i> <i>4 eerin to ... 5 aarin to yokun 6 eefa to ----</i> <i>7 eeje bi iyosoo, Odo gbe odo ru eejo</i> <i>9 eesan to</i>	Children listen to the song from the teacher Children dance and act the posture of each number
Step 2	The educator displays the numbers on the board. Teacher asks all the children to stand up. Teacher demonstrate how to write number	Children watch the teacher while writing Children stand up. Children participates in the writing activities by moving their hands in the air along with

	one to five in the air for the children	their teacher
Step 3	Teacher asks children to stand up and pick a sand tray from the table. Teacher demonstrates how to write numbers one to five on sand plate.	Children pick up the sand plate. Children demonstrate how to write numbers one to five on sand plate.
Step 4	Story Title: The Number Puzzle See the story on page..... Activity 1 Children are asked to write number one in the air and sand plate. Activity 2 Children are asked to write number two in the air and sand plate. Activity 3 Children are asked to write number three in the air and sand plate. Activity 4 Children are asked to write number four in the air and sand plate. Activity 5 Children are asked to write number five in the air and sand plate	Children listen to the story. Children participate in the story. Activity 1 Children write number one by writing stroke in the air and sand plate. Activity 2 Children write number two by writing backward curve and joining the dash to it in the air and sand plate. Activity 3 Children write number three by writing backward curve and joining it with another backward curve in the air and sand plate. Activity 4 Children write number four by writing the slant first, joining the dash below it and crossing the dash with a stroke in the air and sand plate Activity 5 Children write number five by writing dash, joining it with a stroke and backward curve to it in the air and sand plate
Step 5	Teacher demonstrates how to write the number 1 to 5 on the sand tray for the children.	Children demonstrate alongside the teacher by writing number 1 to 5 on the sand plate
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher questions.
Step 7	Teacher gives answers to children questions as appropriate.	children asked the teacher questions

Evaluation: Ask the children to trace number 1-5 in their work sheet.

Summary: Teacher guides the children during the writing exercises.

Assignment: Trace number 1-5 in your work sheet.

Lesson Plan 14

Week 2: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Writing of Number

Sub-Topic: Writing Number up to 10

Pre-assessment:

Entry Behaviour: Children have been writing number one to five

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils and objects in the classroom

To be supplied: Sand plate, wok sheets, and storybook and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i. write numbers not less than ten

Steps	Teacher's Tasks	Children Activities
Step 1	Teacher gives an energizer song. <i>1 igi to duro, 2 okun to loso, 3 eeta to kako 4 eerin to ... 5 aarin to yokun 6 eefa to ---- 7 eeje bi iyosoo, Odo gbe odo ru eejo, 9 eesan to</i>	Children listen to the song from the teacher Children dance and act the posture of each number
Step 2	The educator displays the numbers on the board. Teacher ask all the children to stand up Teacher demonstrate how to write number one to five in the air for the children	Children watch the teacher while writing Children stand up Children participates in the writing activities by moving their hands in the air along with their teacher
Step 3	Teacher asks children to stand up and pick a sand tray from the table. Teacher demonstrates how to write numbers six to ten on sand plate.	Children pick up the sand plate. Children demonstrate how to write numbers six to ten on sand plate.
Step 4	Story Title: The Number Puzzle See the story on page..... Activity 1 Children are asked to write number six in the air and sand plate. Activity 2 Children are asked to write number seven in the air. Children are asked to write number seven on the sand plate. Activity 3 Children are asked to write number eight	Children listen to the story. Children participate in the story. Activity 1 Children write number six writing a big forward curve and jointing it with a small in the air and sand plate. Activity 2 Children write number seven by writing the dash and joining the slant to it in the air and sand plate. Activity 3 Children write number eight by writing a curve

	<p>in the air. Children are asked to write number eight on the sand plate. Activity 4 Children are asked to write number nine in the air. Children are asked to write number nine on the sand plate. Activity 5 Children are asked to write number ten in the air. Children are asked to write number ten on the sand plate.</p>	<p>facing forward, join with a curve facing backward and join with a curve facing forward and another curve facing backward in the air/ Children write number eight in the air and sand plate. Activity 4 Children write number nine by writing the curve and joining the stroke to it in the air and sand plate. Activity 5 Children write number ten by writing the stroke separately as number one and then write the backward curve and join the forward curve to write zero in the air and sand plate.</p>
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher questions.
Step 7	Teacher gives answers to children questions as appropriate	children asked the teacher questions

Evaluation: Ask the children to trace number 6 -10 in their work sheet.

Summary: Teacher guides the children during the writing exercises.

Assignment: Trace number 6-10 in your work sheet.

Lesson Plan 15

Week 3: Lesson 1

Date:

Duration: 45 mins

Subject: Numeracy

Class: One year Pre-primary

Topic: Addition

Sub-Topic: Addition of Numbers less than 5

Pre-assessment:

Entry Behaviour: Children can add up two objects together

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, fingers and stones

To be supplied: Balloons, bottle tops, match sticks, storybook and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:
i add up numbers and objects lesser than 5

Steps	Teacher's Tasks	Children's Tasks
Step 1	Greets and introduces the lesson by singing the song, if you are happy and you know.	Children respond to the teacher greeting. Children sing along with the teacher.

Step 2	Write the topic on the chalkboard. The instructor explains to the kids that Addition means putting things or numbers together.	Watch the teacher while writing on the board. Children listen to the teacher.
Step 3	Teacher demonstrates simple addition process to the children.	Children listen and watch the teacher demonstration.
Step 4	<p>Story Title: The Birthday Party</p> <p>Activity 1 Children are asked to add up the total numbers of black balloons blown by Ada and Ali? Question: How many black balloons were blown altogether?</p> <p>Activity 2: Children are asked to add up the numbers of orange balloons blew by Ada and Ali Question: How many orange balloons were blown?</p> <p>Activity 3: Children are asked to add up the numbers of pink balloons blew by Ada and Ali 3 pink balloons + 2 pink balloons = 5 pink balloons Question: How many pink balloons were blown?</p>	<p>Children listen to the story. Children participate in the story.</p> <p>Activity 1 Children add up the total numbers of black blown by Ada and Ali? 1 black balloons + 1 black balloons = 2 black balloons. Children answer 2 black balloons were blown by Ada and Ali.</p> <p>Activity 2: Children add up the numbers of orange balloons blew by Ada and Ali (1 orange balloon + 2 orange balloons = 3 orange balloons? Children answer 3 orange balloons were blown by Ada and Ali.</p> <p>Activity 3: Children add up the numbers of pink balloons blew by Ada and Ali 3 pink balloons + 2 pink balloons = 5 pink balloons Children answer 5 pink balloons were blown by Ada and Ali.</p>
Step 5	Distribute some materials to children and gives some mathematical task to children	Children collect the distributed materials and perform the mathematical task.
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher question
Step 7	Teacher gives answers to children questions as appropriate	Children ask the teacher questions

Evaluation: Count the number of objects in the circle and write the answer in the boxes.

Summary: Teacher moves around to ensure that the children add up correctly

Assignment: Add the number of objects in the boxes and write it in the space below.

Lesson Plan 16

Week 3: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Addition

Sub-Topic: Addition of Numbers less than 10

Pre-assessment:

Entry Behaviour: Children can add up two objects not more than 5

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, fingers and stones.

To be supplied: Balloons, bottle tops, match sticks, storybook and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i add up numbers and objects not more than 10

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher introduced the topic by asking the children to sing a poem they love	Children response to the teacher. Children sing their favorite poem.
Step 2	The subject is written on the chalkboard by the teacher. The teacher explain to the children that they can add up numbers more than 10 together	Children watch to the teacher Children listen and ask questions where they need clarity.
Step 3	Teacher demonstrates simple addition process to the children.	Children listen and watch the teacher demonstration.
Step 4	Story Title: The Birthday Party. Activity 1: Children are asked to add up the numbers of green balloons blown by Ayo and Bolu Question: How many green balloons were blown? Activity 2: Children are asked to add up the numbers of yellow balloons blew by Ayo and Bolu Question: How many yellow balloons were blown? Activity 3 Children are asked to add up the numbers of pink balls blown by Ayo and Bolu Question: How many pink balloons were blown by Ayo and Bolu	Children listen and participate in the story. Activity 1: Children add up the numbers of green balloons blown by Ayo and Bolu 3 green balloons + 3 green balloons = 6 green balloons. Children answer 6 green balloons were blown. Activity 2: Children are asked to add up the numbers of yellow balloons blew by Ayo and Bolu 5 yellow balloons + 3 yellow balloons = 8 yellow balloons Children answer 8 yellow balloons were blown Activity 3 Children are asked to add up the numbers of pink balls blown by Ayo and Bolu

		5 pink balloons + 4 pink balloons = 9 balloons. Children answer 9 pink balloons were blown by Ayo and Bolu
Step 7	The teacher will give the children some sum up activities using the plastic eggs and bottle tops).	Children distribute plastic eggs and bottle tops to their peers. Children perform the task and provide answers
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher question
Step 7	Teacher gives answers to children questions as appropriate	Children ask the teacher questions

Evaluation: Count the number of objects in the two boxes and write it in the space below.

Summary: Teacher moves around to ensure that the children add up correctly

Assignment: Add the number of objects in the boxes and write it in the space below.

Lesson Plan 17

Week 3: Lesson 3

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Addition

Sub-Topic: Addition of Numbers less than 20

Pre-assessment:

Entry Behaviour: Children can add up two objects lesser than 10

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils and stones

To be supplied: Plastic eggs, bottle tops, match sticks, story book and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i add up numbers and objects less than 20

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher welcomes the children to class. Teacher introduced the lesson by asking the children to run on a shot.	Children listen to the teacher to instruction. Children run on a shot.
Step 2	Explain to the children that they can add up numbers more than 10 together	Children listen and ask questions where they need clarity.
Step 3	Teacher demonstrates simple addition process to the children.	Children listen and watch the teacher demonstration.
Step 4	Story Title: The Birthday Party Break One	Children listen and participate to the story. Activity 1

	<p>How many green balloons were blown altogether by by Ayo (5) and Bolu (7)? Break Two.....</p> <p>How many yellow balloons were blown altogether by by Ayo (6) and Bolu (9)?? Break Three.....</p> <p>How many pink balloons were blown altogether by Ayo and Bolu? $9 \text{ pink balloons} + 8 \text{ pink balloons} = 17 \text{ balloons}$</p>	<p>Children add up the number of green balloons blown by Ayo (5) and Bolu (7)? $5 \text{ green balloons} + 7 \text{ green balloons} = 12 \text{ green balloons}$</p> <p>Activity 2 Children add up the number of yellow balloons blown by Ayo (6) and Bolu (9)? $6 \text{ green balloons} + 9 \text{ green balloons} = 15 \text{ green balloons.}$</p> <p>Activity 3 Children add up the number of pink balloons blown by Ayo (9) and Bolu (8)? $9 \text{ green balloons} + 8 \text{ green balloons} = 17 \text{ green balloons.}$</p>
Step 5	<p>Gives the children some sum up activities using the bottle tops, cherry seeds, stones, match sticks). Add up the following;</p>	<p>Children distribute various objects (bottle tops and match sticks) to their peers. Provide answer to the mathematical tasks</p>
Step 6	<p>Teacher asks the children question to ensure that they understand the story.</p>	<p>Children answer the teacher question</p>
Step 7	<p>Teacher gives answers to children questions as appropriate</p>	<p>Children ask the teacher questions</p>

Evaluation: Count the number of objects in the two boxes and write it in the space below.

Summary: Teacher guides the children during the task to ensure that they add up correctly.

Assignment: Add the number of objects in the boxes and write it in the space below.

Lesson Plan 18

Week 4: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Subtraction

Sub-Topic: Subtraction of Numbers Less than 5

Pre-assessment:

Entry Behaviour: Children can take away one object from two objects.

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils and objects in the classroom.

To be supplied: Mangoes, straws, sticks, storybook and instructional guide,

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i take away numbers not more than 10

Steps	Teacher's Tasks	Children's Tasks
Step 1	The instructor introduces the topic by singing the song: I have an apple and you have two. Give me an apple and I have two. I keep one apple and give one back to you, I don't have any apple. You have two.	Children sing the song along with the teacher.
Step 2	Write the topic on the chalkboard and explains what subtraction means.	Watch the teacher while writing on the board. Children listen to the teacher.
Step 3	Teacher demonstrates simple subtraction process to the children.	Children listen and watch the teacher demonstration.
Step 4	<p>Presentation of story: The Shared Mangoes</p> <p>Activity 1 Children are asked by how many are Ola's mangoes more than Tolu mangoes?</p> <p>Activity 2: Children are asked to take away the number of ripe mangoes from the unripe mangoes</p> <p>Activity 3: Children are asked to take away the total number of mangoes mangoes from unripe mangoes</p> <p>Activity 4: Children are asked to take away the total number of mangoes from ripe mangoes</p>	<p>Children listen and participate in the story</p> <p>Activity 1 Children tell by how many Ola's mangoes is more than Tolu mangoes? Ola mangoes (2) – Tolu mango (1) = 1 mango</p> <p>Activity 2: Children take away the number of ripe mangoes from the unripe mangoes. Ripe mangoes (3) - unripe mangoes (2) = 1 mango</p> <p>Activity 3: Children take away the total number of mangoes from unripe mangoes Total mangoes 5 - unripe mangoes 2 = 3 mangoes</p> <p>Activity 4: Children take away the total number of mangoes from ripe mangoes Total mangoes 5 - ripe mangoes 3 = 2 mangoes.</p>
Step 5	Teacher distributes some items for children to work with	Children collect the items to perform mathematical task.
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher question.
Step 7	Teacher gives answers to children questions.	Children ask the teacher questions.

Evaluation: Count the objects and circle the number of coloured ones in your work sheet.

Summary: Teacher guide children in the exercise to ensure that they take away correctly.

Assignment: Count the object and circle the coloured one.

Lesson Plan 19

Week 4: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Subtraction

Sub-Topic: Subtraction of Numbers not more than 7

Pre-assessment:

Entry Behaviour: Children can take away numbers lesser than 5.

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, fingers and stones.

To be supplied: Plastic eggs, bottle tops, cherry seeds, story book and instructional guide.

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i take away numbers not more than 5

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher greets the children. Educator asks the children questions about themselves.	Children respond to greetings. Children answer the teacher questions.
Step 2	Teacher revise prior lesson with the children by answering questions. Teacher introduces the lesson of the day.	Children answer the teacher questions. Children listen to the teacher.
Step 3	Teacher demonstrates simple subtraction process to the children.	Children listen and watch the teacher demonstration and response where necessary.
Step 4	Story Title: The Shared Mangoes Activity 1: Children are asked to take away Ugo mangoes more from Ego mangoes? Activity 2: Children are asked to take away the number of ripe mangoes from the number of mangoes eaten by Ego Activity 3: Children are asked to take away the total numbers of ripe 7 mangoes from the numbers of unripe mangos 3	Children listen and participate in the story. Activity 1: Children are asked to take away Ugo mangoes more from Ego mangoes? Ego mangoes 2 – Ugo mangoes 2 = 0 mango Activity 2: Childrentake away the number of ripe mangoes from the number of mangoes eaten by Ego. Ripe mangoes - number of mangoes eaten by Ego 4 mangoes – 2 mangoes = 2 mangoes Activity 3: Total numbers of ripe 7 mangoes from the numbers of unripe mangos 3 7 mangoes –3 mangoes = 4 mangoes.
Step 5	Teacher distributes work sheets and asked the children circle the number of coloured objects among the objects.	Children collectthe work sheets circle the number of coloured objects among the objects.

Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher questions.
Step 7	Teacher gives answers to children questions as appropriate.	Children ask the teacher questions.

Evaluation: Count the eggs and tick the number of cracked in your work sheet.

Summary: Teacher guide children in the exercise to ensure that they take away correctly

Assignment: Count the object and circle the shaded ones.

Lesson Plan 20

Week 4: Lesson 3

Date:

Duration: 45 mins

Subject: Numeracy

Class: One year Pre-primary

Topic: Subtraction

Sub-Topic: Subtraction of Numbers lesser than 10

Pre-assessment:

Entry Behaviour: Children can take away numbers lesser than 7

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, fingers and stones.

To be supplied: Plastic egg, match sticks, bottle tops, story book and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:
i subtracts numbers less than 10

Steps	Teacher's Tasks	Children's Tasks
Step 1	Instructor introduces the topic by asking the children to tell their best food.	Children listen to the teacher. Children answer the teacher question by telling their food.
Step 2	Teacher continues the lesson by asking the children to provide answers to some take-away task. Writes the topic on the chalkboard.	Watch the teacher while writing on the board Children answer the teacher questions.
Step 3	The instructor elucidate to the kids that they will be subtracting numbers between 1 and 9.	Children listen and ask questions where they need clarity.
Step 4	Story Title: The Broken Eggs. Activity 1 Children are asked to find out the numbers of eggs left inside the crate	Children listen and participate in the story. Activity 1 Find out the numbers of eggs left inside the crate

	<p>when Tope broke 3</p> <p>Activity 2 Children are asked to find out to find out the numbers of eggs left inside the crate after three was fried</p> <p>Activity 3 Children are asked to find out the remaining egg left after Tope boiled one to eat rice out of 2 left</p>	<p>Total numbers of eggs inside the crate – numbers of eggs broken by Tope $9 \text{ eggs} - 3 \text{ eggs} = 6 \text{ eggs}$</p> <p>Activity 2 To find out the numbers of eggs left inside the crate after three was fried $6 \text{ eggs} - 4 \text{ eggs} = 2 \text{ eggs}$</p> <p>Activity 3 Children find out the remaining egg left after Tope boiled one to eat rice out of 2 left. $2 \text{ eggs} - 1 \text{ egg} = 1 \text{ egg}$</p>
Step 5	Gives the children some mathematical task to do using the learning materials provided.	Distribute learning materials to their peers and provided answers to the mathematical tasks.
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher question.
Step 7	Teacher gives answers to children questions as appropriate.	Children ask the teacher questions.

Evaluation: Count the objects and circle the number of coloured ones in your work sheet.

Summary: Teacher guide children in the exercise to ensure that they take away correctly

Assignment: Count the object and circle the coloured one.

Lesson plan 21

Week 5: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Colours

Sub-Topic: Identification of Colours (pink, red, blue, yellow).

Pre-assessment

Entry Behaviour: Children know the colour of their soak (white) they put on to school.

Learning Environment: Classroom/outside

Resources/ Materials:

Already Available: Note books, pencils, lunch box and bags.

To be supplied: Sugar paper, colour pad, bottle tops, story book and instructional guide.

Educational goals: At the lesson, children should be able to:

- i. list at least 3 colours
- ii. identify common thing in the environment and their colours.

Steps	Teacher's Tasks	Children's Tasks
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Step 1	Teacher introduced the lesson by asking the children to provide answers to some take-away task. Write the topic on the chalkboard	Children answer the teacher questions. Watch the teacher while writing on the board
Step 2	The teacher introduces the lesson topic: Identification of Colours.	Children listen to the teacher.
Step 3	The teacher puts on cloth of many colours to school and ask the children to comments while guiding them.	Children listen, make comments and ask questions where they need clarity.
Step 4	Story Title: The Decorated Classroom. Activity 1 Children are asked to identify and name the pink colour Activity 2: Children are asked to identify and name the red colour Activity 3: Children are asked to identify and name the blue colour. Activity 4: Children are asked to identify and name the yellow colour	Children listen to the story. Children participate in the story Activity 1 Children identify and name the pink colour Activity 2: Children identify and name the red colour Activity 3: Children identify and name the blue colour. Activity 4: Children identify and name the yellow colour.
Step 5	Teacher places the colour container at the centre of the table and asks the child to pick up any colour mentioned.	Children provide answer to the mathematical task.
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher question.
Step 7	Teacher gives answers to children questions as appropriate.	Children ask the teacher questions.

Evaluation: Match the objects with same colours in your work sheets.

Summary: Teachers leads the children to say the colours of things in their environment. .

Assignment: Match the pictures with same colours in your work sheets.

Lesson plan 22

Week 5: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Colours

Sub-Topic: Identification of Colours (green, brown, black and white)

Pre-assessment

Entry Behaviour: Children have colours on their uniform

Learning Environment: Classroom/ outside

Resources/ Materials:

Already Available: Note books, pencils, lunch box, bags and objects in the classroom.

To be supplied: Colour chat and pad, sugar paper, bottle story book and instructional guide.

Educational goals: At the lesson, children should be able to:

- i. list at least 3 colours
- ii. identify colour of things in their environment.

Steps	Teacher's Tasks	Children's Tasks
Step 1	Instructor introduced the tcb by asking the children to identify some colours. Writes the topic on the chalkboard.	Children answer the teacher questions. Watch the teacher while writing on the board.
Step 2	The teacher introduces the lesson topic	Children listen to the teacher.
Step 3	The teacher shows the children a chat containing colours and asks the children to comments while guiding them.	Children listen, make comments and ask questions where they need clarity. Children participate in the class activities by picking up colours mentioned by their teacher
Step 4	Story Title: The Decorated Classroom Activity 1 Children are asked to identify and name the green colour. Activity 2: Children are asked to identify and name the green colour Activity 3: Children are asked to identify and name the black colour. Activity 4: Children are asked to identify and name the brown colour	Children listen to the story. Children participate in the story. Activity 1 Children identify and name the green colour. Activity 2: Children identify and name the green colour Activity 3: Children identify and name the black colour. Activity 4: Children identify and name the brown colour
Step 5	Teacher places a tray containing colours on each of the child's table and ask them to pick up any colour mentioned.	Children provide answer to the mathematical task
Step 6	Teacher asks the children question to	Children answer the teacher question.

	ensure that they understand the story.	
Step 7	Teacher gives answers to children questions as appropriate.	Children ask the teacher questions.

Evaluation: Thick the objects with same colours in your work sheets.

Summary: Teachers leads the children to say the colours of things in their environment.

Assignment: Match the pictures with same colours in your work sheet.

Lesson Plan 23

Week 5: Lesson 3

Date:

Duration: 45 mins

Subject: Numeracy

Class One year Pre-primary

Topic: Colours

Sub-Topic: Primary and Secondary Colours

Pre-assessment

Previous Knowledge: The children learnt how to identify some colours.

Entry Behaviour: Children have various colours of school bags and lunch box.

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, lunch box, bags and objects in the classroom.

To be supplied: Sugar papers, colour chat, tray, story book and instructional guide.

Educational goals: At the lesson, children should be able to:

- i. list at least 3 colours
- ii. identify common thing in the environment and their colours.

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher introduced the lesson by asking the children to identify some colours. Writes the topic on the chalkboard.	Children answer the teacher questions. Watch the teacher while writing on the board.
Step 2	The teacher introduces the lesson topic: Primary and Secondary Colours.	Children listen to the teacher.
Step 3	The teacher shows the children a chat containing colours and asks the children to comments while guiding them.	Children listen, make comments and ask questions where they need clarity.
Step 4	Story Title: The Sport Wears Activity 1 Children are asked to identify and name the purple colour. Activity 2: Children are asked to identify and name the orange colour. Activity 3:	Children listen and participates in the story. Activity 1 Children identify and name the purple colour. Activity 2: Children identify and name the orange colour. Activity 3:

	Teacher explains that red, blue and yellow are called primary colours. Children are asked to identify and name the primary colours. Activity 4: Teacher explains that green, purple and orange are called secondary colours. Children are asked to identify and name the secondary colours.	Children listen to the teacher explanation. Children identify and name the primary colours (red, blue and yellow). Activity 4: Children listen to the teacher explanation. Children identify and name the secondary colours (green, purple and orange).
Step 5	Teacher presents some mathematics tasks for children using the message of the story. Teacher places a tray containing colours on each of the child's table and ask them to pick up any colour mentioned.	Children provide answer to the mathematical task. Children collect tray from the teacher. Participate in the class activities by picking up colours mentioned by their teacher.
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher question.
Step 7	Teacher gives answers to children questions as appropriate.	Children ask the teacher questions.

Evaluation: Thick the objects with same colours in your work sheets.

Summary: Teachers leads the children to say the colours of things in their environment.

Assignment: Match the pictures with same colours in your work sheets

Lesson plan 24

Week 6: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Shapes

Sub-Topic: Identification of Shapes (circle, oval and triangle)

Pre-assessment:

Entry Behaviour: Children are familiar that objects come in different form in the home.

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, textbook, and objects in the classroom.

To be supplied: Plastic shapes, ludo frame, , plastic eggs, storybook and instructional guide.

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i. list the shapes.
- ii. identify and compare things in their environment with the shapes.

Steps	Teacher's Tasks	Children's Tasks
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Step 1	Instructor introduced the lesson by revising the previous topic. Writes the topic on the chalkboard.	Children answer the teacher questions. Watch the teacher while writing on the board.
Step 2	The teacher introduces the lesson topic: Identification of Shapes: (circle, oval and triangle).	Children listen to the teacher.
Step 3	Teachers show children similar objects and ask them if their surface are the same.	Children listen and respond to the question of the teacher.
Step 4	Story Title: The Shape Biscuits Activity 1: Teacher brings out the circle shape and showed it out to the children. Teacher asks the children to name things in the environment that have same shape with the circle. Activity 2: Teacher brings out the oval shape and showed it out to the children. Teacher asks the children to name things in the environment that have same shape with the oval. Activity 3: Teacher brings out the triangle shape and showed it out to the children. Teacher asks the children to name things in the environment that have same shape with the triangle	Children listen to the story. Children watch the teacher. Activity 1: Name the circle shape alongside the teacher. Children name objects in the environment that has a circle shape e.g tyre Activity 2: Name the oval shape alongside the teacher. Children name objects in the environments that has an oval shape e.g oval Activity 3: Name the triangle shape alongside the teacher. Children name objects in the enviroment that has a triangle shape e.g xmas tree
Step 5	Teacher places a tray containing shapes on each of the child's table and ask the children to show up any shape mentioned.	Children participate in the class activities by showing up shapes mentioned by their teacher.
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher question
Step 7	Teacher gives answers to children questions as appropriate.	Children ask the teacher questions.

Evaluation: Match the objects with the shape in your worksheet.

Summary: Teacher gives the summary of the story to the children.

Assignment: Write the shapes of things in your environment.

Lesson plan 25

Week 6: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Shapes

Sub-Topic: Identification of Shapes (Square and Rectangle)

Pre-assessment:

Entry Behaviour: Children are familiar that objects comes in different form in the home

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, textbook, and objects in the classroom

To be supplied: Concrete’s objects such as (plastic shapes, ludo frame, I.D card, flash cards, textbook and instructional guide.

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i. identify the square and rectangle shapes.

Steps	Teacher’s Tasks	Children’s Tasks
Step 1	Teacher introduced the lesson by asking the children to identify and name the circle and oval shape. Writes the topic on the chalkboard.	Children answer the teacher questions. Watch the teacher while writing on the board.
Step 2	The teacher introduces the lesson topic	Children listen to the teacher.
Step 3	Show children similar objects and ask them if their surface are the same.	Children listen and respond to the question of the teacher.
Step 4	Story Title: The Shape Biscuits Activity 1 Brings out the square shape and showed it out to the children. Asks children to name things in the environment that have square shape Activity 2: Teacher brings out the rectangle shape and showed it out to the children. Asks the children to name things in the environment that have rectangle shape.	Children watch and participate in the story. Activity 1 Name the square shape alongside the teacher. Children name objects in the enviroments that has a square shape e.g face of a dice. Activity 2: Name the rectangle shape alongside the teacher. Children name objects in the environments that has an oval shape e.g door.
Step 5	Teacher places a tray containing shapes on each of the child’s table and ask the children to pick up any shape mentioned.	Children ollect tray from the teacher. Children participate in the class activities by picking up shapes mentioned by their teacher.
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher question.
Step 7	Teacher gives answers to children questions as appropriate.	Children ask the teacher questions

Evaluation: Match the shapes in your work book

Summary: Teacher leads the children to identify the shapes correctly.

Assignment: Match the objects with right shapes.

Lesson plan 26

Week 6: Lesson 3

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Construction of shapes

Sub-Topic: Construction of Circle and Oval Shape.

Pre-assessment:

Entry Behaviour: Children can identify circle and oval shape

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books and pencils

To be supplied: Play dough, plastic shapes, straw, textbook and instructional guide.

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i. construct the circle and oval shape

Steps	Teacher's Tasks	Children's Tasks
Step 1	Instructor introduced the topic by asking the children to identify and name the rectangle and square shape.	Children answer the teacher questions.
Step 2	The teacher introduces the lesson topic: Construction of shapes: (circle and oval).	Children listen to the teacher.
Step 3	Teacher show the children the play dough and revise the pattern with them.	Children listen and respond to the question of the teacher.
Step 4	<p>Story Title: The Play Dough</p> <p>Activity 1 Name and shows the play dough to the children. The educator instructs the pupils to draw a circle in the air. Teacher demonstrates how to use the play dough to construct the circle shape using curves. Teacher asks the children to construct the circle using the curves</p> <p>Activity 2: Teacher asks the children to draw oval shape in the air. Teacher demonstrates how to use the play dough to construct the oval shape using curves. Teacher asks the children to construct the circle using the curves.</p>	<p>Listen and participate in the story.</p> <p>Activity 1 Children name the play dough alongside the teacher. Children draw circle shape in the air. Children collect the play dough from the teacher. Children watch the teacher demonstration. Children construct the circle using the curves.</p> <p>Activity 2 Children draw circle shape in the air. Children watch the teacher demonstration. Children construct the circle using the curves.</p>

Step 5	Teacher asks the children to describe how to draw the circle and oval shapes.	Children to describe how to draw the circle and oval shapes
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher question.
Step 7	Teacher gives answers to children questions.	Children ask the teacher questions.

Evaluation: Trace the circle and oval shape in your work sheet.

Summary: Teacher guides the children to construct the shapes.

Assignment: Trace the circle and oval shape in your work sheet.

Lesson Plan 27

Week 9: Lesson 3

Date: Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Administration of Post-test

Sub-topic: Administration of post-test

(Mathematical Knowledge)

Pre-assessment:

Previous Knowledge: Children have been taught various topics for the period of nine weeks.

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note book and pencils

To be supplied: Assessment on Pre-primary School Children Mathematical Knowledge

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i answer correctly the mathematical knowledge

STEPS	Teacher's Tasks	Children's Tasks
Step 1	Instructor revises the entire topics taught.	Children listen to the teacher.
Step 2	Teacher revises all the stories taught during the previous lesson.	Children listen to the teacher and respond when necessary.
Step 3	Teacher allows the students to ask question and pass their comments on all the lessons taught so far.	Children ask the teacher questions
Step 4	Teacher distributes the achievement test to the children to access their knowledge.	Children collect the assessment of mathematical knowledge sheet and provide answers to the questions.
Step 5	Teacher collects the answer sheet from the children.	Children return the answer sheet to the teacher
Step 6	Teacher calls out the children to ask them questions one after the other.	Children in the process of answering the teacher

Evaluation: None is given.

Summary: The Teacher brings the lesson to an end.

Assignment: None is given.

Lesson 28

Week 10: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Administration of Post-test

Sub-topic: Administration of mathematical communication skills

Pre-assessment:

Entry Behaviour: Children have been taught all topics for the period of nine weeks

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note book and pencils

To be supplied: Assessment on pre-primary school children mathematics communication skill.

Educational goals: At the conclusion of period, pupils ought to understand how to:
i discuss their mathematics communication skills.

STEPS	Teacher's Tasks	Children's Tasks
Step 1	Instructor revises the entire topic taught.	Children listen to the teacher.
Step 2	Teacher revises all the stories taught during the previous lesson	Children listen to the teacher and respond when necessary.
Step 3	Allow the children ask questions and provides answer to the questions.	Children ask the teacher questions
Step 4	Teacher calls the children out to assess their mathematical communication skills	Children line up one after the other to assess their mathematical communication skills.
Step 5	Teacher collects the answer sheet from the children.	Children return the answer sheet to the teacher
Step 6	Teacher calls out the children to ask them questions one after the other.	Children in the process of answering the teacher

Evaluation: None is given.

Summary: The Teacher brings the lesson to an end.

Assignment: None is given

APPENDIX III

SONGS INSTRUCTIONAL GUIDE (SIG)

For

PRE-PRIMARY SCHOOL CHILDREN

A Stimulus Instructional Package for a Unit presentation in the Department of Early Childhood/Educational Foundations (ECE Unit), University of Ibadan.

Developed and produced by

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Under the supervision of

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1st Edition, 2023

Introduction

This package is designed to be used in the teaching of the various themes in the One Year Pre-primary School curriculum developed by the Nigerian Educational Research and Development Council (NERDC, 2014) for public and private schools in Oyo State. This package is strictly based on songs-enhanced stimulation. It is expected that children's mathematical knowledge and communication skills will be developed in the course of the learning process.

Objectives:

- i. To develop the acquisition of mathematical communication skills of preschool children
- ii. To develop mathematical knowledge of preschool children.

Various Themes

- Counting of Numbers
- Addition of Numbers
- Subtraction of Numbers
- Identification of Colours
- Identification of Shapes
- Identification by Sizes
- Classification of objects
- Time and Season

Methods

Songs

LESSON FORMAT FOR SONG INSTRUCTIONAL GUIDE

Week: Lesson..... **Date:**..... **Duration:**.....

Subject: **Class:**.....

Topic:..... **Sub-topic:**.....

Pre-assessment:

Entry Behaviour:.....

Learning Environment:.....

Resources/ Materials:

Already Available:.....

To be supplied:.....

Educational goals:.....

STEP	Teacher's Tasks	Children's Tasks
Step 1		
Step 2		
Step 3		
Step 4	Presentation of song: Short relaxation activities:	
Step 5	.	
Step 6		
Step 7		
Step 8		

Evaluation:

Summary:.....

Assignment:.....

Lesson Plan 1

Week 1: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Introduction of the Research and
Administration of Pre-test.

Sub-topic: Administration of Pre-test
(Mathematical Knowledge)

Entry Behaviour; Children have been receiving maths lesson

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note book and pencils

To be supplied: Assessment sheet on pre-primary school children Mathematical knowledge

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i tell what the research is all about
- ii. state the enhanced stimulation that will be applied in the lesson.

STEP	Teacher's Tasks	Children's Tasks
Step 1	Teacher introduces herself to the children and get familiarized with the children names.	Children settle down in the classroom to get acquainted with the teacher. Children introduces themselves one after the other to the teacher.
Step 2	Teacher relates the information to the children that hence forth that their mathematical classes will be fun-filled with the use of storytelling-enhanced stimulation	Children listen to the teacher Children response to the teachers comments
Step 3	Teacher distributes the achievement test to the children to access their knowledge. The teacher also will provide the children with some objects to carry out some mathematical activity while assessing the mathematical knowledge	Children collect the assessment of mathematical knowledge sheet from the teacher. Children settle down to provide answers to the question asked
Step 4	Collects the answer sheet from the children	Return the answer sheet to the teacher
Step 5	Teacher calls out the children to ask them questions one after the other.	Children in the process of answering the teacher.
Step 6	Gives room for the children to ask questions	Children ask the teacher questions.

Evaluation: (i) How are we going to be learning maths (ii) What will be used to teach the lesson?

Summary: Teacher brings the assessment process to an end.

Assignment: None is given.

Lesson Plan 2

Week 1: Lesson 2

Subject Numeracy

Topic: Administration of Pre-test

Date:

Duration: 45 mins

Class One year Pre-primary

Sub-topic: Administration of Communication of Mathematical Knowledge

Pre-assessment:

Entry Behaviour: Children have been introduced to some mathematical topics

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note book and pencils

To be supplied: Assessment on pre-primary school children mathematics communication skill

Educational goals: At the conclusion of period, pupils ought to understand how to:
i discuss their mathematics communication skills

STEPS	Teacher's Tasks	Children's Tasks
Step 1	Welcome the children to the classroom	Children respond to teacher greeting
Step 2	Teacher tells the children that their mathematics communication skills will be assessed one after the other.	Children listen to the teacher. Children make their comments when necessary.
Step 3	Teacher call the children out one after the other to assess their mathematical communication skills	Children line up one after the other to assess their mathematical communication skills.
Step 4	Teacher record their performance	Children answer to the questions.
Step 5	Teacher calls out the children to ask them questions one after the other.	Children in the process of answering the teacher
Step 6	Teacher gives room for the children to ask questions	Children ask the teacher questions

Evaluation: (i) How are we going to be learning maths? (ii) What will be used to teach the lesson?

Summary: Teacher brings the assessment process to an end.

Assignment: None is given.

Lesson Plan 3

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Numbers

Sub-Topic: Rhythmic Counting of Numbers 1-12

Pre-assessment:

Entry Behaviour: Children can count number 1-3

Learning Environment: Classroom

Resources/ Materials:**Already Available:** Note books and pencils.**To be supplied:** Number flash cards, instructional guide and story book**Educational goals:** At the conclusion of period, pupils ought to understand how to:

i counts numbers one to twelve rhythmically.

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher welcomes the children to the maths class. Teacher asks the children to sing the song, if you happy and you know (clap your hands, jump up among) other.	Children respond to the greetings. Children listen to instruction. Children sing along with the teacher. Children demonstrate to the instruction of the song
Step 2	Teacher writes the topic and numbers on the chalkboard.	Children watch the teacher. Children listen to the teacher.
Step 3	The teacher tells the children that they will be learning how to counts number 1-12.	Children listen to the teacher
Step 4	Song Title: Counting my Numbers Activity 1: Children are asked to count numbers 1-6, Activity 1: Children are asked to count numbers 1-9 Activity 3: Children are asked to count numbers 1-12 Teacher led the children to count the numbers 1-12.	Children listen to the lyrics of the song Children learn how to sing the song. Children participate in the song activities. Activity 1 Children count numbers 1-6, Activity 1: Children count numbers 1-9 Activity 3: Children count numbers 1-12 Children to count the numbers 1-12 without stopping.
Step 5	Children are ask to sing the song along.	Children sing the song they learnt.
Step 6	Teacher gives the children the flash cards to count the number writing on it.	Children count the numbers written on the flash cards.
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Count the numbers in their work sheet.**Summary:** Teacher leads the children to count numbers 1-12.**Assignment:** Children are to collect 12 straws, 12 bottle corks in their environment.**Lesson Plan 4****Week 2:** Lesson 1**Date:****Duration:** 45 mins**Subject** Numeracy**Class** One year Pre-primary

Topic: Counting of Numbers

Sub-Topic: Rational Counting of Numbers 1-12

Pre-assessment:

Entry Behaviour: Children can count number 1-10 rhythmically

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils and straws

To be supplied: Straws, coloured bottle tops, plastic balls, work sheet, instructional guide and song book

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i counts numbers and object one to twelve

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher welcomes the children to the maths class. Today, I have some coloured bottle corks for you and will be playing game with them. Are you ready?'	Children respond to the greetings. Children listen to instruction. Children listen to teacher's introduction and respond affirmatively to the question asked.
Step 2	Teacher writes the topic and numbers on the chalkboard.	Children watch the teacher. Children listen to the teacher.
Step 3	The teacher calls few children out to play a short game of throwing and catching with the bottle corks while the rest children are counting.	Children listen to the teacher Children participate in the throwing and catching game
Step 4	Song Title: Countingmy Numbers Activity 1: Teacher ask the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-6, Activity 2 Teacher ask the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-9. Activity 3 Teacher ask the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-12	Children listen to the lyrics of the song Children learn how to sing the song. Children participate in the song activities. Demonstrate alongside with the teacher. Activity 1: Children pick objects such as straws, coloured bottle tops, plastic balls corresponding numbers 1-6. Activity 2: Children pick objects such as straws, coloured bottle tops, plastic balls corresponding numbers 1-9. Activity 3: . Children pick objects such as straws, coloured bottle tops, plastic balls corresponding numbers 1-12
Step 5	The children will be allowed to sing the song along.	Children sing the song they learnt.

Step 6	Teacher presents plastic balls, pencils and straws for children to counts 1-12	Children count the objects provided by the teacher
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Counts numbers of chairs and lunch boxes in the classroom 1- 12

Summary: Teacher ensure that every child participate in the counting exercise 1-12

Assignment: Children are to collect 12 match sticks and stones in their environment.

Lesson Plan 5

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Numbers

Sub-Topic: Rhythmic and Rational Counting of

Numbers 1-12

Pre-assessment:

Entry Behaviour: Children can count number 1-12

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, stones and straws

To be supplied: Number tag, coloured bottle top, instructional guide and song book

Educational goals: At the conclusion of period, pupils ought to understand how to:

i counts numbers one to twelve rationally.

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher welcomes the children to the maths class. Teacher ask the children to run a spots	Children respond to the greetings. Children listen to instruction. Children run on a shot along the teach
Step 2	Instructorwrites the topic on theboard and explained to the children, that they will counting objects and numbers together.	Children watch the teacher. Children listen to the teacher.
Step 3	Instructor quizzesh the children to pick a pack each on the table and count the number of objects in it.	Children listen to the teacher Children count the objects in the pack.

Step 4	See song on page..... Song Title: Counting my Numbers See song on page..... Song Title: Countingmy Numbers Activity 1: Teacher ask the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-6, Activity 2 Teacher ask the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-9. Activity 3 Teacher ask the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-12	Children listen to the lyrics of the song Children learn how to sing the song. Children participate in the song activities. Activity 1: Children listen to the lyrics of the song Children learn how to sing the song. Children participate in the song activities. Demonstrate alongside with the teacher. Activity 1: Children pick objects such as straws, coloured bottle tops, plastic balls corresponding numbers 1-6. Activity 2: Children pick objects such as straws, coloured bottle tops, plastic balls corresponding numbers 1-9. Activity 3: . Children pick objects such as straws, coloured bottle tops, plastic balls corresponding numbers 1-12
Step 5	The children will be allowed to sing the song along.	Children sing the song they learnt.
Step 6	Teacher give straws, coloured bottle tops, plastic balls for the children to count 1-2	Children counts the objects provide by the teacher
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Counts the number of objects (12) in the work sheet.

Summary: Teacher leads the children to count numbers and objects 1-12

Assignment: Collects 12 stones and matches sticks.

Lesson Plan 6

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Number 1- 25
to 25

Sub-Topic: Rhythmic Counting of Numbers up

Pre-assessment:

Entry Behaviour: Children can count numbers 1-12

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, cherry seeds and stones

To be supplied: Number flash cards, chat containing numbers, instructional guide and story book

Educational goals: At the conclusion of period, pupils ought to understand how to:
i counts numbers one to twenty-five

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher start the class by introducing the energizer: I can count my numbers.	Children listened to the teacher Children sing along with the teacher.
Step 2	Teacher writes the topic on the chalk board counting of numbers up to 25. Teacher asks the children to count 1-12.	Children watch the teacher while writing on the board. Children listen and respond to the teacher.
Step 3	The teacher gives the children the number tag to arrange while counting the numbers.	Children collect the number tag from the teacher and arrange the number tags on their table.
Step 4	Song Title: Counting my Numbers Activity 1: Children are asked to count numbers 1-15, Activity 1: Children are asked to count numbers 1-18 Activity 3: Children are asked to count numbers 1-20 Teacher led the children to count the numbers 1-20.	Children listen to the lyrics of the song Children learn how to sing the song. Children participate in the song activities Demonstrate alongside with the teacher Activity 1: Children count numbers 1-15, Activity 2: Children count numbers 1-18 Activity 3: Children count numbers 1-20 Teacher led the children to count the numbers 1-20.
Step 5	The children will be allowed to sing the song along.	Children sing the song they learnt.
Step 6	Teacher gives the children the flash cards to count the number writing on it.	Children count the numbers written on the flash cards.
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Count the numbers in their work sheet

Summary: Teacher leads the children to count numbers 1-20

Assignment: Children are to collect 20 sticks 20 stones and 20 bottle corks in their environment.

Lesson Plan 7

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Number 1- 25 **Sub-Topic:** Rational Counting of Numbers up to 25

Pre-assessment:

Entry Behaviour: Children have been counting numbers 1-20 rhythmically

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, cherry seeds and stones

To be supplied: Plastic balls, bottle tops, match sticks and instructional guide and story book

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i counts numbers and object from one to twenty-five

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher askd the children to sing the poem, 1,2 buckle my shoe, 3, 4 knock at the door....	Children respond by singing 1,2 buckle my shoe, 3, 4 knock at the door....
Step 2	Teacher writes the topic and numbers on the chalkboard.	Watch the teacher while writing on the board. Children response to the teacher.
Step 3	Asks the children to count the numbers 1-12 to remind them of previous lesson.	Children listen to the instruction of the teacher and count numbers 1-12
Step 4	<p>Song Title: Counting my Numbers</p> <p>Activity 1: Teacher ask the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-18</p> <p>Activity 2: Teacher ask the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-21</p> <p>Activity 3: Teacher ask the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-25</p>	<p>Children listen to the lyrics of the song</p> <p>Children learn how to sing the song.</p> <p>Children participate in the song activities. Demonstrate alongside with the teacher.</p> <p>Activity 1: Children pick objects such as straws, coloured bottle tops, plastic balls corresponding numbers 1-18</p> <p>Activity 2: Children pick objects such as straws, coloured bottle tops, plastic balls corresponding numbers 1-21</p> <p>Activity 3: Children pick objects such as straws, coloured bottle tops, plastic balls corresponding numbers 1-25</p>
Step 5	Allowed children to sing the song along.	Children sing the song they learnt.

Step 6	Teacher asks the children to distribute 30 sticks, 30 straws. 30 pencils to each of the children and them to count 25 objects.	Children collect the distributed materials. Children counts 25 sticks, 25 straws. 25 pencils provided by the teacher.
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Children are asked to count numbers of mangoes and orange in their work sheet.

Summary: Teacher guides the children in counting the numbers and objects

Assignment: Children are to collect 25 straws and 25 match sticks in their environment.

Lesson Plan 8

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Number 1- 25

Sub-Topic: Rhythmic and Rational Counting of

Numbers up to 25

Pre-assessment:

Entry Behaviour: Children have been counting numbers 1-25 rhythmically

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, cherry seeds and stones.

To be supplied: Work sheet, bottle corks, straws, beads, story book, number flash cards and instructional guide

Educational goals:At the conclusion of period, pupils ought to understand how to:

i counts one to twenty-five both rhythmically and rationally.

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher welcomes the children by engaging children in a body exercise: stand up and sit.	Children respond to the teacher Children engage in the body exercise of standing and sitting.
Step 2	Teacher writes the topic and numbers 1-25 on the chalkboard.	Children watch the teacher writing on the chalk board.
Step 3	Teacher revises prior topic with the children by asking them to count.	Children response to the teacher by counting the numbers

Step 4	<p>Song Title: Counting my Numbers</p> <p>Activity 1: Teacher ask the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-18</p> <p>Activity 2: Teacher ask the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-21</p> <p>Activity 3: Teacher ask the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-25</p>	<p>Children listen to the lyrics of the song Children learn how to sing the song. Children participate in the song activities. Demonstrate alongside with the teacher.</p> <p>Activity 1: Children pick objects such as straws, coloured bottle tops, plastic balls corresponding numbers 1-18</p> <p>Activity 2: Children pick objects such as straws, coloured bottle tops, plastic balls corresponding numbers 1-21</p> <p>Activity 3: Children pick objects such as straws, coloured bottle tops, plastic balls corresponding numbers 1-25</p>
Step 5	Children are allowed to sing the alone.	Children sing the song they learnt.
Step 6	<p>Teacher distributes bottle corks and straws beads to the children.</p> <p>Teacher ask the children to counts the objects in accordance to numbers 1-25</p>	<p>Children collect the learning materials from their teacher.</p> <p>Children counts the objects in accordance to each numbers</p>
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Children are asked to count and match numbers of objects in their work sheet.

Summary: Teacher leads the children to count number 1-25

Assignment: Count the numbers of objects and circle their numbers in your work sheet.

Lesson Plan 9

Week 2: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Numbers

Sub-Topic: Rhythmic Counting of Numbers up to 50

Pre-assessment:

Entry Behaviour: Children can count 1-20 rhythmically.

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, cherry seeds and stones

To be supplied: flash cards, number tag, work sheets, story book and instructional guide.

Educational goals:

At the conclusion of period, pupils ought to understand how to:

- i. counts numbers that are not more than fifty correctly.

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher welcomes the children to the class. Teacher engages the children with song: if you are happy and you know it clap your hands, stand up, shake your waste.	Children respond to the teacher. Children engage participate in the body exercise by singing the song.
Step 2	Teacher writes the topic and numbers 1-50 on the chalkboard.	Children watch the teacher writing on the chalk board. Children listen to the teacher.
Step 3	Teacher revises prior topic with the children by asking them to count 1-25.	Children response to the teacher by counting the numbers.
Step 4	Song Title: Counting my Numbers See the song on page..... Activity 1: Children are asked to count numbers 1-32, Activity 2: Children are asked to count numbers 1-40 Activity 3: Children are asked to count numbers 1-50 Teacher led the children to count the numbers 1-50	Children listen to the lyrics of the song Children learn how to sing the song. Children participate in the song activities Demonstrate alongside with the teacher Activity 1: Children count numbers 1-32, Activity 2: Children count numbers 1-40 Activity 3: Children count numbers 1-50 Teacher led the children to count the numbers 1-50.
Step 5	Ask the children to sing the song along.	Children sing the song they learnt.
Step 6	Teacher asked the children to count number 1-50 on the number chat	Teacher asked the children to count number 1-50 on the number chat
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Children are asked to count the numbers 1-50 in their work sheet.**Summary:** Teacher leads the children to count number 1-50

Assignment: Count the numbers 1-50 in your work sheet.

Lesson Plan 10

Week 2: Lesson 2

Date:

Duration: 45

mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Number from **Sub-Topic:** Rational Counting of Numbers up to 50

Pre-assessment:

Entry Behaviour: Children can count objects from one to twenty

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, cherry seeds and stones

To be supplied: Bottle tops, straw, match sticks, song book and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i. counts numbers and objects one to fifty

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher welcomes the children to the class. Teacher engages the children in a body exercise: stand up and sit	Children respond to the teacher Children engage in the body exercise of standing and sitting.
Step 2	Teacher writes the topic and numbers 1-50 on the chalkboard. Teacher tells children that they will count objects 1-50.	Children watch the teacher writing on the chalk board. Children listen and respond to the teacher.
Step 3	Teacher revises prior topic with the children by asking them to count 1-50	Children response to the teacher by counting the numbers 1-50
Step 4	Song Title: I can count numbers in tens. Teacher asks the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-32. Activity 2 Teacher asks the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-40. Activity 3 Teacher askw the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-50.	Children listen to the lyrics of the song Children learn how to sing the song. Children participate in the song activities. Activity 1: Children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-32. Activity 2 Children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-40. Activity 3 Children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-50.

		balls, corresponding numbers 1-50.
Step 5	The children will be allowed to sing the song along.	Children sing the song they learnt.
Step 6	Teacher distributes bottle corks and cherry seed to the children. Teacher ask the children to counts the objects in accordance to numbers 1-50	Children collect the learning materials from their teacher. Children counts the objects in accordance to each numbers 1-50
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Children are asked to count objects and circle the number in their work sheet.

Summary: Teacher leads the children to count number 1-50.

Assignment: Count the objects and circle the numbers in your work sheet.

Lesson Plan 11

Week 2: Lesson 2

Date:

Duration: 45 mins

Subject: Numeracy

Class One year Pre-primary

Topic: Counting of Number

Sub-Topic: Rhythmic and Rational Counting of Numbers up to 50

Pre-assessment:

Entry Behaviour: Children can count numbers and objects from one to twenty

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, cherry seeds and stones

To be supplied: Twain, beads, cartoon, plastic balls, straw, and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- ii. counts numbers and objects not more one to fifty.

Steps	Teacher's Tasks	Children's Tasks
Step 1	Write topic and numbers to be counted on the board. We are learning how to count numbers 1-50.	Children answer the teacher questions. Watch the teacher while writing on the board.

Step 2	Teacher will ask the children to count 1-50 rhythmically to ensure that they can all counts.	Children listen to the teacher. Children counts 1-50rhythmically.
Step 3	The teacher will explain to count of numbers and objects 1-50 to the children.	Children listen to the teacher.
Step 4	<p>Song Title: I can count Numbers</p> <p>Activity 1: Teacher asks the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-32.</p> <p>Activity 2 Teacher asks the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-40.</p> <p>Activity 3 Teacher askw the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-50</p>	<p>Children listen to the lyrics of the song Children learn how to sing the song. Children participate in the song activities</p> <p>Activity 1: Children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-32.</p> <p>Activity 2 Children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-40.</p> <p>Activity 3 Teacher askw the children to pick objects such as straws, coloured bottle tops, plastic balls, corresponding numbers 1-50.</p>
Step5:	Teacher provide children with bottle tops, cherry seeds and bead for children to count numbers 1-50	Children distribute the learning materials to their peers. Children participate in the counting exercise by counting objects 1-50.
Step 6	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher questions.
Step 7	Teacher gives answers to children questions as appropriate	children asked the teacher questions

Evaluation: Count the objects and circle the numbers of objects in their work sheet.

Summary: Teacher leads the children to count number 1-50.

Assignment: Count the objects and circle the numbers in your work sheet.

Lesson plan 12

Week 2: Lesson 2

Date: **Duration:** 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Writing of Number

Sub-Topic: Writing Patterns

Pre-assessment:

Entry Behaviour: Children can create pattern on a sheet.

Learning Environment: Classroom

Resources/ Materials:**Already Available:** Note books and pencils**To be supplied:** Plastic numbers, wok sheet, sand tray, storybook and instructional guide**Educational goals:** At the conclusion of period, pupils ought to understand how to:

- ii. write the writing patterns

Steps	Teacher's Tasks	Children Activities
Step 1	Instructor introduce the topic by greeting the children and asking them to do a simple exercise (moving their hands faster)	Children respond to greeting Join the exercise of moving their hands faster.
Step 2	Teacher asks the children to raise their hands and tells the children they will be engaging in writing exercises. Teacher demonstrate the various writing patterns (stroke, dash, curve and slant) by writing in the air.	Children listen to the instruction of the teacher. Children demonstrate the various writing patterns (stroke, dash, curve and slant) by moving their hands in the air along with their teacher.
Step 3	Teacher asks children to stand up and pick a sand tray from the table. Teacher demonstrates how to write the various writing patterns (stroke, dash, curve and slant) by writing on sand plate.	Children pick up the sand plate. Children demonstrate the various writing patterns (stroke, dash, curve and slant) by writing on the sand plate.
Step 4	Teach the children the song. Song Title: Any time I want to write the numbers Activity 1 Children are asked to write the stroke pattern in the air and sand tray. Activity 2 Children are asked to write the slant pattern in the air and sand plate. Activity 3 Children are asked to write the dash pattern in the air and on the sand plate. Activity 4 Children are asked to write the backward curve pattern in the air and on the sand plate. Activity 5 Children are asked to write the forward curve in the air and on the sand plate	Children listen to the lyrics and learn the song Children participate in the song activities Activity 1 Children write the stroke pattern in the air. and on sand tray. Activity 2 Children write the slant pattern in the air and on the sand plate. Activity 3 Children write the dash pattern in the air and on the sand plate. Activity 4 Children write the backward curve pattern in the air and on the sand plate. Activity 5 Children write the forward curve in the air and on the sand plate
Step 5	The children will be allowed to sing the song along.	Children sing the song they learnt.
Step 6	Teacher call the children at random to	Children demonstrate how to write the

	demonstrate how to write the patterns on the sand plate	patterns on the sand plate for the teacher
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Ask the children to trace the various writing patterns in their work sheet.

Summary: Teacher guides the children during the writing exercises.

Assignment: Trace the various writing patterns in their work sheet.

Lesson Plan 13

Week 2: Lesson 2

Date:

Duration: 45

mins

Subject Numeracy

Class One year Pre-primary

Topic: Writing of Number

Sub-Topic: Writing Number 1 to 5

Pre-assessment:

Entry Behaviour: Children can write the various writing patterns

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils and objects in the classroom

To be supplied: Sand plate, work sheets, and song book and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- ii. write numbers not more than 5

Steps	Teacher's Tasks	Children Activities
Step 1	Teacher gives an energizer song. <i>1 igi to duro, 2 okun to loso, 3 eeta to kako 4 eerin to ... 5 aarin to yokun 6 eefa to ---- 7 eeje bi iyosoo, Odo gbe odo ru eejo 9 eesan to</i>	Children listen to the song from the teacher Children dance and act the posture of each number
Step 2	Teacher writes the numbers on the board. Teacher asks all the children to stand up. Teacher demonstrate how to write number one to five in the air for the children	Children watch the teacher while writing Children stand up. Children participates in the writing activities by moving their hands in the air along with their teacher

Step 3	Teacher asks children to stand up and pick a sand tray from the table. Teacher demonstrates how to write numbers one to five on sand plate.	Children pick up the sand plate. Children demonstrate how to write numbers one to five on sand plate.
Step 4	Song Title: Any time I want to write the numbers See the song on page..... Activity 1 Children are asked to write number one in the air and sand plate. Activity 2 Children are asked to write number two in the air and sand plate. Activity 3 Children are asked to write number three in the air and sand plate. Activity 4 Children are asked to write number four in the air and sand plate Activity 5 Children are asked to write number five in the air and sand plate	Children listen to the lyrics of the song. Children learn how to sing the song. Children participate in the song activities Activity 1 Children write number one by writing stroke in the air and sand plate. Activity 2 Children write number two by writing backward curve and joining the dash to it in the air and sand plate. Activity 3 Children write number three by writing backward curve and joining it with another backward curve in the air and sand plate. Activity 4 Children write number four by writing the slant first, joining the dash below it and crossing the dash with a stroke in the air and sand plate Activity 5 Children write number five by writing dash, joining it with a stroke and backward curve to it in the air and sand plate
Step 5	The children will be allowed to sing the song along.	Children sing the song they learnt.
Step 6	Teacher demonstrates how to write the number 1 to 5 on the sand tray for the children.	Children demonstrate alongside the teacher by writing number 1 to 5 on the sand plate
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Ask the children to trace number 1-5 in their work sheet.

Summary: Teacher guides the children during the writing exercises.

Assignment: Trace number 1-5 in your work sheet.

Lesson Plan 14

Week 2: Lesson 2

Date:

Duration: 45 mins

Subject: Numeracy

Class: One year Pre-primary

Topic: Writing of Number

Sub-Topic: Writing Number up to 10

Pre-assessment:

Entry Behaviour: Children have been writing number one to five

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books and pencils

To be supplied: Sand plate, work sheets, and storybook and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i. write numbers not less than ten

Steps	Teacher's Tasks	Children Activities
Step 1	Teacher gives an energizer song. <i>1 igi to duro, 2 okun to loso, 3 eeta to kako 4 eerin to ... 5 aarin to yokun 6 eeefa to ---- 7 eeje bi iyosoo, Odo gbe odo ru eejo 9 eesan to</i>	Children listen to the song from the teacher Children dance and act the posture of each number
Step 2	Asks all the children to stand up Teacher demonstrate how to write number one to five in the air for the children	All the children stand up Children participates in the writing activities by moving their hands in the air along with their teacher
Step 3	Teacher asks children to stand up and pick a sand tray from the table. Teacher demonstrates how to write numbers six to ten on sand plate.	Children pick up the sand plate. Children demonstrate how to write numbers six to ten on sand plate.
Step 4	Song Title: Any time I want to write the numbers Activity 1 Children are asked to write number six in the air and sand plate. Activity 2 Children are asked to write number seven in the air and sand plate. Activity 3 Children are asked to write number eight in the air and sand plate. Activity 4 Children are asked to write number nine in the air and sand plate. Activity 5 Children are asked to write number	Children listen to the lyrics and learn how to the song the sing Children participate in the song activities Activity 1 Children write number six writing a big forward curve and jointing it with a small in the air and sand plate. Activity 2 Children write number seven by writing the dash and joining the slant to it in the air and sand plate. Activity 3 Children write number eight by writing a curve facing forward, join with a curve facing backward and join with a curve facing forward and another curve facing backward in the air/ Children write number eight in the air and sand plate. Activity 4 Children write number nine by writing the curve

	ten in the air and sand plate.	and joining the stroke to it in the air and sand plate. Activity 5 Children write number ten by writing the stroke separately as number one and then write the backward curve and join the forward curve to write zero in the air and sand plate.
Step 5	Give room for children to sing along.	Children sing the song they learnt.
Step 6	Teacher demonstrates how to write the number 6 to 10 on the sand tray for the children.	Children demonstrate alongside the teacher by writing number 6 to 10 on the sand plate
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Ask the children to trace number 6 -10 in their work sheet.

Summary: Teacher guides the children during the writing exercises.

Assignment: Trace number 6-10 in your work sheet.

Lesson Plan 15

Week 3: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Addition

Sub-Topic: Addition of Numbers not more than 3

Pre-assessment:

Entry Behaviour: Children can add up two objects together

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books and pencils.

To be supplied: Balls, bottle tops, match sticks, storybook and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

i add up numbers and objects not more than 5

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher greets the children. The teacher introduces the lesson by singing the song, if you are happy and you know clap your hands.	Children respond to the teacher greeting. Children sing along with the teacher.
Step 2	Write the topic on the chalkboard.	Watch the teacher while writing on the

	The teacher explains to the children that Addition means putting things or numbers together.	board. Children listen to the teacher.
Step 3	Teacher demonstrates simple addition process to the children.	Children listen and watch the teacher demonstration.
Step 4	<p>Activity 1 Demonstrate how the ball becomes two by rolling additional one ball. Ask the children to count the number of balls that are in the court together.</p> <p>Activity 2 The teacher sings the songs again (while additional two balls will be added). Calls out a child to roll additional two balls into the courts. Teacher: Ask the children to counts all the balls in court together.</p> <p>Activity 3 Sings the songs again (while additional three balls will be added). Teacher call out a child to roll additional three balls into the courts. Ask the children to counts all the balls in court together.</p> <p>Activity 4 Pick two numbers ($3 + 2 = \dots$) and ask the children to count objects corresponding to each number and add them together.</p> <p>Activity 5 Teacher: Pick two numbers ($4 + 3 = \dots$) and ask the children to count objects corresponding to each number and add them together.</p>	<p>Children listen to the lyrics of the song Children learn how to sing the song. Children participate in the song activities.</p> <p>Activity 1 Children watch and listen to the teacher. Children count the number of balls that are in the court (1,2, balls) together</p> <p>Activity 2 Children sing the song aalongside the teacher while a child goes out from the sit, to roll additional two balls into the court. Children: Children count all the balls in court together (1, 2, 3, 4, balls).</p> <p>Activity 3 Children sing the song aalongside the teacher while a child goes out from the sit, to roll additional three balls into the court. Children: Children count all the balls in court together (1, 2, 3, 4, 5, 6, 7 balls).</p> <p>Activity 4 Children count objects corresponding to each number given by the teacher and add them together $3 + 2 = 5$)</p> <p>Activity 5 Children: Children count objects corresponding to each number given by the teacher and add them together $4 + 3 = 7$)</p>
Step 5	Ask children to sing the song along	Children sing the song they learnt.
Step 6	Gives room for children to ask questions.	Children asked the teacher questions.
Step 7	The instructor quizzes the children on the subject being covered.	Children answer the teacher questions.

Evaluation: Count the number of objects and write the answer in the space below.

Summary: Teacher moves around to ensure that the children add up correctly

Assignment: Add the number of objects in the boxes and write it in the space below.

Lesson Plan 16

Week 3: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Addition

Sub-Topic: Addition of Numbers less than 10

Pre-assessment:

Entry Behaviour: Children can add up two objects not more than 5

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils and fingers.

To be supplied: Plastic eggs, balls, bottle tops, storybook and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

i add up numbers and objects not more than 10

Steps	Teacher's Tasks	Children's Tasks
Step 1	Instructor introduces the topic by asking the children to sing a poem they love most. Teacher sings alone with the teacher.	Children response to the teacher by singing their favorite poem.
Step 2	Instructor writes the topic on the board. The teacher explain to the children that they can add up numbers more than 10 together	Children listen to the teacher Children listen and ask questions where they need clarity.
Step 3	Teacher demonstrates simple addition process to the children.	Children listen and watch the teacher demonstration.
Step 4	<p>Song Title:</p> <p>Activity 1 The teacher continues the songs (while additional four balls will be added to the seven balls in the court). Teacher calls out a child to roll additional two balls into the courts. Teacher: Ask the children to counts all the balls in court together.</p> <p>Activity 2 Ctinues the songs (while additional three balls will be added to the eleven balls in the court). Teacher calls out a child to roll additional three balls into the courts. Ask the children to counts all the balls in court together.</p> <p>Activity 3 The teacher continues the songs (while additional four balls will be added to the fourteen balls in the court). Teacher calls out a child to roll additional four balls into the courts. Teacher: Ask the children to counts all the</p>	<p>Children listen to the lyrics of the song Children learn how to sing the song. Children participate in the song activities.</p> <p>Activity 1 A child goes out from the sit, to roll additional four balls into the court. Children count all the balls in court together (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 balls).</p> <p>Activity 2 Children: A child goes out from the sit, to roll additional four balls into the court. Children: Children count all the balls in court together (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 balls).</p> <p>Activity 3 Children: A child goes out from the sit, to roll additional four balls into the court. Children: Children count all the balls in court together (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 balls).</p> <p>Activity 4 Children count objects corresponding to</p>

	balls in court together. Activity 4 Break Four Teacher: Pick two numbers ($7 + 8 = \dots$) and ask the children to count objects corresponding to each number and add them together. Activity 5 Teacher: Pick two numbers ($8 + 9 = \dots$) and ask the children to count objects corresponding to each number and add them together.	each number given by the teacher and add them together ($7 + 7 = 14$) Activity 5 Children count objects corresponding to each number given by the teacher and add them together ($8 + 9 = 17$)
Step 5	The children will be allowed to sing the song along.	Children sing the song they learnt.
Step 6	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 7	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Count the number of objects in the two boxes and write it in the space below.

Summary: Teacher moves around to ensure that the children add up correctly.

Assignment: Add the number of objects in the boxes and write it in the space below.

Lesson Plan 17

Week 3: Lesson 3

Date:

Duration: 45 mins

Subject: Numeracy

Class: One year Pre-primary

Topic: Addition

Sub-Topic: Addition of Numbers less than 20

Pre-assessment:

Entry Behaviour: Children can add up two objects lesser than 10

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils, fingers and stones

To be supplied: Plastic eggs, bottle tops, match sticks, story book and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i add up numbers and objects less than 20

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher introduced the lesson by asking the children to run on a shot. Teacher sings along with the teacher.	Children listen to the teacher to instruction. Children run on a shot.

Step 2	Instructor writes the topic on the board . The teacher explain to the children that they can add up numbers more than 10 together	Children listen to the teacher Children listen and ask questions where they need clarity.
Step 3	Teacher demonstrates simple addition process to the children.	Children listen and watch the teacher demonstration.
Step 4	Song Title: Roll it straight into the court. Activity 1 Teacher: Pick two numbers ($8 + 8 = \dots$) and ask the children to count objects corresponding to each number and add them together. ACTIVITY 2 Teacher: Pick two numbers ($10 + 9 = \dots$) and ask the children to count objects corresponding to each number and add them together. ACTIVITY 3 Teacher: Pick two numbers ($10 + 10 = \dots$) and ask the children to count objects corresponding to each number and add them together.	Children participate in the classroom activities. Activity 1 Children count objects corresponding to each number given by the teacher and add them together ($8 + 8 = 16$) ACTIVITY 2 Children count objects corresponding to each number given by the teacher and add them together ($10 + 9 = 19$) ACTIVITY 3 Children count objects corresponding to each number given by the teacher and add them together ($10 + 10 = 20$)
Step 5	The children will be allowed to sing the song along.	Children sing the song they learnt.
Step 6	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 7	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Count the number of objects in the two boxes and write it in the space below.

Summary: Teacher guide the children in the task to ensure that they add up correctly

Assignment: Add the number of objects in the boxes and write it in the space below.

Lesson Plan 18

Week 4: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Subtraction

Sub-Topic: Subtraction of Numbers Less than 10

Pre-assessment:

Entry Behaviour: Children can take away one object from two objects.

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils and stones

To be supplied: Mangoes, straws, sticks, song book and instructional guide,

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i take away numbers not more than 3

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher starts the class by singing the song: I have an apple and you have two. Give me an apple and I have two. I keep one apple and give one back to you, I don't have any apple. You have two.	Children sing the song along with the teacher.
Step 2	Write the topic on the chalkboard. Teacher explains that subtract means to take away small quantities from large quantities.	Watch the teacher while writing on the board. Children listen to the teacher.
Step 3	Teacher demonstrates simple subtraction process to the children.	Children listen and watch the teacher demonstration.
Step 4	<p>Activity 1: Ask (2) children to form a circle, raise the song while calling the number of children (1) that bent down. Ask the children to count the number of children that was standing after on bent down</p> <p>Activity 2: Ask (3) children to form a circle, raise the song while calling the number of children (2) that bent down. Ask the children to tell the number of children that was standing after 2 children bent down</p> <p>Activity 3: Teacher: Ask (5) children to form a circle, raise the song while calling the number of children (1) that bent down. Teacher: Ask the children to count the number of children that was standing after 1 child bent down</p> <p>Activity 4: Teacher: Ask (7) children to form a circle, raise the song while calling the number of children (4) that bent down. Ask the children to count the number of children that was standing after 4 children bent down</p>	<p>Children listen to the lyrics of the song Children learn how to sing the song. Children participate in the song activities.</p> <p>Activity 1: Two children form a circle while 1 child bent down when the teacher called the number of children that bent down. Count the number of children (1) that was left standing which equals 1 3 children form a circle while 2 children bent down when the teacher called the number of children that bent down. Count the number of children that was standing after 2 children bent down which equals 1</p> <p>Activity 3: 5 children form a circle while 1 child bent down when the teacher called the number of children that bent down Count the number of children that was standing after 1 child bent down which equals 4</p> <p>Activity 4 7 Children form a circle while 4 children bent down when the teacher called the number of children that bent down. Count the number of children that was standing after 4 children bent down which equals 3</p>
Step 5	Teacher asks the children question to ensure that they understand the story.	Children answer the teacher question.
Step 6	Teacher gives answers to children questions.	Children ask the teacher questions.

Evaluation: Count the objects and circle the number of coloured ones in your work sheet.

Summary: Teacher guide children in the exercise to ensure that they take away correctly.

Assignment: Count the object and circle the coloured ones

Lesson Plan 19

Week 4: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Subtraction

Sub-Topic: Subtraction of Numbers not more than 15

Pre-assessment:

Entry Behaviour: Children can take away numbers lesser than 5.

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, pencils and fingers.

To be supplied: Plastic eggs, bottle tops, cherry seeds, song book and instructional guide.

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i take away numbers not more than 6

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher greets the children. Teacher asks the children questions about themselves. Raise up their hands and put it down	Children respond to greetings. Children answer the teacher questions. Children raise up their hands and put it down
Step 2	Teacher revise previous lesson with the children by answering questions. Teacher introduces the lesson of the day.	Children answer the teacher questions. Children listen to the teacher.
Step 3	Teacher demonstrates simple subtraction process to the children.	Children listen and watch the teacher demonstration and response where necessary.
Step 4	Song Title: See the song on page..... Activity 1: Ask 8 children to form a circle, raise the song while calling the number of children (5) that bent down. Ask the children to count the number of children that was standing after 5 bent down	Children listen to the lyrics of the song. Children participate in the song activities. Demonstrate alongside with the teacher Activity 1: 8 children form a circle while 5 children bent down when the teacher called the number of children that bent down Count the number of children that was left standing after 5 bent down which equals 3

	<p>Activity 2: Ask (10) children to form a circle, raise the song while calling the number of children (6) that bent down. Ask the children to count the number of children that was standing after 6 children bent down.</p> <p>Activity 3: Ask (12) children to form a circle, raise the song while calling the number of children (7) that bent down. Ask the children to count the number of children that was standing after 7 children bent down.</p> <p>Activity 4: Ask (15) children to form a circle, raise the song while calling the number of children (10) that bent down. Ask the children to count the number of children that was standing after 10 children bent down .</p>	<p>Activity 2: 10 children form a circle while 6 children bent down when the teacher called the number of children that bent down. Count the number of children that was standing after 6 children bent down which equal 4.</p> <p>Activity 3: 12 children form a circle while 7 children bent down when the teacher called the number of children that bent down Count the number of children hat was standing after 7 children bent down which equal 4</p> <p>Activity 4: 15 children form a circle while 10 children bent down when the teacher called the number of children that bent down Children: Count the number of children that was standing after 4 children bent down which equal 5</p>
Step 5	The children will be allowed to sing the song along.	Children sing the song they learnt.
Step 6	Teacher distributes work sheets and asked the children circle the number of coloured objects among the objects.	Children collect the work sheets circle the number of coloured objects among the objects.
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Count the eggs and thick the number of cracked in your work sheet.

Summary: Teacher guide children in the exercise to ensure that they take away correctly

Assignment: Count the object and circle the shaded ones.

Lesson Plan 20

Week 4: Lesson 3

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Subtraction

Sub-Topic: Subtraction of Numbers lesser than 10

Pre-assessment:

Entry Behaviour: Children can take away numbers lesser than 7

Learning Environment: Classroom

Resources/ Materials:**Already Available:** Note books, pencils, fingers and objects in the classroom.**To be supplied:** Plastic egg, match sticks, bottle tops, song book and instructional guide**Educational goals:** At the conclusion of period, pupils ought to understand how to:

i subtracts numbers less than 10

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher introduces the topic by asking the children to tell their best food.	Children listen and answer the teacher question by telling their food.
Step 2	Teacher continues the lesson by asking the children to provide answers to some take-away task.	Children answer the teacher questions by providing answers to the task.
Step 3	The teacher explains to the children that they will be subtracting numbers between 1 and 9.	Children listen and ask questions where they need clarity.
Step 4	<p>Song Title:</p> <p>Activity 1 Ask 13 children to form a circle, raise the song while calling the number of children (6) that bent down. Ask the children to count the number of children that was standing after 7 bent down</p> <p>Activity 2 Ask (16) children to form a circle, raise the song while calling the number of children (8) that bent down. Ask the children to count the number of children that was standing after 8 children bent down</p> <p>Activity 3 Ask (17) children to form a circle, raise the song while calling the number of children (9) that bent down. Ask the children to count the number of children that was standing after 9 children bent down</p> <p>Activity 4 Ask (20) children to form a circle, raise the song while calling the number of children (10) that bent down. Ask the children to count the number of children that was standing after 10 children bent down</p>	<p>Children listen to the lyrics of the song. Children participate in the song activities. Demonstrate alongside with the teacher</p> <p>Activity 1 13 children form a circle while 7 children bent down when the teacher called the number of children that bent down. Count the number of children that was left standing after 7 bent down which equals 6</p> <p>Activity 2 16 children form a circle while 8 children bent down when the teacher called the number of children that bent down Count the number of children that was standing after 8 children bent down which equal 8.</p> <p>Activity 3 17 children form a circle while 9 children bent down when the teacher called the number of children that bent down Count the number of children that was standing after 9 children bent down which equal 8</p> <p>Activity 4 20 children form a circle while 10 children bent down when the teacher called the number of children that bent down Count the number of children that was standing after 4 children bent down which</p>

		equal 10.
Step 5	The children will be allowed to sing the song along.	Children sing the song they learnt.
Step 6	The teacher will give the children some mathematical task to using the various objects (plastic eggs, bottle tops and match sticks).	Children distribute plastic eggs, bottle tops, and match sticks to their peers.
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	The instructor quizzes the children on the subject being covered	Children answer the teacher questions.

Evaluation: Count the objects and circle the number of coloured ones in your work sheet.

Summary: Teacher guide children in the exercise to ensure that they take away correctly

Assignment: Count the object and circle the coloured one.

Lesson plan 21

Week 5: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Colours **Sub-Topic:** Identification of Colours (Red, blue yellow black and white)

Pre-assessment

Entry Behaviour: Children know the colour of their school soaksas white.

Learning Environment: Classroom/outside

Resources/ Materials:

Already Available: Note books, pencils and lunch boxes.

To be supplied: Colour chat, sugar paper, colour pad, song book and instructional guide.

Educational goals: At the lesson, children should be able to:

- i. list at least 3 colours
- ii. identify common thing in the environment and their colours.

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher introduced the lesson by revising previous lesson with the children.	Children answer the teacher questions.
Step 2	The teacher introduces the lesson topic: Identification of Colours.	Children listen to the teacher.
Step 3	The teacher puts on cloth of many colours to school and ask the children to comments while guiding them.	Children listen, make comments and ask questions where they need clarity.
Step 4	Presentation of song:	Children listen to the lyrics of the song.

	<p>Song Title: Activity 1 Bring out the colour red and showed it out to the children Ask the children to sing the song again while holding the colour red in their hands Mix the colours together in the tray and ask the children to pick out colour red Activity 2: Bring out the colour blue and showed it out to the children Ask the children to sing the song again while holding the colour blue in their hands Mix the colours together in the tray and ask the children to pick out colour blue Activity 3: Bring out the colour yellow and showed it out to the children Ask the children to sing the song again while holding the colour yellow in their hands Mix the colours together in the tray and ask the children to pick out colour yellow. Activity 4: Bring out the colour black and showed it out to the children Ask the children to sing the song again while holding the colour black in their hands Teacher mix the colours together in the tray and ask the children to pick out colour black Activity 5: Bring out the colour white and showed it out to the children Ask the children to sing the song again while holding the colour white in their hands. Mix the colours together in the tray and ask the children to pick out white colour</p>	<p>Children participate in the song activities. Activity 1 Name the colour red alongside with the teacher Sing the song again while holding the colour red in their hands. Children pick out the colour red out of colour tray. Activity 2 Name the colour blue alongside with the teacher. Sing the song again while holding the colour blue in their hands. Pick out the colour blue from the colour tray. Activity 3 Name the colour red alongside with the teacher Sing the song again while holding the colour yellow in their hands. Pick out the colour yellow from the colour tray. Activity 4: Name the colour black alongside with the teacher Sing the song again while holding the colour black in their hands. Pick out the colour black from the colour tray. Activity 5: Name the colour whie alongside with the teacher Sing the song again while holding the colour black in their hands. Pick out the colour black from the colour tray.</p>
Step 5	Children sing the song along with the teacher.	Children sing the song they learnt.
Step 6	Teacher places the colours container at the centre of the table and asks the child to pick up any colours mentioned.	Children provide answer to the mathematical task.
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	Teacher raise some question on the topic taught.	Children answer the teacher questions.

Evaluation: Match the colours with the items.

Summary: Teacher gives the summary of the story to the children.

Assignment: Match the colours with the pictures.

Lesson plan 22

Week 5: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Colours **Sub-Topic** Identification of colours (orange, purple, green and brown)

Pre-assessment

Entry Behaviour: Children can say the colour of their shoes

Learning Environment: Classroom/ outside

Resources/ Materials:

Already Available: Note books, pencils, lunch box and bags.

To be supplied: colour chat, tray, sugar paper, colour pad, bottle tops, legos, textbook and instructional guide.

Educational goals: At the lesson, children should be able to:

- i. list at least 3 colours
- ii. identify common thing in the environment and their colours

Steps	Teacher's Tasks	Children's Tasks
Step 1	Instructor introduces the topic by asking the children to identify some colours. Writes the topic on the chalkboard.	Children answer the teacher questions. Watch the teacher while writing on the board.
Step 2	Introduces the lesson topic: Identification of Colours (green, brown, black and white).	Children listen to the teacher.
Step 3	The teacher shows the children a chat containing colours and asks the children to comments while guiding them.	Children listen, make comments and ask questions where they need clarity.
Step 4	Song Title: There Are Many Colours Activity 1 Bring out the colour red and showed it out to the children Ask the children to sing the song again while holding the colour orange in their hands Mix the colours together in the tray and ask the children to pick out orange colour Activity 2:	Children listen to the lyrics of the song.. Demonstrate alongside with the teacher Activity 1 Name the colour red alongside with the teacher Sing the song again while holding the colour orange in their hands. Children pick out the colour orange out of colour tray. Activity 2

	<p>Bring out the colour blue and showed it out to the children</p> <p>Ask the children to sing the song again while holding the colour purple in their hands</p> <p>Mix the colours together in the tray and ask the children to pick out colour blue</p> <p>Activity 3:</p> <p>Bring out the colour green and showed it out to the children</p> <p>Ask the children to sing the song again while holding the colour green in their hands</p> <p>Mix the colours together in the tray and ask the children to pick out colour yellow.</p> <p>Activity 4:</p> <p>Bring out the colour brown and showed it out to the children</p> <p>Ask the children to sing the song again while holding the colour brown in their hands</p> <p>Mix the colours together in the tray and ask the children to pick out colour black</p>	<p>Name the colour blue alongside with the teacher.</p> <p>Sing the song again while holding the colour purple in their hands.</p> <p>Pick out the colour blue from the colour tray.</p> <p>Activity 3</p> <p>Name the colour red alongside with the teacher</p> <p>Sing the song again while holding the colour green in their hands.</p> <p>Pick out the colour green from the colour tray.</p> <p>Activity 4:</p> <p>Name the colour brown alongside with the teacher</p> <p>Sing the song again while holding the colour brown in their hands.</p> <p>Pick out the colour brown from the colour tray.</p>
Step 5	Teacher places a tray containing colours on each of the child's table and ask them to pick up any colours mentioned.	Children provide answer to the mathematical task
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	Teacher randomly asks questions	Children answer the teacher questions.

Evaluation: Match the objects with same colour together.

Summary: Teachers leads the children to say the colours of things in their environment.

Assignment: Write the colours of things in your environment.

Lesson Plan 23

Week 5: Lesson 3

Date:

Duration: 45 mins

Subject: Numeracy

Class One year Pre-primary

Topic: Colours

Sub-Topic: Primary and Secondary Colours

Pre-assessment

Entry Behaviour: Children have various colours on their school bags

Learning Environment: Classroom

Resources/ Materials:**Already Available:** Note books, pencils, lunch box and bags**To be supplied:** Colour chat, tray, sugar paper, song book and instructional guide.**Educational goals:** At the lesson, children should be able to:

- i. list at least 3 colours
- ii. identify common thing in the environment and their colours

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher commences the lesson day by instructing the children to identify some colours.	Children respond to the teacher question by identifying some colours
Step 2	The teacher introduces the lesson topic for the day.	Children listen to the teacher.
Step 3	The teacher shows the children a chat containing colours and asks the children to comments while guiding them.	Children listen, make comments and ask questions where they need clarity.
Step 4	<p>Presentation of song:</p> <p>Activity 1 Bring out the primary colours (Red, blue, yellow) and showed it out to the children Ask the children to sing the song again while holding the primary colours (red, blue, yellow) in their hands Mix the colours together and ask the children to pick out the primary colours (red, blue, yellow).</p> <p>Activity 2 Bring out the secondary colours (orange green and purple) and showed it out to the children. Ask the children to sing the song again while holding the secondary colours (orange green and purple). Mix the colours together and ask the children to pick out the secondary colours (orange green and purple).</p>	<p>Children listen to the lyrics of the song. Children participate in the song activities.</p> <p>Activity 1 Name the primary colours (red, blue, yellow) alongside with the teacher. Children sing the song again while holding the primary colours (red, blue, yellow) in their hands Children pick out the primary colours (Red, blue, yellow).</p> <p>Activity 2 Name the secondary colours (orange green and purple) alongside with the teacher. Sing the song again while holding the secondary colours (orange green and purple) in their hands Pick out the secondary colours (orange green and purple).</p>
Step 5	Children sing the song alone.	Children sing the song they learnt.
Step 6	Teacher places a tray containing colours on each of the child's table and ask them to pick up any colour mentioned.	Children collect tray from the teacher. Children picked up colours mentioned by their teacher.
Step 7	Teacher will give room for questioning time	Children asked the teacher questions.
Step 8	Teacher asks questions in respect to the lesson.	Children answer the teacher questions.

Evaluation: List thing in their environment that has some colour such as the sky is blue.

Summary Teacher gives the summary of the story to the children.

Assignment: Write the colours of things in your environment.

Lesson plan 24

Week 6: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Shapes

Sub-Topic: Identification of Shapes (circle and oval)

Pre-assessment:

Entry Behaviour: Children know the shape of an egg

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, textbook, table and chair .

To be supplied: Plastic shapes, ludo frame, I.D card, story book and instructional guide.

Educational goals:At the conclusion of period, pupils ought to understand how to:

- i. mention the shapes.
- ii. name and compare things in their environment with the shapes.

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher starts the lesson by revising the previous topic. Writes the topic on the chalkboard.	Children answer the teacher questions. Watch the teacher while writing on the board.
Step 2	The teacher introduces the lesson topic: Identification of Shapes: (circle, oval and triangle).	Children listen to the teacher.
Step 3	Teachers show children similar objects and ask them if their surface is the same.	Children listen and respond to the question of the teacher.
Step 4	Song Title: Ní àyíká mi ni ìrísí wa Activity 1 Bring out the circle shape and showed it to the children Draw the circle shape in the air while singing the shape song. Mixes the shapes together and asks the children to pick out circle Ask the children to name objects that have circle shape or surface. Activity 2 Bring out the oval shape and showed it to the children.	Children listen to the lyrics of the song. Children participate in the song activities. Activity 1 Children listen to the teacher. Name the circle shape alongside the teacher Join the teacher to draw the shape in the air while singing the shape song Children pick out the circle from the shape tray. children name objects that have circle shape or surface. Activity 2 Children listen to the teacher

	Join the teacher to draw the oval shape in the air while singing the shape song. Mixes the shapes together and asks the children to pick out circle Asked children to name object that have the surface of the circle.	Name the circle shape alongside the teacher Join the teacher to draw the shape in the air while singing the shape song Children pick out the circle from the shape tray. Children name objects that have circle shape or surface.
Step 5	The children will be allowed to sing the song alone.	Children sing the song they learnt.
Step 6	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 7	The instructor quizzes the children on the subject being covered.	Children answer the teacher questions.

Evaluation: Match the objects with the shape in your worksheet.

Summary: Teacher gives the summary of the story to the children.

Assignment: Write the shapes of things in your environment.

Lesson plan 25

Week 6: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Shapes

Sub-Topic: Identification of Shapes (Square and Rectangle)

Pre-assessment:

Entry Behaviour: Children can identify the circle shape

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books, textbook, table and chairs.

To be supplied: Plastic shapes, ludo frame, I.D card, song book and instructional guide.

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i. identify the square shapes.
- ii. identify the rectangle shapes

Steps	Teacher's Tasks	Children's Tasks
Step 1	Commence the lesson by asking the children to identify and name the circle and oval shape. Writes the topic on the chalkboard.	Children answer the teacher questions. Watch the teacher while writing on the board.
Step 2	The teacher introduces the lesson topic: Identification of Shapes (Square and	Children listen to the teacher.

	Rectangle).	
Step 3	Teachers show children similar objects and ask them if their surface is the same.	Children listen and respond to the question of the teacher.
Step 4	<p>Song Title: Ní àyíká mi ni ìrísí wa</p> <p>Activity 1 Bring out the circle shape and showed it to the children Draw the circle shape in the air while singing the shape song. Mixes the shapes together and asks children to pick out circle shapes. Ask the children to name objects that have circle shape or surface.</p> <p>Activity 2 Bring out the oval shape and showed it to the children. Join the teacher to draw the oval shape in the air while singing the shape song. Put different shapes together and asks the children to choose circle shape., Asked children to name object that have the surface of the circle.</p>	<p>Children listen to the lyrics of the song. Children participate in the song activities. Children listen to the lyrics of the song. Children participate in the song activities.</p> <p>Activity 1 Children listen to the teacher. Name the circle shape alongside the teacher Join the teacher to draw the shape in the air while singing the shape song Children pick out the circle from the shape tray.</p> <p>Children name objects that have circle shape or surface.</p> <p>Activity 2 Children listen to the teacher Name the circle shape alongside the teacher Join the teacher to draw the shape in the air while singing the shape song Children pick out the circle from the shape tray.</p>
Step 5	The children will be allowed to sing the song alone.	Children sing the song they learnt.
Step 6	Teacher places a tray containing colours on each of the child's table and ask them to pick up any colour mentioned.	Children collect tray from the teacher. Children participate in the class activities by picking up colours mentioned by their teacher.
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	The instructor quizzesthe classwith questions	Children answer the teacher questions.

Evaluation: Match the objects with same shapes in your work book

Summary: Teacher leads the children to identify the shapes correctly.

Assignment: Match the objects with right shapes.

Lesson plan 26

Week 6: Lesson 3

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Construction of shapes

Sub-Topic: Construction of Circle and Oval Shape.

Pre-assessment:

Entry Behaviour: Children know that shapes come in various sizes.

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note books and textbook

To be supplied: Play dough, plastic shapes, straw, textbook and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

iii. draw the circle and oval shape

Steps	Teacher's Tasks	Children's Tasks
Step 1	Teacher starts the class by asking the children to identify and name the rectangle and square shape.	Children answer the teacher question by identifying and naming the rectangle and square shape.
Step 2	The teacher introduces the lesson topic: Construction of shapes: (circle and oval).	Children listen to the teacher.
Step 3	Teacher show the children the play dough and revise the pattern with them.	Children listen and respond to the question of the teacher.
Step 4	Song Title: Shapes all around me Activity 1: Teacher shows the play dough for the children. Teacher cut a portion of play dough for the children. Teacher demonstrates by drawing circle shape in the air for the children to see Teacher demonstrates how to use the play dough to construct the circle shape using curves Activity 1: Teacher cut a portion of play dough for the children. Teacher demonstrates by drawing oval shape in the air for the children to see Teacher demonstrates how to use the play dough to construct the oval shape using curves.	Children listen to the lyrics of the song. Children participate in the song activities. Activity 1: Children listen and name the play dough alongside the teacher Children collect the portion of play dough given to them. Children alongside demonstrate by drawing circle in the air alongside the teacher. Children construct their circle using the play dough Activity 2: Children collect the portion of play dough given to them. Children demonstrate by drawing oval shape in the air alongside the teacher. Children construct their oval using the curves.
Step 5	Ask children to sing the song alone.	Children sing the song they learnt.
Step 6	Teacher asks the children to distribute the play dough to all their peers.	Children distribute the play dough to their peers.

	Ask the children to draw the curves using the play dough to construct the oval and circle.	Children construct the curves using the play dough to construct the oval and circle.
Step 7	The teacher will give room for the children to ask questions.	Children asked the teacher questions.
Step 8	Teacher raises questions based on the lessons.	Children answer the teacher questions.

Evaluation: Construct the circle and oval shape.

Summary: Teacher gives the summary of the story to the children.

Assignment: Draw the circle and oval shape in your note book.

Lesson Plan 27

Week 9: Lesson 3

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Post-test

Sub-topic: Administration of post-test (Mathematical Knowledge)

Pre-assessment:

Previous Knowledge: Children have been taught various topics for the period of nine weeks

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note book and pencils

To be supplied: Assessment sheet on Pre-primary School Children Mathematical Knowledge

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i answer correctly the mathematical knowledge questions

Steps	Teacher's Tasks	Children's Tasks
Step 1	Revises all the lessons	Children listen to the teacher.
Step 2	Teacher revises all the stories taught during the previous lesson	Children listen to the teacher and respond when necessary.
Step 3	Teacher allows the students to ask question and pass their comments on all the lessons taught so far.	Children ask the teacher questions
Step 4	Teacher distributes the achievement test to the children to assess their knowledge.	Children collect the assessment of mathematical knowledge. Children provide answers to the question asked.
Step 5	Teacher collects the answer sheet from the children.	Children return the answer sheet to the teacher.

Step 6	Teacher calls out the children to ask them questions one after the other.	Children in the process of answering the teacher.
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Evaluation: None is given.

Summary: The Teacher brings the lesson to an end.

Assignment: None is given.

Lesson Plan 28

Week 10: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Administration of Post-test

Sub-topic: Administration of Mathematical
Communication Skills

Pre-assessment:

Previous Knowledge: Children have been taught various topics for the period of nine weeks

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note book and pencils

To be supplied: Assessment on pre-primary school children mathematics communication skills .

Educational goals:At the conclusion of period, pupils ought to understand how to:
i discuss their mathematics communication skills.

STEP	Teacher's Tasks	Children's Tasks
Step 1	Revises all the topics taught.	Children listen to the teacher.
Step 2	Teacher revises all the stories taught during the previous lesson	Children listen to the teacher and respond when necessary.
Step 3	Teacher allows the students to ask question and pass their comments on all the lessons taught so far.	Children ask the teacher questions
Step 4	Teacher calls children out to assess their mathematical communication skill.	Children line up one after the other assesses their mathematical communication skills.Children provide answers to the questions.
Step 5	Teacher collects the answer sheet from the children.	Children return the answer sheet to the teacher
Step 6	Teacher calls out the children to ask them questions one after the other.	Children in the process of answering the teacher

Evaluation: None is given.

Summary: The Teacher brings the lesson to an end.

Assignment: None is given.

APENDIX V

CONVENTIONAL INSTRUCTIONAL STRATEGY PACKAGE (CISP)

For

PRE-PRIMARY SCHOOL CHILDREN

A Stimulus Instructional Package for Field Purposes

Developed and produced by

Folashade Oluwatoyin OWOLABI

Under the supervision of

Dr. Ishola Akindele **SALAMI**

Ist Edition, 2023

Introduction

This package is designed to be used in the teaching of the various themes in the One Year Pre-primary School curriculum developed by the Nigerian Educational Research and Development Council (NERDC, 2014).

Objectives:

- i. To develop the acquisition of mathematical communication skills of preschool children.
- ii. To develop mathematical knowledge of pre-primary school children.

Various Themes

- Counting of Numbers
- Addition of Numbers
- Subtraction of Numbers
- Identification of Colours
- Identification of Shapes
- Identification by Sizes
- Classification of objects
- Time and Season

Methods

Conventional Strategy.

Lesson plan

Week: Lesson..... **Date:**..... **Duration:**.....

Subject: **Class:**.....

Topic:..... **Sub-topic:**.....

Pre-assessment:

Entry Behaviour:.....

Learning Environment.....

Resources/ Materials:

Already Available:.....

.....

To be supplied:.....

Educational goals.....

Step 1:

Step 2:

Step 3:

Step 4:.....

Step 5:

Step 6:

Evaluation:

Summary: :.....

Assignment: :.....

Lesson Plan 1

Week 1: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Introduction of the research and administration of pre-test.

Sub-topic: Administration of pre-test
(Mathematical Knowledge)

Pre-assessment:

Entry Behaviour; Children have been receiving maths lesson

Learning Environment: Classroom

Resources/ Materials: Note book and pencils, assessment on pre-primary school children mathematical knowledge.

Behavioral objectives: At the conclusion of period, pupils ought to understand how to:
i tell what the research is all about

Presentation:

Step 1: Teacher introduces herself to the children and get familiarized with the children names

Step 2: Teacher tell the children she/he will be taking them mathematics

Step 3: Teacher distributes the achievement test to the children to access their knowledge. The teacher also will provide the children with some objects to carry out some mathematical activity while assessing the mathematical knowledge.

Step 4: Teacher collects the answer sheet from the children.

Step 5: Teacher calls out the children to ask them questions one after the other.

Step 6: Teacher gives room for the children to ask questions

Evaluation: (i) What subject will I take you? (ii) How many weeks will the lesson last?

Summary: Teacher tells the children to give maximum attention when the lesson starts properly.

Assignment: None is given.

Lesson Plan 2

Week 1: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Administration of pre-test

Sub-topic: Administration of Mathematical
Communication Skill

Pre-assessment:

Entry Behaviour: Children have been introduced to mathematics lesson

Learning Environment: Classroom

Resources/ Materials: Note book and pencils, assessment on pre-primary school children mathematics communication skills .

Behavioral objectives: At the conclusion of period, pupils ought to understand how to:
i discuss their mathematical knowledge

Presentation:

Step 1: Welcome the children to the classroom

Step 2: Teacher tells the children that their mathematics communication skills will be assessed.

Step 3: Teacher calls the children out one after the other to assess their mathematical communication skills

Step 4: Teacher collects the answer sheet from the children.

Step 5: Teacher calls out the children to ask them questions one after the other.

Step 6: Teacher gives room for the children to ask questions.

Evaluation: (i) How are we going to be learning maths? (ii) What will be used to teach the lesson?

Summary: Teacher brings the assessment process to an end.

Assignment: None is given.

Lesson Plan 3

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Numbers

Sub-Topic: Rhythmic Counting of Numbers 1-12

Pre-assessment:

Entry Behaviour: Children can count number 1-3

Learning Environment: Classroom

Resources/ Materials: Number chart, work sheet and instructional guide.

Educational goals: At the conclusion of period, pupils ought to understand how to:
i counts numbers one to twelve rhythmically.

Presentation

Step 1: Write topic and numbers to be counted on the board.

Step 2: The teacher counts numbers 1-12 to the children.

Step 3: Children counts the number on the board.

Step 4: Teacher count objects for the children to see.

Step 5: The teacher will give room for the children to ask questions.

Step 6: The instructor quizzes the children on the topic covered.

Evaluation: Count the numbers in their work sheet.

Summary: Teacher leads the children to count numbers 1-12.

Assignment: Children are to collect 12 straws, 12 bottle corks in their environment.

Lesson Plan 4

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Numbers

Sub-Topic: Rational Counting of Numbers 1-12

Pre-assessment:

Entry Behaviour: Children can count number 1-10 rhythmically

Learning Environment: Classroom

Resources/ Materials: Note books, pencils, objects in the classroom straws, bottle tops, plastic balls, work sheet and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i counts numbers and object one to twelve

Presentation:

Step 1: Write topic and numbers 1- 12 to be counted on the board.

Step 2: The teacher ask the children to count number 1-12 to revise the previous class

Step 3: Teacher bring out objects (straws, bottle tops) in twelve's and count for the children to see.

Step 4: Children count objects (pencils, straws, bottle tops, plastic balls), in twelve

Step 5: The teacher will give room for the children to ask questions.

Step 6: The instructor quizzes the children on the topic covered.

Evaluation: Counts numbers of chairs and lunch boxes in the classroom 1- 12

Summary: Teacher ensure that every child participate in the counting exercise 1-12

Assignment: Children are to collect 12 match sticks and stones in their environment.

Lesson Plan 5

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Numbers

Sub-Topic: Rhythmic and Rational Counting of

Numbers 1-12

Pre-assessment:

Entry Behaviour: Children can count number 1-12

Learning Environment: Classroom

Resources/ Materials: Note books, pencils, number tags, bottle top and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

i counts numbers one to twelve rationally

Presentation:

Step 1: Write topic and numbers 1- 12 to be counted on the board.

Step 2: The teacher ask the children to count number 1-12 to revise the previous class

Step 3: Teacher bring out objects (straws, bottle tops) in twelve's and count for the children to see.

Step 4: Children count objects (pencils, straws, bottle tops, plastic balls), in twelve

Step 5: The teacher will give room for the children to ask questions.

Step 6: The instructor quizzes the children on the topic covered.

Evaluation: Counts the number of objects (12) in the work sheet.

Summary: Teacher leads the children to count numbers and objects 1-12

Assignment: Collects 12 stones and matches sticks.

Lesson Plan 6

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Number 1- 25

Sub-Topic: Rhythmic Counting of Numbers up to 25

Pre-assessment:

Entry Behaviour: Children can count numbers 1-12

Learning Environment: Classroom

Resources/ Materials: Note books, pencils and objects in the classroom

To be supplied: Number flash cards, numbers chart, instructional guide and story book

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i counts numbers one to twenty-five

Presentation

Step 1: Write topic and numbers to be counted on the board.

Step 2: The teacher counts numbers 1-25 to the children.

Step 3: Children counts the number 1-25 on the board.

Step 4: Teacher count objects for the children to see.

Step 5: The teacher will give room for the children to ask questions.

Step 6: The instructor quizzes the children on the topic covered.

Evaluation: Count the numbers in their work sheet

Summary: Teacher leads the children to count numbers 1-25

Assignment: Children are to collect 25 sticks 25 stones and 25 bottle corks in their environment.

Lesson Plan 7

Week 2: Lesson 1

Date: **Duration:** 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Number 1- 25 **Sub-Topic:** Rational Counting of Numbers up to 25

Pre-assessment:

Entry Behaviour: Children have been counting numbers 1-25 rhythmically

Learning Environment: Classroom

Resources/ Materials: Note books, pencils, bottle tops, cherry seeds, match sticks and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i counts numbers and object from 1-25

Presentation:

Step 1: Teacher writes the topic and numbers on the chalkboard. We are learning how to count numbers and objects from 1-25.

Step 2: Teacher asks the children to count the numbers 1-25 to remind them of what they have been taught. Teacher tells the children that they will be involved in counting exercise.

Step 3: Teacher bring out objects (straws, bottle tops) in twelve's and count for the children to see.

Step 4: Children count objects (pencils, straws, bottle tops, plastic balls), in twelve

Step 5: The teacher will give room for the children to ask questions.

Step 6: The instructor quizzes the children on the topic covered.

Evaluation: Children are asked to count the numbers of mangoes and orange in their work sheet.

Summary: Teacher guides the children in counting the numbers and objects

Assignment: Children are to collect 25 straws and 25 match sticks in their environment.

Lesson Plan 8

Week 2: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Sub-Topic: Counting of Number 1- 25
Numbers up to 25

Sub-Topic: Rhythmic and Rational Counting of

Pre-assessment:

Entry Behaviour: Children have been counting numbers 1-25 rhythmically

Learning Environment: Classroom

Resources/ Materials: Note books, pencils, straws, bottle tops, plastic balls work sheet and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:
i counts one to twenty-five both rhythmically and rationally.

Presentation:

Step 1: Write topic and numbers 1- 12 to be counted on the board.

Step 2: The teacher ask the children to count number 1-12 to revise the previous class.

Step 3: Teacher bring out objects (straws, bottle tops) in twelve's and count for the children to see.

Step 4: Teacher distributes bottle corks and straws beads to the children. Teacher ask the children to counts the objects in accordance to numbers 1-25

Step 5: The teacher will give room for the children to ask questions.

Step 6: The instructor quizzes the children on the topic covered.

Evaluation: Children are asked to count and match the numbers of cars in their work sheet.

Summary: Teacher leads the children to count number 1-25

Assignment: Count the numbers of spoons, forks, and knives and circle their numbers in your work sheet.

Lesson Plan 9

Week 2: Lesson 2

Date **Duration:** 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Counting of Numbers

Sub-Topic: Rhythmic Counting of Numbers up to 50

Pre-assessment:

Entry Behaviour: Children can count 1-20 rhythmically.

Learning Environment: Classroom

Resources/ Materials: Note books, pencils, objects in the classroom and instructional guide.

Educational goals: At the conclusion of period, pupils ought to understand how to:
i. counts numbers that are not more than fifty correctly.

Presentation

Step 1: Write topic and numbers to be counted on the board.

Step 2: The teacher counts numbers 1-25 to the children.

Step 3: Children counts the number 1-25 on the board.

Step 4: Teacher count objects for the children to see.

Step 5: The teacher will give room for the children to ask questions.

Step 6: The instructor quizzes the children on the topic covered.

Evaluation: Children are asked to count the numbers 1-50 in their work sheet.

Summary: Teacher leads the children to count number 1-50

Assignment: Count the numbers 1-50 in your work sheet.

Lesson Plan 10

Week 2: Lesson 2

Date: **Duration:** 45 mins

Subject: Numeracy

Class One year Pre-primary

Topic: Counting of Number from **Sub-Topic:** Rational Counting of Numbers up to 50

Pre-assessment:

Entry Behaviour: Children can count objects from one to twenty

Learning Environment: Classroom

Resources/ Materials: Notebooks, pencils, bottle tops, cherry seeds, straw, match sticks and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:
counts numbers and objects one to fifty

Presentation:

Step 1: Teacher writes the topic and numbers on the chalkboard. We are learning how to count numbers and objects from 1-25.

Step 2: The teacher ask the children to count number 1-25 to revise the previous class Teacher asks the children to count the numbers to remind them of what they have being taught. Teacher tells the children that they will be involved in counting exercise

Step 3: Teacher bring out objects (straws, bottle tops) in twelve's and ask children to count.

Step 4: Children count objects (pencils, straws, bottle tops, plastic balls), in twelve

Step 5: The teacher will give room for the children to ask questions.

Step 6: The instructor quizzes the children on the topic covered.

Evaluation: Children are asked to count objects and circle their numbers in their work sheet.

Summary: Teacher leads the children to count number 1-50.

Assignment: Count the objects and circle the numbers in your work sheet.

Lesson Plan 11

Week 2: Lesson 2

Date: **Duration:** 45 mins

Subject: Numeracy

Class One year Pre-primary

Topic: Counting of Number **Sub-Topic:** Rhythmic and Rational Counting of Numbers up to 50

Pre-assessment:

Entry Behaviour: Children can count numbers and objects from one to twenty

Learning Environment: Classroom

Resources/ Materials: Note books, pencils, twain, beads, cartoon, plastic balls, matches sticks, straw, and instructional guide.

Educational goals: At the conclusion of period, pupils ought to understand how to:
1. counts numbers and objects not more one to fifty.

Presentation:

Step 1: Write topic and numbers 1- 50 to be counted on the board.

Step 2: The teacher ask the children to count number 1-25 to revise the previous class

Step 3: Teacher bring out objects (straws, bottle tops) in fifty's and ask children to count 1-50.

Step 4: Children to counts the objects in accordance to numbers 1-50

Step 5: The teacher will give room for the children to ask questions.

Step 6: The instructor quizzes the children on the topic covered.

Evaluation: Count the objects and circle the numbers of objects in their work sheet.

Summary: Teacher leads the children to count number 1-50.

Assignment: Count the objects and circle the numbers in your work sheet.

Lesson plan 12

Week 2: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Writing of Number

Sub-Topic: Writing Patterns

Pre-assessment:

Entry Behaviour: Children can create pattern on a sheet.

Learning Environment: Classroom

Resources/ Materials: Note books, pencils, wok sheets, sand tray and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:
i. write the writing patterns

Presentation:

Step 1: Teacher commence the lesson with body exercise of flipping the wrist and hand.

Step 2: Teacher asks the children to raise their hands and tells the children they will be engaging in writing exercises.

Step 3: Teacher demonstrates the various writing patterns (stroke, dash, curve and slant) by writing in the air and sand tray.

Step 4: Children demonstrate the various writing patterns (stroke, dash, curve and slant) by writing in the air and sand tray.

Step 5: The teacher will give room for the children to ask questions.

Step 6: Teacher pose some questions for children to answer. .

Evaluation: Ask the children to trace the various writing patterns in their work sheet.

Summary: Teacher guides the children during the writing exercises.

Assignment: Trace the various writing patterns in their work sheet.

Lesson Plan 13

Week 2: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Writing of Number

Sub-Topic: Writing Number 1 to 5

Pre-assessment:

Entry Behaviour: Children can write the various writing patterns

Learning Environment: Classroom

Resources/ Materials: Note books, pencils, sand plate, work sheets and instructional guide

Learning Target: At the conclusion of period, pupils ought to understand how to:

i. write numbers not more than 5

Presentation:

Step 1: Teacher welcomes the children and instructs them to do simple exercises

Step 2: Teacher asks the children to raise their hands and tells the children they will be engaging in writing exercises.

Step 3: Teacher demonstrates how to write the numbers (1-5) in the air and sand tray.

Step 4: Children demonstrate how to write the numbers (1-5) in the air and sand tray.

Step 5: The teacher gives room for the children to ask questions.

Step 6: Teacher raise questions for children to answer.

Evaluation: Ask the children to trace number 1-5 in their work sheet.

Summary: Teacher guides the children during the writing exercises.

Assignment: Trace number 1-5 in your work sheet.

Lesson Plan 14

Week 2: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Writing of Number

Sub-Topic: Writing Number up to 10

Pre-assessment:

Entry Behaviour: Children have been writing number one to five

Learning Environment: Classroom

Resources/ Materials: Note books, pencil, sand plate, work sheets and instructional guide

Learning Aim: At the conclusion of period, pupils ought to understand how to:

- i. write numbers not less than ten

Presentation:

Step 1: Teacher ask children to do a simple exercises (moving their hands faster)

Step 2: Teacher asks the children to raise their hands and tells the children they will be engaging in writing exercises.

Step 3: Teacher demonstrates how to write the numbers (6-10) in the air and sand tray.

Step 4: Children demonstrate how to write the numbers (6-10) in the air and sand tray.

Step 5: The teacher will give room for the children to ask questions.

Step 6: The instructor quizzes the children on the subject being covered.

Evaluation: Ask the children to trace number 6 -10 in their work sheet.

Summary: Teacher guides the children during the writing exercises.

Assignment: Trace number 6-10 in your work sheet.

Lesson Plan 15

Week 3: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Addition

Sub-Topic: Addition of Numbers not more than 5

Pre-assessment:

Entry Behaviour: Children can add up two objects together

Learning Environment: Classroom

Resources/ Materials: Note books, pencils, fingers, bottle tops, match sticks, worksheet and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:
i add up numbers and objects not more than 5

Presentation:

Step 1: Writes the topic on the chalkboard. The teacher introduces the lesson by singing the song, if you are happy and you know clap your hands.

Step 2: The teacher introduces the lesson topic (addition of numbers) to the children. The teacher explains to the children that addition means putting things or numbers together.

Step 3: Teacher gives the children two examples

Step 4: Teacher will give the children some sum up activities using the material provided.

Step 5: The teacher will give room for the children to ask questions

Step 6: Teacher throw questions to children on the topic learnt

Evaluation: Count the number of objects in the boxes and write the answer in the space below.

Summary: Teacher moves around to ensure that the children add up correctly

Assignment: Add the number of objects in the boxes and write it in the space below.

Lesson Plan 16

Week 3: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Addition

Sub-Topic: Addition of Numbers less than 10

Pre-assessment:

Entry Behaviour: Children can add up two objects not more than 5

Learning Environment: Classroom

Resources/ Materials: Note books, pencils, fingers, bottle tops, match sticks, and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:
i add up numbers and objects not more than 10

Presentation:

Step 1: Writes the topic on the chalkboard.

Step 2: Teacher explain to the children that they can add up numbers more than 10 together

Step 3: Teacher gives the children two examples

Step 4: Teacher will give the children some sum up activities using the material provided.

Step 5: The teacher will give room for the children to ask questions

Step 6: Teacher randomly asks children questions.

Evaluation: Add objects in the two boxes and write it in the space below.

Summary: Teacher moves around to ensure that the children add up correctly.

Assignment: Add the number of objects in the boxes and write it in the space below.

Lesson Plan 17

Week 3: Lesson 3

Date:

Duration: 45 mins

Subject: Numeracy

Class: One year Pre-primary

Topic: Addition

Sub-Topic: Addition of Numbers less than 20

Pre-assessment:

Entry Behaviour: Children can add up two objects lesser than 10

Learning Environment: Classroom

Resources/ Materials: Note books, pencils, bottle tops, match sticks, worksheets and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:
i add up numbers and objects less than 20

Presentation:

Step 1: Instructor writes the topic on the board

Step 2: The teacher introduces the lesson topic: (addition of numbers lesser than 20).

Step 3: The teacher explain to the children that they can add up numbers more than 10.

Step 4: The teacher will give the children some sum up activities

Step 5: The teacher will give room for the children to ask questions.

Step 6: Teacher made children to provide answers to questions

Evaluation: Count the number of objects in the two boxes and write it in the space below.

Summary: Teacher guide the children during classroom exercise

Assignment: Add the number of objects in the boxes and write it in the space below.

Lesson Plan 18

Week 4: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Subtraction

Sub-Topic: Subtraction of Numbers Less than 5

Pre-assessment:

Entry Behaviour: Children can take away one object from two objects.

Learning Environment: Classroom

Resources/ Materials: Note books, straws, sticks, work sheet and instructional guide,

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i take away numbers not more than 10

Presentation:

Step 1: Instructor writes the topic on the board

Step 2: The teacher explains to the children that subtract means to take away small quantities from large quantities.

Step 3: The teacher gives some explains to the children.

Step 4: Give the children some numbers to take-away

Step 5: The teacher gives room for the children to ask questions.

Step 6: Children were asked to provide answers to some questions on the topic taught.

Evaluation: Count the objects and circle the number of coloured ones in your work sheet.

Summary: Teacher guide children in the exercise to ensure that they take away correctly.

Assignment: Count the object and circle the coloured ones.

Lesson Plan 19

Week 4: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Subtraction
than 7

Sub-Topic: Subtraction of Numbers not more

Pre-assessment:

Entry Behaviour: Children can take away numbers lesser than 5.

Learning Environment: Classroom

Resources/ Materials: Note books, pencils, bottle tops, cherry seeds, song book and instructional guide.

Educational goals: At the conclusion of period, pupils ought to understand how to:
i take away numbers not more than 5

Presentation:

Step 1: Instructor writes the topic on the board

Step 2: The teacher explains to the children that they subtract number more than 5

Step 3: The teacher gives some explains to the children.

Step 4: Give the children some numbers to take-away

Step 5: The teacher will give room for the children to ask questions.

Step 6: Teacher throw questions to the children.

Evaluation:Count the eggs and thick the number of cracked in your work sheet.

Summary: Teacher guide children in the exercise to ensure that they take away correctly

Assignment: Count the object and circle the shaded ones.

Lesson Plan 20

Week 4: Lesson 3

Date: **Duration:** 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Subtraction

Sub-Topic: Subtraction of Numbers lesser than 10

Pre-assessment:

Entry Behaviour: Children can take away numbers lesser than 7

Learning Environment: Classroom

Resources/ Materials: Note books, pencils, match sticks, bottle tops, work sheet and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:
i subtracts numbers lessen than 10

Presentation:

Step 1: Instructor writes the topic on the board

Step 2: Teacher revise previous lesson

Step 3: The teacher gives some explains to the children.

Step 4: Give the children some numbers to take-away

Step 5: The teacher will give room for the children to ask questions.

Step 6: The instructor quizzes the children on the subject being covered

Evaluation: Count the objects and circle the number of coloured ones in your work sheet.

Summary: Teacher guide children in the exercise to ensure that they take away correctly

Assignment: Count the object and circle the coloured ones.

Lesson plan 21

Week 5: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Colours

Sub-Topic: Identification of Colours (pink, red, blue, yellow).

Pre-assessment

Entry Behaviour: Children know the colour of their school soaks as white.

Learning Environment: Classroom/outside

Resources/ Materials: Note books, pencils, lunch box, bags, colour chat, sugar paper, work sheet and instructional guide.

Learning Goals: At the lesson, children should be able to:

- i. list at least 3 colours
- ii. identify common thing in the environment and their colours.

Presentation:

Step 1: Teacher greets the children and writes the topic on the chalkboard

Step 2: The teacher introduces the lesson topic: Identification of Colours

Step 3: The teachers show the children colours chat and name the names for them.

Step 4: Teacher places a tray containing colours on each of the child's table and ask them to pick up any colour mentioned.

Step 5: The teacher will give room for the children to ask questions.

Step 6: Some question was raised based on the lesson.

Evaluation: Match the colours with the items.

Summary: Teacher guides the children to say the colours correctly.

Assignment: Match the colours with the pictures.

Lesson plan 22

Week 5: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Colours **Sub-Topic:** Identification of Colours (green, brown, black and white)

Pre-assessment

Entry Behaviour: Children are putting colours on their uniform, school bags and lunch box.

Learning Environment: Classroom/ outside

Resources/ Materials: Note books, pencils, lunch box, bags, colour chart, tray, sugar paper, work sheet and instructional guide.

Learning Aim: At the lesson, children should be able to:

- i. list at least 3 colours
- ii. identify common thing in the environment and their colours

Presentation:

Step 1: Write the topic on the chalkboard

Step 2: The teacher introduces the lesson topic: Primary and Secondary Colours.

Step 3: The teachers show the children the colours chart and name each colour.

Step 4: Teacher places a tray containing colours on each of the child's table and ask them to pick up any colour mentioned.

Step 5: The teacher will give room for the children to ask questions.

Step 6: The instructor quizzes the children on the topic covered

Evaluation: List thing in their environment that has some colour such as:

The cotton wool is..... in colour **white**

The grass is.....in colour **is green**

Summary: Teachers leads the children to say the colours of things in their environment.

Assignment: Write the colours of things in your environment.

Lesson Plan 23

Week 5: Lesson 3

Date:

Duration: 45 mins

Subject: Numeracy

Class One year Pre-primary

Topic: Colours

Sub-Topic: Primary and Secondary Colours

Pre-assessment

Entry Behaviour: Children are putting colours on their uniform, school bags and lunch box.

Learning Environment: Classroom

Resources/ Materials: Note books, pencils, lunch box, bags, colour chat, tray, colour pad, sugar paper, worksheet and instructional guide.

Educational goals: At the lesson, children should be able to:

- i. list at least 3 colours
- ii. identify common thing in the environment and their colours

Presentation:

Step 1: Write the topic on the chalkboard

Step 2: The teacher introduces the lesson topic: Primary and Secondary Colours.

Step 3: The teachers show the children the colour pad and its primary and secondary colours

Step 4: Teacher asks the children to point and name the primary and secondary colours

Step 5: The teacher will give room for the children to ask questions.

Step 6: Based on the lesson learnt, the teacher asks children some questions.

Evaluation: List things in their environment that have some colour such as:

1. The sun isin colour **yellow**.
2. The eggplant.....in colour **purple**.

Summary: Teachers lead the children to say the colours of things in their environment.

Assignment: Write the colours of things in your environment.

Lesson plan 24

Week 6: Lesson 1

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Shapes

Sub-Topic: Identification of Shapes (circle, oval and triangle)

Pre-assessment:

Entry Behaviour: Children know the shape of an egg

Learning Environment: Classroom

Resources/ Materials: Plastic shapes, ludo frame, work sheet and instructional guide.

Learning goals:At the conclusion of period, pupils ought to understand how to:

- i. mention the shapes.
- ii. name and compare things in their environment with their shapes.

Presentation:

Step 1: Instructor writes the topic on the board

Step 2: The teacher introduces the lesson topic

Step 3: Teachers draws the shapes on the board and shows the children the shapes.

Step 4: Teacher places a tray containing shapes on each of the child's table and ask the children to pick up any shapes mentioned.

Step 5: The teacher will give room for the children to ask questions.

Step 6: Teacher pose some questions to the children.

Evaluation: Mention things in your environment that comes in (circle, oval and triangle) shape.

1. The tyre hasshape **Circle**
2. The xmas tree hasshape **Triangle**
3. The egg hasshape **Oval**

Summary: The teacher will remind the children the song and its message.

Assignment: Underline the name of things in your environment that have the circle, oval and triangle.

Lesson plan 25

Week 6: Lesson 2

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Shapes

Sub-Topic: Identification of Shapes (Square and Rectangle)

Pre-assessment:

Entry Behaviour: Children can tell some objects that come with in different form.

Learning Environment: Classroom

Resources/ Materials: Plastic shapes, frame, I.D card, work sheet and instructional guide.

Educational goals:At the conclusion of period, pupils ought to understand how to:

- i. identify the square shapes.
- ii. identify the rectangle shapes

Presentation:

Step 1: Writes the topic on the chalkboard.

Step 2: The teacher introduces the lesson topic to the children

Step 3: Teachers show children similar objects and ask them if their surface are the same.

Step 4:Teacher places a tray containing shapes on each of the child’s table and ask the children to pick up any shape mentioned.

Step 5: The teacher will give room for the children to ask questions.

Step 6: Teacher throw some questions to the children.

Evaluation: Match the shapes in your work book

Summary: Teacher leads the children to identify the shapes correctly.

Assignment: Match the objects with right shapes.

Lesson plan 26

Week 6: Lesson 3

Date:

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Construction of shapes

Sub-Topic: Construction of Circle and Oval Shape.

Pre-assessment:

Entry Behaviour: Children know that shapes come in various sizes.

Learning Environment: Classroom

Resources/ Materials: play dough, plastic shapes, straw, work book and instructional guide

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i. draw the circle shape
- ii. draw the oval shape.

Presentation:

Step 1: Write the topic on the chalkboard.

Step 2: The teacher introduces the lesson topic: Construction of shapes: (circle and oval).

Step 3: Teacher revise the pattern with them. Teacher show the children the play dough and demonstrate how to construct the shapes.

Step 4: Teacher ask children to construct the shapes (circle and oval) using the play dough

Step 5: The teacher will give room for the children to ask questions.

Step 6: Teacher raise some questions for children to answer questions.

Evaluation: Construct the circle and oval shape using the rope and play dough.

Summary: Teacher guide the children during the construction of shape exercises..

Assignment: Trace the shapes in your note book.

Lesson Plan 27

Week 9: Lesson 3

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Administration of Post-test **Sub-topic:** Administration of Mathematical Knowledge

Pre-assessment:

Entry Behaviour: Children have been taught extensively all topics for of nine weeks

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note book and pencils

To be supplied: Assessment on Pre-primary School Children Mathematical Knowledge

Behavioral objectives: At the conclusion of period, pupils ought to understand how to:

- i answer correctly the mathematical knowledge questions.

Presentation:

Step 1: Teacher revises the entire topic taught.

Step 2: Teacher revises all the stories taught during the previous lesson

Step 3: Teacher allows children to ask question and pass comments on all the lessons taught.

Step 4: Teacher distributes the achievement test to the children to access their knowledge.

The teacher also will provide the children with some objects to carry out some mathematical activity while assessing the mathematical knowledge.

Step 4: Teacher collects the answer sheet from the children.

Step 5: Teacher calls out the children to ask them questions one after the other.

Evaluation: None is given

Summary: Teacher guides the children in telling in time.

Summary: The Teacher brings the lesson to an end.

Assignment: None is given.

Lesson Plan 28

Week 10: Lesson

Duration: 45 mins

Subject Numeracy

Class One year Pre-primary

Topic: Administration of Post-test **Sub-topic:** Administration of Mathematical Communication skills

Pre-assessment:

Entry Behaviour: Children have been taught extensively various topics for the nine weeks.

Learning Environment: Classroom

Resources/ Materials:

Already Available: Note book and pencils

To be supplied: Assessment on pre-primary school children mathematics communication skills.

Educational goals: At the conclusion of period, pupils ought to understand how to:

- i discuss their mathematics communication skills.

Presentation:

Step 1: Teacher revises the entire topic taught.

Step 2: Teacher revises all the stories taught during the previous lesson

Step 3: Teacher allows the students to ask question and pass their comments on all the lessons taught so far.

Step 4: Teacher distributes the achievement test to the children to assess their knowledge. The teacher also will provide the children with some objects to carry out some mathematical activity while assessing the mathematical knowledge.

Step 4: Teacher collects the answer sheet from the children.

Step 5: Teacher calls out the children to ask them questions one after the other.

Evaluation: None is given

Summary: The Teacher brings the lesson to an end.

Assignment: None is given.

APPENDIX VI (A)

Teachers Training Guide for Songs Instructional Package

Activity	Researchers' Activity	Teacher Activity
Welcoming/ Introduction	The researcher does a proper introduction of self (name, status and institution affiliation).	The schools teachers introduce themselves for the purpose of familiarity
Brief Explanation of the Study	State the purpose, aim and procedures of the study. Implore maximum cooperation of teachers	Make comments and ask questions for the purpose of clarification.
Training of instructional guide	Distributes a copy of Songs-Enhanced Stimulation Guide (Se_StiG) to all the Teachers	Receive a copy of the instructional guide
Give detailed explanation	Give detailed explanations on how the Songs-Enhanced Stimulation Guide (Se_StiG) will be used during the study. <ul style="list-style-type: none"> • How to commence the lesson? • When to introduce the songs during the lesson. • The activity that accomplish the songs. 	Listen, respond and ask question when necessary
Learning of songs	Teach the teachers some of the songs	Learn some of the songs
Evaluation of training sessions	Ask the teacher some question to ensure that they understands the explanations	Answer the researcher questions.
Conclusion	Closing remarks	Closing remarks

APPENDIX VI (B)

Teachers Training Guide for Storytelling Instructional Package

Activity	Researchers' Activity	Teacher Activity
Welcoming/ Introduction	The researcher does a proper introduction of self (name, status and institution affiliation).	The schools teachers introduce themselves for the purpose of familiarity
Brief Explanation of the Study	State the purpose, aim and procedures of the study. Implore maximum cooperation of teachers	Make comments and ask questions for the purpose of clarification.
Training of instructional guide	Distributes a copy of Storytelling-Enhanced Stimulation Guide (Se_StiG) to all teachers	Receive a copy of the instructional guide
Give detailed explanation	Give detailed explanations on how Storytelling-Enhanced Stimulation Guide (Se_StiG) will be used during the study. <ul style="list-style-type: none"> • How to introduce the lesson to the children. • When to introduce the stories during the lesson. • How to present the stories • How to carry out the activities that accomplish the stories. 	Listen, respond and ask question when necessary
Story time	Tell the teachers two stories and demonstrate along line the storyline to serve as example for them	Listen to the story and respond when necessary.
Evaluation of training sessions	Ask the teacher some question to ensure that they understands the explanations	Answer the researcher questions.
Conclusion	Closing remarks	Closing remarks

APPENDIX VI (C)

Research Assistant Training Guide

Welcoming/ Introduction	The researcher does a proper introduction of self (name, status and institution affiliation).	Research Assistants (RAs) introduce themselves for the purpose of familiarity
Brief Explanation of the Study	State the purpose, aim and procedures of the study. Implore maximum cooperation of teachers and research assistant.	Make comments and ask questions for the purpose of clarification.
Distribution of Instruments	Distributes a copy of the following responds instruments to all research assistance: a. Mathematics Communication skill Rubric for Pre-primary school children (MCS_RPC) b. Rating Scale for Pre-primary school children Mathematical knowledge (RSPCMK). c. The Pre-primary School Children Language Acquisition Rating Scale (PSCLARS). d. Key informant Interview with Participating Pre-primary School Teachers. e. Key informant Interview with Participating Pre-primary School children.	Receive a copy each of the responds instruments from the researcher
Give detailed explanation	Give details of each of the instruments and how it would be administered.	Listen the teacher and respond when necessary

Administration of Pretest and posttest.	Do a simple demonstration on how the Mathematics Communication skill Rubric for Pre-primary school children (MCS_RPC) and Rating Scale for Pre-primary school children Mathematical knowledge (RSPCMK) would be administered for pre-test.	Watch the researcher demonstration and make comments.
Practical Session/	Request all research assistance to demonstrate the process. Researcher observes and make correction where necessary.	Demonstrate the process involved in administration of pretest and posttest.
Evaluation of training sessions	Ask the teacher some question to ensure that they understands the explanations	Answer the researcher questions.
Conclusion	Closing remarks	Closing remarks

APPENDIX VII

Key Informant Interview with Participating Pre-primary School Teachers

This interview schedule is intended to elicit information from pre-primary teachers on the use of the enhanced stimulation in teaching mathematics. Information collected will be used for educational research purpose only.

I am interested in your responses as regard the study. Your responses to the following questions will enable the researcher know your thought and opinion.

Section A: Demographic Data

Name of School:.....

School Type:.....

Class Taught:

Gender:

Time interview begins:

Time interview ends:

Name of interviewer:

Section B Interview Questions) about

1. Can you please tell me your view about the songs/storytelling enhanced stimulations that were used for teaching mathematics to children?
 - Do you consider the use of enhanced stimulations (songs/storytelling) in teaching the preschool children mathematics worthwhile?
 - If yes, give reasons.....
 - If no, why not
 - In your opinion, how did you see the classroom activities?
 - Would you prefer the use of songs/ storytelling-enhanced stimulation than the use of the conventional method?
 - If yes, give reasons
 - If no, why not
2. Possible challenges pre-primary school teachers may face in the course of using (songs and storytelling) enhanced stimulation to facilitate mathematics lessons?

- Can you give reason why you feel a teacher wouldn't want to use (songs/ storytelling) enhanced stimulation in teaching mathematics?
- In what way can teacher be encourage to adopts (song/storytelling) enhanced stimulation in teaching Mathematics
- Did you encounter any challenge in using (song/storytelling) enhanced stimulation in teaching mathematics?
- If yes, what were the challenges.....?
- How can these challenges be tackled.....?

APPENDIX IX

Key Informant Interview with Participating Pre-primary School Children

This interview schedule is intended to elicit information from pre-primary children on their experiences during the use of the enhanced stimulations (songs and storytelling) in teaching mathematics. Information collected will be used for educational research purpose only. I am interested in your responses as regard the study. Your responses to the following questions will enable the researcher know your thought and opinion.

Section A: Demographic Data

Name of School:	
School Type:	
Class Taught:	
Gender:	
Hand dominance	
Time interview begins:	
Time interview ends:	
Name of interviewer:	

Would you like to share your experience with me about the use of the enhanced stimulations (song/ Storytelling) in teaching activities?

- Is there anything you would like to tell me about the mathematics activities?
- How did you see the class? very interesting/partially interesting/ not interesting
- Would you like your teacher to continue in teaching you mathematics using the enhanced stimulations (song and storytelling)?
- If yes, can you tell me why.....
- If no, can you give reasons?.....

APPENDIX X

Mathematics Communication Skill Rubric for Preschool Children (MCS_RPC)

Name of School:

Type of school:.....

Gender:

Class:

Rating Scale at five Levels.

- 0- No Performance
- 1- Low Performance
- 2- Moderate Performance
- 3- Satisfactory Performance
- 4- Good Performance
- 5- Excellent Performance

S/N	Mathematical Communication Skills Indicator	0	1	2	3	4	5
A	General and Counting of Numbers						
1	The child can count numbers from 1-30 rhythmically						
2	The child can count real objects from 1 -20						
3	The child is able to tell which is greater 21 or 12						
4	The child can name the major four maths operation signs						
5	The child is able to tell what the four operation signs are used for.						
B	Addition of Numbers						
1	The child is able to explain why $5 + 3$ equals 8						
2	The child can explain how objects can be added together to get sum not more than 10						
3	The child is able to explain how to arrive at sum that ends with zero (0) e.g. 10, 20 etc						
4	The child is able to express in words, how to arrive at the sum						
5	The child can teach peers how to perform addition						

C	Subtraction of Numbers	0	1	2	3	4	5
1	The child is able to give reasons why 9 minus 3						

	equal to 6						
2	The child is able to justify why 5-5 equals 0						
3	The child can explain how small sum can be taking away from large sum.						
4	The child is able to express in words, how to take away sum						
5	The child can teach peers how to takeaway sum						
D	Colours						
1	The child is able to identify by naming the colour of a leaf						
2	The child is able to identify by naming the colour of blue sky						
3	The child is able to identify by naming the colour of a tomato						
4	The child is able to identify by naming the colour of a cotton wool						
5	The child is able to identify by naming the colour of a ripe pawpaw						
E	Shapes						
1	The child is be able to identify by naming the plane shapes						
2	The child is able to discuss the similarity between square and rectangle						
3	The child is able to describe triangle using the number of sides						
4	The child is able to discuss the differences between circle and other plane shapes						
5	The child is able to describe rectangle using the number of sides						

APPENDIX XI

Pre-primary school children Mathematical Knowledge Test” (PCMKT).

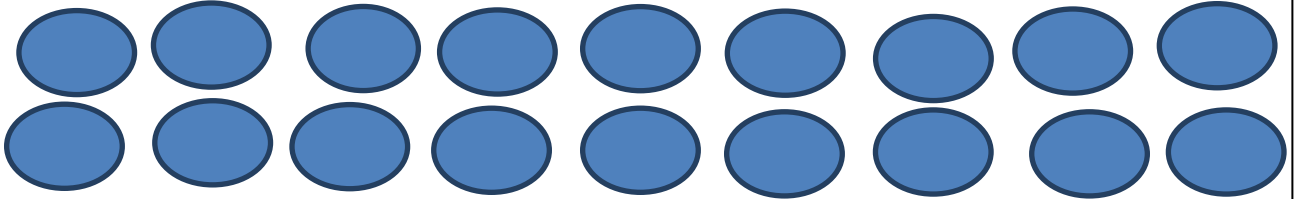
1. Complete the numbers

1			4			7			10
	12			15				19	
21			24			27			30
		33					38		
41					46				50

2.

Count the circles

Answer = circles



3. Add up the oranges together



+ =



How many eggs are there in the two baskets?

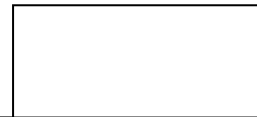
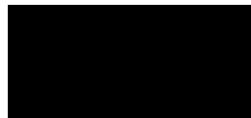
5. There are 6 oranges but one is spoilt, how many oranges are good?



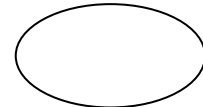
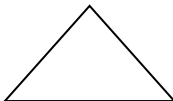
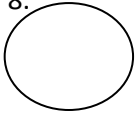
6. There are twelve eggs in the create, Tolu mistakenly breaks four eggs out of the eggs, how many eggs are left ?



7. Touch and name the colours



8.



Touch and name the shapes

9.



(A)

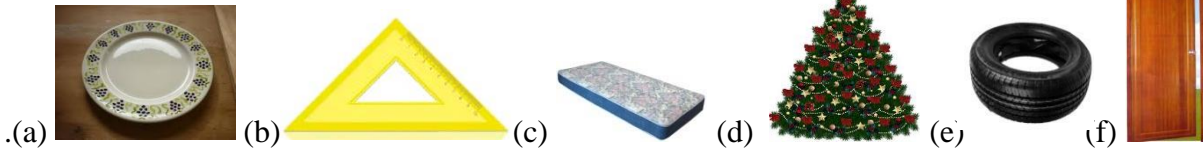
(B)

(C)

(D)

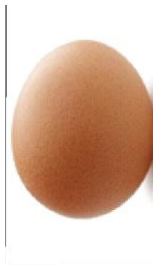
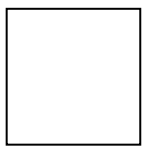
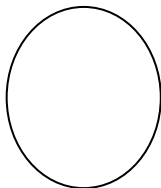
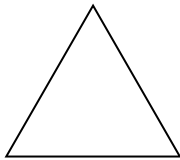
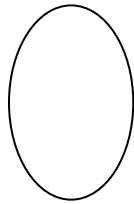
1. Which of the objects has red colour?.....
2. Which of the objects has yellow colour?
3. Which of the objects has black colour?
4. Which of the objects has purple colour? ...

10.



1. Which of this object has a triangle shape?
2. Which of this object has a circle shape?
3. Which of this object has a rectangle shape?.

11. Match the following shapes to the pictures



APPENDIX X

The Pre-primary School Children Language Acquisition Rating Scale

Name of School:

Type of school: Public Private

Gender: Male female

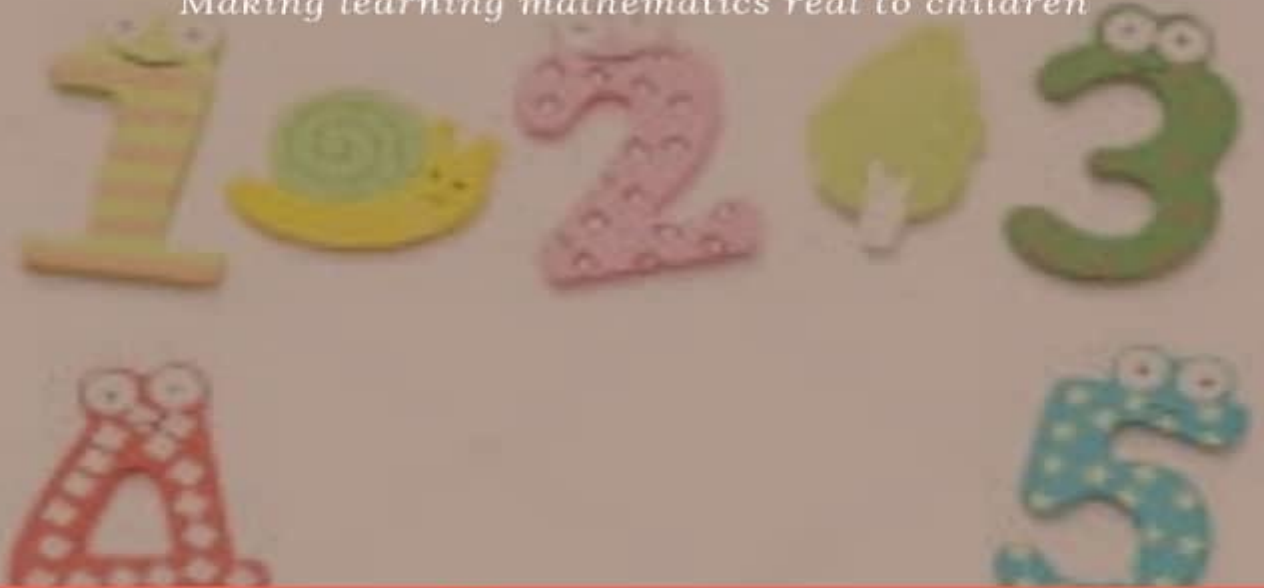
Rating Scale at five Levels.

0. No Performance
1. Low Performance
2. Moderate Performance
3. Satisfactory Performance
4. Good Performance
5. Excellent Performance

ITEMS	NP	LP	MP	SP	GP	EP
Fluency	Speech so disjointed and incomplete to make Sentences virtually Impossible	Usually hesitant	Often Paused while talking because of language limitations.	Speech in expression frequently disrupted by the child search for the correct manner of expression	Speech in expression generally fluent with occasional lapses	Speech in expression fluent and effortless approximating that of a native speaker.
Pronunciation	Language limitations so extreme as to make sentences virtually impossible	Very hard to understand because of pronunciation problem	Must frequently repeat in order to make him/herself understood.	Diction problems necessitate concentration on the part of the listener and occasionally lead to misunderstanding.	Always intelligible, although the listener is conscious of a definite accent and occasional inappropriate intonation patterns.	Pronunciation and intonation approximate that of a native speaker.

Vocabulary	Accents severe as to make speech virtually unintelligible	Misuse of words and very limited:	Comprehension quite Difficult.	The Child frequently uses wrong Words because of inadequate vocabulary	The Child occasionally uses inappropriate terms and/or must rephrase ideas because of lexical inadequacies.	Use of vocabulary approximate that of a native speaker.
Grammar	Errors in grammar and word order so severe as to make speech virtually unintelligible	Grammar and word order errors make comprehension difficult.	Must often rephrase and/or restrict him/herself to basic patterns	Makes frequent errors of grammar and word order that occasionally obscure meaning.	Occasionally makes grammatical and/or word order errors that do not obscure meaning.	Grammar and word order approximate that of a native speaker.

Making learning mathematics real to children



Mathematics storybook for Pre- primary school children

BY
FOLASHADE. O. OWOLABI

Topic: Numerals and Counting

Sub-topic: Rhythmic Counting 1 - 12

Week: Two

Lesson: First

Story Title: The Number Tag\\

Ìyá Ìyanu jé olùkó. Ní ojò kan, leyìn tí ilé-ìwé ti pari, Ó kó pálí tí a kọ àwọn ònkà tí wón ẹ fún gbogbo àwọn akékòò padà wálé. Ó fẹ fi wón fún olúkúlùkù àwọn akékò nígbà tí ere ìdàrayá bọ̀lù jìjù bá parí. Ìyanu àti àbúrò rè tò n jé Tópé sí pàálí ti àwọn àwòrán ònkà wà láti kà àwọn ònkà tò wà lára àwọn àwòrán ọ̀hún. Ókan (1) tí tí dé ẹ̀fà (6) nìkan ni Ìyanu rí kà.

Break One: Let us join iyanu to counts the numbers 1-6

His brother counted numbers 1-9 but could not continue because, the remaining three numbers had two figures.

Break Two: let us join Tope to counts the numbers tags 1-9.

Both of them took the pack to their aunty and ask her to help them out on how to count the remaining number tag. Their aunty taught children on how to count the numbers. The two children were now able to count number 1-12.

Break Three: let us join iyanu's and Tope to counts the numbers 1-12.S

Topic: Numerals and Counting

Sub-topic: Rational Counting 1 - 12

Week: Two **Lesson:** Second

Story Title: The Number Tag

Ní ìgbà tí ìyá Ìyanu dé ilé-ìwé ní ojò kejì, Ó sọ fún àwọn ọ̀mọ ilé-ìwé pé wón máa ẹ ere-ìdàrayá bọ̀lù jìjú nínú yàrá-ìkékòò. Ó pín àwọn akékòò sí ẹgbé méré. Ọ̀mọ kòòkan nínú ẹgbé náa ní yòò dúró sí inú ilà ríbití tí olùkó yà sí orí ilẹ̀ láti ju ìdérí-ọ̀tí sí inú ọ̀pón. Ní ọ̀pín ere-ìdàrayá náà, wònyí ní iye ìdérí-ọ̀tí tí ẹgbé kòòkan ní.

Group one: 1 red bottle corks, 8 blue bottle corks and 9 bottle corks

Group two: 2 red bottle corks, 6 blue bottle corks and 10 bottle corks

Group three: 3 red bottle corks, 7 blue bottle corks and 12 bottle corks

Group four: 4 red bottle corks, 5 blue bottle corks and 11 bottle corks

Break One: let count the numbers of red bottle corks by each group.

Question: Which of the groups, has the highest number of red bottle cork.

Answer: The children answer, group 4

Break Two: let count the numbers of blue bottle corks by each group.

Question: Which of the groups, has the highest number of blue bottle corks

Answer: The children answer, group 1

Break Three: let count the numbers of orange bottle corks by each group

Question: Which of the groups, has the highest number of orange bottle corks

Answer: The children answer, group 3

Topic: Numerals and Counting

Sub-topic: Rational and Rhythmic Counting 1 -

12

Week: Two **Lesson:** Third

Story Title: The Number Tag

Story continues

Léyìn tí wọn ti ka àwọn ìdérí-otí náà tán, olùkó ní kí ẹgbé méré̀rin náà ka àwọn ìdérí-otí kí wọn kí wọn sì tò wọn lésẹ̀sẹ̀ sí orí tábilì wọn pèlú àwọn àwòrà ònkà tí ó bá oye ìdérí-otí tí wọn kà mu.

Group one: 1 red bottle corks, 8 blue bottle corks and 9 bottle corks

Group two: 2 red bottle corks, 6 blue bottle corks and 10 bottle corks

Group three: 3 red bottle corks, 7 blue bottle corks and 12 bottle corks

Group four: 4 red bottle corks, 5 blue bottle corks and 11 bottle corks

Break One: Let count the numbers of red bottle corks by each group and place the number tag beside it.

Break Two: Let count the numbers of blue bottle corks by each group and place the number tag beside it.

Break Three: let count the numbers of orange bottle corks by each group and place the number tag beside it.

Topic: Numerals and Counting

Sub-topic: Rhythmic Counting of Numbers 1-

25

Week: Three

Lesson: First

Story Title: Skipping

Time

Ìtá ogbà ni Bòsẹ̀, Báyo, Bòdé àti Bólá wà ní ìgbà tí Bólá sọ fún àwọn akegbé rẹ̀ pé kí wọn jẹ́ kí àwọn lọ̀ ẹ̀ eré okùn-fifò. ‘Èmí lè fo okùn jù ẹ̀ lọ̀’, ni Báyo wí. ‘Rára, iwọ̀ kò lé fo okùn jù mí lọ̀, ni Bólá wí. Bòsẹ̀ náà darapọ̀ mó wọn nínú àrìyàjìyàn náà; ‘Èmí lè fo okùn jù ẹ̀yin méjèjì lọ̀’. Bòdé, tí ó jẹ́ ọ̀kan nínú wọn dáhùn ó wípé, a kò le mó ẹ̀ni tí ó lè fo okùn bí a kò bá

Pupils Answer: Emeka had more balls.

By time Musa came out, he also poured out his balls and started counting. He counted 20 balls

Break Three.....

Let's join Musa to count his balls. Children started counting 1-25.

Teacher Ask: Who will the teacher give the sweet to?

Pupils Answer: Musa

Teacher Asked: Why

Pupils Answer: Because he has more balls

Topic: Numerals and Counting

Sub-topic: Rational Counting of Numbers 1-25

Week: Three

Lesson: Second

Story Title: The Bead Strings

Olùkóbìrin Kalu lọ sí yàrá-ìkékò ní ààrò ojò Ajé, Ó só fún àwọn akékò pé èkò ní pa ìsìrò ní ònà òtun ní a máa ẹ ní òní. Àwọn akékò dúnú lópòlópò. Ó mú okùn ilèkè tò gún kan jáde Ó sì so ó láti igun kan sí igun kejì yàrá-ìkékò. Ó ní kí àwọn akékò pín ara wọn sí egbé márùn kí wón sì yan adarí. Ó mú ìwé márùn tí a wé papò tí a sì kọ àwọn ònka (oókan sí aàrùn 1-5), (ẹẹfà sí ẹẹwà 6-10), (ókànlá sí ẹẹdógún 11-15), (mẹ̀rìdínlógún sí ogún 16-20) àti (ókànlélógún sí mḕẹ̀dògbòn 21-25), ìwé tí adarí egbé kòòkan bá mú ni yòò só یشه́ tí egé nàà máa ẹ. Egbé kòòkan yòò ka ònka márùn tí ó wà nínú àkámó lórí paper wọn ó sì so àwọn ìwé-ònkà mó ònkà kòòkan.

Break One: Let join the first group to count, 1, 2, 3, 4, 5, on the bead strings and attach the number tag to each of the number. The children carried out the activities with the guidance of their teacher.

Break Two: Let join the second group to count number, 6, 7, 8, 9, 10, on the bead strings and attach the number tag to each of the number. The children carried out the activities by counting the numbers and attaching number tag to it.

Break Three: Let join the third group to count number 11, 12, 13, 14, 15, on the bead strings and attach the number tag to each of the number.

The children carried out the activities by counting the numbers and attaching number tag to it.

Break Four: Let join the fourth group to count number 16, 17, 18, 19, 20, on the bead strings and attach the number tag to each of the number.

The children carried out the activities by counting the numbers and attaching number tag to it.

Break Five: Let join the fourth group to count number 21, 22, 23, 24, 25, on the bead strings and attach the number tag to each of the number.

Topic: Numerals and Counting **Sub-topic:** Rhythmic Counting of Numbers up to 50

Week: Three **Lesson:** Second **Story Title:** The Golden Pen.

Nígbà tí àwọn akékò fẹ̀ lọ bá àwọn akegbé wọn yòókùn seré ní gbàgede ni olùkó ni Ogbéni Salu hrántí lójijì pé òun ní gègè-ikòwé oní wúrà láti fi sílẹ̀ gégé bí èbùn. Gègé wúrà yíi mo máa fífún ẹnìkẹni tí ó bá lè ka ònkà láti ení dé àádọta láì se àṣiṣe. Ó ti kó àwọn ní ònkà kíkà, ní ojú tó sájú ojú náà. Àwọn ọmọ mètá (Emeka, Musa àti Dayò) pinu láti díje nínú idíje ònkà kíkà náà.

Emeka ni ẹnì àkókó láti ka ókan (1) dé àádọta (50). Ó bèrè láti ka ókan (1) dé àádọta (50) sùgbón kò le tẹ̀ sí wájú nígbà tí Ó dé orí ètádínlógójì (37).

Break One.....

Let's join Emeka to count his numbers. Children started counting number

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37,

Musa was the second person to count number 26-50. He started counting 26-50 but got stuck at 44

Break Two.....

Let's join Musa to count his numbers. Children started counting number 26-44

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44

Dayo was the third person to count number 26-50. She started counting 26-50 and was able to count to 50 correctly

Break Three.....

Let's join Dayo to count her numbers. Children started counting number 26-50

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 43, 44, 45, 46, 47, 48, , 45, 46, 47, 48, 49, 50

Teacher Asked: Who will the golden pen be given to among the three children?

Pupils Answer: Dayo

Teacher Asked: Why

Pupils Answer: Because she counted numbers 1-50 correctly.

Topic: Numerals and Counting

Sub-topic: Rational Counting of Numbers up

to 50

Week: Three

Lesson: Third

Story Title: The ball Game

Ní ìròlẹ̀ ojọ kan, àwọn ọmọdé kóra jọpọ ní ìgbàgede ilú láti ẹ̀ ere-ìdàrayá bọ̀lù gbígbá. Kúnlé mú àpò tí ó kún fún ọ̀pọ̀lọ̀pọ̀ bọ̀lù aláranbarà nígbàti àwọn obirín mú àwọn apẹ̀rẹ̀ jáde. Àwọn ọmọ náà pín ara wọn sí ẹgbé méréin nípa lílò àwọ̀ (pupa, pupa rúsúrúsú, aláró àti aláwọ̀-ewé). Ayọ̀ ni wọn yàn gégé bíi aka máàkì. Eré bọ̀lù náà nílò kí àwọn ọmọdé náà sáré yípo láti ẹ̀ àwọn bọ̀lù sí inú apẹ̀rẹ̀. Ayọ̀ fun fẹ̀rẹ̀ ìdíje sì parí. Gbogbo àwọn akegbé ẹgbé kọ̀ọkan ní wọn tò sẹ̀yìn àwọn ọmọ ẹgbé wọn. Ẹgbé aláwọ̀-aró ẹ̀ àwọn méjìdín-làádóta (48), ẹgbé aláwọ̀-ewé ní àádóta (50) bọ̀lù, ẹgbé aláwọ̀-pupa ẹ̀ àwọn méèdgbòn (25) àti ẹgbé aláwọ̀ pupa-yòò ní bọ̀lù métàdín-lógójì (37). Ẹ̀ jẹ́ kí a bá àwọ̀ ọmọdé náà ka iye àwọn bọ̀lù tí ẹgbé kọ̀ọkan.

Break One.....

Let's join the red team to count their balls. Children started counting number 1-25

Break Two.....

Let's join the yellow team to count their balls. Children started counting number 1-37

Break Three.....

Let's join the blue team to count their balls. Children started counting number 1—48

Break Four.....

Let's join the green team to count their balls. Children started counting number 1--50

Teacher Asked: Who won the game?

Pupils Answer: The green team

Teacher Asked: Why

Pupils Answer: Because they had the highest number of balls.

Teacher: Green team came first, blue team came second, yellow team came third and the red team came fourth.

Topic: Numerals and Counting

Sub-topic: Rational Counting of Numbers up to

50

Week: Three

Lesson: Third

Story Title: Number Beads Making

Ó jé àkókò ìdàrayá ní ilé-ìwé Wálé, olùkó wọn ti sọ fún wọn pe kí wọn mú àwọn ònkan wònyí wá ní ojò kejì (pálí, ìlẹ̀kẹ̀ òlá méjì, okùn dúdú kan, sísoṣì àti pálí tó níwọ̀n fún iṣẹ̀). Wọn ní láti fí ònka láti ení sí àádọ́ta (1-50) sí etí pálí tó níwọ̀n lápapọ̀. Ó mú ìwé márùn tí a wé papọ̀ tí a sì kọ àwọn ònka (oókan sí ẹ̀wá 1-10), (ókànlá sí ogún 11-20), (ókànlélogún sí ógbọ̀n 21-30), (ókànlélogbọ̀n sí ogójì 31-40) àti (ókànlélogójì sí àádọ́ta 41-50), ìwé tí adárí ẹgbé kòòkan bá mú ni yóò sọ iṣẹ̀ tí ẹgbé náà máa ẹ. Ẹgbé kòòkan yóò gé okùn oḡbọ̀gba kékèké méwà, a oò to ònka kòòkan sí ara okùn a oò sì so wọn mó ònka tí a kọ sí ara pálí.

Break One: Let join the first group to count the beads, arrange them on them on the twain and tie it with the number cartoon, 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10.

Break Two: Let join the second group to count the beads, arrange them on them on the twain and tie it with the number cartoon 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20.

Break Three: Let join the third group to count the beads, arrange them on them on the twain and tie it with the number cartoon 21, 22, 23, 24, 25, 26, 27, 28, 29 and 30..

Break Four: Let join the fourth group to count the beads, arrange them on them on the twain and tie it with the number cartoon 31, 32, 33, 34, 35, 36, 37, 38, 39 and 40.

Break Five: Let join the fourth group to count the beads, arrange them on them on the twain and tie it with the number cartoon 41, 42, 43, 44, 45, 46, 47, 48, 49 and 50.

Topic: Numerals and Counting

Sub-topic: Writing the Numbers Patterns

Week: Three

Lesson: First

Story Title: The Number Puzzle

Adé tẹ̀lé iyá rẹ̀ lọ sí ilé-itàwé láti ra àwọn ìwé tí yóò lò ní sàà tó n bọ̀. Nígbà tí Ó n rín káàkiri ó rí ohun ìṣeré ònka tí ó rẹ̀wà kan Ó sì bẹ̀ iyá rẹ̀ kí ó rà á fún òhun. Nígbà tí Ó délé, Ó sí i ó sì bèrè sí ní toṣẹ̀ àwọn ònka nínú ìwé náà. Nígbà tí iyá rẹ̀ rí í, Ó sọ fún pé Ó lè kọ ọ̀ láì toṣẹ̀ rẹ̀.

Ó bí ìyá rè pé báwo ní yòò seése. Ìyá rè wípé, Ó lè kọ àwọn ònkà nàà nípa lílò àwọn àwòṣe oní ìbú (ilà ìbú, ilà gbọṣọṣọ, ilà tó dègbé ilà kọṣọṣọ sẹ̀yìn, ilà kọṣọṣọ síwájú). Lọ mú gégé ìkòwé àti ìwé rẹ wá. Ẹ jẹ kí a darapò mọ Adé láti kọ bí a ṣe n kọ bátàni.

Break 1

Teacher: Ask the children to write the stroke pattern in the air.

Children: Write the stroke in the air

Teacher: Ask each child to pick the sand plate and write the stroke pattern

Children: Pick the sand plate and write the stroke pattern on it.

Break 2

Teacher: Ask the children to write the slant pattern in the air.

Children: Write the slant pattern in the air

Teacher: Ask each child to write the slant pattern on the sand plate

Children: Write the slant pattern on the sand plant

Break 3

Teacher: Ask the children to write the dash pattern in the air.

Children: Write the dash pattern in the air.

Teacher: Ask each child to write the dash pattern on the sand plate.

Children: Write the dash pattern on the sand plant.

Break 4

Teacher: Ask the children to write the backward curve in the air.

Children: Write the backward curve pattern in the air

Teacher: Ask each child to write the backward curve pattern on the sand plate

Children: Write the backward curve pattern on the sand plate

Break 5

Teacher: Ask the children to write the forward curve in the air.

Children: Write the forward curve pattern in the air

Teacher: Ask each child to write the forward curve pattern on the sand plate

Children: Write the forward curve pattern on the sand plate.

Topic: Numerals and Counting

Sub-topic: Writing the Numbers 1-5

Week: Three

Lesson: First **Story Title:** The Number Puzzle

Lẹ̀yìn tí Ada ti kọ bí a ẹ̀ se ń kọ àwọn bátà̀nì nàà, ìyá rẹ̀ wí fún un pé gbogbo ohun tí Ó nílò láti ẹ̀ se tí ó bá fẹ̀ kọ ònḡkà ní kí Ó so àwọn bátà̀nì nàà papò. Ẹ̀ jẹ́ kí a darapò mọ́ Ada láti kọ àwọn ònḡkà nípa lílo àwọn bátà̀nì nàà (ilà kọ̀dọ̀rọ̀ sẹ̀yìn, ilà kọ̀dọ̀rọ̀ síwájú, ilà gbọ̀ọ̀rọ̀, ilà ìbú, ilà tó dẹ̀gbé).

Break 1

To write number one, write the stroke in the air

Teacher: Ask the children to write stroke in the air

Children: Write stroke in the air

Teacher: Ask each child to write stroke pattern on the sand plate

Children: Write stroke pattern on the sand plate

Break 2

To write number two, write the backward curve and join the dash to it in the air

Teacher: Ask the children to write the backward curve and join the dash to it in the air

Children: Write the backward curve and join the dash to it in the air.

Teacher: Ask the children to write the backward curve and join the dash to it on the sand plate.

Children: Write the backward curve and join the dash to it on the sand plate.

Break 3

To write number three, write the backward curve and join it with another backward curve in the air.

Teacher: Ask the children to write the backward curve and join it with another backward curve in the air.

Children: Write the backward curve and join it with another backward curve in the air

Teacher: Ask the children to write the backward curve and join it with another backward curve on the sand plate

Children: Write the backward curve and join it with another backward curve on the sand plate

Break 4

To write number four, write the slant first, join the dash below and cross the dash with a stroke

Teacher: Ask the children to write the slant first, join the dash below and cross the dash with a stroke in the air.

Children: Children write the slant first, join the dash below and cross the dash with a stroke in the air.

Teacher: Ask the children to write the slant first, join the dash below and cross the dash with a stroke on the sand plate

Children: Write the slant first, join the dash below and cross the dash with a stroke on the sand plate

Break 5

To write number five, write the dash, join it with a stroke and join the backward curve to it.

Teacher: Ask the children to write the dash, join it with a stroke and join the backward curve to it in the air

Children: Children write the dash, join it with a stroke and join the backward curve to it in the air.

Teacher: Ask the children to write the dash, join it with a stroke and join the backward curve to on the sand plate

Children: Children to write the dash join it with a stroke and join the backward curve to on the sand plate.

Topic: Numerals and Counting

Sub-topic: Writing the Numbers 6-10

Week: Three

Lesson: Third

Story Title: The Number Puzzle

Story continues

Ada gbádún iṣẹ̀ ònkà kíkọ náà gidigidi; Íṣe ni Ó n rín ẹ̀rín sí ìyá rẹ̀ ní gbogbo àkókò iṣẹ̀ ònkà kíkọ náà. Ìyá Ada sọ pé ọmọ mi olùfẹ̀, tí Ó lè kọ ònkà láti ókan dé ẹ̀wà, kò sí bí ònkà náà ẹ̀ tóbi tó tí Ó kò ní le kọ ọ. Ẹ̀ jẹ́ kí a darapò mó Ada láti kọ ònkà láti ẹ̀fà (6) dé ẹ̀wà (10).

Break 1

To write number six writing a big forward curve and jointing it with a small in the air and sand plate

Teacher: Ask the children to write big forward curve and jointing it with a small in the air

Children: Write big forward curve and jointing it with a small in the air

Teacher: Ask the children to write big forward curve and jointing it with a small on the sand plate

Children: Write big forward curve and jointing it with a small on the sand plate

Break 2

To write number seven, write the dash and join the slant to it in the air

Teacher: Ask the children write the dash and join the slant to it to in the air

Children: Children write the dash and join the slant to it to in the air

Teacher: Ask the children to write the dash and join the slant to it on the sand plate

Children: Write the dash and join the slant to it on the sand plate

Break 3

For number eight write a curve facing forward, join with a curve facing backward and join with a curve facing forward and another curve facing backward in the air.

Teacher: Ask the children to write a curve facing forward, join with a curve facing backward and join with a curve facing forward and another curve facing backward in the air.

Children: Write a curve facing forward, join with a curve facing backward and join with a curve facing forward and another curve facing backward on the sand plate

Teacher: Ask the children to write a curve facing forward, join with a curve facing backward and join with a curve facing forward and another curve facing backward on the sand plate

Children: Write a curve facing forward, join with a curve facing backward and join with a curve facing forward and another curve facing backward on the sand plate.

Break 4

To write number nine, write the curve and join the stroke to it.

Teacher: Ask the children to write the curve and join the stroke to it in the air.

Children: Children write the curve and join the stroke to it in the air.

Teacher: Ask the children to write the curve and join the stroke to it on the sand plate

Children: Children to write the curve and join the stroke to it on the sand plate

Break 5

To write number ten, you write the stroke separately, then write the backward curve and join the forward curve to it.

Teacher: Ask the children write the stroke separately, then write the backward curve and join the forward curve to it.in the air

Children: Children write the stroke separately, then write the backward curve and join the forward curve to in the air.

Teacher: Ask the children to write the stroke separately, then write the backward curve and join the forward curve to it on the sand plate

Children: Children to write the stroke separately, then write the backward curve and join the forward curve to it on the sand plate.

Topic: Numerals and Counting

Sub-topic: Addition of Numbers between 1-10

Week: Three

Lesson: First

Story Title: The Birthday Party

Ní àkókò ayeyè ojò-ìbí kan, a pín àwọn oṣodé sí ẹgbé méjì (A àti B) gégé bí i ojó orí wọn. Ada àti Ali wà ní ẹgbé A. A pè Wọn jáde láti kópa nínú eré-ìdáráyá bàlúùnù fífon. Ó ní iye àkókò tí Wọn gbọdó lò láti fọn bàlúùnù náà kí fèrè ó tó dún. Ní òpin ere-ìdáráyá náà, Ali ti fọn bàlúùnù méfà (pínnkì mètá, aláwò-òsàn méjì àti dúdú kan) ní ìgbà tí Ada fọn bàlúùnù méréin (pínnkì méjì, aláwò-òsàn kan àti dúdú kan). Àwọn oṣo náà fẹ mọ iye gbogbo àwọn bàlúùnù tó jé pínnkì, aláwò-òsàn àti gbogbo bàlúùnù tí Wọn fọn.

Break One.....

How many orange balloons were blown altogether by Ada and Ali?

2 orange balloons + 1 orange balloon = 3 orange balloons

Children count 2 orange balloons plus additional 1 orange balloon to get 3 orange balloons

Teacher: How many orange balloons were blown?

Children: Children answer 3 orange balloons.

Break Two.....

How many pink balloons was blown altogether by Ada and Ali?

3 pink balloons + 2 pink balloons = 5 balloons

Children count 3 pink balloons and another 2 pink balloons together to get 5 pink balloons

Teacher: How many pink balloons were blown?

Children: Children answer 5 pink balloons

Break Three.....

How many orange and pink balloons were blown altogether by Ada and Ali?

3 pink balloons + 2 pink balloons =5 pink balloons, 2 orange balloon + 1 orange balloons=3 orange balloons

5 pink balloons + 3 orange balloons = 8 balloons.

Teacher: How many orange and pink balloons were blown altogether?

Children: Children answer 8 balloons

Topic: Numerals and Counting

Sub-topic: Addition of Numbers between 11-20

Week: Three

Lesson: Second

Note: Stories Continues

Ayò àti Bólú wà ní ègbé B. A pe Awọn nàà jáde láti kópa nínú ere-ìdáráyá bàlúùnù fíḡḡ. Ó ní iye àkókò tí Àwọn nàà gbodó ló láti fḡ bàlúùnù nàà kí fèrè ó tó dún. Ní ìgbà tí fèrè dún, Ayò tí fḡ bàlúùnù píńkì méjò, àláfḡ-ewé márùn-ún àti aláfḡ-òsàn mḡsàn, ní ìgbà tí Bólú tí fḡ bàlúùnù píńkì mḡsàn, aláfḡ-ewé méje àti aláfḡ-òsàn méfà. Àwọn omḡdé nàà fé mḡ iye gbogbo àwḡ bàlúùnù tó jé píńkì, bàlúùnù aláfḡ-ewé àti bàlúùnù aláfḡ-òsàn tí Wḡn fḡ lápapò.

Break One.....

How many green balloons were blown altogether by by Ayo and Bolu?

5 green balloons + 7 green balloons = 12 green balloons

The children will count 5 green balloons and 7 green balloons to get 12 green balloons

Break Two.....

How many yellow balloons were blown altogether by by Ayo and Bolu?

9 yellow balloons + 6 yellow balloons = 15 yellow balloons

The children will count 9 yellow balloons and 6 yellow balloons to get 15 yellow balloons

Break Three.....

How many pink balloons were blown altogether by Ayo and Bolu?

9 pink balloons + 8 pink balloons = 17 balloons

The children will count 9 pink balloons and 8 pink balloons to get 17 pink balloons.

Topic: Numerals and Counting

Sub-topic: Addition of Numbers between 1-20

Week: Three

Lesson: Third

Note: Stories Continues

Léyìn ere, Wḡn ní kí mḡta nínú àwḡ omḡdé nàà ḡe ìpínfúnni ebun fún gbogbo àwḡ omḡdé àtí àwḡ òbí wḡn. Ọnà ọtḡtḡ ni a fi kó àwḡ ebun àwḡ omḡdekùrí àti omḡdebìrin àtí tí mà má àti tí bà bá. Iye ìdì-erù tí àwḡ omḡdekùnrí jé méje, tí àwḡ omḡdebìrín jé mḡsàn. Tí àwḡ mà má jé márùn-ún ní gbàtí tí àwḡ bà bá jé mḡrin. Àwḡ omḡdé nàà fé mḡ iye ìdì-erù tí a pín fún àwḡ òbí àti àwḡ omḡ wḡn.

Break One.....

Let's add the number of packs given to mummies and daddies

Mummies 5 pack + daddies 4 Packs = 9 packs

The children wanted to know the total number of packs that were shared to the children

Break Two.....

Let's add the number of packs given to the children = Boys 6 pack + girls 8 Packs = 14 packs

Topic: Numerals and Counting **Sub-topic:** Subtraction of Numbers not more than 5

Week: Four **Lesson:** First **Story Title: The Shared Mangoes**

Ọlá àti Tolú, àbúrò rè pẹ̀lú àwọn aláààgbé wọn (Ego àti Ugo) lọ láti ká òro lórí igi òro kan ní ìtòsì. Wọn pinu láti sọ igi kékèké lu òro ní ìtorí gbogbo wọn kò lè dá igi náà gun. Èso òro márùn-ún (5) ni Ọlá àti Tolú lè rì sà . Ní ìgbà tí wọn dé ilé, Ọlá àti Tolú fi àwọn òro náà họn ègbón Wọn ọkùnrín, Sẹgun. Sẹgun sọ fún wọn pé mẹta (3) nínú àwọn òro náà tí pón ní ìgbà tí méjì (2) kò tí ì pón, tí kò sì da fún jíjẹ. Nínú àwọn òro mẹta (3) tí ó ti pón, Ó fún Ọlá ní méjì Ó sì fún Tolú ní ẹyọ òro kan.

Break One:

By how many is Ola's mango more than Tolu mangoes?

Ola 2 had mangoes and Tolu had 1 mango = Ola 2 mangoes – Tolu 1 mango= 1 mango

Break Two:

The ripe mangoes from the unripe mangoes

Ripe mangoes - unripe mangoes 3 mangoes -2 mangoes = 1 mango

Break Three:

Total number of mangoes 5 mangoes from unripe mangoes

Total mangoes - unripe mangoes = 5 mangoes -2 mangoes = 3 mangoes

Break Four:

Total number of mangoes 5 mangoes from ripe mangoes

Total mangoes - ripe mangoes = 5 mangoes -3 mangoes = 2 mangoes

Topic: Numerals and Counting **Sub-topic:** Subtraction of Numbers less than10

Week: Four **Lesson:** Second **Story Title: The Shared Mangoes**

Note: Refer children to previous story

Èso òro méje ni Ego àti Ugo lè rí sà ní ìtorí pé wọn dàgbà ju àwọn oṣoṣo àkókó lọ. Ní ìgbà tí wọn dé ilé, iyá wọn rí àwọn èso òro méje tí wọn mú wá sí ilé. Iyá wọn sọ fún wọn pé méta (3) nínú àwọn òro náà kò tì pón ní ìgbà tí méré (4) ti pón. Ó wá sọ fún wọn pé wọn ní láti fí àwọn òro tí kò tì pón náà pámọ́ títí wọn yòò fí pón. Òro méjì ni Ego gbà ní ìgbà tí Ugo náà gba òro méjì pèlu.

Break One:

By how many is Ego mangoes more than Ugo mangoes?

Ego 2 mangoes and Ugo 2 mangoes = Ego 2 mangoes – Ugo 2 mangoes = 0 mango

Break Two:

The number of ripe mangoes from the number of mangoes eaten by Ego

Ripe mangoes - number of mangoes eaten by Ego = 4 mangoes – 2 mangoes = 2 mangoes

Break Three:

Total numbers of ripe mangoes 7 from the numbers of unripe mangos 3

7 Ripe mangoes - 3 unripe mangos = 7 mangoes – 3 mangoes = 4 mangoes.

Topic: Numerals and Counting

Sub-topic: Subtraction of Numbers 1- 20

Week: Four

Lesson: Third

Story Title: The Broken Eggs

Ní ojó kan, eyin mèsàn wà ní ilé ìdáná Tópé. Tópé sèṣì kọlu tábilì ó sì fọ eyin méta, ní ìgbà tí ó fé jáde kúrò nínú ilé ìdáná.

È jẹ kí a ṣe ìwádì iye eyin tí ó kù nínú iké-ìkẹyin-sí.

Break One.....

To find out the numbers of eggs left inside the crate

Total numbers of eggs in the crate – numbers of eggs broken by Tope = 9 eggs – 3 eggs = 6 eggs.

Tope’s father fried 3 eggs for Tope and his brother to eat bread out of the remaining 7 eggs

Let find out how many eggs were left inside the crate after tope’s father fried 4 eggs for Tope and his brother

Break Two.....

To find out the numbers of eggs left inside the crate after three was fried

Numbers of eggs left in the crate – numbers of eggs fried for Tope = 6 eggs – 4 eggs = 2 eggs

Break Three.....

Out of the two left, Tope boiled one to eat rice the next day, how many eggs are left in the crate.

Total number of eggs left - The boiled egg = 2 eggs – 1 egg = 1 egg

Topic: Classification and Ordering of Objects **Sub-Topic:** Identification of Colours pink, red, blue, yellow

Week: Five

Lesson: First

Story Title: The Decorated Classroom

Ó jé ojó ayeye ojò-ìbí Pọ̀òlù, olùkó ti se yàrà-ìkàwé lọ̀sọ̀ pẹ̀lú bàlúùnù aláwọ̀ àrà̀nbarà (píìnkì, pupa, aláró, pupa-yóó) kí àwọn ọ̀mọ̀dé tó nàà tó dé.]Oní ni ojò-ìbí Pọ̀òlù, ni olùkó wí, , ẹ̀ jé kí a kọ̀ orin fún un. Ní ìgbà tí wọn n kọ̀ orin ‘òní l’ojò-ìbí rẹ̀’, ìkan nínú àwọn bàlúùnù nàà bẹ̀ àwọn ọ̀mọ̀dé nàà sì pa ariwo. Olùkó bèrè lówó àwọn ọ̀mọ̀dé nàà oun tí ó sele wọn sì sọ̀ pé bàlúùnù kan ló bẹ̀. Olùkó sì bèrè pé kí ni àwọ̀ rẹ̀? Ó rú àwọn ọ̀mọ̀dé nàà lójú, ní itorí pé wọn kò mọ̀ àwọ̀ bàlúùnù nàà. Wọn sa àwọn àjákùn rẹ̀ láti fí han olùkó wọn.

The teacher replied, oh, it is a pink balloon.

So the teacher decided to name all the colours (pink, red, blue, yellow) of balloon she used for the class decoration to the children. Let join the children to name the colours.

Break one:

Teacher: Show the colour pink to the children

Children: Listen and name colour pink alongside the teacher

Teacher: show the children objects that are in pick colour such as legos, sugar paper.

Children: Watch and ask questions where necessary

Break Two:

Teacher: Show the colour red.to the children

Children: Listen and name colour red alongside the teacher

Teacher: Show the children objects that are in pick colour such as legos, sugar paper.

Children: Watch and ask questions where necessary.

Teacher: Ask the children to name things that comes in red colour

Children: Children gives answer such as flower, blood

Break Three:

Teacher: Show the colour blue to the children

Children: Listen and name colour blue alongside the teacher

Teacher: What is the colour of the sky.

Children: The sky is blue

Teacher: Ask the children to pick colour from the colour tray

Children: Pick colour blue from the colour tray

Break Four:

Teacher: Show the colour yellow to the children

Children: Listen and name colour yellow alongside the teacher

Teacher: Ask the children to pick colour yellow from the colour tray

Children: Pick colour yellow from the colour tray

Topic: Classification and Ordering of Objects
Colours (green, brown, black and white)

Sub-Topic: Identification of

Week: Five **Lesson:** Second **Story Title:** The Decorated Classroom

Olùkó tèsíwájú láti máà kó àwọn ọmọdé nàà nípa àwọn àwò. A ní àwọn àwò mǐràn tí kò sí lára àwọn àwò bàlúùnù tí mo lò láti ẹ yàrá-ìkàwé lósòó. Àwọn ọmọdé nàà bèrè nípa àwọn àwò tó kù. Olùkó nàà dáhùn pé, àwò ewé, àwò búráhùn, àwò dúdú àti àwò fúnfún ni àwọn àwọn àwò tí a ní.

È jẹ kí a darapò mó àwọn ọmọdé nàà láti kó ẹkó nípa àwọn àwò.

Break one:

Teacher: Show the colour green to the children

Children: Listen and name colour green alongside the teacher

Teacher: Ask the children to pick green colour from the colour tray

Children: Pick colour green from the colour tray

Teacher: Ask the children to name things that comes in green colour

Children: Children gives answer such Nigeria flag, grass, plants

Break Two:

Teacher: Show the colour brown to the children

Children: Listen and name colour brown alongside the teacher

Teacher: Ask the children to pick brown colour from the colour tray

Children: Pick colour brown from the colour tray

Break Three:

Teacher: Show the colour black to the children

Children: Listen and name colour black alongside the teacher

Teacher: Ask the children to pick black colour from the colour tray

Children: Pick colour black from the colour tray

Break Four:

Teacher: Show the colour white to the children

Children: Listen and name colour white alongside the teacher

Teacher: Ask the children to name things that comes in white colour

Children: Children give answer such as cotton wool, snow

Topic: Classification and Ordering of Objects **Sub-Topic:** Primary and secondary colours

Week: Five

Lesson: First

Story Title: The Sport Wears

Ilé-èkò ẹ̀ẹ̀sẹ̀ bẹ̀rẹ̀ láti máà ẹ̀ ìpín-fún-ní àwọn aṣọ eré-ìdáráyá fún àwọn akẹ́kọ̀ wọ̀n. Àwọn àwọ̀ aṣọ̀ eré-ìdáráyá náà jẹ̀ pupa, àwọ̀-ewé, àwọ̀-ọ̀sàn, àti àwọ̀ pupa yòò. Àwọn ọ̀mọ̀dé náà kò lé dárúkọ̀ méjì nínú àwọn àwọ̀ aṣọ̀ eré-ìdáráyá náà (àwọ̀ àùkò, àwọ̀ ọ̀sàn) ní ìtorí pé wọ̀n kò sí ní ara àwọn àwọ̀ tí olùkọ̀ kọ̀ wọ̀n ní ojọ̀ tó ẹ́jẹ́. Ìkan nínú wọ̀n pe àkíyèsí olùkọ̀ sí ifòkọ́já yí, ní ìgbà náà ní olùkọ̀ sọ̀ orúkọ̀ àwọn àwọ̀ náà fún un (àwọ̀ àùkò, àwọ̀ ọ̀sàn).

Break one:

Teacher: Show the colour purple to the children

Children: Listen and name colour purple alongside the teacher

Teacher: Ask the children to pick purple colour from the colour tray

Children: Pick colour purple from the colour tray.

Break Two:

Teacher: Show the colour orange to the children

Children: Listen and name colour orange alongside the teacher

Teacher: Ask the children to pick orange colour from the colour tray

Children: Pick colour orange from the colour tray.

Teacher: Further explain that red, blue and yellow are called primary colours

Children: Listen and name the colours.

Break Three:

Teacher: Call the children out to pick the primary colours from the tray

Children: Children come out to pick the primary colours from the tray

Break Four:

Teacher: Further explain that green, purple and orange are called secondary colours.

Children: Listen and name the colours alongside the teacher

Teacher: Calls the children one by one to pick secondary colours (green purple and orange) from the tray

Children: Children come out to pick the secondary colours (green purple and orange) from the tray.

Topic: Classification and Ordering of Objects **Sub-Topic:** Identification of Shapes (circle, oval and triangle)

Week: Five

Lesson: One

Story Title: The Shape Biscuits

Ní ojò kan, Ada padà wálé pèlú èsì ìdánwò-ránpé tí ó dára. Bàbá rẹ́ fún un ní owó láti rá àkàrà-òyìnbó. Ní ìgbà tí ó dé ilé-ìtajà, aláàgbé rẹ́ sọ́ fún un pé òun ní àkàrà-òyìnbó títún kan tí ó n jẹ́ àkàrà-òyìnbó oníbátàni. Ó rá á ó sì fí họn bàbá rẹ́. Ní ìgbà tí ó sì ọ́rá àkàrà-òyìnbó náà, sí iyàlenu rẹ́ ó rí oríṣíríṣi bátàni àkàrà-òyìnbó sùgbón kò lé sọ́ orúkọ́ wọn.

E jẹ́ kí a darapọ́ mọ́ Ada láti sọ́ orúkọ́ àwọn bátàni náà.

Child: Dad, why is it that we have different forms inside this pack of biscuit?

Father: The pack of biscuits contains different shapes. Her father told her the names of the shapes of the biscuit as she picks out the different shape one after the other. That shapes are called circle, oval and triangle.

Break One:

Teacher: Bring out the circle shape and showed it out to the pupils

Children: Name the circle shape alongside the teacher

Teacher: Name and draw the circle shape on the board

Children: Watch the teacher draw on the board

Teacher: Ask the children to out the circle shape from the shapes tray.

Children: Pick out the circle shape from the shapes tray.

Break Two:

Teacher: Bring out the oval shape and showed it to the pupils

Children: Name the oval shapes alongside the teacher

Teacher: Name and draw the oval shape on the board.

Children: Watch the teacher draw oval shape on the board

Children: Watch the teacher draw oval shape on the board

Teacher: Ask the children to out the oval shape from the shapes tray.

Children: Pick out the oval shape from the shapes tray.

Break Three

Teacher: Bring out the triangle shape and showed it out to the pupils

Children: Name the triangle shape alongside the teacher

Teacher: Name and draw the triangle shape on the board

Children: Watch the teacher draw triangle shape on the board

Teacher: Ask the children to out the triangle shape from the shapes tray.

Children: Pick out the triangle shape from the shapes tray.

Topic: Classification and Ordering of Objects **Sub-Topic:** Identification of Shapes
(Square and Triangle)

Week: Five **Lesson:** Second **Story Title:** The Shape Biscuits

Ní igbà tí bábá Ada n sọ orúkọ àwọn bátànì fún un, ẹni kan kan ilẹ̀kùn. Àléjò tí ó ẹ̀nà ní ó n kan ilẹ̀kùn. Bàbá rẹ̀ jùwe ọ̀nà fún un ó sì pá ilẹ̀kùn dé.

Ọ̀mọ̀dé: Baba, ẹ wo ìrísí miran.

Baba: ìrísí Onígun mērin ni wọ̀n npe

Break One:

Teacher: Bring out the rectangle shape and showed it out to the pupils

Children: Name the rectangle shape alongside the teacher

Teacher: Name and draw the rectangle shape on the board.

Children: Watch the teacher draw rectangle shape on the board

Teacher: Ask the children to out the rectangle shape from the shapes tray.

Children: Pick out the rectangle shape from the shapes tray.

Bí ó ẹ̀ se mú ìrísí bisikiti miran jáde nínú ọ̀rá, ó jẹ̀ ìrísí oníhàmērin, ó tẹ̀ ojú mọ̀ dáadáa toripe ó jọ̀ ìrísí onígun mērin tí bábá rẹ̀ sọ̀ fún.,

Ọ̀mọ̀dé: Baba, ẹ wo ìrísí onígun mērin miran.

Baba: Baba rẹ̀ pèè sì àkíyèsí wípé, kò ì ẹ̀ se ìrísí onígun merin şùgbọ̀n ìrísí Oníhàmērin.

Baba Itesiwaju, ìrísí Oníhàmérin àti Onígún méréni wá ní àwòrán àpótí sugbon wọn yàtò sí ara wọn. Ìrísí Onígún méréni ni ìhà méjì tí ó dógba nigbati ìrísí Oníhàmérin ni ìhà méréni tí ó dógba.

Break Two:

Teacher: Bring out the square shape and showed it out to the pupils

Children: Name the square shape alongside the teacher

Teacher: Name and draw the square shape on the board

Children: Watch the teacher draw square shape on the board

Teacher: Ask the children to out the square shape from the shapes tray.

Children: Pick out the square shape from the shapes tray.

Topic: Classification and Ordering of Objects **Sub-Topic:** Construction of (circle and Oval)

Week: Five

Lesson: Third

Story Title: The Play Dough

Ní ìgbà tí Ada padà dé láti ilé-èkò ní ọsán ojórú. Ó rí ẹ̀ṣù-fuláwà ní orí tábíli ní ìgbà tí ó fẹ̀ jẹ́ oúnjẹ ọsán rẹ̀.

Omode: kinni?

Ìyá: wọn máa npe ni fulawa ìṣeré.

Omode: kinni wọn fi nṣe?

Iya: ó ẹ̀ ló láti fi mọ́n ohunkóhun tí o bá fẹ́.

Ọmọdẹ: nje a lè ló láti fi mọ́n àwọ́n ìrísí tí bàbá kọ mi ni ànà?

Iya: beṣeni, a lè ẹ̀ be lẹ́yìn tí a bá jẹ́ oúnjẹ ọsán tán.

Ada, sọ fún iyá rẹ̀ kì ó kọ́ ọ̀n bí wọn tí n mọ́n àwọ́n ìrísí naa.

Iya: nje ó ẹ̀ rántí eleyi?

Ọmọdẹ: beṣeni,

Iya: a ó mọ́n ìrísí alayika àti ìrísí ọlọgbun nípa lílo àwọ́n ilà tí ó tẹ́.

Ìyá: Ada wípé, jékí a kókó mọ́n ìrísí alayika,

Let's construct the circle first said Ada's mother.

Break One:

Teacher: Teacher shows the play dough for the children to see

Children: Watch and name the play dough alongside the teacher

Teacher: Demonstrates by drawing circle shape in the air for the children to see

Children: Demonstrate by drawing circle in the air alongside the teacher

Teacher: Demonstrates how to use the play dough to construct the circle shape using curves

Children: Construct the circle using the play dough

After Ada had constructed the circle shape, her mother asks her to construct the oval shape using two elongated curves. Let join Ada to construct the oval shape.

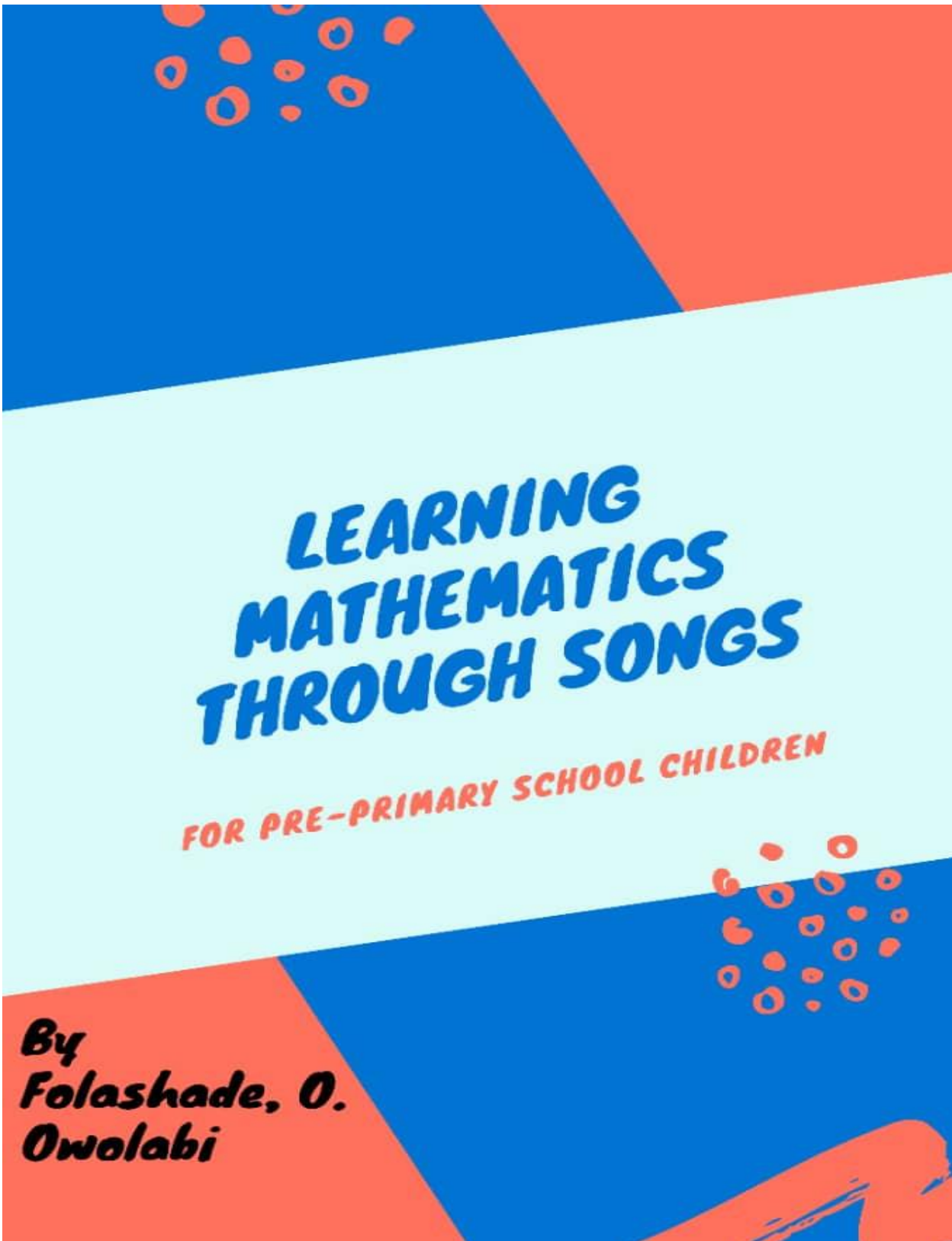
Break Two:

Teacher: Teacher cut out a portion of play dough for all the children and demonstrates by drawing oval shape in the air for the children to see.

Children: Demonstrate by drawing the oval in the air alongside the teacher

Teacher: Draw the elongated curves on the board and asks the children to construct the shape.

Children: Construct the oval using the play dough



LEARNING MATHEMATICS THROUGH SONGS

FOR PRE-PRIMARY SCHOOL CHILDREN

By
**Folashade, O.
Owolabi**

LESSON THREE

Topic: Counting of Numbers

Sub-Topic: Rhythmic Counting of Numbers 1-12

Song Title: Counting my Numbers

Ení, Eeji, Eeta - Jan se mole

Eerin, Aarun, Eefa - Patewo re

Eeje, Eejo, Eesan – Gbon ori re

Eewa, Ookanla – So di wuke

Eejila (2ce) – Oyege

Break One.....

Teacher: Teacher pause the song and ask the children are ask to count numbers 1-6,

Children: Children stop the singing and count numbers 1-6,

Break Two.....

Teacher: Teacher pause the song and ask the children are ask to count numbers 7-9

Children: Children stop the singing and count numbers 7-9

Break Three.....

Teacher: Teacher pause the song and ask the children are asked to count numbers 10-12

Children: Children stop the singing and count numbers 1-12

Teacher led the children to count the numbers 10-12.

LESSON FOUR

Topic: Counting of Numbers

Sub-Topic: Rational Counting of Numbers 1-12

Song Title: Counting my Numbers

Ení, Eeji, Eeta - Jan se mole

Eerin, Aarun, Eefa - Patewo re

Eeje, Eejo, Eesan – Gbon ori re

Eewa, Ookanla – So di wuke

Eejila (2ce) – Oyege

Break One.....

Teacher: Teacher ask the children to pick objects corresponding numbers 1-6,

Children: Children pick objects corresponding numbers 1-6,

Break Two.....

Teacher: Teacher ask the children to pick objects corresponding numbers 1-9,

Children: Children pick objects corresponding numbers 1-9,

Break Three.....

Teacher: Teacher ask the children to pick objects corresponding numbers 1-12,

Children: Children pick objects corresponding numbers 1-12,

LESSON FIVE

Topic: Counting of Numbers **Sub-Topic:** Rhythmic and Rational Counting of Numbers 1-12

Song Title: Counting my Numbers

1 2 3 Stamping my feet

4 5 6 Clapping my hands

7 8 9 Nodding my head

10 11 12 Let us turn around

Break One.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-6,

Children: Children stop singing and pick objects corresponding numbers 1-6,

Break Two.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-9,

Children: Children stop singing and pick objects corresponding numbers 1-9,

Break Three.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-12

Children: Children stop singing and pick objects corresponding numbers 1-12

LESSON SIX

Topic: Counting of Numbers **Sub-Topic:** Rhythmic Counting of Numbers up to 25

Song Title: Counting my Numbers

Eetala,- Jan se mole

Eerinla - Patewo re

Eedogun – Gbon ori re
Eerindinlogun – So di wuke
Eetadinlogun,- Jan se mole
Eejidinlogun - Patewo re
Ookandinlogun – Gbon ori re
Ogun – Oyege

Break One.....

Teacher: Pause the song and ask the children to count numbers 1 - 15 for the children

Children: Children pause the song and count numbers 1 -15,

Break Two.....

Teacher: Pause the song and ask the children to count numbers 1- 18 for the children

Children: Children pause the song and count numbers 1 -18

Break Three.....

Teacher: Pause the song and ask the children to count numbers 1 -20 for the children

Children: Children pause the song and count numbers 1 -20

Teacher led the children to count the numbers 1-20.

LESSON SEVEN

Topic: Counting of Numbers

Sub-Topic: Rational Counting of Numbers up to 25

Song Title: Counting my Numbers

Eetala,- Jan se mole
Eerinla - Patewo re
Eedogun – Gbon ori re
Eerindinlogun – So di wuke
Eetadinlogun,- Jan se mole
Eejidinlogun - Patewo re
Ookandinlogun – Gbon ori re

Break One.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-15,

Children: Children stop singing and pick objects corresponding numbers 1-15,

Break Two.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-18

Children: Children stop singing and pick objects corresponding numbers 1-18

Break Three.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-20

Children: Children stop singing and pick objects corresponding numbers 1-20

LESSON EIGHT

Topic: Counting of Numbers

Sub-Topic: Rhythmic and Rational Counting of 1-25

Song Title: Counting my Numbers

1 2 3 Stamping my feet

4 5 6 Clapping my hands

7 8 9 Nodding my head

10 11 12 Let us turn around

13, 14, 15, Stamping my feet

16, 17,18, clapping my hands

19, 20, 21, Nodding my head

22, 23, Let us turn around

24, 25 oh oh, oh oh

Break One.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-15,

Children: Children stop singing and pick objects corresponding numbers 1-18,

Break Two.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-21

Children: Children stop singing and pick objects corresponding numbers 1-21

Break Three.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-25

Children: Children stop singing and pick objects corresponding numbers 1-25

LESSON NINE

Topic: Numerals and Counting **Sub-topic:** Counting of Numbers 26-50

Song Title: Counting my Numbers

26, 27, Stamping my feet

28, 29, Clapping my hands

30, 31, Nodding my head

32, 33 Let us turn around

34, 35, Stamping my feet

36, 37 Clapping my hands

38, 39, Nodding my head

40,41, Let us turn around

42, 43, Stamping my feet

44, 45, Clapping my hands

45, 46, Nodding my head

47,48, Let us turn around

49, 50 Oh oh, oh oh

Break One.....

Teacher: Pause the song and ask the children to count numbers 1 - 32 for the children

Children: Children pause the song and count numbers 1 -32

Break Two.....

Teacher: Pause the song and ask the children to count numbers 1- 40 for the children

Children: Children pause the song and count numbers 1 -40

Break Three.....

Teacher: Pause the song and ask the children to count numbers 1 -50 for the children

Children: Children pause the song and count numbers 1 -50

Teacher led the children to count the numbers 1-50.

LESSON TEN

Topic: Counting of Numbers

Sub-Topic: Rational Counting of Numbers up to 50

Song Title: Counting my Numbers

Break One.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-32,

Children: Children stop singing and pick objects corresponding numbers 1-32

Break Two.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-40

Children: Children stop singing and pick objects corresponding numbers 1-40

Break Three.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-50

Children: Children stop singing and pick objects corresponding numbers 1-50

Teacher led the children to count the numbers 1-50.

LESSON ELEVEN

Topic: Counting of Numbers **Sub-Topic:** Rhythmic and Rational Counting of Numbers 1-50

Song Title: Counting my Numbers

Break One.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-32,

Children: Children stop singing and pick objects corresponding numbers 1-32

Break Two.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-40

Children: Children stop singing and pick objects corresponding numbers 1-40

Break Three.....

Teacher: Teacher pause the song and ask the children to pick objects corresponding numbers 1-50

Children: Children stop singing and pick objects corresponding numbers 1-50

Teacher led the children to count the numbers 1-50.

LESSON TWELVE

Topic: Writing of Number 1-10

Sub-Topic: Writing Patterns

Song Title: Anytime I want to write the numbers/ Nómbà àti kika onka

Nígbàkúùgbà (nígbàkigbà) tí mo bá fẹ kọ onka mi,

ohun tí mo máa nṣe niyi

ohun tí mo máa nṣe

Mo máa nlo ìlà tó dabu, ìlà tó dúró (naro), ìlà ti o tẹ àti ìlà tí ó d'egbe

ìlà tó dabu, ìlà tó dúró (naro), ìlà ti o tẹ àti ìlà tí ó d'egbe

Awon yìi ni ona lati ko àwọnonka

Ila tó dabu, ìlà tó dúró (naro), ìlà tí ó tẹ àti ìlà tí ó d'egbe/2x

Awon yìi ni ona lati ko àwọn onka

Activity 1: Children are asked to write the stroke pattern in the air and sand tray.

Activity 2: Children are asked to write the slant pattern in the air and sand plate.

Activity 3: Children are asked to write the dash pattern in the air and sand plate.

Activity 4: Children are asked to write the backward curve pattern in the air and sand plate.

Activity 5: Children are asked to write the forward curve in the air and sand plate.

LESSON THIRTEEN

Sub-Topic: Writing Number up to 10

Sub-topic: Writing of 1-5

Song Title: Any time I want to write the numbers

Ila tí ó duro(naro) lati kọ onka ookan

Ila tí ó tẹ àti èyí to dabu fún onka eeji

Ila tí ó tẹ àti ìlà ti o tẹ fún ẹta

Awon yi ni ona lati ko awon onka

Ila tí ó d'egbe, èyí tí o dabu ati eyi ti o dúró(naro) fún ẹrin

Ila tí ó dabu, èyí tí ó duro (naro) àti ìlà ti o tẹ fun aarun

Awon yi ni ona lati ko awon onka
Maṣe gbàgbé ọna láti kó àwọn onka

Activity 1

Teacher: Children are asked to write number one in the air and sand plate.

Children: Children write number one by writing stroke in the air and sand plate.

Activity 2

Teacher: Children are asked to write number two in the air and sand plate.

Children: Children write number two by writing backward curve and joining the dash to it in the air and sand plate.

Activity 3

Teacher: Children are asked to write number three in the air and sand plate.

Children: Children write number three by writing backward curve and joining it with another backward curve in the air and sand plate.

Activity 4

Teacher: Children are asked to write number four in the air and sand plate.

Children: Children write number four by writing the slant first, joining the dash below it and crossing the dash with a stroke in the air and sand plate.

Activity 5

Teacher: Children are asked to write number five in the air and sand plate

Children: Children write number five by writing dash, joining it with a stroke and backward curve to it in the air and sand plate.

LESSON FOURTEEN

Topic: Writing of Number

Sub-Topic: Writing Number up to 10

Song Title: Any time I want to write the numbers

Ila tí ó tẹ kan ara pajude(ìlà olobiripo) àti ìlà tí ó tẹ kékeré láti kọ ẹẹfa

láti kọ ẹẹfa

Ila tí ó dabu àti èyí tí ó d' egbe láti kó eeje

Ila merin tí ó teláti kó onka ẹẹjo

Awon yi ni ona lati ko awon onka

Ila tí ó tẹ àti èyí tí ó d'egbe lati kọ ẹẹsan

Eyi ni ma se lati ko onka ewa

Èyí ni lati ɛ fún ẹẹwa

Kọ ilà tí ó duro (naro) fun oókan, lo ilà tí ó tẹ kan ara won (olobiripo) láti kọ oodo

Maɛ gbàgbé ona láti kọ àwọn onka (2x)

Break One.....

Teacher: Children are asked to write number 6 in the air and sand plate.

Children: Children write number 6 writing a big forward curve and jointing it with a small in the air and sand plate.

Break Two.....

Teacher: Children are asked to write number 7 in the air and sand plate.

Children: Children write number 7 by writing the dash and joining the slant to it in the air and sand plate.

Break Three.....

Teacher: Children are asked to write number 8 in the air and sand plate.

Children: Children write number 8 by writing a curve facing forward, join with a curve facing backward and join with a curve facing forward and another curve facing backward in the air.

Break Four.....

Teacher: Children are asked to write number 9 in the air and sand plate.

Children: Children write number 9 by writing the curve and joining the stroke to it in the air and sand plate.

Break Five.....

Teacher: Children are asked to write number 10 in the air and sand plate.

Children: Children write number 10 by writing the stroke separately as number one and then write the backward curve and join the forward curve to write zero in the air and sand plate.

LESSON FIFTEEN

Topic: Numerals and Counting

Sub-topic: Addition of Numbers between 1-10

Song Title: Yíí sínú àwọn

Yoruba Version	English Version
Yíí, Yíí ,Yíí sínú àwọn	Roll it roll it straight into the court
Mo yí bọọlu mi lọ sínú àwọn	I will roll my ball straight into the court

Mo yí ni aláṣókókó mo ni oókan bọṣu	I roll the first time I have one
Mo yí ọkan si mo ni oókan, eeji bọṣu	I roll another one I have, 1, 2 balls
Mo yí bọṣu mi lọ sínú àwòn	I will roll my ball straight into the court
Mo yí méjì si mo ni oókan, eeji, ẹta, ẹrin, bọṣu	I roll another two I have, 1, 2, 3, 4 balls
Mo yí bọṣu mi lọ sínú àwòn	I will roll my ball straight into the court
Mo yí méjì si mo ni oókan, eeji, ẹta, ẹrin, arun, mefa, eeje, bọṣu	I roll another three I have, 1, 2, 3, 4, 5, 6, 7, balls
Mo yí bọṣu mi lọ sínú àwòn	

Break One.....

Teacher: Demonstrate how the ball becomes two by rolling another one ball.

Children: Children watch and listen to the teacher.

Teacher: Ask the children to count the number of balls that are in the court together.

Children: Children count the number of balls that are in the court (1,2, balls) together.

Break Two.....

The teacher sings the songs again (while additional two balls will be added). Teacher calls out a child to roll additional two balls into the courts.

Children: A child goes out from the sit, to roll additional two balls into the court.

Teacher: Ask the children to counts all the balls in court together.

Children: Children count all the balls in court together (1, 2, 3, 4, balls).

The teacher and children continue singing the song while carrying out the mathematical activities

Break Three.....

The teacher sings the songs again (while additional three balls will be added). Teacher calls out a child to roll additional three balls into the courts.

Children: A child goes out from the sit, to roll additional two balls into the court.

Teacher: Ask the children to counts all the balls in court together.

Children: Children count all the balls in court together (1, 2, 3, 4, 5, 6, 7 balls).

Break Four.....

Teacher: Pick two numbers ($3 + 2 = \dots$) and ask the children to count objects corresponding to each number and add them together.

Children: Children count objects corresponding to each number given by the teacher and add them together $3 + 2 = 5$)

Break Five.....

Teacher: Pick two numbers ($4 + 3 = \dots$) and ask the children to count objects corresponding to each number and add them together.

Children: Children count objects corresponding to each number given by the teacher and add them together $4 + 3 = 7$)

LESSON FIFTEEN

Topic: Numerals and Counting

Sub-topic: Addition of Numbers between 11-20

Song Title: Yíí sínú àwòn

Yoruba Version	English Version
Yíí, Yíí ,Yíí sínú àwòn	Roll it roll it straight into the court
Mo yí bọ̀ḣlu mi lọ sínú àwòn	I will roll my ball straight into the court
Mo yí merin sì	I roll another four
Mo ní ookan, eeji, ẹ̀ṣta, eerin, aarun, ẹ̀ṣfa, eeje, ẹ̀ṣjo, ẹ̀ṣsan, ẹ̀ṣwà, oḣkanla bọ̀ḣlu	I have, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 balls
Mo yí bọ̀ḣlu mi lọ sínú àwòn	I roll another four
Mo yí merin sì mo ní ookan, eeji, ẹ̀ṣta, eerin, aarun, ẹ̀ṣfa, eeje, ẹ̀ṣjo, ẹ̀ṣsan, ẹ̀ṣwà, oḣkanla, ẹ̀ṣjila, ẹ̀ṣtala, ẹ̀ṣrinla, ẹ̀ṣdogun bọ̀ḣlu	I have, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 balls
Mo yí aarun sì mo ní ookan, eeji, ẹ̀ṣta, eerin, aarun, ẹ̀ṣfa, eeje, ẹ̀ṣjo, ẹ̀ṣsan, ẹ̀ṣwà, oḣkanla, ẹ̀ṣjila, ẹ̀ṣtala, ẹ̀ṣrinla, ẹ̀ṣdogun bọ̀ḣlu	I will roll my ball straight into the court.
Mo yí bọ̀ḣlu mi lọ sínú àwòn	I roll another four
	I have, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 balls
	I will roll my ball straight into the court

Note: Mathematics activities will continue from last class which is adding up of numbers to seven

Break One.....

The teacher continues the songs (while additional four balls will be added to the seven balls in the court). Teacher calls out a child to roll additional two balls into the courts.

Children: A child goes out from the sit, to roll additional four balls into the court.

Teacher: Ask the children to counts all the balls in court together.

Children: Children count all the balls in court together (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11) balls.

Break Two.....

The teacher continues the songs (while additional three balls will be added to the 11) balls in the court). Teacher calls out a child to roll additional 3 balls into the courts.

Children: A child goes out from the sit, to roll additional 4 balls into the court.

Teacher: Ask the children to counts all the balls in court together.

Children: Count all the balls in court together (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14) balls.

Break Three.....

The teacher continues the songs (while additional four balls will be added to the fourteen balls in the court). Teacher calls out a child to roll additional four balls into the courts.

Children: A child goes out from the sit, to roll additional four balls into the court.

Teacher: Ask the children to counts all the balls in court together.

Children: Children count all the balls in court together (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18 balls).

Break Four

Teacher: Pick two numbers ($7 + 8 = \dots$) and ask the children to count objects corresponding to each number and add them together.

Children: Children count objects corresponding to each number given by the teacher and add them together ($7 + 7 = 14$)

Break Five.....

Teacher: Pick two numbers ($8 + 9 = \dots$) and ask the children to count objects corresponding to each number and add them together.

Children: Children count objects corresponding to each number given by the teacher and add them together ($8 + 9 = 17$)

LESSON SIXTEEN

Topic: Numerals and Counting

Sub-topic: Addition of Numbers between 1-20

Song Title: Roll it, straight into the court

Break One

Teacher: Pick two numbers ($8 + 8 = \dots$) and ask the children to count objects corresponding to each number and add them together.

Children: Children count objects corresponding to each number given by the teacher and add them together $8 + 8 = 16$)

Break Two.....

Teacher: Pick two numbers ($10 + 9 = \dots$) and ask the children to count objects corresponding to each number and add them together.

Children: Children count objects corresponding to each number given by the teacher and add them together $10 + 9 = 19$)

Break Three.....

Teacher: Pick two numbers ($10 + 10 = \dots$) and ask the children to count objects corresponding to each number and add them together.

Children: Children count objects corresponding to each number given by the teacher and add them together $10 + 10 = 20$)

LESSON SEVENTEEN

Topic: Numerals and Counting

Sub-topic: Subtraction of Numbers less than 10

Song Title: Standing and blending

Instruction for the mathematics Activities

Teacher: Gives the instruction to children to form a circle and also assign numbers to children that will bend down, when the song is raised and the number of children that bend down is called. .

Children: Follow the teacher instruction by forming a circle, assign number to themselves and bend down when the song is raised and the number of children to bend down is called.

Àwọ̀n ọ̀mọ̀ méjì dúró ọ̀kan bèrẹ̀ larin wọ̀n, àwọ̀n ọ̀mọ̀ melo loku tó dúró? Ó kú eni, ọ̀mọ̀ ẹ̀yọ̀kan loku tó dúró ($2 - 1 = 1$).

Break One.....

Teacher: Ask two children to form a circle, raise the song while calling the number of children (1) that bent down.

Children: Two children form a circle while 1 child bent down when the teacher called the number of children that bent down

Teacher: Ask the children to count the number of children that was standing after on bent down

Children: Count the number of children (1) that was left standing.

Àwọn ọmọ méta dúró méjì bèrè larin wọn, àwọn ọmọ melo loku tó dúró? Ó kú eni, ọmọ ẹyòkan loku tó dúró ($3 - 2 = 1$)

Break Two.....

Teacher: Ask (3) children to form a circle, raise the song while calling the number of children (2) that bent down.

Children: 3 children form a circle while 2 children bent down when the teacher called the number of children that bent down

Teacher: Ask the children to count the number of children that was standing after 2 children bent down

Children: Count the number of children that was standing after 2 children bent down

Àwọn ọmọ márùn-ún dúró, ọkan bere larin wọn, àwọn ọmọ melo loku tó dúró? Ó kú eni, èjì, èta, ẹrin, àwọn ọmọ méréin loku tó dúró ($5 - 1 = 4$)

Break Three.....

Teacher: Ask (5) children to form a circle, raise the song while calling the number of children (1) that bent down.

Children: 5 children form a circle while 1 child bent down when the teacher called the number of children that bent down

Teacher: Ask the children to count the number of children that was standing after 1 child bent down

Children: Count the number of children that was standing after 1 child bent down

Àwọn ọmọ méje dúró, méréin bèrè larin wọn, àwọn ọmọ melo loku tó dúró? Ó kú eni, èjì, èta. Àwọn ọmọ méta loku tó duro ($7 - 4 = 3$)

Break Four.....

Teacher: Ask (7) children to form a circle, raise the song while calling the number of children (4) that bent down.

Children: 7 children form a circle while 4 children bent down when the teacher called the number of children that bent down

Teacher: Ask the children to count the number of children that was standing after 4 children bent down

Children: Count the number of children that was standing after 4 children bent down.

LESSON EIGHTEEN

Topic: Numerals and Counting

Sub-topic: Subtraction of Numbers less than 15

Story Title:

Àwọn ọmọ mèjọ dúró màrun bèrè larin wọn, àwọn ọmọ melo loku tó dúró? Ó kú eni, èjì, èta, àwọn ọmọ mēta loku tó dúró. ($8 - 5 = 3$)

Break One.....

Teacher: Ask 8 children to form a circle, raise the song while calling the number of children (5) that bent down.

Children: 8 children form a circle while 5 children bent down when the teacher called the number of children that bent down

Teacher: Ask the children to count the number of children that was standing after 5 bent down

Children: Count the number of children that was left standing after 5 bent down which equals 3

Àwọn ọmọ mēwa dúró mēfà bèrè larin wọn, àwọn ọmọ melo loku tó dúró? Ó kú eni, èjì, èta, ẹrin, àwọn ọmọ merin loku tó dúró ($10 - 6 = 4$)

Break Two.....

Teacher: Ask (10) children to form a circle, raise the song while calling the number of children (6) that bent down.

Children: 10 children form a circle while 6 children bent down when the teacher called the number of children that bent down

Teacher: Ask the children to count the number of children that was standing after 6 children bent down

Children: Count the number of children that was standing after 6 children bent down which equal 4

Àwọn ọmọ méjilá dúró, méje bere larin wọn, àwọn ọmọ melo loku tó dúró? Ó kú eni, èjì, èta, ẹrin, àrùn, àwọn ọmọ marun loku tó dúró. ($12 - 7 = 4$)

Break Three.....

Teacher: Ask (12) children to form a circle, raise the song while calling the number of children (7) that bent down.

Children: 12 children form a circle while 7 children bent down when the teacher called the number of children that bent down

Teacher: Ask the children to count the number of children that was standing after 7 children bent down

Children: Count the number of children that was standing after 7 children bent down which equal 4

Àwọn ọmọ méèdógún dúró, mewa bèrè larin wọn, àwọn ọmọ melo loku tó dúró? Ó kú eni, èjì, eta, erin, arun. Àwọn ọmọ marun loku tó duro ($15 - 10 = 5$)

Break Four.....

Teacher: Ask (15) children to form a circle, raise the song while calling the number of children (10) that bent down.

Children: 15 children form a circle while 10 children bent down when the teacher called the number of children that bent down

Teacher: Ask the children to count the number of children that was standing after 10 children bent down

Children: Count the number of children that was standing after 4 children bent down which equal 5

LESSON NINETEEN

Topic: Numerals and Counting

Sub-topic: Subtraction of Numbers 1- 20

Story Title: 10 children blowing balloons

Àwọn ọmọ métàlá dúró méje bèrè larin wọn, àwọn ọmọ melo loku tó dúró? Ó kú eni, èjì, èta, erin, àrùn, èfà, àwọn ọmọ méfà loku tó dúró ($13 - 7 = 6$)

Break One.....

Teacher: Ask 13 children to form a circle, raise the song while calling the number of children (6) that bent down.

Children: 13 children form a circle while 7 children bent down when the teacher called the number of children that bent down

Teacher: Ask the children to count the number of children that was standing after 7 bent down

Children: Count the number of children that was left standing after 7 bent down which equals 6

Àwọn ọmọ merindínlógún dúró mètò bẹ̀rẹ̀ larin wọn, àwọn ọmọ melo loku tó dúró? Ó kú eni, èjì, èta, erin, àrùn, èfà, èje, èjọ, àwọn ọmọ mètò loku tó dúró ($16 - 8 = 8$)

Break Two.....

Teacher: Ask (16) children to form a circle, raise the song while calling the number of children (8) that bent down.

Children: 16 children form a circle while 8 children bent down when the teacher called the number of children that bent down

Teacher: Ask the children to count the number of children that was standing after 8 children bent down

Children: Count the number of children that was standing after 8 children bent down which equal 8

Break Three.....

Àwọn ọmọ mètadínlógún dúró, mēsan bere larin wọn, àwọn ọmọ melo loku tó dúró? Ó kú eni, èjì, èta, erin, àrùn, èfà, èje, èjọ, àwọn ọmọ mètò loku tó dúró ($17 - 9 = 8$)

Teacher: Ask (17) children to form a circle, raise the song while calling the number of children (9) that bent down.

Children: 17 children form a circle while 9 children bent down when the teacher called the number of children that bent down

Teacher: Ask the children to count the number of children that was standing after 9 children bent down

Children: Count the number of children that was standing after 9 children bent down which equal 8

Ògún ọmọ dúró, mēwa bẹ̀rẹ̀ larin wọn, àwọn ọmọ melo loku tó dúró? Ó kú eni, èjì, èta, erin, àrùn, èfà, èje, èjọ, èsán, èwá. Àwọn ọmọ mēwa loku tó duro ($20 - 10 = 10$)

Break Four.....

Teacher: Ask (20) children to form a circle, raise the song while calling the number of children (10) that bent down.

Children: 20 children form a circle while 10 children bent down when the teacher called the number of children that bent down

Teacher: Ask the children to count the number of children that was standing after 10 children bent down

Children: Count the number of children that was standing after 4 children bent down which equal 10.

LESSON NINETEEN

Topic: Classification and Ordering of Objects **Sub-Topic:** Identification of Colours
(Red, blue yellow black and white)

Song Title: Awọ wá káàkiri

Awọ wá káàkiri

Tí ó bá wo àyíká rẹ wà rii

Wọn rẹwà pupọ mo sì nifẹ gbogbo wọn

Awọ wá káàkiri tí mo mọ

Pupa, bulu, ofeefee, dúdú àti funfun 3ce

Break One

Teacher: Bring out the colour red and showed it out to the children

Children: Name the colour red alongside with the teacher

Teacher: Ask the children to sing the song again while holding the colour red in their hands

Children: Children sing the song again while holding the colour red in their hands.

Teacher: Teacher mixes the colours together in the tray and ask children to pick out colour red

Children: Children pick out the colour red

Break Two:

Teacher: Bring out the colour blue and showed it out to the children

Children: Name the colour blue alongside with the teacher

Teacher: Ask the children to sing the song again while holding the colour blue in their hands

Children: Children sing the song again while holding the colour blue in their hands.

Teacher: Mixes the colours together in the tray and ask the children to pick out colour blue

Children: Children pick out the colour blue

Break Three:

Teacher: Bring out the colour yellow and showed it out to the children

Children: Children pick out the colour yellow

Teacher: Tell the children to repeat the song while holding the colour yellow in their hands

Children: Children sing the song again while holding the colour yellow in their hands.

Teacher: Mixes colours together in the tray and ask the children to pick out colour yellow.

Children: Children pick out the colour yellow from the colour tray

Break Four:

Teacher: Bring out the colour black and showed it out to the children

Children: Name the colour black alongside with the teacher

Teacher: Ask the children to repeat the song while holding the colour black in their hands

Children: Children sing the song again while holding the colour black in their hands

Teacher: Mixes the colours together in the tray and ask the children to pick out colour black

Children: Children pick out the colour black

Break Five:

Teacher: Bring out the colour white and showed it out to the children

Children: Name the colour white alongside with the teacher

Teacher: Asks children to sing the song again while holding the colour white in their hands.

Children: Children sing the song again while holding the colour white in their hands.

Teacher: Teacher mixes colours together in the tray and ask children to pick out white colour

Children: Children pick out the colour white

LESSON TEWENTY

Topic: Classification and Ordering of Objects **Sub-Topic:** Identification of colours
(orange, purple, green and brown)

Song Title: Awọ wá káàkiri

Awọ wá káàkiri

Tí ó bá wo àyíká rẹ wà rii

Wọn rẹwà pupọ mo sì nifẹ gbogbo wọn

Awọ wá káàkiri tí mo mọ

Olómi ọsan, ọpọ, aláwò èwe àti burahun

Awọ wá káàkiri tí mo mọ

Break One:

Teacher: Bring out the colour orange and showed it out to the children

Children: Name the colour orange alongside with the teacher

Teacher: Ask the children to sing while holding the colour orange in their hands

Children: Sing the song again while holding the colour orange in their hands

Teacher: Mixes all colours together in the tray and ask the children to pick out colour orange

Children: Children pick out the colour orange

Break Two:

Teacher: Bring out the colour purple and showed it out to the children

Children: Name the colour purple alongside with the teacher

Teacher: Ask children to sing the song again while holding the colour purple in their hands

Children: Children sing the song again while holding the colour purple in their hands

Teacher: Teacher mixes the colours together and ask the children to pick out colour purple

Children: Children pick out the colour purple

Break Three:

Teacher: Bring out the colour green and showed it out to the children

Children: Name the colour green alongside with the teacher

Teacher: Ask the children to sing the song again while holding the colour green in their hands

Children: Children sing the song again while holding the colour green in their hands

Teacher: Mixes the colours together and ask the children to pick out colour green

Children: Children pick out the colour green.

Break Four:

Teacher: Bring out the colour brown and showed it out to the children

Children: Name the colour brown alongside with the teacher

Teacher: Ask the children to repeat the song while holding the colour brown in their hands

Children: Children sing the song again while holding the colour brown in their hands

Teacher: Mixes the colours together in the tray and ask the children to pick out colour brown

Children: Children pick out the colour brown

LESSON TWENTY-ONE

Topic: Classification and Ordering of Objects **Sub-Topic:** Primary and secondary colours

Song Title: Awọ wá káàkiri

Awọ wá káàkiri

Tí ó bá wo àyíká rẹ wà rii

Wọn rẹwà pupọ mo sì nifẹ gbogbo wọn

Awọ wá káàkiri tí mo mọ

Àwọn awọ ipele kinni ni ofeefee, Pupa àti búlúù 3x

Awọ wá káàkiri tí mo mọ

Olomi ọsan, ọpọ, alawo èwe je ti ipele keji 2x

Awọ wá káàkiri tí mo mọ

Break one:

Teacher: Bring out the primary colours (red, blue, yellow) and showed it out to the children

Children: Name the primary colours (red, blue, yellow) alongside with the teacher

Teacher: Ask the children to sing the song again while holding the primary colours (red, blue, yellow) in their hands

Children: Children sing the song again while holding the primary colours (red, blue, yellow) in their hands

Teacher: Teacher put different colours together and instructs the children to making selection of the following primary colours (red, blue, yellow)

Children: Children pick out the primary colours (red, blue, yellow)

Break Two

Teacher: Show the children the secondary the colours (orange green and purple).

Children: Name the secondary colours (orange green and purple) alongside with the teacher

Teacher: Ask the children to sing the song again while holding the secondary colours (orange green and purple)

Children: Children sing the song again while holding the secondary colours (orange green and purple) in their hands

Teacher: Teacher mixes the colours together and asks the children to selects the secondary colours (orange green and purple)

Children: Children pick out the secondary colours (orange green and purple).

LESSON TWENTY-TWO

Topic: Classification and Ordering of Objects **Sub-Topic:** Identification of (Circle, Oval and Triangle)

Song Title: Ní àyíká mi ni ìrísí wa

Ní àyíká mi ni ìrísí wa

Mo lè sọ tí mo bá rí wọ̀n

Ìrísí àyíká (olobiripo) dá bí alfabeto O

Break One:

Teacher: Bring out the circle shape and showed it to the children

Children: Name the circle shape alongside the teacher

Teacher: Draw the circle shape in the air while singing the shape song.

Children: Join the teacher to draw the shape in the air while singing the shape song.

Teacher: Teacher mixes shapes together and asks the children to pick out circle

Children: Children pick out the circle from the shape tray.

Ní àyíká mi ni ìrísí wa

Mo lè sọ tí mo bá rí wọ̀n

Irisi ọ̀lọgbun dá bí ẹyin ti mo máa nje (2ce)

Break Two:

Teacher: Bring out the oval shape and showed it to the children

Children: Name the oval shape alongside the teacher

Teacher: Draw the oval shape in the air while singing the shape song.

Children: Join the teacher to draw the oval shape in the air while singing the shape song.

Teacher: Teacher mixes shapes together and asks the children to pick out circle

Children: Children pick out the circle from the shape tray.

Ní àyíká mi ni ìrísí wa

Mo lè sọ tí mo bá rí wọ̀n

Ìrísí onígún mẹ̀ta dá bí igi Kérésìmesì (keresi)

Break Two:

Teacher: Bring out the triangle shape and showed it to the children

Children: Name the oval shape alongside the teacher

Teacher: Draw the oval triangle in the air while singing the shape song.

Children: Join the teacher to draw the triangle shape in the air while singing the shape song.

Teacher: Mixes the shapes together and asks the children to pick out triangle

Children: Children pick out the triangle from the shape tray.

LESSON TWENTY-THREE

Topic: Classification and Ordering of Objects **Sub-Topic:** Recognizing the Shapes
(Rectangle and square)

Ní àyíká mi ni ìrísí wa

Mo lè sọ tí mo bá rí wọ̀n

Ìrísí onígún mẹ̀rin dá bí ilẹ̀kun ,,,,lie (2ce)

Break One:

Teacher: Bring out the rectangle shape and showed it to the children.

Children: Name the circle shape alongside the teacher.

Teacher: Draw the rectangle shape in the air while singing the shape song.

Children: Draw rectangle shape in the air while singing the shape song alongside the teacher.

Teacher: Mixes the shapes together, and then asks the children to select the rectangle shapes.

Children: Children pick out the circle from the shape tray.

Ní àyíká mi ni ìrísí wa

Mo lè sọ tí mo bá rí wọ̀n

Ìrísí onihamerin dá bí daisi tí mo nta

Break Two:

Teacher: Bring out the square shape and showed it to the children

Children: Name the square shape alongside the teacher

Teacher: Draw the square shape in the air while singing the shape song.

Children: Join the teacher to draw the square shape in the air while singing the shape song.

Teacher: Teacher mixes the shapes together, and instructs the children to choose the square shape.

Children: Children pick out the square from the shape tray.

LESSON TWENTY-FOUR

Topic: Classification and Ordering of Objects **Sub-Topic:** Identification of Triangle Shapes

Song Title: Ní àyíká mi ni ìrísí wa

Ní àyíká mi ni ìrísí wa

Mo lè sọ tí mo bá rí wọ̀n

Ìrísí onígún mọ̀ta dá bí igi Kérésìmesì (keresi)

Break One

Teacher: Bring out the shape and showed it out to the children

Children: Name the triangle shape alongside with the teacher

Teacher: Mixes the shapes together and ask children to pick out triangle shape.

Children: Children pick out the triangle shape

Teacher: Ask children to sing the song again while holding the triangle shape in their hands.

Children: Children sing the song again while holding the triangle shape in their hands.

LESSON TWENTY-FIVE

Topic: Classification and Ordering of Objects **Sub-Topic:** Construction of (circle and Oval)

Song Title: I can draw the shapes anytime

ÌRÍSÍ ỌLỌGBUN

Mo lè yà ìrísí ọ̀lọ̀gbun

Nípa lílọ̀ ìlà tí ó gùn, tí ó tẹ̀ mejì

So ìlà tí ó tẹ̀ níwájú mo ti tí ẹ̀yin

Ohun tí mo ní láti ẹ̀ nìyẹn.

Ìrísí ọ̀lọ̀gbun

Break One:

Teacher: Teacher gives each of the children a sand plate

Children: Collect the sand tray from the teacher

Teacher: Draw circle shape in the sand plate

Children: Draw circle in the sand plate

Teacher: Pause the song and demonstrates how to use the play dough to construct the circle shape using curves

Children: Watch the teacher demonstration and also construct the circle using the play dough

ÌRÍSÍ OLOBIRIPO

Mo lè yà ìrísí olobiripo nígbàkigbà

Nípa lílo ìlà méjì tí ó tẹ

So ìlà tí ó tẹ níwájú mo tí tí ẹyin

Ohun tí mo ní láti ẹ nìyẹn.

Ìrísí olobiripo

Teacher: Teacher gives each of the children a sand plate

Children: Collect the sand tray from the teacher

Teacher: Draw oval shape in the sand plate

Children: Draw oval in the sand plate

Teacher: Pause the song and demonstrates how to use the play dough to construct the oval shape using curves.

Children: Watch the teacher demonstration and also construct oval shape using the play dough.

Photo Gallery



Take away through activity



Children learning the lyrics of the song



Children listening to story



Children listening to story



Collection of post-field



Sorting the colours



During pre-field data collection



During the post-field administration



Children counting the numbers



Children performing the addition song