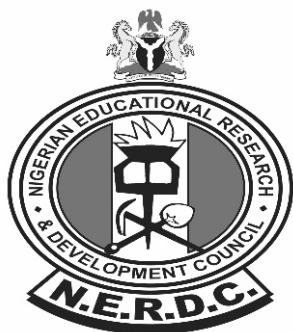




FEDERAL MINISTRY OF EDUCATION

**Accelerated Basic Education Curriculum
Mathematics
(Level 2: Stage 1 - 3)**



NIGERIAN EDUCATIONAL RESEARCH AND DEVELOPMENT COUNCIL (NERDC)

ACCELERATED BASIC EDUCATION CURRICULUM (MATHEMATICS)

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Foreword

One of the targets set out by the Federal Government of Nigeria under the current dispensation is the eradication of the menace of out-of-school children that has bedeviled the country since the past three decades. This target area of concern formed one of the 10 pillars of the Ministerial Strategic Plan (2016 -2019) which have metamorphosed into the Ministerial Strategic Plan (2018 -2022). The effort asserted in this direction, is in line with the Constitution of the Federal Republic of Nigeria, which recognizes education as a fundamental right of every child, irrespective of ethnic background, social-economic status, religious affiliation and family background.

One of our turnaround strategies, as outlined in the Ministerial Strategic Plan, is to create opportunities for the education of all children and youths, who for one reason or the other, are out of school. These children, who are found in many parts of Nigeria, constitute about 5% of the world's population of Out-of-School children.

The turnaround strategies were based on identified gaps and challenges in the education sector. One obvious gap identified was the lack of well-thought educational programmes that specifically addresses the peculiarities of overage children who are not in school. The Accelerated Basic Education Programme (ABEP) is therefore a step taken towards filling the identified gap. Aside from addressing our domestic situation, the programme is in line with global best practices.

The specific goal of the Programme is to mop-up (or reduce to the barest minimum) and bring back to school the large number of overage and out-of-school children who are disadvantaged, marginalized and affected by crises,

disasters or other socio-economic factors.

I am therefore pleased to note that the Nigerian Educational Research and Development Council (NERDC) has taken this step towards the provision of the curriculum to drive the AEP programme. I congratulate NERDC and her partners for successfully completing the development of the Accelerated Basic Education Curriculum for the Implementation of the Accelerated Basic Education Programme in Nigeria. I wish to particularly thank Plan International and Save the Children International for supporting the development of the curriculum under the European Union funded project: The EU Response, Early Recovery and Resilience in Borno State: Education Component. I also acknowledge the contributions of all experts who worked hard in the development of the curriculum. The curriculum is flexible and provides learning options and pathways for learners.

It is therefore my pleasure to present the curricula to all Nigerians and our foreign partners for the education of out-of-school children under the accelerated education programme.

My utmost hope is that the effective use of the curricula will bring about our desired aim of providing quality basic education to all Nigerian children irrespective of the circumstances surrounding their existence.

ADAMU ADAMU

Honourable Minister of Education, FME, Abuja.

October 2019

Preface

Nigeria, in the recent past, has been rated as one of the countries in the world with a huge population of out-of-school children and youths. The situation became worsened by the escalation of insurgency in the northeast leading to closure of many schools and the displacement of huge number persons including children and adolescents. Credible sources have it that many schools in the northeast states were closed from November 2014 to June 2015. By August 2017, an estimated 57% of schools were still closed in Borno.

Although many of the schools have been reopened, a high percentage of children are yet to return to school due to poverty and other socio-economic factors. There are also pockets of attack, psychosocial factors that affect human instability including where to start education again, having been out of school for many years (up to 10 years, in some instances).

Further, in the recent times, there have been widespread happenings, across the country, that have led to long term disruption of the educational pursuits of children and youths. These children and youths, in most instances, are either overage to continue schooling from where they stopped or are overage to start schooling from the foundation class (Primary 1). Incidentally, this group of children are found in many parts of the country.

Addressing this situation required the articulation of a special form of educational programme that will meet the peculiar circumstance of these children in this category. Whereas pockets of efforts have been made towards addressing the challenge, Nigeria lacks a strategically designed educational programme and curriculum standards that suits the peculiarities of children in this category. Understandably, some non-governmental organizations have

attempted to provide some interventions in this regard but these they had been

done without a nationally established framework and curriculum standards.

Importantly, the Ministerial Strategy Plan (2018- 2022) had clearly identified containing the menace of out-of-school children as one of the 10 pillars of the programmes targeted at bringing about change the Nigerian education sector.

The above scenario informed the need for the development of a national accelerated education curriculum with the overarching objective of providing a catchup educational programme suitable for the educational needs of out-of-school children, and in the process mainstream them to formal school programme or provide them with alternative career path through enrolment into vocational training centres, after completing basic education. The intention to develop the curriculum arose also because of the need to provide a national curriculum standard that can be used in all states of Nigeria, where there are such peculiarities.

The Nigeria Accelerated Education Programme (NAEP) specifically targets out-of-school children between ages 10 and 18 who were in school but had their education interrupted and are overage to continue schooling from where they stopped and; those who have never been to school and are overage to start formal education from the foundation class (Primary 1).

The NAEP is structured into 3 Levels as exemplified below:

- Level 1 (Stage 1 -3) to cover the curriculum contents of Primary 1 – 3
- Level 2 (Stages 1 -3) to cover the curriculum contents of Primary 4 – 6
- Level 3 (Stages 1 – 3) to cover the curriculum contents of JS 1 -3.

Each level will run for one academic year of 3 terms, similar to the regular school programme but with a flexible timetable in learner-friendly centres. The structure is further explained in the table below:

Level	Target group
Level 1	<ul style="list-style-type: none"> Those who have never been to school aged 10 and above
Level 2	<ul style="list-style-type: none"> Those who have been to school up to primary 2 or 3 but dropped out due to one reason or the other.
Level 3	<ul style="list-style-type: none"> Those who have been to school up to primary 5 or 6 but dropped out due to one reason or the other.

Five subjects were selected for the implementation of the programme. These are: English Studies, Mathematics, Basic Science and Technology, Nigerian History and Values and one Nigerian Language (Hausa, Igbo and Yoruba, in the interim).

The development of the Accelerated Basic Education Curriculum involved a systematic procedure in which the 9-Year Basic Education Curriculum (for the selected subjects) was condensed into a 3-Year accelerated basic education curriculum without compromising the quality.

NERDC's four-stage approach to curriculum development was adopted in the process. These are:

- i. Planning, which involves concepts and strategy formulation,
- ii. Writing (crafting) of the initial draft of the curriculum document;
- iii. Critique of the draft curriculum document; and
- iv. Editorial and finalization of the curriculum document.

Teacher's Guide, with detailed and well sequenced contents, instructional strategies and assessment procedures is also developed to strengthen teachers' capabilities to effectively teach the curriculum.

It is my delight to acknowledge the role played by Plan International and Save the Children International in the development of the curriculum under the European Union funded project: The EU Response, Early Recovery and Resilience in Borno State: Education Component.

My appreciation also goes to all our resource persons for their efforts, expertise and commitment to the success of the project. It is my deepest conviction that the use of this curriculum will be of immense benefit to the nation in the bid to addressing the problem of out-of-school children in Nigeria.

PROF. ISMAIL JUNAIDU
Executive Secretary, NERDC

Introduction

The Accelerated Basic Education Programme (ABEP) is a catchup education programme meant to take care of the educational needs of overage children and youths between the age 10 and 18 who for certain reasons could not enroll into regular school or had their educational programmes interrupted. The Philosophy for ABEP, like the overall philosophy of Nigeria education; is to develop the individual into a sound and effective citizen and the provision of equal opportunities for the acquisition of appropriate levels of literacy, numeracy, manipulative, communicative and life-skills; as well as the ethical, moral, security and civic values needed for laying a solid foundation for life-long learning. On a more specific note, the ABEP is designed to mop-up (or reduce to the barest minimum) and bring back to school the large number of out-of-school children spread across many parts of Nigeria. The programme targets two categories of these children. These are:

- Children and youths whose education programme were interrupted and are overage to continue schooling from where they stopped.
- Children and youths who have never been to school and are overage to start formal education from the foundation class (Primary 1).

The ABEP, which is unique in all its ramifications, is to be implemented in 3-Levels comprising:

- Level 1 equivalent of Primary 1 - 3
- Level 2 equivalent of Primary 4 - 6
- Level 3 equivalent of JS 1- 3

In each of these levels, learners are expected to acquire basic education

competencies equivalent to their mates in the regular school programme

. Given the uniqueness of the programme, it became imperative to redesign and condense the 9-Basic Education Curriculum in such a manner as to meet the peculiarities and needs of the intended beneficiaries of ABEP without compromising quality. Thus, the Accelerated Basic Education Curriculum (ABEC) is developed to provide the recipients unique learning experiences that will enable them to acquire basic knowledge, skills and competencies sufficient for mainstreaming and coping with the curriculum contents in the formal school system.

The Mathematics Curriculum for ABEP is developed to offer the recipients the opportunity to:

1. acquire demonstrable mathematical abilities comparable to their mates in the regular school programme;
2. develop basic constructional and computation skills applicable to their daily living;
3. cultivate the understanding and application of mathematical operations, signs and symbols in everyday life
4. build a strong foundation in mathematics for future studies;

The thematic approach was adopted in the selection of the contents and learning experiences in the curriculum. These contents are organized under 5 themes at each Level as shown in the table below:

Level	Theme
1	Number and Numeration
	Basic Operation
	Mensuration and Geometry
	Algebraic Process
	Everyday Statistics
2	Number and Numeration
	Basic Operation
	Mensuration and Geometry
	Algebraic Operations
	Everyday Statistics
3	Number and Numeration
	Basic Operation
	Mensuration and Geometry
	Algebraic Operations
	Everyday Statistics

The curriculum has been further scoped and sequenced into lesson topics for ease of implementation at the ABEP learning centres. Since English Studies is a fundamental subject for lifelong learning, 5 hours every week is to be dedicated to the teaching and learning of the curriculum contents. This means that, out of the 4 hours daily learning period for the ABEP, 1 hour shall be used for the teaching and learning of English Studies.

Teacher's Guide has also been developed to further support the effective implementation of the curriculum by both teachers and policy makers. It is therefore recommended that the curriculum be implemented with due reference to the teacher's guide. Finally, it is envisaged that education managers, teachers, Development Partners and other stakeholders will provide the necessary infrastructure and support required for the actualization of the objectives of the curriculum.

Dr. Garba D. Gand

Director, Curriculum Development Centre, NERDC

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Stage 2	Mensuration and Geometry	<ul style="list-style-type: none"> • Money • Length • Weight • Time and Speed • Temperature • Area • Volume • Capacity • Plane Shapes • Three Dimensional Shapes 	14-29

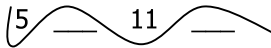
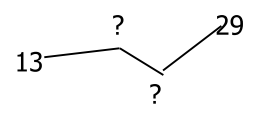
Class	Themes	Topics	Page
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ACCELERATED BASIC EDUCATION CURRICULUM (MATHEMATICS)

THEME 1: NUMBER AND NUMERATION

LEVEL TWO

STAGE ONE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
1. Whole Number	Learners should be able to: 1. count in millions and billions, 2. write numbers up to one billion, 3. count in 5's, 7's, 10's, etc. 4. place numbers according to their values; 5. identify Roman numerals: I, V, L, C, D, and M. 6. order whole numbers up to one billion; 7. identify prime numbers less than 100; 8. solve quantitative reasoning exercises.	1. Counting in millions and billions. 2. Writing and reading up to one billion. 3. Counting in 5's, 7's and 60's etc. 4. Place values: billions, millions, Thousands, Hundreds, tens and Units, B,M,TH,.... 5. Roman Numerals (I,V,X,L,C,D,M) 6. Ordering of whole number up to 1,000,000,000 7. Identification of Prime numbers less than 100. 8. Qualitative reasoning.	Guides the learners to: 1. count up to billion in small groups using number chart. 2. write numbers up to billion. 3. count in 5's, 7's, 60's, etc. 4. place numbers according to their values using the notation of: TH – thousand H – hundred T – Tens U – Units. 5. identify and name Roman numbers: I, V, X, L, C, D, M. 6. order whole numbers in ascending or in descending order. 7. identify prime numbers up to 100. 8. solve quantitative reasoning exercises such as 59 = ____ in Roman numerals	1. count up to billion in small groups using number chart. 2. Write numbers up to billion. 3. count in 5's, 7's, 60's, etc. 4. Place numbers according to their values using the notation of: TH – thousand H – hundred T – Tens U – Units. 5. Identify and name Roman numbers: I, V, X, L, C, D, M. 6. Order whole numbers in ascending or in descending order. 7. Identify prime numbers up to 100. 8. Solve quantitative reasoning exercises such as 59 = ____ in Roman numerals	<ul style="list-style-type: none"> Number chart Flash card of roman numerals Cardboard for listing. 	Learners to: 1. count up to one billion, 2. write numbers up to billion, 3. count in 5's, 7's, 60's, etc. 4. identify the value of digits in a number e.g. 5675, 5. identify Roman numbers e.g. i. XL = ? ii. CXX = ? iii. DXXVII = ? 6. order the following whole numbers in ascending order of magnitude: 767,845,654 1924, 1988, 1850, 2000, etc 7. list prime numbers from: <ul style="list-style-type: none"> 50 – 90 20 – 60 30 – 80 8. Find the missing prime numbers: i.  ii.  etc.

ACCELERATED BASIC EDUCATION CURRICULUM (MATHEMATICS)

THEME 1: NUMBER AND NUMERATION

LEVEL TWO

STAGE ONE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION Guide
			TEACHER	LEARNERS		
2. LCM and HCF	Learners should be able to: 1. find the LCM of two numbers up to 100, 2. find the HCF of two numbers up to 100, 3. solve quantitative reasoning exercises.	1. LCM of two numbers up to 100. 2. H.C.F of two numbers up to 100. 3. Qualitative reasoning involving LCM and HCF.	Leads learners on how to: 1. find the LCM of two numbers up to 100. 2. Find the HCF of two numbers up to 100. 3. Solve quantitative reasoning exercises.	1. Find the LCM of two numbers up to 100. 2. Find the HCF of two numbers up to 100. 3. Solve exercises in quantitative reasoning.	<ul style="list-style-type: none"> Flash cards for factors. Flash cards for multiples 	Learners to: 1. find the LCM of: (a) 36 and 45 (b) 48 and 60 (c) 64 and 84 2. find the HCF of: (a) 24 and 48 (b) 60 and 90 (c) 72 and 100. 3. Solve for: (a) the LCM of 12 and 18 =? (b) the HCF of 36 and 84 =? and the LCM and HCF of (c) 24 and 30 =?
3. Fractions	Learners should be able to: 1(a). differentiate between proper and improper fractions, 1(b). change improper fractions to mixed numbers and vice versa,	1. Proper fractions, improper fractions and mixed numbers. 2. Equivalent fractions. 3. Ordering fractions 4. Decimal Fractions up	Guides learners to: 1. divide objects e.g. orange into two equal parts to show proper fractions. 2. convert from improper fraction to mixed number and vice versa. 3. state equivalent fractions.	1. Explain the meaning of proper and improper fractions. 2. Cut objects e.g. oranges into equal parts to show proper fractions. 3. Identify equivalent fractions. 4. Order a pair of fractions by	1. Oranges 2. Paper cuttings 3. Fraction charts 4. Squares 5. Cardboards.	Learners to: 1. classify a set of fractions into proper and improper fractions. 2. convert improper fractions to mixed numbers and vice versa. 3. identify equivalent fractions from a given set of fractions 4. order a given pairs of fractions using < or >.

ACCELERATED BASIC EDUCATION CURRICULUM (MATHEMATICS)

THEME 1: NUMBER AND NUMERATION

LEVEL TWO

STAGE ONE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
	2 identify equivalent fractions, 3 order fractions using the symbols $>$ or $<$, 4 use decimal fractions up to tenths and hundredth, 5 use percentage as fractions, 6(a). give examples of direct and inverse proportions, 6(b). solve problems involving direct and inverse proportions,	to tenths and hundred. 5. Percentages as fraction. 6. Direct Proportion 7. Inverse proportion. 8. Ratio, 9. Quantitative reasoning	4. order fraction. 5. identify decimal number in decimal fractions such as tenths and hundredths as fractions with 10 with 100. 6. convert fraction to decimals and decimals to percentage and vice versa. 7. give examples of direct and inverse proportions. 8. solve problems involving direct and inverse proportions.	comparing their new numerators. 5. Use decimal fractions up to tenths and hundredths. 6. Convert fractions to decimals and decimal to percentage and vice versa. 7. Give examples of direct and inverse proportions. 8. solve problems involving direct and inverse proportions.		5. use decimal fractions e.g. (a) $2.5 = \frac{25}{10}$ (b) $\frac{745}{100} = 7.45$ (c) $\frac{811}{100} = ?$ 6. convert $\frac{2}{5}$, $\frac{1}{10}$ to percentage (a) Convert 0.65 to fraction. (b) Convert 15% to fraction. 7. Give examples and solve problems involving direct and inverse proportions.
Fractions (Cont'd)	7. express numbers in ratio, 8. solve problems on quantitative reasoning involving ratio, direct and indirect proportions.		9. Guides learner to determine the ratio of two numbers. 10. Guides learners to solve problems on quantitative reasoning related ratio, direct and indirect proportion.	9. Determine the ratio of two numbers. 10. Solve problems on quantitative reasoning involving ratio and direct and indirect proportions.	7. Flash card 8. Decimal – percentage conversion chart. 9. Percentage – decimal conversion chart.	Learners to: 8. find the ratios between two numbers. 9. solve problems on quantitative reasoning involving ratio, direct and indirect proportions.

ACCELERATED BASIC EDUCATION CURRICULUM (MATHEMATICS)

THEME 2: : BASIC OPERATIONS

LEVEL TWO

STAGE ONE


TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
1. Addition and Subtraction	Learners should be able to: 1. add and subtract whole numbers in Th. H. T. V, 2. add and subtract numbers involving three or more digits, 3. add and subtract whole numbers involving word problems. 4. Add and subtract problems involving fractions and mixed numbers. 5. solve problems in addition and subtraction with whole numbers and with proper fractions and mixed numbers, 6. solve quantitative aptitude problems involving addition and subtraction.	1. Addition and subtraction of whole number in Th. H. T. U with or without renaming. 2. Addition and subtraction of three or 4-digit numbers taking two at a time. 3. Addition and subtraction of whole numbers involving word problems. 4. Quantitative reasoning on addition and subtraction of whole numbers of four digits. 5. Addition and subtraction two proper fractions. 6. Addition and subtraction Improper fractions.	1. Guides the learners to add or subtract columns under unit first then tens and then hundreds e.g. <div style="text-align: center;"> TH H T U 5 6 7 4 + 3 4 6 0 <u>2 5 7 0</u> </div> 2. Guides learners to solve word problems involving addition and subtraction with whole numbers. 3. Guides learners to solve addition and subtraction exercise involving word problems 4. Guides learners to add and subtract two proper fractions and mixed numbers. 5. Guides learners to solve quantitative aptitude problems involving addition and subtraction.	1. Arrange counter into: TH H T U. 2. Carry out addition and subtraction of numbers. 3. Solve word problems in addition and subtraction. 4. Solve addition and subtraction involving two proper fractions and mixed numbers. 5. Acquire the skills of quantitative reasoning involving addition and subtraction with whole numbers, proper fractions and mixed numbers. 6. Solve problems in quantitative aptitude involving addition and subtraction.	<ul style="list-style-type: none"> Abacus, Counters, Collection of word problems from mathematics textbooks, Test book on quantitative reasoning. 	Learners to: 1. add and subtract numbers involving three or more digits, 2. solve word problems involving addition and subtraction with whole numbers. 3. solve addition and subtraction involving two proper fractions and mixed numbers. 4. solve problems involving addition and subtraction with whole numbers, proper fractions and mixed numbers. 5. solve problems on quantitative aptitude involving addition.

ACCELERATED BASIC EDUCATION CURRICULUM (MATHEMATICS)

THEME 2: : BASIC OPERATIONS

LEVEL TWO

STAGE ONE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
2. Multiplication	Learners should be able to: 1. multiply whole numbers by 2-digit numbers not exceeding 99, 2. multiply decimal numbers by 2-digit whole numbers, 3. multiply a 3-digit number by another 3-digit number, 4. solve quantitative aptitude problems on multiplication of whole numbers. 5. apply 'of' as multiplication sign when dealing with fractions of whole numbers.	1. Multiplication of whole numbers by a 2-digit number. 2. Multiplication of decimal number by a 2-digit number 3. Multiplication of 3-digit number by another 3-digit number 4. solve quantitative aptitude problems on multiplication of whole numbers. 5. Use of "of" as multiplication sign when dealing with fractions of whole numbers.	1. Guides learners to multiply whole numbers by 2-digit numbers not exceeding 99. 2. Guides learners to solve multiplication of decimal numbers by 2-digit numbers. 3. Guides the learners to multiply a 3-digit number by a 3-digit number e.g Multiply $\begin{array}{r} 324 \\ \times 242 \\ \hline \end{array}$ $\begin{array}{r} 728 \quad 125 \\ \hline \end{array}$  4. Guide the learners to solve quantitative aptitude on multiplication e.g. $\begin{array}{r} 728 \quad 125 \\ \hline \end{array}$ 5. Guides the learners to apply the meaning of "of" as multiplication sign such as: $\frac{1}{2}$ of 18 = 9 or $\frac{1}{2} \times 18 = 9$	1. Multiply whole numbers with 2-digit numbers not exceeding 99. 2. Solve problems on multiplication of decimal number with 2-digit numbers. 3. Multiply a 3-digit number by a 3-digit number. 4. Solve problems on quantitative aptitude problems on multiplication of whole numbers. 5. Apply the meaning of "of" as multiplication sign in a fraction.	<ul style="list-style-type: none"> Charts showing multiplication not exceeding 99, Table showing multiplication not exceeding 99, Oranges, Cardboard Mathematics textbook on quantitative aptitude, Flip chart, Charts of decimal number. 20 by 20 square chart, Square and square root, Chart. 	Learners to: 1. multiply whole numbers with 2-digit numbers e.g.: (i) $\begin{array}{r} 23 \\ \times 3 \\ \hline \end{array}$ (ii) $\begin{array}{r} 33 \\ \times 2 \\ \hline \end{array}$ (iii) $\begin{array}{r} 19 \\ \times 4 \\ \hline \end{array}$ 2. multiply decimal numbers with 2-digit numbers e.g.: 2.25×11 3. multiply a 3-digit number by a 3-digit number. 4. solve quantitative aptitude problems involving multiplication of a 3-digit number with a 3-digit number. 5. solve problems on operation of "of" as multiplication sign in fractions.

ACCELERATED BASIC EDUCATION CURRICULUM (MATHEMATICS)

THEME 2: BASIC OPERATIONS

LEVEL TWO

STAGE ONE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
3. Division	<p>Learners should be able to:</p> <ol style="list-style-type: none"> 1. divide two or three digit numbers by numbers up to 9 with or without remainder, 2. divide two or three digit numbers by 10, 20, 100, 200, 3. divide decimal numbers by multiples of 10 up to 900, 4. divide decimal numbers by 2-digit and 3-digit whole number, 5. solve quantitative aptitude problems involving division of whole numbers and decimal. 	<ol style="list-style-type: none"> 1. Division of two or three digit numbers by: numbers up to 9 with or without remainder. 2. Division of numbers by 10,20....90,100,200. 3. Division of decimals by multiple of 10 up to 900. 4. Division of whole number and decimals by 2-digit and 3-digit numbers. 5. Quantitative reasoning on division. 	<ol style="list-style-type: none"> 1. Guides learners to divide 2 or 3-digits numbers by numbers not more than 9. 2. Guides learners to divide a two or three digit numbers by 10, 20, 30, etc by grouping the learners into smaller groups 3. Guides learners to divide decimal numbers by multiples of 10 up to 900 by shifting decimal point e.g.: (a) $\frac{32.5}{10} = 3.25$ (b) $\frac{710.4}{20} = \frac{710.4}{2} = 35.54$ 4. Guides learners to divide whole numbers and decimal by 2-digit and 3-digit numbers. 	<ol style="list-style-type: none"> 1. Divide 2 and 3-digit numbers by numbers nor more than 9. e.g. i. $25/5 = ?$ ii. $327/3 = ?$ 2. Divide a given numbers by 10, 20, 30, 40, etc. 3. Divide decimal numbers by multiplies of 10 up to 9-- 4. Solve problems on division of whole numbers and decimal by 2-digit and 3-digit numbers. 	<ul style="list-style-type: none"> • Addition charts, • Division charts, • Flash cards, • Charts. 	<p>Learners to:</p> <ol style="list-style-type: none"> 1. divide 2 or 3 digit numbers by numbers between 2 to 9. E.g (1) $81/3$ (2) $462/7$, 2. learners to divide a given 2 or 3 digit numbers by 10, 20, 30, etc. 3. divide decimal numbers by multiples of 10 up to 900. 4. learners to solve problems involving division of 2 number and decimals with 2-digit and 3-digit numbers.

ACCELERATED BASIC EDUCATION CURRICULUM (MATHEMATICS)

THEME 2: BASIC OPERATIONS

LEVEL TWO

STAGE ONE

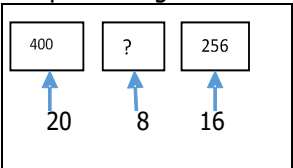
TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
Multiplication (cont'd)	<ol style="list-style-type: none"> recognize the multiplication properties of one and zero, multiply decimal number with another decimal number, calculate the square of 1-digit and 2-digit numbers, calculate squares of numbers up to 900. 	<ol style="list-style-type: none"> Recognize the multiplication properties of one and Zero. Multiplication of decimal by decimals. Square of 1-digit and 2-digit numbers. Square of number up to 900. 	<ol style="list-style-type: none"> Guides the learners to recognize the properties of multiplying numbers by one and zero. E.g.: $(00) (00) (00) = 2 \times 3 = 6$ $(00) (00) = 2 \times 2 = 4$ $(00) = 2 \times 1 = 2$ $0 \times 0 = 0$ Guides learners to multiply decimal number with another decimal number. Guides learners to calculate the squares of 1 and 2 digit numbers by the use of square chart. Guides learners to solve problems on squares up to 900 by using square chart. 	<ol style="list-style-type: none"> Solve problems on multiplication of numbers by 1 and 0 Solve problem on multiplication of decimals by a decimal number. Use square chart to find the squares of any number up to 20 by 20. Find square of numbers such as: (a) $5^2 = 5 \times 5 = ?$ (b) $20^2 = 20 \times 20 = ?$ (c) $15^2 = 15 \times 15 = ?$ 		Learners to solve: <ol style="list-style-type: none"> problems involving multiplication by 1 and 0: $99 \times 1 = ?$ $1 \times 25 = ?$ $100 \times 0 = ?$ $0 \times 55 = ?$ multiply given decimals by decimals, find the square of a given number using 20 by 20 square chart, find the squares of number up to 900.

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THEME 2: BASIC OPERATIONS

LEVEL TWO

STAGE ONE

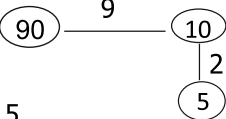
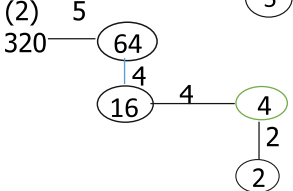
TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
Multiplication (cont'd)	10. find the square root of perfect squares up to 900, 11. solve quantitative aptitude problems of squares and square root up to 900.	10. Square root of perfect square up to 900 using: square, chart or factor method: 4,9, 25,100,900 etc. 11. Quantitative reasoning on square and square roots.	6. Guides learners to find the square root of numbers up 900 using square chart or factor method. 7. Guides learners to solve quantitative aptitude problems involving squares and square roots of perfect squares. e.g.: 	1. Find square root of perfect squares up 900 using the square chart. 2. Solve quantitative aptitude involving squares and square root of numbers.		Learners to solve: 6. to find square root of a given number using 20 by 20 square chart, 7. to solve quantitative aptitude problems involving squares and square roots of numbers up to 900.
3. Division	Learners should be able to 1. divide two or three digit numbers by numbers up to 9 with or without remainder, 2. divide two or three digit numbers by 10, 20, 100, 200 to 900	1. Division of two or three digit numbers by: numbers up to 9 with or without remainder. 2. Division of numbers by 10,20....90,100,200. 3. Division of decimals by multiple of 10up to 900	1. Guides learners to divide 2 or 3-digits numbers by numbers not more than 9. 2. Guides learners to divide a two or three digit numbers by 10, 20, 30, etc by grouping the learners into smaller groups	1. Divide 2 and 3-digit numbers by numbers nor more than 9. e.g. i. $25/5 = ?$ ii. $327/3 = ?$ 2. Divide a given numbers by 10, 20, 30, 40, etc.	<ul style="list-style-type: none"> Addition charts, Division charts, Flash cards, Charts. 	Learners to: 1. divide 2 or 3 digit numbers by numbers between 2 to 9. E.g (1) $81/3$ (2) $462/7$, 2. learners to divide a given 2 or 3 digit numbers by 10, 20, 30, etc.

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TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
	3. divide decimal numbers by multiples of 10 up to 900, 4. divide decimal by 2-digit and 3-digit whole number, 5. solve quantitative aptitude problems involving division of whole numbers and decimal.	4. Division of whole number and decimals by 2-digit and 3-digit numbers. 5. Quantitative reasoning on division.	3. Guides learners to divide decimal numbers by multiples of 10 up to 900 by shifting decimal point e.g.: (a) $\frac{32.5}{10} = 3.25$ (b) $\frac{710.4}{20} = \frac{710.4}{2} = 35.54$ 4. Guides learners to divide whole numbers and decimal by 2-digit and 3-digit numbers.	3. Divide decimal numbers by multiples of 10 up to 9-- 4. Solve problems on division of whole numbers and decimal by 2-digit and 3-digit numbers.		3. divide decimal numbers by multiples of 10 up to 900. 4. learners to solve problems involving division of 2 number and decimals with 2-digit and 3-digit numbers.
Division (cont'd)			1. Guides learners to solve problems quantitative aptitude on division of and decimals by 2-digit whole numbers and 3-digit numbers, e.g (1).  (2) 	1. Solve quantitative problems on division of whole numbers and decimals by 2-digit and 3-digit numbers.	<ul style="list-style-type: none"> Flash cards Charts 	Learners to 5. solve division problems involving whole numbers and decimals with 2-digit and 3-digit numbers.

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TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
4. Order of Operation	Learners should be able to perform basic operation using Acronym PEDMAS	Order of operations (PEDMAS)	<p>Explain to the learners the order of operations using PEDMAS where</p> <p>P = Parenthesis E = Exponential D = Division M = Multiplication A = Addition S = Subtraction</p>	Solve problems involving different operations such as $3 \times (2+3) / 2-3$	Flip chart with the meaning of PEDMAS	Learners to simplify sums product quotient and difference using PEDMAS
5. Indices (Power)	<p>Learners should be able to:</p> <ol style="list-style-type: none"> 1. write numbers in index form, 2. solve problem involving powers, 3. solve problems on quantitative aptitude involving indices. 	<ol style="list-style-type: none"> 1. Numbers in index form. 2. Indices. 3. Quantitative aptitude 	<ol style="list-style-type: none"> 1. Guides learners to express numbers in index form e.g.: $48 = 2 \times 2 \times 2 \times 2 \times 3 = 2^4 \times 3$ 2. Solve e.g. $2^3 \times 2^2 = 2^8$ 3. Guides learners to solve problems on quantitative reasoning in index form e.g <ol style="list-style-type: none"> i. $2^{\square} = 16$ ii. $\square^2 = 49$ 	<ol style="list-style-type: none"> 1. Write numbers in index form. 2. Solve problems involving number to be expressed in index form. 3. Solve problems on quantitative aptitude related to indices. 	Flip charts showing index notation and laws of indices	<p>Learners to:</p> <ol style="list-style-type: none"> 1. express numbers in index form, 2. solve problems involving powers. 3. solve problems on quantitative aptitude related to indices.

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TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
6. Ratio and Percentage	<p>Learners should be able to:</p> <ol style="list-style-type: none"> 1. solve problems on ratio, 2. express numbers as a percentage of another number, 3. solve problems on profit and loss, 4. increase or decrease number in percentage. 	<ol style="list-style-type: none"> 1. Ratio and Percentages. 2. Expressing a number as a percentage of another number. 3. Profit and loss. 4. Increase percent and decrease percent. 	<p>Guides learners to:</p> <ol style="list-style-type: none"> 1. solve problem on ratio e.g. the ratios of boys to girls in a class is 3:2. If there are 60 pupils in the class, how many are boys? 2. express number as a percentage of another. 3. calculate the profit and loss percent in a given problem. 4. calculate percentage increase or decrease as: <ol style="list-style-type: none"> i. $\text{Increase} = \frac{\text{increase}}{\text{Initial value}} \times 100$ ii. Initial value iii. $\text{Decrease} = \frac{\text{decrease}}{\text{Initial value}} \times 100$ 	<ol style="list-style-type: none"> 1. Calculate ratio of given numbers. 2. Express given numbers as percentages of others. 3. Calculate profit and loss percent of given problems. 4. Solve problems involving percentage increase or decrease. 	<ul style="list-style-type: none"> • Chart of ratio and percentage • Profit and loss Charts • Data chart on HIV/AIDS 	<p>Learners to:</p> <ol style="list-style-type: none"> 1. calculate ratios of given numbers, 2. express a number as a percentage of another, 3. calculate profits and loss percent of given problem, 4. calculate percentage increase or decrease in HIV/AIDS of some communities.

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TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
7.Estimate	Learners should be able to meaningfully estimate sums and products of numbers.	Estimation of sums and products of numbers.	Guides learners to find the estimate of sums and products of numbers. Rules (1): for 2 digit i. If the unit is less than 5, estimate the lower nearest multiple of 10 ii. If the unit digit is greater than 5, estimate to the nearest multiple of 10 iii. If the unit digit is equal to 5, estimate to the higher nearest multiple of 5 e.g. Actual Estimate 13————→ 10 since 3<5 17————→ 20 since 7>5 Rules (2): for 3 digit i. If the unit is less than 50, estimate to the lower nearest multiple of 100 ii. If the unit digit is greater than 50, estimate to the nearest multiple of 100 iii. If the unit digit is equal to 50, estimate to the higher nearest multiple of 50 e.g. Actual Estimate 147 —————→ 100 since 40<50 236 —————→ 200 since 30<50 891 —————→ 900 since 90>50	Estimate sums and products of numbers.	<ul style="list-style-type: none">Charts on estimate.	Learners to estimate sums and products of numbers height, lengths, width within and outside the classroom.

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TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
8. Use of number line in addition and subtraction.	Learners should be able to: 1. add and subtract numbers using number line	1. Addition and subtraction of positive and negative integers 2. Quantitative reasoning involving number line	1. Guides learners to add and subtract numbers using number line e.g. i. Use number line to add 5 and 3 <div style="text-align: center;"> $\begin{array}{c} 5 \quad 3 \quad 1 \\ \quad \quad \\ +5 \quad +3 \\ \hline 0 \ 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \end{array}$ <p>Answer = 8</p> </div> ii. Use number line to find 6-3 <div style="text-align: center;"> $\begin{array}{c} +6 \\ \hline 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \ 9 \\ \hline -3 \end{array}$ <p>Answer = 3</p> </div>	1. Add and subtract numbers using the number line.	<ul style="list-style-type: none"> Card board Ruler Pencil 	Learners to add and subtract numbers using the number line.
Use of number line in addition and subtraction (Cont.)	1. solve problems in quantitative aptitude involving addition and subtraction on number line		2. Guides learners to solve problems on quantitative aptitude using number line to add and subtract numbers e.g. complete the pyramid below: <div style="text-align: center;"> </div>	2. Solve problems on quantitative aptitude using the number line.	<ul style="list-style-type: none"> Rulers Cardboard Pencils 	Learners to solve problems on quantitative aptitude using number line.

ACCELERATED BASIC EDUCATION CURRICULUM (MATHEMATICS)

THEME 3: MENSURATION AND GEOMETRY

LEVEL TWO

STAGE TWO

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
1. Money	<p>Learners should be able to:</p> <ol style="list-style-type: none"> 1. solve problems on addition and subtraction of money, 2. compare Nigerian currency with pounds sterling, dollars, Ghana Cedis, 3. calculate the tax(s) on items, dividends, rates and shares, 4. transacts money on small and bulk purchases. 5. solve quantitative reasoning involving addition and subtraction of money. 	<ol style="list-style-type: none"> 1. Addition and Subtraction of Money. 2. Comparing Nigeria Naira with Pounds sterling, Dollars, Ghana Cedis. and Pesewa, Sierraleone's leone and Cent etc. 3. Taxes, dividends, rates, buying and selling of shares 4. Money: social transactions, Home, Banks, Post office and Market. 5. Quantitative reasoning involving Addition and Subtraction of Money. 	<p>Guides learners to:</p> <ol style="list-style-type: none"> 1. solve problems on addition and subtraction of money e.g. Add: ₦682.49 and ₦72.15. Take away: ₦921.65 from ₦1,024.63. 2. identify Nigerian currency and compare it with foreign currencies. 3. to compute taxes on sold items, dividends, rates and shares. 4. to make transactions of money at Home, Banks, Post office and Market. 5. solve quantitative reasoning involving addition and subtraction of money. 	<ol style="list-style-type: none"> 1. Solve problems on addition and subtraction of money 2. Compare and contrast Nigerian currency with foreign currencies. 3. Solve problems on taxation, dividends, rates and shares 4. Solve problems on money transaction at Home, Banks, Post office and Market. 5. Solve quantitative aptitude – problems involving addition and subtraction of money. 	<ul style="list-style-type: none"> • Real and model of money (Naira) • Foreign currencies where available 	<p>Learners to:</p> <ol style="list-style-type: none"> 1. solve problems on addition and subtraction of money, 2. compare Nigerian notes with foreign notes, 3. computer taxes on a sold item(s), dividends, rates and shares, 4. transact money at Home, Banks, Post office and Market. 5. solve simple quantitative problems involving addition and subtraction of money.

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THEME 3: MENSURATION AND GEOMETRY

LEVEL TWO

STAGE TWO

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
2. Length	<p>Learners should be able to:</p> <ol style="list-style-type: none"> estimate the lengths of an object. solve problems involving addition and subtraction of lengths in centimeters (cm) and metres (m) Identify circumference diameter and radius. calculate the perimeter of a regular polygons. calculate the circumference of a circle of a given diameter or radius. 	<ol style="list-style-type: none"> Estimating Lengths Addition and Subtraction of lengths Perimeter of regular shapes e.g Square rectangles, Trapezium and Polygon Definition and identification of circumference of a circle. Circumference of a circle diameter and radius 	<p>Guides learners to:</p> <ol style="list-style-type: none"> estimate the length of an object. solve problems involving addition and subtraction in centimeters (cm) and metres (m) e.g. find the sum of: <ol style="list-style-type: none"> 250cm and 312cm 1.54m and 202cm compute the perimeter of regular shapes and polygons. identify and define what a circumference of a circle given radius or diameter. calculate the circumference of a circle of a given diameter or radius. 	<ol style="list-style-type: none"> Estimate the lengths of an object such as table width. Solve problems in computing lengths of two or more objects e.g. classroom length and bread. Solve problems involving addition and subtraction of objects in centimeters (cm) and metre (m). Solve problems in finding the perimeter of a regular polygons. Identify and define what a circumference of a circle, given diameter or radius. 	<ul style="list-style-type: none"> Metre rule Measuring tape Shapes of round figure objects such as coin Drawing compass. 	<p>Learners to:</p> <ol style="list-style-type: none"> Estimate the length of an object. solve problems involving addition and subtraction of lengths in centimeters (cm) and metres (m). compute the perimeter of a given regular shapes and polygons. identify and define the circumference of a circle. Calculate the circumference of a circle of a given diameter or radius.

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THEME 3: MENSURATION AND GEOMETRY

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STAGE TWO

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
3. Weight	<p>Learners should be able to solve:</p> <ol style="list-style-type: none"> problems on addition and subtraction of weights in kilograms (kg) and grams (g); problems involving multiplication and division of weight in kilogram (kg) and grams by a whole number. word problems on weight involving kg and g. solve quantitative reasoning problems on weight. 	<ol style="list-style-type: none"> Addition and Subtraction of weight in Kilogram (kg) and Gram (g). Multiplication and division of weight in kilogram (kg) and gram(g) by whole numbers. Word problems on weight involving Kilogram (kg) and Gram (g). Quantitative reasoning on weight. 	<p>Guides learners to:</p> <ol style="list-style-type: none"> solve problems on addition and subtraction of weight in kilogram (kg) and grams (g) e.g. 1: <ol style="list-style-type: none"> add 125.8kg and 52.9kg. subtract 174.6kg from 206.8kg. solve: 425.82kg + 974.5g solve problems involving multiplication and division of weights in kg and g by a whole number e.g.: <ol style="list-style-type: none"> Multiply 12.5kg by 5kg; Multiply 1,045.8g by 12. Divide 2020kg by 8. Simplify: $\frac{13.5g \times 12g}{3 \times 2}$ 	<ol style="list-style-type: none"> Solve problems on addition and subtraction of weight in kg and g. Solve problems involving multiplication and division of weight in kg and g by a whole number. Solve word problems on weight involving kg and g. Solve problems involving quantitative reasoning on weights. 	<ul style="list-style-type: none"> Weight scales Charts on weight 50kg bag of rice, cement, flour. Weights of different magnitudes such as: 5kg, 10kg, 20kg, 50kg, 100kg, etc. 	<p>Learners to solve:</p> <ol style="list-style-type: none"> problems on addition and subtraction of weights in kg and g. problems involving multiplication and division of weight in kg and g by a whole number. word problems on weight in kg and g. simple quantitative problems on weights.

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TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
Weight (con'd)			3. word problems on weight involving kg and g. For example: 1 The weight of Usman and Binta are 35.8kg and 33kg. what is their total weight? 4. problems on quantitative reasoning on weights.			

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TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
4. Time and Speed	<p>Learners should be able to:</p> <ol style="list-style-type: none"> identify time on the clock (am and pm), calendar and dates. compute the average speed of a moving object. Read time table of journeys. solve problems involving quantitative reasoning on time. 	<ol style="list-style-type: none"> Time on the clock (am and pm) calendar and dates Average speed Reading time-Table of journeys Quantitative reasoning on time 	<p>Guides learners to:</p> <ol style="list-style-type: none"> identify time on the clock (am and pm), calendar and dates. define average speed e.g. Average speed = $\frac{\text{Distance}}{\text{Time}}$ compute problems on average speed e.g. David travels a distance of 200km in 1½ hours. <ol style="list-style-type: none"> Compute his average speed. Average speed = $\frac{\text{Distance}}{\text{Time}}$ Average speed = $\frac{\text{Distance}}{\text{Time}} = \frac{200\text{km}}{1.5\text{hour}} = 133.3\text{km/hr.}$ read the table of a journey of a given chart. solve problems involving quantitative reasoning on time. 	<ol style="list-style-type: none"> Identify time on the clock, calendar and dates. Define average speed of a moving body. Compute simple problems on average speed of a moving object. Solve quantitative problems involving reasoning on time. 	<ul style="list-style-type: none"> Wall clocks Stopwatch Speedometer Sand timers. Reader Accelerometer 	<p>Learners to:</p> <ol style="list-style-type: none"> identify time on the clock, calendar and dates. compute the average speed of a moving object. read timetable of a journey on a chart. solve problems involving quantitative reasoning on time.

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TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
4. Time and Speed	<p>Learners should be able to:</p> <ol style="list-style-type: none"> identify time on the clock (am and pm), calendar and dates. compute the average speed of a moving object. Read time table of journeys. solve problems involving quantitative reasoning on time. 	<ol style="list-style-type: none"> Time on the clock (am and pm) calendar and dates Average speed Reading time-Table of journeys Quantitative reasoning on time 	<p>Guides learners to:</p> <ol style="list-style-type: none"> identify time on the clock (am and pm), calendar and dates. define average speed e.g. Average speed = $\frac{\text{Distance}}{\text{Time}}$ compute problems on average speed e.g. David travels a distance of 200km in 1½ hours. <ol style="list-style-type: none"> Compute his average speed. Average speed = $\frac{\text{Distance}}{\text{Time}}$ Average speed = $\frac{\text{Distance}}{\text{Time}} = \frac{200\text{km}}{1.5\text{hour}} = 133.3\text{km/hr.}$ read the table of a journey of a given chart. solve problems involving quantitative reasoning on time. 	<ol style="list-style-type: none"> Identify time on the clock, calendar and dates. Define average speed of a moving body. Compute simple problems on average speed of a moving object. Solve quantitative problems involving reasoning on time. 	<ul style="list-style-type: none"> Wall clocks Stopwatch Speedometer Sand timers. Reader Accelerometer 	<p>Learners to:</p> <ol style="list-style-type: none"> identify time on the clock, calendar and dates. compute the average speed of a moving object. read timetable of a journey on a chart. solve problems involving quantitative reasoning on time.

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TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
5. Temperature	Learners should be able to: 1. read thermometer to ascertain the temperature of various objects or liquids, 2. compare the degrees of hotness of various objects and areas (locations) in degree Celsius ($^{\circ}\text{C}$)	Familiarity with temperature of objects and towns in degrees (Celsius $^{\circ}\text{C}$)	1. Guides learners to read thermometers to ascertain temperatures of human beings, classroom environment and areas within the school premises. 2. Guides learners to compare and contrast the temperatures of different towns or cities in our country Nigeria.	1. Distinguish between the temperatures of different objects and locations using thermometers. 2. Compare and contrast the temperatures of different cities in Nigeria using data from Meteorological Unit.	<ul style="list-style-type: none"> • Thermometers. • Data on meteorological information on some cities in Nigeria. 	Learners to 1. Read the thermometer to ascertain the temperature of various objects or liquids. 2. compare and contrast the degree of hotness of various objects and areas (locations) in degree Celsius ($^{\circ}\text{C}$).

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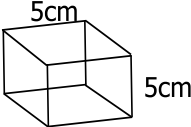
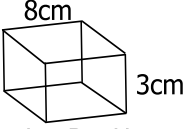
TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
6. Area	Learners should be able to: 1. Compute the area of a square and rectangle. 2. Compute the area of a classroom, farmlands town or cities.	1. Area of a square, and rectangle 2. Area of classroom, farmlands and towns or cities	<p>Guides learners to:</p> <p>1. compute the area of a square and rectangle e.g.: Use the figures below to find their areas:</p> <p>i. 2.5cm </p> <p>ii. 2.3cm  5.4cm</p> <p>Expected answers</p> <p>i. Area = L x L = 2.5cm x 2.5cm = 6.25cm²</p> <p>ii. Area = L x B = 5.4cm x 2.3cm = 12.42cm²</p> <p>2. Guides learners to compute the area of a given farmland e.g.: Calculate the area of a farmland if the length is 105 hectare (Ha) and its breadth is 85 hectares.</p> <p>Area = Length x Breadth ∴ 105Ha x 85Ha A = 8925² Ha</p>	<p>1. Compute the area of a square and rectangle.</p> <p>2. Compute the area of a farmland and town in hectares.</p>	<ul style="list-style-type: none"> Measuring tape Charts. 	<p>Learners to:</p> <p>1. compute the area of a square and rectangle.</p> <p>2. compute the area of a classroom or a farmlands and using cities-chart.</p>

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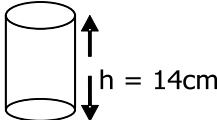
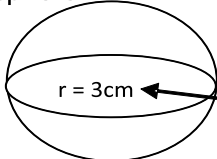
TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
7. Volume	<p>Learners should be able to:</p> <ol style="list-style-type: none"> 1. Identify the formulae for finding volume of cube and cuboid. 2. find the volume of cuboids and cube in cubic units; 3. Identify the formulae for computing the volume of cylinder, prism and sphere. 4. compute the volume of a cylinder, sphere and prism. 	<ol style="list-style-type: none"> 1. Formula for calculating volumes of cube and cuboid. 2. Volume of cubes and cuboids in cubic units 3. Formulae for calculating volume of cylinder, prism and sphere. 4. Volume of Prism, cylinder and sphere 	<p>Guides learners to:</p> <ol style="list-style-type: none"> 1. Identify formulae for computing volume of cube and cuboid. 2. find the volume of cube in unit cubic e.g. (I)find the volume of a cube in the figure below: <div style="text-align: center;">  </div> $V = L \times L \times L$ $V = 5\text{cm} \times 5\text{cm} \times 5\text{cm}$ $V = 75\text{cm}^3$ <p>(ii) find the volume of a cuboid in cubic units.</p> <ol style="list-style-type: none"> 3. derive the formulae for computing the volume of a cylinder, prism and sphere. 4. find the volume of a cuboid as shown in the figure below: <div style="text-align: center;">  </div> $V = L \times B \times H$ $V = 8\text{cm} \times 5\text{cm} \times 3\text{cm}$ $V = 120\text{cm}^3$	<ol style="list-style-type: none"> 1. Derive the formulae for computing volume of cube and cuboid 2. Find the volume of cube and cuboid. 3. Derive the formulae for computing the volume cylinder, prism and sphere. 4. Use the formulae to compute the volume of a cylinder, sphere and prism. 	<ol style="list-style-type: none"> 1. Unit cubes 2. Prism 3. Cone 4. Cylinder 	<p>Learners to:</p> <ol style="list-style-type: none"> 1. derive the formulae for computing the volumes of cube, cuboid, cylinder, prism and sphere. 2. use the formula to compute the volume of cube, cuboid cylinder, prism and sphere.

ACCELERATED BASIC EDUCATION CURRICULUM (MATHEMATICS)

THEME 3: MENSURATION AND GEOMETRY

LEVEL TWO

STAGE TWO

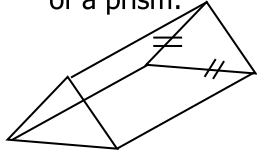
TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
Volume (cont'd)			<p>1. sort out the differences between cylinder sphere and prism.</p> <p>2. use the formulae to compute the volumes of a cylinder, sphere and prism. Example:</p> <p>3. Find the volume of a cylinder:</p> <p>i. $r = 3\text{cm}$</p>  <p>Volume = area x h $V = \pi r^2 \times h$ (where π (Pie) = 3.142) $V = 3.142 \times 3^2 \times 14\text{cm}$ $V = 395.9\text{cm}^3$</p> <p>ii. Find the volume of a sphere</p>  <p>Volume = $\frac{4}{3} \pi r^3$ $V = \frac{4}{3} \pi r^3 \times 3.142 \times 3^3$ $V = 1.3 \times 3.142 \times 27$ $V = 113\text{cm}^3$</p>			

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TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
Volume (cont'd)			<p>i. Find the volume of a prism:</p>  <p>6cm 9cm</p> <p>$V = \frac{1}{2} \times L \times b \times h$</p> <p>$V = \frac{1}{2} \times 6\text{cm} \times 6\text{cm}$</p> <p>$\times 9\text{cm} = 162\text{cm}^3$</p>			

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TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
8.Capacity	<p>Learners should be able to:</p> <ol style="list-style-type: none"> 1. solve problems involving addition and subtraction of litres; 2. solve problems involving multiplication and division of litres; 3. identify litre as a unit of capacity and the relationship that exist between litre and cm^3; 4. Solve word problem on litres. 	<ol style="list-style-type: none"> 1. Addition and subtraction involving liters. 2. Multiplication and division involving liters. 3. Relationship between liters and cubic centimeters i.e. 1 litre=1000cm^3 4. Word problem on Liters. 	<p>Guides learners to:</p> <ol style="list-style-type: none"> 1. solve problems involving addition and subtraction of litres. 2. solve problems involving multiplication and division of litres. E.g. solve: <ol style="list-style-type: none"> i. $25.2 \text{ litres} \times 20$; Divide 33,000 litres by 11 Expected answers: $25.2 \text{ litres} \times 20 = 504 \text{ litres}$ $33,000 \text{ litres divided by } 11 = 3,000 \text{ litres.}$ 3. Guides learners to compare the relationship between centimeters (i.e) $1 \text{ LITRE} = 1000\text{cm}^3$. Example: (a) Convert 5 litres to centimeter cube or cubic centimeter. Expected answer: $1 \text{ litre} = 1000\text{cm}^3$ $5 \text{ litres} = 5 \times 1000\text{cm}^3 = 5000\text{cm}^3$ (b) Convert 5000cm^3 to litre. 4. Guide learners to solve word problem on litres e.g if 1 litre =1000cm^3 <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 10px;">3Ltrs</div> <div style="border: 1px solid black; padding: 2px 10px;">? cm^3</div> </div>	<ol style="list-style-type: none"> 1. Solve problems involving addition and subtraction of litres. 2. Solve problems involving multiplication and division of litres. 3. Identify litre as a unit of capacity and the relationship that exist between them. 4. Solve Word problem on litres 	<ol style="list-style-type: none"> 1. One litre container 2. Capacity container 3. Cube of dimension $10\text{cm} \times 10\text{cm} \times 10\text{cm}$ 	<p>Learners to:</p> <ol style="list-style-type: none"> 1. solve problems involving addition and subtraction of litres. 2. solve problems involving multiplication and division of litres. 3. identify litre as a unit of capacity. 4. solve word problem involving litres.

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TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
9 Plane Shapes	<p>Learners should be able to:</p> <ol style="list-style-type: none"> 1. Identify line of symmetry of plane shapes, 2. draw a line of symmetry of a given plane shape, 3. identify plane shapes that do not have symmetrical lines. 	<ol style="list-style-type: none"> 1. Symmetric and asymmetric plane shapes. 2. Drawing lines of symmetry of a plane shape. 	<p>Guides learners to:</p> <ol style="list-style-type: none"> 1. define line of symmetry of plane shapes. e.g. define line of symmetry. Expected answer: Line of symmetry can be defined as the axis or imaginary line that passes through the centre of the shape and divides it into identical or equal halves. 2. Draw the line of symmetry of a plane shapes by drawing the plane shapes as follows: <div style="text-align: center;"> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; font-size: small;"> <p>Note: Trapezium has rotational symmetry of order one. Some trapezium have one line of symmetry</p> </div> <div style="border: 1px solid black; padding: 5px; font-size: small;"> <p>Note: Parallelogram is a quadrilateral whose opposite sides are equal and parallel. The adjacent side is different length, hence has no line of symmetry.</p> </div> </div>	<ol style="list-style-type: none"> 1. Define line of symmetry of plane shapes. 2. Draw plane shapes with their lines of symmetry. 	<ul style="list-style-type: none"> • Rectangular and square shapes. • Metre rule • Measuring tape • Protractors • Geometry equipment • Sand timers. 	<p>Learners to:</p> <ol style="list-style-type: none"> 1. define line symmetry of a plane shapes. 2. identify the number of lines of symmetry in various drawn plane shapes. 3. draw line of symmetry of a given plane shape. 4. differentiate between horizontal and vertical lines. 5. Explain the properties of a triangle, equilateral, isosceles, right angle. 6. Solve quantitative problems on parallel and perpendicular lines.

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THEME 3: MENSURATION AND GEOMETRY

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STAGE TWO

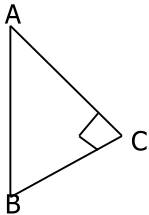
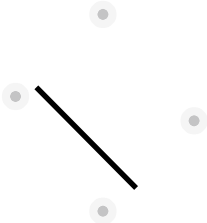
TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
Plane shapes (cont'd)	<ol style="list-style-type: none"> identify cardinal points as the four main points of the compass, Identify parallel and perpendicular lines. Sketch the following triangle ;equilateral, isosceles List the properties of a triangle; equilateral, isosceles, right angle. Solve problems involving quantitative reasoning on parallel and perpendicular lines. 	<ol style="list-style-type: none"> Cardinal points: North, South, East, West Parallel and perpendicular lines. Triangle, equilateral, isosceles, right angle. Properties of triangles. Quantitative reasoning on parallel and perpendicular line. 	<p>Guides learners to:</p> <ol style="list-style-type: none"> identify the number of the lines of symmetry in all the plan shapes drawn. identify the four cardinal points on a compass, north, south, east and west. Commonly denoted by the initials: N, E, S and W. differentiate between parallel and perpendicular lines. recognize that East and West are perpendicular to North and South, with East being the clockwise direction of rotation from the North and West being directly opposite. explain the properties of a triangle, equilateral, isosceles, right angle. 	<ol style="list-style-type: none"> Identify the lines of symmetry of various shapes. Identify the four cardinal points on a compass, north, south, east and west. Commonly denoted by the initials: N, E, S and W. differentiate between parallel and perpendicular lines. Recognize that East and West are perpendicular to North and South, with East being the clockwise direction of rotation from the North and West being directly opposite. Explain the properties of a triangle, equilateral, isosceles, right angle. 		

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THEME 3: MENSURATION AND GEOMETRY

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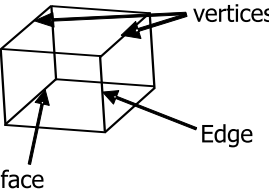
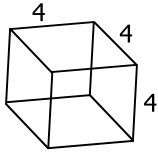
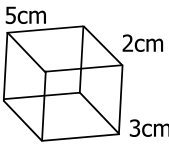
TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
Plane Shapes Cont.			<p>7. Guides learners to solve quantitative involving parallel and perpendicular line.</p> <p>i. Example 1: which of the following pairs of slides in ABC are perpendicular?</p>  <p>ii. Example 2: Use the black line below to connect the pair of grey points that makes a line parallel to the black line segment.</p> 	<p>8. Solve quantitative involving parallel and perpendicular line.</p>		

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THEME 3: MENSURATION AND GEOMETRY

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STAGE TWO

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
10. Three Dimensional Shapes	<p>Learners should be able to:</p> <ol style="list-style-type: none"> describe the properties of a three-dimensional shapes; calculate the surface area of a cube, cuboids, cylinders and pyramids; solve problems on quantitative reasoning related to 3-dimensional shapes. 	<ol style="list-style-type: none"> Properties of Three-dimensional shapes. Areas of: <ul style="list-style-type: none"> Cubes, Cuboids, cylinders, pyramids. Quantitative Reasoning related to 3-dimensional shapes 	<p>Guides learners to:</p> <ol style="list-style-type: none"> Describe the properties of 3-D shapes based on the faces, edges and vertices of a 3D shapes. Example showing faces, edges and vertices.  <ol style="list-style-type: none"> find the area of a cubes, cuboids, cylinders, and pyramids. Examples: <ol style="list-style-type: none"> What is the surface area of a cube (4x4x4) cm?  <p>Expected answer: Area = the area of the six square that covers it. Hence $A = (4\text{cm} \times 4\text{cm}) = 16\text{cm}^2$</p> <ol style="list-style-type: none"> find the surface area of a cuboids with the dimension as shown below  	<ol style="list-style-type: none"> Identify the faces, edges and vertices of a 3D shapes figures. Find the area of a cube, cuboid, cylinder and pyramid following the examples. 	<ul style="list-style-type: none"> Models of cube, cuboid, pyramid and cylinder. 	<p>Learners to:</p> <ol style="list-style-type: none"> describe the properties of a three-dimensional shapes; find area of a cube, cuboids, cylinders and pyramids; solve problems on quantitative reasoning related to 3-dimensional shapes.

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THEME 3: MENSURATION AND GEOMETRY

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STAGE THREE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
1. Angles	Learners should be able to: 1. classify angles in degree; 2. measure angles on a plane shape.	1. Measurement of angles. 2. Measurement of angles on a plane shape.	Demonstrates, using mathematical sets and with emphasis on correct placement, how to: 1. measure size of angles in Degrees. 2. Measure angles on plane shape.	Individually use mathematical sets, following the correct placement as demonstrated by the teacher, to: 1. measure angles in Degrees. 2. measure angles on a plane shape.	<ul style="list-style-type: none"> • Complete Mathematical Sets • Adhesive • Tapes • Graph sheets 	Learners to: 1. draw various plane shapes and measure the resulting angles in degrees e.g. 45,90, 60 etc.; 2. measure angles on a plane.
2. Polygons	Learners should be able to: 1. identify different shapes with their number of angles; 2. differentiate between two dimensional and three-dimensional shapes.	Polygon not exceeding octagon and three dimensional shapes	Guides Learners to: 1. identify the names and features of a given shapes e.g Squares, rectangle, Triangle, Rhombus, Parallelograms etc. 2. identify using paper cuts: <ul style="list-style-type: none"> • line of Symmetry • Numbers of sides of a given shapes • Number of angles of given shapes to differentiate between two and three dimensional shapes 	1. Identify the names and features of a given shapes 2. identify: <ul style="list-style-type: none"> • line of Symmetry • Numbers of sides of given shapes • Number of angles given shapes 	<ul style="list-style-type: none"> • Chats of two and three dimensional shapes • Adhesive 	Learners to: 1. identify different shapes with their number of angles; 2. differentiate between two dimensional and three dimensional shapes.

STAGE THREE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
3. Circle	<p>Learners should be able to:</p> <ol style="list-style-type: none"> 1. identify radius, diameter and circumference of a circle; 2. solve simple quantitative reasoning problems as it relates to circle. 	<ol style="list-style-type: none"> 1. Circle: <ul style="list-style-type: none"> • Radius, • Diameter, • circumference 2. Quantitative reasoning on Circle 	<p>Guides learners to:</p> <ol style="list-style-type: none"> 1. identify radius, diameter and circumference of a circle using a chart. <p>Hint: Radius = $\frac{\text{Diameter}}{2}$ Or $2r = \text{diameter}$ While Circumference = $2\pi r$ where $\pi = \frac{22}{7}$ Or 3.147</p> <ol style="list-style-type: none"> 2. solve simple quantitative reasoning problems related circle. 	<ol style="list-style-type: none"> 1. Identify radius, diameter and circumference of a circle. 2. solve simple quantitative reasoning problems related circle. 	<ul style="list-style-type: none"> • Chats containing circle and its properties • Concrete objects that are circular in shape 	<p>Learners to:</p> <ol style="list-style-type: none"> 1. identify radius, diameter and circumference of a given circle; 2. solve Simple quantitative reasoning problems as it relates to circle.

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THEME 3: MENSURATION AND GEOMETRY

LEVEL TWO

STAGE THREE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
4. Scale Drawing	<p>Learners should be able to:</p> <ol style="list-style-type: none"> 1. apply and use scale drawing to convert lengths and distances of objects in his/her environment to any scale; 2. draw Plain shapes according to a given scale; 3. convert plans drawn to scale to their original dimensions. 	Scale drawing	<p>Guides learners to:</p> <ol style="list-style-type: none"> 1. apply scale drawing to convert lengths and distances of objects in his/her environment to any scale. 2. take learners out to measure the dimension of playground, school farms etc. and reduce them to a given scale. 3. convert plans drawn to scale to their original dimensions. 	<ol style="list-style-type: none"> 1. Learners Practice conversion of lengths and distance to corresponding scale values 2. measure the dimension of playground, school farms etc and reduce them to a given scale 	<p>Different Scales:</p> <ul style="list-style-type: none"> • Ruler • Tape rule • Pencils • Cardboard paper • charts, etc. 	<p>Learners to:</p> <ol style="list-style-type: none"> 1.convert given lengths and distance to a given scale; 2.draw to scale playground, school farms or gardens; 3.convert scale plans to their original dimensions.

ACCELERATED BASIC EDUCATION CURRICULUM (MATHEMATICS)

THEME 4: : ALGEBRAIC OPERATIONS

LEVEL TWO

STAGE THREE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
Open Sentence	Learners should be able to: 1. solve problems expressed as open sentences; 2. express words in open sentences and solve them; 3. solve related quantitative reasoning problem relating to open sentences.	1. Open Sentences. 2. Quantitative Reasoning on Open sentence.	Guides learners to: 1. interpret and solve word problems that has to do with: • addition: e.g. Add 20 balls in bag A with 15 balls in bag B • multiplication: If the cost of 3 apples is ₦100 and 2 eggs is ₦50 what is the total cost of 6 apples and 5 eggs? • subtraction: e.g. from a bag of 100 apples, if 17 apples are taken from the bag, how many apples are remaining in the bag? • division: If 200 oranges are divided equally into 5 bags, how many oranges will each bag contain? 2. solve Quantitative aptitude related problems involving different arithmetic operations.	1. Interpret and solve word problems that has to do with: • addition, • multiplication, • subtraction, • division. 2. solve quantitative aptitude related problems involving different arithmetic operations,	<ul style="list-style-type: none"> • Open sentence chats • Multiplication division chats etc. 	Learners to: 1. solve problems expressed as open sentences; 2. interpret words in open sentences and solve them; 3. solve related quantitative reasoning problem relating to open sentences.

ACCELERATED BASIC EDUCATION CURRICULUM (MATHEMATICS)

THEME 4: EVERYDAY STATISTICS

LEVEL TWO

STAGE THREE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
1. Bar Graph	Learners should be able to: 1. create simple bar graph; 2. interpret simple bar graph or pictograph; 3. use of tally to represent numbers.	1. Bar graph. 2. Further work on pictogram and bar graph. 3. Use of tally.	1. Demonstrates how to represent a simple data with a bar graph or pictograph; 2. Guide learners to interpret simple bar graph or pictograph. 3. Guide learners to represent the number of girls and boys in the class with a tally.	1. Observes and use the data of boys and girls in the class to create a simple bar graph. 2. Interpret simple bar graph as displayed in the chart 3. Represent the number of Boys and girls in the class with a tally.	<ul style="list-style-type: none"> Charts of simple bar graphs. Counters, etc. 	Learners to: 1. create simple bar graph; 2. interpret simple bar graph or pictograph; 3. use of tally to represent numbers.

ACCELERATED BASIC EDUCATION CURRICULUM (MATHEMATICS)

THEME 5: EVERYDAY STATISTICS

LEVEL TWO

STAGE THREE

TOPIC	PERFORMANCE OBJECTIVES	CONTENT	ACTIVITIES		TEACHING AND LEARNING RESOURCES	EVALUATION GUIDE
			TEACHER	LEARNERS		
2. Measure of Central Tendencies	<p>Learners should be able to:</p> <p>1.calculate:</p> <ul style="list-style-type: none"> • mode • median • mean <p>2. solve quantitative reasoning problem involving:</p> <ul style="list-style-type: none"> • mode • median • mean 	<p>1. Mode</p> <p>2. Median</p> <p>3. Mean</p> <p>4. Quantitative reasoning</p>	<p>1. Guides learners to collect ungrouped data (e g. Data about their respective age in the class) and find its:</p> <ul style="list-style-type: none"> •Mean, •Mode, and •Median. <p>2. Leads learners to solve quantitative reasoning problems such as:</p> <div style="text-align: center;"> </div>	<p>1. collect ungrouped data within their environment and find the:</p> <ul style="list-style-type: none"> • Mean. • Mode, and • Median. <p>2. solve quantitative reasoning problems relating to Mode, Mean and Median of an ungrouped data</p>	<ul style="list-style-type: none"> • Data charts • Demographic Data 	<p>Learners to</p> <p>1. Calculate:</p> <ul style="list-style-type: none"> • Mean • Mode • Median on an ungrouped data; <p>2. Solve quantitative reasoning problem involving</p> <ul style="list-style-type: none"> • Mean • Mode • Media.

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40	Prof. M. A. Suleiman	Ahmadu Bello University, Zaria
41	Mrs. Hadiza Nasir Wali	Borno State Ministry of Education, Maiduguri
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47	Mr. Mu'azu Mamuda	Government Secondary School, Kaita, Katsina
48	Dr. David Kolawole Omole	Nigerian Educational Research and Development Council (NERDC), Sheda-Abuja
49	Professor Uzoechi Benneth Coleman	Nasarawa State University, Keffi
50	Mr. Jacob Masanso	Save the Children International, Abuja Office
51	Mr. Onisimus Laban	Plan International, Abuja Office

