



MINISTRY OF EDUCATION MALAYSIA

Integrated Curriculum for Primary Schools

Curriculum Specifications

MATHEMATICS YEAR 3



Curriculum Development Centre
Ministry of Education Malaysia
2003



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Ministry of Education Malaysia
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RUKUNEGARA

DECLARATION

OUR NATION, MALAYSIA, being dedicated

to achieving a greater unity of all her peoples;

to maintaining a democratic way of life;

to creating a just society in which the wealth of the nation shall be equitably shared;

to ensuring a liberal approach to her rich and diverse cultural traditions;

to building a progressive society which shall be orientated to modern science and technology;

WE, her peoples, pledge our united efforts to attain these ends guided by these principles:

Belief in God

Loyalty to King and Country

Upholding the Constitution

Rule of Law

Good Behaviour and Morality

NATIONAL PHILOSOPHY OF EDUCATION

Education in Malaysia is an on-going effort towards developing the potential of individuals in a holistic and integrated manner, so as to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious based on a firm belief in and devotion to God. Such an effort is designed to produce Malaysian citizens who are knowledgeable and competent, who possess high moral standards and who are responsible and capable of achieving a high level of personal well being as well as being able to contribute to the harmony and betterment of the family, society and the nation at large.

PREFACE

Science and technology plays a crucial role in meeting Malaysia's aspiration to achieve developed nation status. Since mathematics is instrumental in developing scientific and technological knowledge, the provision of quality mathematics education from an early age in the education process is critical.

The primary school Mathematics curriculum as outlined in the syllabus has been designed to provide opportunities for pupils to acquire mathematical knowledge and skills and develop the higher order problem solving and decision making skills that they can apply in their everyday lives. But, more importantly, together with the other subjects in the primary school curriculum, the mathematics curriculum seeks to inculcate noble values and love for the nation towards the final aim of developing the holistic person who is capable of contributing to the harmony and prosperity of the nation and its people.

Beginning in 2003, science and mathematics will be taught in English following a phased implementation schedule, which will be completed by 2008. Mathematics education in English makes use of ICT in its delivery. Studying mathematics in the medium of English assisted by ICT will provide

greater opportunities for pupils to enhance their knowledge and skills because they are able to source the various repositories of knowledge written in mathematical English whether in electronic or print forms. Pupils will be able to communicate mathematically in English not only in the immediate environment but also with pupils from other countries thus increasing their overall English proficiency and mathematical competence in the process.

The development of a set of Curriculum Specifications as a supporting document to the syllabus is the work of many individuals and experts in the field. To those who have contributed in one way or another to this effort, on behalf of the Ministry of Education, I would like to thank them and express my deepest appreciation.



(Dr. SHARIFAH MAIMUNAH SYED ZIN)
Director
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INTRODUCTION

Our nation's vision can be achieved through a society that is educated and competent in the application of mathematical knowledge. To achieve this vision, society must be inclined towards mathematics. Therefore, problem solving and communicational skills in mathematics have to be nurtured so that decisions can be made effectively.

Mathematics is integral in the development of science and technology. As such, the acquisition of mathematical knowledge must be upgraded periodically to create a skilled workforce in preparing the country to become a developed nation. In order to create a K-based economy, research and development skills in Mathematics must be taught and instilled at school level.

Achieving this requires a sound mathematics curriculum, competent and knowledgeable teachers who can integrate instruction with assessment, classrooms with ready access to technology, and a commitment to both equity and excellence.

The Mathematics Curriculum has been designed to provide knowledge and mathematical skills to pupils from various backgrounds and levels of ability. Acquisition of these skills will help them in their careers

later in life and in the process, benefit the society and the nation.

Several factors have been taken into account when designing the curriculum and these are: mathematical concepts and skills, terminology and vocabulary used, and the level of proficiency of English among teachers and pupils.

The Mathematics Curriculum at the primary level (KBSR) emphasises the acquisition of basic concepts and skills. The content is categorised into four interrelated areas, namely, Numbers, Measurement, Shape and Space and Statistics.

The learning of mathematics at all levels involves more than just the basic acquisition of concepts and skills. It involves, more importantly, an understanding of the underlying mathematical thinking, general strategies of problem solving, communicating mathematically and inculcating positive attitudes towards an appreciation of mathematics as an important and powerful tool in everyday life.

It is hoped that with the knowledge and skills acquired in Mathematics, pupils will discover, adapt, modify and be innovative in facing changes and future challenges.

AIM

The Primary School Mathematics Curriculum aims to build pupils' understanding of number concepts and their basic skills in computation that they can apply in their daily routines effectively and responsibly in keeping with the aspirations of a developed society and nation, and at the same time to use this knowledge to further their studies.

OBJECTIVES

The Primary School Mathematics Curriculum will enable pupils to:

1. know and understand the concepts, definition, rules and principles related to numbers, operations, space, measures and data representation;
2. master the basic operations of mathematics:
 - addition,
 - subtraction,
 - multiplication,
 - division;
3. master the skills of combined operations;
4. master basic mathematical skills, namely:
 - making estimates and approximates,
 - measuring,
 - handling data
 - representing information in the form of graphs and charts;
5. use mathematical skills and knowledge to solve problems in everyday life effectively and responsibly;
6. use the language of mathematics correctly;
7. use suitable technology in concept building, acquiring mathematical skills and solving problems;
8. apply the knowledge of mathematics systematically, heuristically, accurately and carefully;
9. participate in activities related to mathematics; and
10. appreciate the importance and beauty of mathematics.

CONTENT ORGANISATION

The Mathematics Curriculum at the primary level encompasses four main areas, namely, Numbers, Measures, Shape and Space and Statistics. The topics for each area have been arranged from the basic to the abstract. Teachers need to teach the basics before abstract topics are introduced to pupils. Each main area is divided into topics as follows:

1. Numbers

- Whole Numbers;
- Fractions;
- Decimals;
- Money;
- Percentage.

2. Measures

- Time;
- Length;
- Mass;
- Volume of Liquid.

3. Shape and Space

- Two-dimensional Shapes;
- Three-dimensional Shapes.

4. Statistics

- Average;
- Data Representation.

The **Learning Areas** outline the breadth and depth of the scope of knowledge and skills that have to be mastered during the allocated time for learning. These learning areas are, in turn, broken down into more manageable objectives. Details as to teaching-learning strategies, vocabulary to be used and points to note are set out in five columns as follows:

Column 1: Learning Objectives.

Column 2: Suggested Teaching and Learning Activities.

Column 3: Learning Outcomes.

Column 4: Points To Note.

Column 5: Vocabulary.

The purpose of these columns is to illustrate, for a particular teaching objective, a list of what pupils should know, understand and be able to do by the end of each respective topic.

The **Learning Objectives** define clearly what should be taught. They cover all aspects of the Mathematics curriculum and are presented in a developmental sequence to enable pupils to grasp concepts and master skills essential to a basic understanding of mathematics.

The **Suggested Teaching and Learning Activities** list some examples of teaching and learning activities. These include methods, techniques, strategies and resources useful in the teaching of a specific concepts and skills. These are however not the only approaches to be used in classrooms.

The **Learning Outcomes** define specifically what pupils should be able to do. They prescribe the knowledge, skills or mathematical processes and values that should be inculcated and developed at the appropriate levels. These behavioural objectives are measurable in all aspects.

In **Points To Note**, attention is drawn to the more significant aspects of mathematical concepts and skills. These aspects must be taken into accounts so as to ensure that the concepts and skills are taught and learnt effectively as intended.

The **Vocabulary** column consists of standard mathematical terms, instructional words and phrases that are relevant when structuring activities, asking questions and in setting tasks. It is important to pay careful attention to the use of correct terminology. These terms need to be introduced systematically to pupils and in various contexts so that pupils get to know of their meaning and learn how to use them appropriately.

EMPHASIS IN TEACHING AND LEARNING

The Mathematics Curriculum is ordered in such a way so as to give flexibility to the teachers to create an environment that is enjoyable, meaningful, useful and challenging for teaching and learning. At the same time it is important to ensure that pupils show progression in acquiring the mathematical concepts and skills.

On completion of a certain topic and in deciding to progress to another learning area or topic, the following need to be taken into accounts:

- The skills or concepts acquired in the new learning area or topics;
- Ensuring that the hierarchy or relationship between learning areas or topics have been followed through accordingly; and
- Ensuring the basic learning areas have or skills have been acquired or mastered before progressing to the more abstract areas.

The teaching and learning processes emphasise concept building, skill acquisition as well as the inculcation of positive values. Besides these, there are other elements that need to be taken into account and learnt through the teaching and learning processes in the classroom. The main emphasis are as follows:

1. Problem Solving in Mathematics

Problem solving is the main focus in the teaching and learning of mathematics. Understanding mathematical procedures and solving problems are two skills that emerge naturally when relational understanding is focussed upon. As a result, problem solving approaches should be used to investigate and understand mathematical content. The teaching-learning process must include exercises on problem solving skills which are comprehensive and cover the whole curriculum. The development of these skills must to be emphasised so that pupils are able to solve various problems effectively. The skills involved are:

- Interpreting problems;
- Planning the strategy;
- Carrying out the strategy; and
- Looking back at the solutions.

Various strategies and steps are used to solve problems and these can be applied to other learning areas. In solving these problems, pupils learn to apply mathematics and gradually become confident in facing new challenging situations. Among the problem solving strategies to consider are:

- Trying a simple case;
- Trial and improvement;
- Draw a diagram;
- Identifying patterns and sequences;
- Make a table, chart or a systematic list;
- Simulation;
- Make analogy; and
- Working backwards.

2. Communication in Mathematics

Communication is one way to share ideas and clarify the understanding of Mathematics. Through talking and questioning, mathematical ideas can be reflected upon, discussed and modified. The process of reasoning analytically and systematically can help reinforce and strengthen pupils' knowledge and understanding of mathematics to a deeper level. Through effective communications pupils will become efficient in problem solving and be able to explain concepts and mathematical skills to their peers and teachers.

Pupils who have developed the above skills will become more inquisitive gaining confidence in the process. Communicational skills in mathematics include reading and understanding problems, interpreting diagrams and graphs, and using correct

and concise mathematical terms during oral presentation and written work. This is also expanded to the listening skills involved.

Communication in mathematics through the listening process occurs when individuals respond to what they hear and this encourages them to think using their mathematical knowledge in making decisions.

Communication in mathematics through the reading process takes place when an individual collects information or data and rearranges the relationship between ideas and concepts.

Communication in mathematics through the visualization process takes place when an individual makes observation, analyses it, interprets and synthesises the data into graphic forms, such as pictures, diagrams, tables and graphs.

The following methods can create an effective communication environment:

- Identifying relevant contexts associated with environment and everyday life experiences of pupils;
- Identifying interests of pupils;
- Identifying teaching materials;
- Ensuring active learning;

- Stimulating meta-cognitive skills;
- Inculcating positive attitudes; and
- Creating a conducive learning environment.

Oral communication is an interactive process that involves activities like listening, speaking, reading and observing. It is a two-way interaction that takes place between teacher-pupil, pupil-pupil, and pupil-object. When pupils are challenged to think and reason about mathematics and to tell others the results of their thinking, they learn to be clear and convincing. Listening to others' explanations gives pupils the opportunities to develop their own understanding. Conversations in which mathematical ideas are explored from multiple perspectives help sharpen pupils thinking and help make connections between ideas. Such activity helps pupils develop a language for expressing mathematical ideas and appreciation of the need for precision in the language. Some effective and meaningful oral communication techniques in mathematics are as follows:

- Story-telling, question and answer sessions using own words;
- Asking and answering questions;
- Structured and unstructure interviews;
- Discussions during forums, seminars debates and brain-storming sessions; and
- Presentation of findings of assignments.

Written communication is the process whereby mathematical ideas and information are shared with others through writing. The written work is usually the result of discussions, contributions and brain-storming activities when working on assignments. Through writing, the pupils will be encouraged to think more deeply about the mathematics content and observe the relationships between concepts.

Examples of written communication activities are:

- Doing exercises;
- Keeping scrap books;
- Keeping folios;
- Undertaking projects; and
- Doing written tests.

Representation is a process of analysing a mathematical problem and interpreting it from one mode to another. Mathematical representation enables pupils to find relationship between mathematical ideas that are informal, intuitive and abstract using their everyday language. Pupils will realise that some methods of representation are more effective and useful if they know how to use the elements of mathematical representation.

3. Mathematical Reasoning

Logical reasoning or thinking is the basis for understanding and solving mathematical problems. The development of mathematical reasoning is closely related to the intellectual and communicative development of the pupils. Emphasis on logical thinking during mathematical activities opens up pupils' minds to accept mathematics as a powerful tool in the world today.

Pupils are encouraged to predict and do guess work in the process of seeking solutions. Pupils at all levels have to be trained to investigate their predictions or guesses by using concrete materials, calculators, computers, mathematical representation and others. Logical reasoning has to be infused in the teaching of mathematics so that pupils can recognise, construct and evaluate predictions and mathematical arguments.

4. Mathematical Connections

In the mathematics curriculum, opportunities for making connections must be created so that pupils can link conceptual to procedural knowledge and relate topics in mathematics with other learning areas in general.

The mathematics curriculum consists of several areas such as arithmetic, geometry, measures and problem solving. Without connections between these areas, pupils will have to learn and memorise too many concepts and skills separately. By making connections pupils are able to see mathematics as an integrated whole rather than a jumble of unconnected ideas. Teachers can foster connections in a problem-oriented classrooms by having pupils to communicate, reason and present their thinking. When these mathematical ideas are connected with real life situations and the curriculum, pupils will become more conscious in the application of mathematics. They will also be able to use mathematics contextually in different learning areas in real life.

5. Application of Technology

The application of technology helps pupils to understand mathematical concepts in depth, meaningfully and precisely enabling them to explore mathematical concepts. The use of calculators, computers, educational software, websites in the internet and available learning packages can help to upgrade the pedagogical skills in the teaching and learning of mathematics.

The use of teaching resources is very important in mathematics. This will ensure that pupils absorb abstract ideas, be creative, feel confident and be able to work independently or in groups. Most of these resources are designed for self-access learning. Through self-access learning, pupils will be able to access knowledge or skills and informations independently according to their pace. This will serve to stimulate pupils' interests and responsibility in learning mathematics.

APPROACHES IN TEACHING AND LEARNING

Various changes occur that influence the content and pedagogy in the teaching of mathematics in primary schools. These changes require variety in the way of teaching mathematics in schools. The use of teaching resources is vital in forming mathematical concepts. Teachers can use real or concrete objects in teaching and learning to help pupils gain experience, construct abstract ideas, make inventions, build self confidence, encourage independence and inculcate cooperation.

The teaching and learning materials that are used should contain self-diagnostic elements so that pupils can know how far they have understood the concepts and skills. To assist the pupils in having positive

attitudes and personalities, the intrinsic mathematical values of exactness, confidence and thinking systematically have to be absorbed through the learning areas.

Good moral values can be cultivated through suitable context. For example, learning in groups can help pupils develop social skills and encourage cooperation and self-confidence in the subject. The element of patriotism can also be inculcated through the teaching-learning process in the classroom using planned topics. These values should be imbibed throughout the process of teaching and learning mathematics.

Among the approaches that can be given consideration are:

- Pupil centered learning that is interesting;
- The learning ability and styles of learning;
- The use of relevant, suitable and effective teaching materials; and
- Formative evaluation to determine the effectiveness of teaching and learning.

The choice of an approach that is suitable will stimulate the teaching and learning environment in the classroom or outside it. The approaches that are suitable include the following:

- Cooperative learning;
- Contextual learning;
- Mastery learning;
- Constructivism;
- Enquiry-discovery; and
- Futures Study.

ASSESSMENT

Assessment is an integral part of the teaching and learning process. It has to be well-structured and carried out continuously as part of the classroom activities. By focusing on a broad range of mathematical tasks, the strengths and weaknesses of pupils can be assessed. Different methods of assessment can be conducted using multiple assessment techniques, including written and oral work as well as demonstration. These may be in the form of interviews, open-ended questions, observations and assignments. Based on the results, the teachers can rectify the pupils' misconceptions and weaknesses and at the same time improve their teaching skills. As such, teachers can take subsequent effective measures in conducting remedial and enrichment activities to upgrade pupils' performance.

TOPIC: WHOLE NUMBERS

LEARNING AREA: NUMBERS TO 10 000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Say and use the number names in familiar contexts.</p>	<ul style="list-style-type: none"> • Pupils recite number sequence in tens, hundreds and thousands up to 10 000. • Pupils sing number song to count systematically. e.g. From 5000 to 5100. • Teacher shows different representation of numbers up to 10 000 using multi-based blocks or Cuisenaire rods and pupils say the numbers. • Pupils count up to 10 000 using concrete and manipulative materials such as Cuisenaire rods or multi-based blocks. 	<p><i>Pupils will be able to:</i></p> <ol style="list-style-type: none"> Say the number names to 10 000. Recognise numerals to 10 000. Count up to 10 000 objects by grouping them in thousands, hundreds and tens. 	<p>Encourage pupils to pronounce the number names correctly.</p> <p>Check on pronunciation of number names.</p> <p>Overcome difficulties and recognise recitation errors.</p> <p>Pupils should count systematically to keep track of the count.</p> <p>Count a larger collection of objects by grouping them in thousands, hundreds, and tens.</p> <p>Emphasise skip counting in thousands, hundreds, tens, fives, twos and ones.</p> <p>Check for accuracy.</p>	<p>number</p> <p>numerals</p> <p>recite</p> <p>one thousand, one thousand and one, one thousand and two, ... ten thousand</p> <p>count</p> <p>thousands</p> <p>hundreds</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: NUMBERS TO 10 000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>2. Read and write numbers to 10 000.</p>	<ul style="list-style-type: none"> Teacher says a number, pupils write the numerals. Pupils fill in the missing numbers in a sequence or missing digits in a number. Pupils write numerals for given number words or vice versa. Teacher flashes number word cards and pupils read the number words. Pupils read and spell the number words to ten thousand. Pupils match numerals with number words. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> i. Write numerals to 10 000. ii. Read number words to 10 000. iii. Write number words to 10 000. 	<p>Check on pronunciation of number names.</p> <p>Overcome difficulties in spelling and check for accuracy.</p>	<p>numerals</p> <p>number names</p> <p>number words</p> <p>one thousand and one, one thousand and two, ... nine thousand nine hundred and ninety-nine and ten thousand</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: NUMBERS TO 10 000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY								
<p><i>Pupils will be taught to:</i></p> <p>3. Know what each digit in a number represents.</p>	<ul style="list-style-type: none"> Represent numbers with manipulatives such as Cuisenaire rods, multi-based blocks or place value material. e.g. 8069 <table border="1" data-bbox="551 711 976 823"> <thead> <tr> <th>Thousands</th> <th>Hundreds</th> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td>8</td> <td>0</td> <td>6</td> <td>9</td> </tr> </tbody> </table> <p>In 8069, 0 represents hundreds.</p> <ul style="list-style-type: none"> Pupils partition three-digit or four-digit numbers into thousands, hundreds, tens and ones. e.g.1: 3450 3450 is 3 thousands, 4 hundreds, 5 tens and 0 ones. e.g.2: $1258 = 1000 + 200 + 50 + 8$ Pupils recompose numbers. e.g. $9000 + 600 + 5 = 9605$ 	Thousands	Hundreds	Tens	Ones	8	0	6	9	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Recognise the place value of numbers. 	<p>Emphasise the place value of numbers.</p> <p>Emphasise zero as a place holder.</p>	<p>number digit thousands hundreds tens ones four-digit three-digit two-digit one-digit place value place holder partition</p>
Thousands	Hundreds	Tens	Ones									
8	0	6	9									

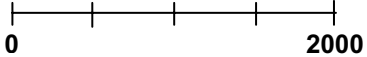
TOPIC: WHOLE NUMBERS

LEARNING AREA: NUMBERS TO 10 000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>4. Understand and use the vocabulary of comparing and arranging numbers or quantities to 10 000.</p>	<ul style="list-style-type: none"> Pupils count on and count back in thousands. <p>e.g. 4000, 5000, 6000, ... 8240, 7240, 6240, ...</p>	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Arrange numbers to 10 000: <ul style="list-style-type: none"> count on in ones, twos, fives, tens, hundreds and thousands. count back in ones, twos, fives, tens, hundreds and thousands. 	<p>Arrange in order a complete set of numbers.</p> <p>Emphasise that a number following another number in the counting on sequence is larger.</p> <p>Emphasise that a number following another number in the counting back sequence is smaller.</p>	<p>numbers</p> <p>count on</p> <p>count back</p> <p>next</p> <p>before</p> <p>after</p> <p>between</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: NUMBERS TO 10 000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> • Pupils compare two numbers using concrete and manipulative materials such as Cuisenaire rods or multi-based blocks. e.g. Which is more? 7823 or 7238 • Pupils compare two numbers based on place value. e.g. 3652 and 3552. 3652 3552 3652 is more than 3552. • Pupils position a set of numbers on a number line. e.g. 1500, 500, 1000 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> ii. Compare two numbers and say which is more or less. iii. Position numbers in order on a number line. 	<p>Check for accuracy in positioning the numbers.</p> <p>Emphasise comparing two numbers based on place value.</p>	<p>compare more less arrange order position number line smaller smallest larger largest ascending descending sequence</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: NUMBERS TO 10 000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>5. Understand and use the vocabulary of estimation and approximation.</p>	<ul style="list-style-type: none"> • Pupils dip into a bag of beans and take a handful and estimate. • Pupils estimate the number of objects in a transparent container. • Using number lines, pupils round numbers up or down to the nearest 10. • Pupils play games or simulate situations to enhance their understanding of the concepts. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> i. Estimate quantities of objects up to 1000. ii. Round whole numbers less than 10 000 to the nearest 10. 	<p>Estimation should be done from smaller number of objects to larger number.</p> <p>Record estimates and find the difference between the estimate and the actual number to ensure the reasonableness of estimation.</p> <p>If the ones in the number is less than 5, round down to the lower 10. If the ones in the number is 5 or greater, round up to the higher 10.</p>	<p>estimate estimation quantities actual difference objects handful approximation round whole numbers nearest less than lower greater higher</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: ADDITION WITH THE HIGHEST TOTAL OF 10 000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<i>Pupils will be taught to:</i>		<i>Pupils will be able to:</i>		
<p>1. Understand addition as combining two groups of objects.</p>	<ul style="list-style-type: none"> Pupils model concept of addition using concrete and manipulative materials such as multi-based blocks and Cuisenaire rods. Pupils add up to three numbers with and without regrouping. <p>e.g. $516 + 29 =$</p>	<ul style="list-style-type: none"> Add up to three numbers without regrouping, involving up to 4-digit numbers. Add two numbers up to 4-digit, with regrouping. Add three numbers up to 4-digit, with regrouping. 	<p>Emphasise that adding zero to a number leaves the number unchanged.</p> <p>Emphasise mental calculation.</p> <p>Emphasise addition using standard written method.</p> <p>e.g. $\begin{array}{r} 687 \\ + 25 \\ \hline \end{array}$</p> <p>e.g. $\begin{array}{r} 3159 \\ + 406 \\ \hline \end{array}$</p>	<p>numbers</p> <p>add</p> <p>addition</p> <p>plus</p> <p>total</p> <p>sum</p> <p>group</p> <p>regroup</p> <p>without regrouping</p> <p>with regrouping</p> <p>zero</p> <p>digit</p> <p>standard-written method</p> <p>one-digit</p> <p>two-digit</p> <p>three-digit</p> <p>four-digit</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: ADDITION WITH THE HIGHEST TOTAL OF 10 000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>2. Use and apply knowledge of addition in real life.</p>	<ul style="list-style-type: none"> • Pupils solve problems by simulating or modelling situation. • Pupils pose problems based on given information involving addition. 	<p><i>Pupils will be able to:</i></p> <p>i. Solve problems involving addition in real life situations.</p>	<p>Use and apply knowledge of addition in a variety of contexts</p> <p>Emphasise mental calculation.</p> <p>Select problems according to pupils' ability and proficiency in language.</p> <p>Encourage pupils to express ideas and opinions clearly.</p>	<p>add plus sum total number sentence solve problems modelling</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: SUBTRACTION WITHIN THE RANGE OF 10 000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<i>Pupils will be taught to:</i>		<i>Pupils will be able to:</i>		
<p>1. Understand subtraction as “take away” or “difference” between two groups of objects.</p>	<ul style="list-style-type: none"> Model concepts of subtraction using concrete and manipulative materials such as chips, multi-based blocks and Cuisenaire rods. Pupils subtract two numbers with regrouping. 	<ul style="list-style-type: none"> Subtract two numbers up to 4-digit, without regrouping. Subtract two numbers up to 4-digit, with regrouping. 	<p>Emphasise that subtracting zero from a number leaves the number unchanged.</p> <p>Emphasise mental calculation</p> <p>Emphasise subtraction using standard written method.</p> <p>e.g. $\begin{array}{r} 7896 \\ - 1253 \\ \hline \end{array}$</p> <p>e.g. $\begin{array}{r} 648 \\ - 59 \\ \hline \end{array}$</p>	<p>subtract</p> <p>take away</p> <p>minus</p> <p>How many left?</p> <p>What is left?</p> <p>regrouping</p> <p>zero</p> <p>digit</p> <p>multiples</p> <p>standard written method</p> <p>one-digit</p> <p>two-digit</p> <p>three-digit</p> <p>four-digit</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: SUBTRACTION WITHIN THE RANGE OF 10 000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> Pupils subtract three numbers without regrouping and with regrouping. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> iii. Subtract three numbers up to 4-digit, without regrouping. iv. Subtract three numbers up to 4-digit, with regrouping. 	<p>Emphasise subtraction using standard written method.</p> <p>e.g. $7859 - 231 - 304 =$</p> $\begin{array}{r} 7859 \\ - 231 \\ \hline 7628 \end{array} \qquad \begin{array}{r} 7628 \\ - 304 \\ \hline 7324 \end{array}$ <p>e.g. $95 - 6 - 7 =$</p> $\begin{array}{r} 95 \\ - 6 \\ \hline 89 \end{array} \qquad \begin{array}{r} 89 \\ - 7 \\ \hline 82 \end{array}$	

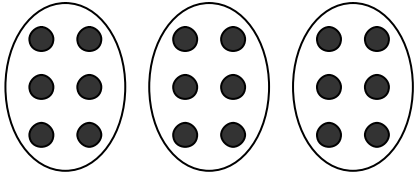
TOPIC: WHOLE NUMBERS

LEARNING AREA: SUBTRACTION WITHIN THE RANGE OF 10 000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>2. Use and apply knowledge of subtraction in real life.</p>	<ul style="list-style-type: none"> Develop the concept of subtraction as the inverse of addition by doing these number sentences. e.g $3000 + 4000 = 7000$ $4000 + 3000 = 7000$ $7000 - 4000 = 3000$ $7000 - 3000 = 4000$ Pupils write as many number sentences as they can using a set of three numbers. Discuss further and accept comments from pupils. Pupils solve problems by simulating or modelling situations. Pupils pose problems based on given information involving subtraction. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Recognise subtraction as the inverse of addition. Solve problems involving subtraction in real life situations. 	<p>Use and apply knowledge of subtraction in a variety of contexts.</p> <p>Continue to develop the understanding of subtraction as taking away and finding the difference between two numbers.</p> <p>Select problems according to pupils' ability and proficiency in language.</p> <p>Encourage pupils to express ideas and opinions clearly.</p>	<p>subtract subtraction take away minus difference How many left? What is left? regrouping standard written method one-digit two-digit three-digit four-digit addition inverse solve problems modelling</p>

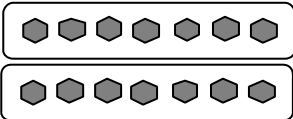
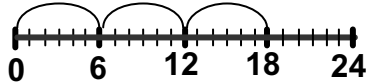

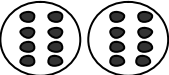

TOPIC: WHOLE NUMBERS

LEARNING AREA: MULTIPLICATION WITHIN 6, 7, 8 AND 9 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Understand multiplication as repeated addition (6, 7, 8 and 9 times-tables).</p>	<ul style="list-style-type: none"> Pupils model concept of multiplication as repeated addition using concrete and manipulative materials. <p>e.g. Pupils form 3 groups of 6 books. Pupils count the number of groups and the number of books in each group.</p> <p>Pupils write the number sentences to find the total number of books in 3 groups. $6 + 6 + 6 = 18$ $3 \times 6 = 18$</p>  <p>Relate multiplication to repeated addition.</p>	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Recognise multiplication as repeated addition. 	<p>Emphasise multiplication as repeated addition.</p>	<p>equals times multiply multiplied by skip counting times-tables multiplication tables repeated addition</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: MULTIPLICATION WITHIN 6, 7, 8 AND 9 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> Pupils write number sentences for multiplication. e.g.1  $2 \times 7 = 14$ e.g.2  $3 \times 6 = 18$ Pupils build up multiplication tables of 6, 7, 8 and 9 using concrete objects, manipulative materials or pictorial representations.  $1 \times 8 = 8$  $2 \times 8 = 16$  $3 \times 8 = 24$ 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> ii. Write number sentences for multiplication. iii. Build up the multiplication tables of 6, 7, 8 and 9. iv. Multiply two 1-digit numbers. 	<p>Emphasise 'x' and '=' signs in number sentences.</p> <p>Relate 'x' to times and multiply.</p> <p>Read number sentence $6 \times 4 = 24$ as "six times four equals twenty-four" or "six multiplied by four is equal to twenty-four."</p> <p>Include activities such as making number patterns using manipulatives or ICT to build up multiplication tables.</p> <p>Emphasise multiplication using standard written method. e.g. $\begin{array}{r} 7 \\ \times 6 \\ \hline \end{array}$</p>	<p>times multiply multiplied by equals is equal to skip counting times-tables number sentence multiplication multiplication tables build up standard written method one-digit number</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: MULTIPLICATION WITHIN 6, 7, 8 AND 9 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>2. Know by heart the multiplication tables of 6, 7, 8 and 9.</p>	<ul style="list-style-type: none"> Pupils list all possible combinations of two numbers that equals to a given product. <p>e.g. Product is 72 $12 \times 6 = 72$ $9 \times 8 = 72$ $8 \times 9 = 72$ $6 \times 12 = 72$</p> <ul style="list-style-type: none"> Pupils use flash cards and say aloud multiplication facts. Pupils memorise multiplication tables by singing or chanting. Pupils respond rapidly to oral and written questions such as: <p>e.g. 8 times 7. Multiply 9 by 6.</p>	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Recall rapidly the multiplication facts of 6, 7, 8 and 9 times-tables. 	<p>Pupils should know by heart the basic facts of multiplication involving 6, 7, 8 and 9 times-tables.</p> <p>Relate skip counting by sixes, sevens, eights and nines to multiplication.</p> <p>Emphasise mental calculation.</p>	<p>times multiply multiplied by equals is equal to multiplication recall skip count</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: MULTIPLICATION WITHIN 6, 7, 8 AND 9 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>3. Use and apply knowledge of multiplication in real life.</p>	<ul style="list-style-type: none"> Pupils find unknown numbers in number sentences. e.g. $\square \times 8 = 56$ $\square \times \square = 81$ Pupils solve problems by simulating or modelling situations. Pupils pose problems based on given information involving multiplication. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Find unknown numbers in number sentences. Solve problems involving multiplication in real life situations. 	<p>Use and apply knowledge of multiplication in a variety of contexts.</p> <p>Emphasise finding unknown numbers in number sentences as follows:</p> <ul style="list-style-type: none"> a. $2 \times 6 = \square$ a. $9 \times \square = 63$ b. $\square \times 8 = 24$ c. $\square \times \square = 49$ d. $\square = 8 \times 7$ e. $72 = 9 \times \square$ f. $64 = \square \times 8$ g. $54 = \square \times \square$ <p>Emphasise mental calculation.</p> <p>Select problems according to pupils' ability and proficiency in language.</p>	<p>unknown numbers times multiply multiplied by equals is equal to number sentence solve</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: MULTIPLICATION WITH THE HIGHEST PRODUCT OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Understand and use the operation of multiplication.</p>	<ul style="list-style-type: none"> Pupils use concrete materials and pictorial representations to develop the concept of multiplication. Pupils multiply two numbers without regrouping. e.g. 1. $14 \times 2 = 28$ 2. $80 \times 10 = 800$ 3. $213 \times 3 = 639$ Pupils multiply two numbers with regrouping. e.g. 1. $57 \times 6 = 342$ 2. $438 \times 4 = 1752$ Pupils multiply two numbers mentally by partitioning the multiplier. e.g. $23 \times 4 =$ $20 \times 4 = 80$ $3 \times 4 = 12$ $23 \times 4 = 92$ 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> i. Multiply 2-digit numbers by 1-digit numbers without regrouping. ii. Multiply 2-digit numbers by 10. iii. Multiply 2-digit numbers by 1-digit numbers with regrouping. iv. Multiply 3-digit numbers by 1-digit numbers without regrouping. v. Multiply 3-digit numbers by 1-digit numbers with regrouping. 	<p>Emphasise that any number multiplied by zero results in zero. e.g. $6 \times 0 = 0$ $0 \times 6 = 0$</p> <p>Emphasise that a number multiplied by one will give an answer the same as the number. e.g. $18 \times 1 = 18$ $1 \times 18 = 18$</p> <p>Emphasise multiplication using standard written method.</p> <p>Emphasise mental calculation.</p>	<p>times multiply multiplied by equals is equal to without regrouping with regrouping multiplication product</p>

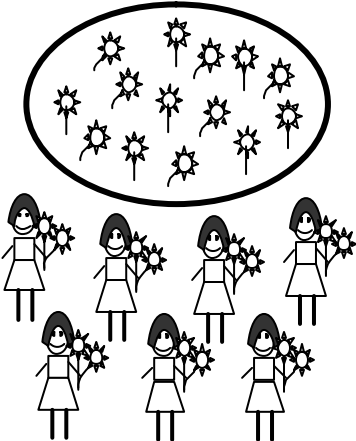
TOPIC: WHOLE NUMBERS

LEARNING AREA: MULTIPLICATION WITH THE HIGHEST PRODUCT OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> • Pupils solve problems by simulating or modelling situations. • Pupils pose problems based on given information involving multiplication. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> vi. Solve problems involving multiplication in real life situations. 	<p>Use and apply knowledge of multiplication in a variety of contexts.</p> <p>Continue to develop the understanding of multiplication as repeated addition.</p> <p>Select problems according to pupils' ability and proficiency in language.</p> <p>Encourage pupils to express ideas and opinions clearly.</p>	<p>times multiply multiplied by equals is equal to without regrouping with regrouping multiplication product solve problems</p>

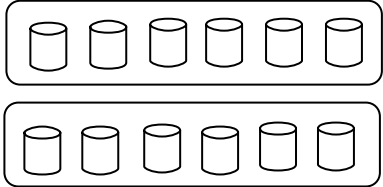
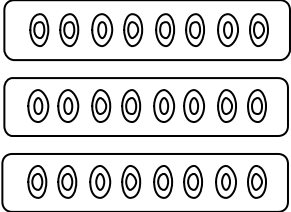
TOPIC: WHOLE NUMBERS

LEARNING AREA: DIVISION WITHIN 6, 7, 8 AND 9 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Understand division as sharing equally or grouping. (Corresponding to 6, 7, 8 and 9 times-tables)</p>	<ul style="list-style-type: none"> Pupils model the concept of division using concrete and manipulative materials. <p>a: Sharing equally</p> <p>e.g. 14 flowers are shared equally between 7 girls. Each girl gets 2 flowers.</p>  <p>$14 \div 7 = 2$</p>	<p><i>Pupils will be able to:</i></p> <p>i. Recognise division as sharing equally.</p>	<p>Relate division as sharing equally or grouping.</p> <p>Use ‘÷’ and ‘=’ signs in number sentences.</p> <p>Relate ‘÷’ to sharing equally or grouping in sixes, sevens, eights and nines.</p> <p>Read number sentence $21 \div 7 = 3$ as “twenty-one divided by seven equals three” or “twenty-one divided by seven is equal to three”.</p> <p>Use manipulatives to help pupils see the relationship between division and multiplication. e.g. $72 \div 9 = 8$ $9 \times 8 = 72$</p> <p>Use multiplication tables to develop division skills.</p>	<p>share</p> <p>sharing equally</p> <p>grouping</p> <p>times-tables</p> <p>divide</p> <p>equals</p> <p>is equal to</p> <p>division</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: DIVISION WITHIN 6, 7, 8 AND 9 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<p>b. Grouping e.g. $12 \div 6 = 2$</p>  <ul style="list-style-type: none"> Pupils write number sentences for division. e.g.  <p>$24 \div 8 = 3$</p>	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> ii. Recognise division as grouping. iii. Write number sentences for division. iv. Divide numbers within the multiplication tables. 	<p>Emphasise division using standard written method. e.g. $8 \overline{)24}$</p> <p>Exclude division with remainders.</p>	<p>share equally group in sixes group in sevens group in eights group in nines divide division divided by equals is equal to standard written method multiplication tables number sentence</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: DIVISION WITHIN 6, 7, 8 AND 9 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>2. Derive quickly division facts. (Corresponding to 6, 7, 8 and 9 times-tables)</p>	<ul style="list-style-type: none"> • Pupils use flash cards and say division facts aloud. • Pupils respond rapidly to oral and written questions. <p>e.g. Share 25 among 5. Divide 30 by 6.</p>	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> i. Derive quickly division facts of 6, 7, 8 and 9 times-tables. 	<p>Pupils should know by heart the division facts of 6, 7, 8 and 9 times-tables.</p> <p>Emphasise mental calculation.</p>	<p>divide division share equally group number sentence derive</p>

TOPIC: WHOLE NUMBERS

LEARNING AREA: DIVISION WITHIN 6, 7, 8 AND 9 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>3. Use and apply knowledge of division in real life.</p>	<ul style="list-style-type: none"> Pupils solve problems by simulating or modelling situations. e.g. Jeya has made a pattern using 12 tiles. One tile in every four is red. How many tiles are red? Pupils pose problems based on given information involving division. e.g. $30 \div 5 = 6$ I have 30 cakes. One box holds 5 cakes. So I need 6 boxes to hold all the cakes. Pupils find unknown numbers in number sentences. e.g. $48 \div \square = 8$ 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Find unknown numbers in number sentences. Solve problems involving division in real life situations. 	<p>Select problems according to pupils' ability and proficiency in language.</p> <p>Use and apply knowledge of division in a variety of contexts.</p> <p>Emphasise finding unknown numbers in number sentences as follows.</p> <p>e.g:</p> <ul style="list-style-type: none"> a. $40 \div 8 = \square$ b. $49 \div \square = 7$ a. $\square \div 9 = 3$ b. $\square \div \square = 9$ c. $\square = 36 \div 9$ d. $4 = 32 \div \square$ e. $9 = \square \div 7$ f. $8 = \square \div \square$ 	<ul style="list-style-type: none"> divide share equally number sentence divide unknown numbers modeling simulating equals is equal to with remainder without remainders solve problems

TOPIC: WHOLE NUMBERS

LEARNING AREA: DIVISION WITH THE HIGHEST DIVIDEND OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Understand and use the operation of division.</p>	<ul style="list-style-type: none"> Pupils use concrete materials and pictorial representations to develop the concept of division. Pupils divide two numbers without remainders. e.g. 1. $35 \div 7 = 5$ 2. $60 \div 10 = 6$ 3. $408 \div 2 = 204$ Pupils divide two numbers with remainders. e.g. 1. $37 \div 6 = 6$ remainder 1 2. $525 \div 10 = 52$ remainder 5 3. $106 \div 4 = 26$ remainder 2 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Divide 2-digit numbers by 1-digit numbers without remainders. Divide 2-digit numbers by 10 without remainders. Divide 2-digit number by 1-digit numbers with remainders. Divide 2-digit numbers by 10 with remainders. Divide 3-digit numbers by 1-digit numbers without remainders. Divide 3-digit numbers by 1-digit numbers with remainders. 	<p>Exclude zero as divisor.</p> <p>Emphasise that a number divided by one will give an answer the same as the number.</p> <p>Emphasise division using standard written method.</p> <p>Emphasise mental calculation.</p> <p>Continue to develop the understanding of division as sharing equally and grouping.</p> <p>Encourage pupils to express ideas and opinions clearly.</p>	<p>divide</p> <p>divided by</p> <p>division</p> <p>sharing equally</p> <p>equals</p> <p>is equal to</p> <p>with remainder</p> <p>without remainders</p>

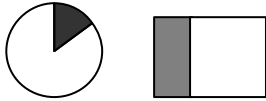


TOPIC: WHOLE NUMBERS

LEARNING AREA: DIVISION WITH THE HIGHEST DIVIDEND OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> • Pupils solve problems by simulating or modelling situations. • Pupils pose problems based on given information involving division. 	<p><i>Pupils will be able to:</i></p> <p>vii. Solve problems involving division in real life situations.</p>	<p>Use and apply knowledge of division in a variety of contexts.</p> <p>Continue to develop the understanding of division as sharing equally and grouping.</p> <p>Select problems according to pupils' ability and proficiency in language.</p> <p>Encourage pupils to express ideas and opinions clearly.</p>	<p>divide divided by division equals is equal to with remainder without remainders solve pose problems</p>

TOPIC: FRACTIONS

LEARNING AREA: INTRODUCTION TO FRACTIONS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Understand and use the vocabulary related to fractions.</p>	<ul style="list-style-type: none"> Teacher introduces the concept of fractions using concrete objects and manipulative materials. Use ICT/ graphic to model fractions. Discuss by showing what is not one half or one quarter and explain why. <p>e.g.</p> <p>1. These shapes are not divided into halves.</p>  <p>2. This jar is not half full.</p> 	<p><i>Pupils will be able to:</i></p> <ol style="list-style-type: none"> Recognise one whole, one half, one quarter and three quarters. Say fractions, parts, one whole, one half, one quarter and three quarters in context. Read fractions, parts, one whole, one half, one quarter and three quarters in context. Write $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{3}{4}$ in context. Recognise $\frac{2}{4} = \frac{1}{2}$ and $\frac{4}{4} = 1$. Recognise fractions as equal shares of a whole set. 	<p>Emphasise fractions as:</p> <ol style="list-style-type: none"> equalled size portions of a whole. Equal shares of a whole set: 'one half' and 'one quarter'. <p>Limit fractions to $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{3}{4}$.</p>  <p>is written as $\frac{1}{2}$ and pronounced as "half", "one half" or "one over two".</p> <p>Introduce the terms, numerator and denominator. For example in $\frac{1}{2}$, 1 is the numerator and 2 is the denominator.</p>	<p>fractions parts one whole one half one quarter two quarters three quarters numerator denominator equal parts equal shares portions over</p>

TOPIC: MONEY

LEARNING AREA: MONEY TO RM100

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Understand and use the vocabulary related to money.</p>	<ul style="list-style-type: none"> Pupils show different combinations of notes to represent a given amount of money. e.g. RM 57.00 <div style="display: flex; justify-content: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">RM50</div> <div style="border: 1px solid black; padding: 2px 5px;">RM5</div> <div style="border: 1px solid black; padding: 2px 5px;">RM 2</div> </div> <p style="text-align: center;">or</p> <div style="display: flex; justify-content: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">RM50</div> <div style="border: 1px solid black; padding: 2px 5px;">RM5</div> <div style="border: 1px solid black; padding: 2px 5px;">RM1</div> </div> <div style="display: flex; justify-content: center; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">RM 1</div> </div> <ul style="list-style-type: none"> Pupils show different combinations of notes and coins to represent a given amount of money. e.g. RM 68.55 <div style="display: flex; justify-content: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">RM50</div> <div style="border: 1px solid black; padding: 2px 5px;">RM10</div> <div style="border: 1px solid black; padding: 2px 5px;">RM5</div> </div> <div style="display: flex; justify-content: center; gap: 10px; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">RM1</div> <div style="border: 1px solid black; padding: 2px 5px;">RM1</div> <div style="border: 1px solid black; padding: 2px 5px;">RM1</div> </div> <div style="display: flex; justify-content: center; gap: 10px; margin-top: 10px;"> <div style="border: 1px solid black; border-radius: 50%; padding: 5px; text-align: center;">20 sen</div> <div style="border: 1px solid black; border-radius: 50%; padding: 5px; text-align: center;">20 sen</div> <div style="border: 1px solid black; border-radius: 50%; padding: 5px; text-align: center;">10 sen</div> <div style="border: 1px solid black; border-radius: 50%; padding: 5px; text-align: center;">5 sen</div> </div>	<p><i>Pupils will be able to:</i></p> <p>i. Represent the value of money in RM and sen.</p>	<p>Emphasise stating the value of money correctly.</p> <p>Introduce genuine RM100 note.</p>	<p>ringgit sen RM coins notes value How much? combination money</p>

TOPIC: MONEY

LEARNING AREA: MONEY TO RM100

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> • Provide notes and coins (toy-money) of different denominations to show the different combinations for a certain amount of money. • Encourage pupils to use mental addition to convert ringgit to sen. e.g. RM52.80 = 5200 sen + 80 sen 4635 sen = RM46.00 + RM0.35 • Pupils do conversion using 'toy money'. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> ii. Exchange: <ul style="list-style-type: none"> a. coins up to RM10; and b. notes up to RM100. iii. Convert ringgit to sen and vice versa. 	<p>Check for accurate amount exchanged.</p> <p>Provide pupils with sufficient amount of 'toy money' to carry out conversion activity.</p> <p>Emphasise '0' in the 'sen' value. e.g. RM69.05 RM14.70</p>	<p>ringgit sen RM coins notes value How much? combinations money</p>

TOPIC: MONEY

LEARNING AREA: MONEY TO RM100

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>2. Use and apply knowledge of money in real life.</p>	<ul style="list-style-type: none"> Set up bargain counters with items priced up to RM100 for buying and selling activities. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Add money up to RM100. Subtract money up to RM100. 	<p>Limit:</p> <ul style="list-style-type: none"> addition to the highest total of RM100; and subtraction within the range of RM100. <p>Emphasise addition and subtraction of money using standard written method.</p> <p>e.g. 1. $\begin{array}{r} \text{RM } 32.45 \\ + \text{RM } 17.05 \\ \hline \end{array}$</p> <p>e.g. 2. $\begin{array}{r} \text{RM } 80.00 \\ - \text{RM } 20.00 \\ \hline \end{array}$</p> <p>Check for accuracy in addition and subtraction.</p>	<p>money</p> <p>ringgit</p> <p>sen</p> <p>RM</p> <p>coins</p> <p>notes</p> <p>value</p> <p>add</p> <p>subtract</p> <p>How much more?</p> <p>How much less?</p> <p>balance</p> <p>total</p>

TOPIC: MONEY

LEARNING AREA: MONEY TO RM100

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> Pupils model concept of multiplication and division using 'toy money'. Pupils multiply and divide money in: <ol style="list-style-type: none"> RM only; and sen only. <p>e.g.</p> <ol style="list-style-type: none"> $RM7 \times 3 =$ $50 \text{ sen} \times 7 =$ $RM45 \div 9 =$ $85 \text{ sen} \div 5 =$ 	<p><i>Pupils will be able to:</i></p> <ol style="list-style-type: none"> Multiply money to the highest product of RM100. Divide money with dividend not more than RM100. 	<p>Limit:</p> <ol style="list-style-type: none"> multiplicand to 1-digit; divisor to 1-digit; and exclude remainders. <p>Provide pupils with sufficient amount of 'toy money'.</p> <p>Multiplication and division of money involves:</p> <ol style="list-style-type: none"> RM only; and sen only. <p>Emphasise multiplication and division of money using standard written method.</p> <p>e.g.</p> <ol style="list-style-type: none"> $\begin{array}{r} RM\ 14 \\ \times \quad 8 \\ \hline \end{array}$ $6 \overline{) RM30}$ <p>Exclude division with remainders.</p>	<p>money ringgit sen RM coins notes value amount multiply multiplied by multiplication repeated addition divide divided by division share sharing equally standard written method</p>

TOPIC: MONEY

LEARNING AREA: MONEY TO RM100

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> Use any of the four operations to solve story problems involving money in real life. <p>e.g.1</p> <p>My mother gives me RM52.40 and my father gives me RM20.20. How much would I have?</p> <p>e.g.2</p> <p>Three boys share RM36 equally. How much money does each boy get?</p> <ul style="list-style-type: none"> Pupils pose problems related to the four operations involving money. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> v. Solve problems involving money in real life situations. 	<p>Select problems according to pupils' ability and proficiency in the language.</p> <p>Encourage pupils to explain methods used.</p>	<p>money</p> <p>Ringgit</p> <p>coins</p> <p>notes</p> <p>sen</p> <p>RM</p> <p>value</p> <p>amount</p> <p>how much?</p> <p>solve</p> <p>problems</p>

TOPIC: TIME

LEARNING AREA: READING AND WRITING TIME

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Understand, read and write the vocabulary related to time.</p>	<ul style="list-style-type: none"> Teacher uses a clock face to show half hour and quarter hour. Pupils say time accordingly after teacher. 	<p><i>Pupils will be able to:</i></p> <p>i. Read time to the half or quarter hour on a clock.</p>	<p>Use analogue and digital clocks.</p> <p>Emphasise the correct ways of reading time.</p> <p>e.g.1: 4:15 a. "Quarter past four." b. "Fifteen minutes past four." c. "Fifteen past four." d. "Four fifteen."</p> <p>e.g.2: 10:45 a. "Quarter to eleven." b. "Fifteen minutes to eleven." c. "Fifteen to eleven." d. "Ten forty-five."</p> <p>e.g.3: 2:30 a. "Half past two." b. "Thirty minutes past two." c. "Two thirty."</p>	<p>half quarter hour quarter past quarter to half past ... minutes past ... past ... minutes to ... to</p>

TOPIC: TIME

LEARNING AREA: READING AND WRITING TIME

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> • Pupils write time to the half and quarter hour based on times shown on clock faces. • Pupils read the class timetable, bus schedules, radio or television programmes. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> ii. Write the time to the half and quarter hour. iii. Read simple timetables. 	<p>Emphasise the correct ways of writing time.</p> <p>e.g.1: 2:45 a. Quarter to three. b. Fifteen minutes to three. c. Fifteen to three. d. Two forty-five.</p> <p>e.g.2: 7.15 a. Quarter past seven. b. Fifteen minutes past seven. c. Fifteen past seven d. Seven fifteen.</p> <p>e.g.3: 11.30 a. Half past eleven. b. Thirty minutes past eleven. c. Eleven thirty.</p> <p>Check on the correct spelling.</p>	<p>half quarter hour quarter past quarter to half past ... minutes past ... past ... minutes to ... to</p>

TOPIC: TIME

LEARNING AREA: READING AND WRITING TIME

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> Pupils read calendars. 	<p><i>Pupils will be able to:</i></p> <p>iv. Read calendars.</p>	<p>Emphasise the correct ways of reading dates.</p> <p>e.g.</p> <ol style="list-style-type: none"> 1 April → 1st of April <i>First of April.</i> 2 May → 2nd of May <i>Second of May.</i> 3 June → 3rd of June <i>Third of June.</i> 4 July → 4th of July <i>Fourth of July.</i> 	<p>rows</p> <p>columns</p> <p>date</p> <p>calendars</p> <p>month</p> <p>day</p> <p>week</p>

TOPIC: TIME

LEARNING AREA: RELATIONSHIP BETWEEN UNITS OF TIME

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Understand the relationship between units of time.</p>	<ul style="list-style-type: none"> Teacher uses clocks with the second hand to show the relationship between minutes and seconds. Teacher uses calendar to engage pupils in activities to understand the relationship between: <ol style="list-style-type: none"> week and days; and year and months. Pupils convert larger units to smaller units and vice versa. <p>e.g. 5 weeks = 35 days 28 days = 4 weeks</p> Pupils respond rapidly to oral and written questions involving conversion. 	<p><i>Pupils will be able to:</i></p> <ol style="list-style-type: none"> Use units of time and know the relationship between: <ol style="list-style-type: none"> minute and seconds; week and days; and year and months. Convert weeks to days and vice versa. 	<p>Emphasise the standard units for time and show the relationship between them.</p> <p>1 minute = 60 seconds 1 week = 7 days 1 year = 12 months</p> <p>Start conversion from larger to smaller units.</p>	<p>minute minutes second seconds day days week weeks month months year years second hand minute hand hour hand units convert</p>

TOPIC: TIME

LEARNING AREA: ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION INVOLVING TIME

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<i>Pupils will be taught to:</i>		<i>Pupils will be able to:</i>		
1. Add, subtract, multiply and divide units of time.	<ul style="list-style-type: none"> Pupils add and subtract units of time in: <ol style="list-style-type: none"> hours; and minutes. <p>e.g.</p> <ol style="list-style-type: none"> 3 hours + 2 hours = 5 hours 20 minutes + 10 minutes + 35 minutes = 65 minutes 14 hours – 9 hours = 5 hours 130 minutes – 45 minutes = 85 minutes 	<ol style="list-style-type: none"> Add units of time in: <ol style="list-style-type: none"> hours; and minutes. Subtract units of time in: <ol style="list-style-type: none"> hours; and minutes. 	<p>Exclude compound units.</p> <p>Exclude conversion of units.</p> <p>Emphasis e mental calculation.</p> <p>Include addition and subtraction of time using standard written method.</p> <p>e.g.</p> <ol style="list-style-type: none"> $\begin{array}{r} 15 \text{ minutes} \\ 30 \text{ minutes} \\ + \underline{25 \text{ minutes}} \\ \hline \end{array}$ $\begin{array}{r} 14 \text{ hours} \\ - \underline{8 \text{ hours}} \\ \hline \end{array}$ 	<p>hour</p> <p>hours</p> <p>minute</p> <p>minutes</p> <p>add</p> <p>plus</p> <p>total</p> <p>sum</p> <p>equals</p> <p>is equal to</p> <p>altogether</p> <p>subtract</p> <p>minus</p> <p>take away</p> <p>... hours left?</p> <p>... minutes left?</p>

TOPIC: TIME

LEARNING AREA: ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION INVOLVING TIME

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> Pupils multiply and divide units of time in: <ol style="list-style-type: none"> hours; minutes. <p>e.g.</p> <ol style="list-style-type: none"> 15 hours x 4 = 60 hours 49 minutes x 3 = 147 minutes 18 hours ÷ 9 = 2 hours 240 minutes ÷ 6 = 40 minutes 	<p><i>Pupils will be able to:</i></p> <ol style="list-style-type: none"> Multiply units of time in: <ol style="list-style-type: none"> hours; and minutes. Divide units of time in: <ol style="list-style-type: none"> hours; and minutes. 	<p>Limit:</p> <ol style="list-style-type: none"> multiplicand to 1-digit; divisor to 1-digit; and exclude remainders. <p>Exclude conversion of units.</p> <p>Emphasise mental calculation.</p> <p>Include multiplication and division of time using standard written method.</p> <p>e.g.</p> <ol style="list-style-type: none"> $\begin{array}{r} 13 \text{ hours} \\ \times 7 \\ \hline \end{array}$ $6 \overline{)42} \text{ minutes}$ 	<p>hour hours minute minutes times multiply multiplied by share share equally division divide divided by recall times- tables equals is equal to</p>

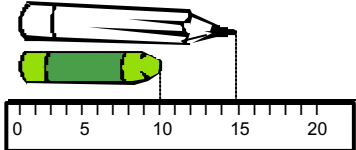
TOPIC: TIME

LEARNING AREA: SOLVING PROBLEMS INVOLVING TIME

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Use and apply knowledge of time in real life.</p>	<ul style="list-style-type: none"> Pupils solve problems involving time in real life situations. <p>e.g.</p> <ol style="list-style-type: none"> Shanti got into the pool at 3 o'clock. She came out at 5 o'clock. How long did she swim? Hon Meng takes 15 minutes to answer 5 questions. How long does he take to answer 1 question? <ul style="list-style-type: none"> Pupils pose problems related to the four operations involving time. 	<p><i>Pupils will be able to:</i></p> <ol style="list-style-type: none"> Solve problems involving time in real life situations. 	<p>Select problems according to pupils' ability and proficiency in language.</p> <p>Exclude conversion of units.</p>	<p>hour hours minute minutes add plus take away minus times multiply multiplied by share share equally divide divided by equals is equal to solve pose</p>

TOPIC: LENGTH

LEARNING AREA: MEASURING AND COMPARING LENGTHS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Measure and compare lengths using standard units.</p>	<ul style="list-style-type: none"> Teacher shows and explains reading of scales to the nearest division. Pupils read scales on metre and centimetre rulers. Pupils measure and record lengths of objects using metre or centimetre rulers. Pupils measure and compare lengths of objects using standard units. <p>e.g.</p>  <p>The pencil is 15 cm long. The crayon is 10 cm long. The pencil is 5 cm longer than the crayon.</p>	<p><i>Pupils will be able to:</i></p> <ol style="list-style-type: none"> Read scales to the nearest division. Measure and record lengths of objects using the standard units <ol style="list-style-type: none"> metres; and centimetres. Compare the lengths of two objects using standard units <ol style="list-style-type: none"> metres; and centimetres. 	<p>Emphasise that measuring should start from the '0' mark of the ruler.</p> <p>Introduce the abbreviations: a. 'm' for metre; and b. 'cm' for centimetre.</p> <p>Ensure that diagrams or pictures given are of exact measurements, for example 3 m, 10 cm and 18 cm.</p> <p>Exclude compound units.</p> <p>Measurements are made to the nearest metre and centimetre.</p> <p>Emphasise that depth is equivalent to height.</p>	<p>read scales measure metres m centimetres cm length height width depth measure compare measurement</p>

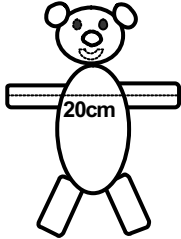
TOPIC: LENGTH

LEARNING AREA: MEASURING AND COMPARING LENGTHS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY																				
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> Pupils estimate lengths of objects then check with the actual measurements. <table border="1" data-bbox="555 643 992 938"> <thead> <tr> <th>Objects</th> <th>Estimate</th> <th>Actual</th> <th>Difference</th> </tr> </thead> <tbody> <tr> <td>Height of door</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Length of pupil's arm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Width of room</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Depth of pail</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Objects	Estimate	Actual	Difference	Height of door				Length of pupil's arm				Width of room				Depth of pail				<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> iv. Estimate the lengths of objects in: <ul style="list-style-type: none"> a. metres; and b. centimetres. 	<p>Emphasise choosing suitable units for estimations.</p> <p>Encourage pupils to analyse how close their estimates were.</p>	<p>estimate estimation actual measure measurements metres m centimetres cm height length depth width record check difference</p>
Objects	Estimate	Actual	Difference																					
Height of door																								
Length of pupil's arm																								
Width of room																								
Depth of pail																								

TOPIC: LENGTH

LEARNING AREA: RELATIONSHIP BETWEEN UNITS OF LENGTH

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>2. Understand the relationship between units of length.</p>	<ul style="list-style-type: none"> Engage pupils in activities that will create an awareness of relationship. <p>e.g. How many teddies need to join hands to make a metre-long line?</p> 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Know and use the relationship between metres and centimetres. 	<p>Emphasise the standard units for lengths and show the relationship between metres and centimetres.</p> <p>1 m = 100 cm 450 cm = 4 m 50 cm</p> <p>Emphasise mental calculation.</p>	<p>measure metres m centimetres cm length width height depth relationship units</p>

TOPIC: LENGTH

LEARNING AREA: ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION INVOLVING LENGTH

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<i>Pupils will be taught to:</i>		<i>Pupils will be able to:</i>		
<p>1. Add, subtract, multiply and divide units of length.</p>	<ul style="list-style-type: none"> Pupils add units of length in metres and centimetres. Pupils subtract units of length in metres and centimetres. 	<p>i. Add units of length in:</p> <p>a. metres; and b. centimetres.</p> <p>ii. Subtract units of length in:</p> <p>a. metres; and b. centimetres.</p>	<p>Exclude compound units.</p> <p>Include addition and subtraction of lengths using standard written method.</p> <p>e.g.</p> <p>1. 12 m + <u>13 m</u> ——</p> <p>2. 150 cm - <u>80 cm</u> ——</p>	<p>metres m centimetres cm add subtract units lengths take away minus total sum altogether difference What is left? standard written method</p>

TOPIC: LENGTH

LEARNING AREA: ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION INVOLVING LENGTH

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> • Pupils multiply units of length in metres and centimetres. e.g. $78\text{ m} \times 5 =$ • Pupils divide units of length in metres and centimetres. e.g. $200\text{ cm} \div 4 =$ 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> iii. Multiply units of length in: <ul style="list-style-type: none"> a. metres; and b. centimetres. iv. Divide units of length in: <ul style="list-style-type: none"> a. metres; and b. centimetres. 	<p>Exclude compound units. Limit multiplicand to 1-digit. Limit divisor to 1-digit and exclude remainders. Include multiplication and division of lengths using standard written method. e.g.</p> <p>1. $\begin{array}{r} 37\text{ m} \\ \times 4 \\ \hline \end{array}$</p> <p>2. $8 \overline{) 72\text{ cm}}$</p>	<p>metres m centimetres cm multiply divide lengths units standard written method</p>

TOPIC: LENGTH

LEARNING AREA: SOLVING PROBLEMS INVOLVING LENGTH

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Use and apply knowledge of length in real life.</p>	<ul style="list-style-type: none"> Pupils solve problems by simulating and modelling the situation. <p>e.g. A child throws a bean bag. 1st throw = 3 m 2nd throw = 5 m What is the difference between the two throws?</p> <ul style="list-style-type: none"> Pupils pose problems related to the four operations involving length. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Solve problems involving length in real life situations. 	<p>Select problems according to pupils' ability and proficiency in language.</p> <p>Encourage pupils to explain methods used.</p>	<p>solve problems length How many left? add plus take away minus times multiply multiplied by share share equally divide divided by pose</p>

TOPIC: MASS

LEARNING AREA: MEASURING AND COMPARING MASSES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Measure and compare masses using standard units.</p>	<ul style="list-style-type: none"> Pupils read scales using weighing scales. Teacher shows and explains reading of scales to the nearest division. <p>Pupils measure masses of objects such as a book, an egg or an empty box using weighing scales and record them in kilograms and grams.</p> <ul style="list-style-type: none"> Pupils measure and compare masses of objects using standard units in kilograms and grams. <p>e.g. An apple weighs 180 g. An orange weighs 200 g. The orange is 20 g heavier than the apple.</p>	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Read scales to the nearest division. Measure and record masses of objects using the standard units: <ul style="list-style-type: none"> kilograms; and grams. Compare the masses of two objects using standard units: <ul style="list-style-type: none"> kilograms, and grams. 	<p>Emphasise that measuring should start from the '0' mark of the weighing scale.</p> <p>Introduce the abbreviations: a. 'kg' for kilogram; and b. 'g' for gram.</p> <p>Exclude compound units.</p> <p>Measurements are made to the nearest kilogram and gram.</p>	<p>mass kilograms kg grams g weigh weight weighing scale measure compare heavy heavier light lighter</p>

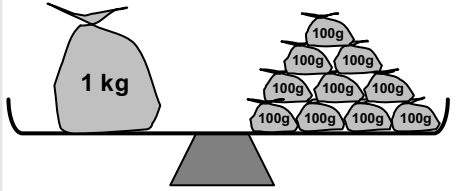
TOPIC: MASS

LEARNING AREA: MEASURING AND COMPARING MASSES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY																
<i>Pupils will be taught to:</i>	<ul style="list-style-type: none"> Pupils estimate masses and check with the actual measurements. <p>e.g.</p> <table border="1"> <thead> <tr> <th>Objects</th> <th>Estimate</th> <th>Actual</th> <th>Difference</th> </tr> </thead> <tbody> <tr> <td>marbles</td> <td></td> <td></td> <td></td> </tr> <tr> <td>plasticine</td> <td></td> <td></td> <td></td> </tr> <tr> <td>box</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Objects	Estimate	Actual	Difference	marbles				plasticine				box				<i>Pupils will be able to:</i>		
Objects	Estimate	Actual	Difference																	
marbles																				
plasticine																				
box																				
		<ul style="list-style-type: none"> iv. Estimate masses of objects in <ul style="list-style-type: none"> a. kilograms; and b. grams. 	<p>Emphasise choosing suitable units for estimations.</p> <p>Encourage pupils to use ‘try, check and improve’ procedure to narrow down differences between estimates and actual measurements.</p>	<p>weigh</p> <p>mass</p> <p>estimate</p> <p>estimation</p> <p>kilograms</p> <p>kg</p> <p>grams</p> <p>g</p> <p>nearest</p>																

TOPIC: MASS

LEARNING AREA: RELATIONSHIP BETWEEN UNITS OF MASS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Understand the relationship between units of mass.</p>	<ul style="list-style-type: none"> Teacher prepares a few 1 kg and 100 g sand bags. Using the equal arm balance, pupils balance a 1 kg sand bag with the equivalent number of 100 g sandbags.  <p>Pupils then weigh the sand bags on weighing scale to see the relationship between kilograms and grams.</p>	<p><i>Pupils will be able to:</i></p> <p>i. Know and use the relationship between kilograms and grams.</p>	<p>Emphasise the standard units for mass and show the relationship between kilograms and grams.</p> <p>1 kg = 1000 g 2 kg = 2000 g</p> <p>Emphasise mental calculation.</p>	<p>measure kilograms kg grams g weighing balance weigh scales units mass relationship spring balance equal arm balance</p>

TOPIC: MASS

LEARNING AREA: ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION INVOLVING MASS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Add, subtract, multiply and divide units of mass.</p>	<ul style="list-style-type: none"> Pupils add and subtract units of masses in <ol style="list-style-type: none"> kilograms; and grams. <p>e.g.</p> <ol style="list-style-type: none"> $25\text{ kg} + 40\text{ kg} =$ $10\text{ kg} + 68\text{ kg} + 30\text{ kg} =$ $200\text{g} + 300\text{ g} =$ $500\text{ g} + 150\text{ g} + 70\text{ g} =$ <p>e.g.</p> <ol style="list-style-type: none"> $75\text{ kg} - 14\text{ kg} =$ $100\text{ kg} - 80\text{ kg} - 40\text{ kg} =$ $550\text{ g} - 200\text{ g} =$ $780\text{ g} - 150\text{ g} - 200\text{ g} =$ 	<p><i>Pupils will be able to:</i></p> <ol style="list-style-type: none"> Add units of mass in: <ol style="list-style-type: none"> kilograms; and grams. Subtract units of mass in: <ol style="list-style-type: none"> kilograms; and grams. 	<p>Exclude compound units.</p> <p>Include addition and subtraction of masses using standard written method.</p> <p>e.g.</p> <ol style="list-style-type: none"> $\begin{array}{r} 25\text{ kg} \\ 6\text{ kg} \\ + 40\text{ kg} \\ \hline \end{array}$ $\begin{array}{r} 500\text{ g} \\ - 150\text{ g} \\ \hline \end{array}$ 	<p>add plus total mass weight subtract take away kilograms kg grams g standard written method</p>

TOPIC: MASS

LEARNING AREA: ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION INVOLVING MASS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<i>Pupils will be taught to:</i>		<i>Pupils will be able to:</i>		
	<ul style="list-style-type: none"> Pupils multiply and divide units of masses in <ol style="list-style-type: none"> kilograms grams. <p>e.g.</p> <ol style="list-style-type: none"> $25 \text{ kg} \times 5 =$ $120 \text{ g} \times 3 =$ <p>e.g.</p> <ol style="list-style-type: none"> $56 \text{ kg} \div 7 =$ $720 \text{ g} \div 6 =$ 	<ol style="list-style-type: none"> Multiply units of mass in: <ol style="list-style-type: none"> kilograms; and grams. Divide units of mass in: <ol style="list-style-type: none"> kilograms; and grams. 	<p>Exclude compound units.</p> <p>Limit multiplicand to 1-digit.</p> <p>Limit divisor to 1-digit and exclude remainders.</p> <p>Include multiplication and division of masses using standard written method.</p> <p>e.g:</p> <ol style="list-style-type: none"> $\begin{array}{r} 84 \text{ kg} \\ \times 4 \\ \hline \end{array}$ $8 \overline{) 640 \text{ g}}$ 	<p>multiply</p> <p>divide</p> <p>mass</p> <p>weight</p> <p>kilograms</p> <p>kg</p> <p>grams</p> <p>g</p> <p>standard written method</p>

TOPIC: MASS

LEARNING AREA: SOLVING PROBLEMS INVOLVING MASS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Use and apply knowledge of mass in real life.</p>	<ul style="list-style-type: none"> Pupils solve problems. e.g. A book weighs 90 g? What is the weight of 6 books? Pupils pose problems related to the four operations involving mass. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Solve problems involving mass in real life situations. 	<p>Select problems according to pupils' ability and proficiency in the language.</p> <p>Encourage pupils to explain methods used.</p>	<p>solve problems mass weigh weighs weight add plus take away minus times multiply multiplied by share share equally divide divided by pose</p>

TOPIC: VOLUME OF LIQUID

LEARNING AREA: MEASURING AND COMPARING VOLUMES OF LIQUIDS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Measure and compare volumes of liquid using standard units.</p>	<ul style="list-style-type: none"> Teacher shows picture of measuring jugs which are calibrated at 100 <i>ml</i> division (with every division marked with reading in <i>ml</i>). Jugs should contain water at different levels. Pupils read scales to the nearest division. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Read scales to the nearest division. 	<p>Emphasise that measuring should start from the '0' mark of the measuring cylinder.</p> <p>Introduce the abbreviations:</p> <ul style="list-style-type: none"> 'l' for litre; and 'ml' for millilitre. <p>Exclude compound units.</p> <p>Measurements are made to the nearest litre and millilitre.</p>	<p>scales measuring cylinder measuring jug water level volume liquid litres <i>l</i> millilitres <i>ml</i></p>

TOPIC: VOLUME OF LIQUID

LEARNING AREA: MEASURING AND COMPARING VOLUMES OF LIQUIDS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> Pupils fill uncalibrated containers with water (up to any level) and display their containers. <p>Teacher gives pupils 1 litre measuring cylinders that are calibrated into 10 divisions and explain that each division represents 100 ml. Ask pupils to pour water from uncalibrated containers into 1 l measuring cylinders in 100 ml progressions.</p> <p>For every 100ml they say out the volume. e.g. 100 ml , 200 ml ,...</p> <ul style="list-style-type: none"> Teacher explains that the last marked division represents 1000 ml or 1 l . Pupils measure and record volumes of liquid. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> ii. Measure and record volumes of liquids using the standard units: <ul style="list-style-type: none"> a. litres; and b. millilitres. 	<p>Exclude compound units.</p> <p>Provide pupils with sufficient materials for activities.</p>	<p>litres l millilitres ml measure measuring cylinder capacity volumes liquids holds contains container</p>

TOPIC: VOLUME OF LIQUID

LEARNING AREA: MEASURING AND COMPARING VOLUMES OF LIQUIDS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> Pupils compare the volumes of two liquids using standard units. <p>e.g. Pupils pour 1 <i>l</i> of water into the first container and 2 <i>l</i> into the second container.</p> <div data-bbox="622 820 878 1098" style="text-align: center;"> <p>1 <i>l</i> 2 <i>l</i></p> </div> <ul style="list-style-type: none"> Repeat activity with smaller containers and 100 <i>ml</i> measuring cylinders. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> iii. Compare the volumes of two liquids using standard units: <ul style="list-style-type: none"> a. litres; and b. millilitres. 	<p>Compare and record the volumes of two liquids.</p> <p>1 <i>l</i> measuring cylinders can be replaced by any other containers that would accurately contain the volume of 1 <i>l</i>.</p>	<p>litres <i>l</i> millilitres <i>ml</i> measuring cylinder volumes liquids more less lesser How much?</p>

TOPIC: VOLUME OF LIQUID

LEARNING AREA: MEASURING AND COMPARING VOLUMES OF LIQUIDS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p>	<ul style="list-style-type: none"> • Pupils are given plastic cups and rubber bands. Pupils place a rubber band around the plastic cup and move it to estimate the 'line' where the volume of 100 ml would reach. Check the closest estimate. • Pupils are given a large uncalibrated jug. Pupils estimate the line where the volume of 1 l would reach. Check the closest estimate. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> iv. Estimate volumes of liquids in <ul style="list-style-type: none"> a. litres; and b. millilitres. 	<p>Emphasise choosing suitable units for estimations.</p> <p>Encourage pupils to analyse how close their estimates were.</p>	<p>estimate uncalibrated jug volumes capacity liquids litres l millilitres ml</p>

TOPIC: VOLUME OF LIQUID

LEARNING AREA: RELATIONSHIP BETWEEN UNITS OF VOLUME OF LIQUID

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Understand the relationship between units of volume of liquid.</p>	<ul style="list-style-type: none"> Pupils are given containers of 100 ml and 1 l capacities. Pupils fill up 100 ml container with water and pour it into the 1 l container. (Do not reveal the capacities of the containers). <p>Pupils report how many 100 ml containers are needed to fill up the 1 l container.</p> <p>Pupils repeat activity for 2 l, 1½ l, ...</p>	<p><i>Pupils will be able to:</i></p> <p>i. Know and use the relationship between litres and millilitres.</p>	<p>Emphasise the standard units for volume and show the relationship between litres and millilitres.</p> <p>1 l = 1000 ml 3 l = 3000 ml</p> <p>Emphasise mental calculation.</p>	<p>litre l millilitres ml capacity volume liquid</p>

TOPIC: VOLUME OF LIQUID

LEARNING AREA: ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION INVOLVING VOLUME OF LIQUID

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<i>Pupils will be taught to:</i>		<i>Pupils will be able to:</i>		
<p>1. Add, subtract, multiply and divide units of volume of liquid.</p>	<ul style="list-style-type: none"> Pupils add and subtract units of volume of liquids in <ol style="list-style-type: none"> litres; and millilitres <p>e.g.1</p> <ol style="list-style-type: none"> $1\text{ l} + 2\text{ l} =$ $500\text{ ml} + 250\text{ ml} =$ <p>e.g.2</p> <ol style="list-style-type: none"> $60\text{ l} - 15\text{ l} =$ $750\text{ ml} - 30\text{ ml} =$ 	<ol style="list-style-type: none"> Add units of volume of liquid in: <ol style="list-style-type: none"> litres; and millilitres Subtract units of volume of liquid in: <ol style="list-style-type: none"> litres; and millilitres 	<p>Exclude compound units.</p> <p>Emphasise mental calculation.</p> <p>Check on accuracy in adding units of volume of liquid.</p> <p>Include addition and subtraction of volumes of liquid using standard written method.</p> <p>e.g.</p> <p>1. $\begin{array}{r} 14\text{ l} \\ + \underline{5\text{ l}} \\ \hline \end{array}$</p> <p>2. $\begin{array}{r} 420\text{ ml} \\ + \underline{280\text{ ml}} \\ \hline \end{array}$</p>	<p>add</p> <p>volume</p> <p>capacity</p> <p>liquid</p> <p>litre</p> <p><i>l</i></p> <p>millilitres</p> <p><i>ml</i></p> <p>subtract</p> <p>How much?</p> <p>How much left?</p> <p>remainder</p>

TOPIC: VOLUME OF LIQUID

LEARNING AREA: ADDITION, SUBTRACTION, MULTIPLICATION AND DIVISION INVOLVING VOLUME OF LIQUID

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<i>Pupils will be taught to:</i>		<i>Pupils will be able to:</i>		
	<ul style="list-style-type: none"> Pupils multiply units volume of liquid in: <ol style="list-style-type: none"> litres millilitres <p>e.g. $40\text{ l} \times 2 =$ $165\text{ ml} \times 3 =$</p> Pupils divide units of volume of liquid: <ol style="list-style-type: none"> litres millilitres <p>e.g. $60\text{ l} \div 3 =$ $175\text{ ml} \div 5 =$</p> 	<ol style="list-style-type: none"> Multiply units of volume of liquid in: <ol style="list-style-type: none"> litres; and millilitres Divide units of volume of liquid in: <ol style="list-style-type: none"> litres; and millilitres 	<p>Limit multiplicand to 1-digit.</p> <p>Limit divisor to 1-digit and exclude remainders.</p> <p>Emphasise on accuracy.</p> <p>Encourage mental calculation.</p> <p>Include multiplication and division of volumes of liquid using standard written method.</p> <p>e.g.</p> <ol style="list-style-type: none"> $3 \overline{) 60\text{ l}}$ $5 \overline{) 175\text{ ml}}$ 	<p>volume</p> <p>capacity</p> <p>liquid</p> <p>litre</p> <p><i>l</i></p> <p>millilitres</p> <p><i>ml</i></p> <p>multiplication</p>

TOPIC: VOLUME OF LIQUID

LEARNING AREA: SOLVING PROBLEMS INVOLVING VOLUME OF LIQUID

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Use and apply knowledge of volume of liquid in real life.</p>	<ul style="list-style-type: none"> Pupils solve problems. e.g. A bottle holds 1 ℓ of mango juice. Imran and his 3 friends share the amount of mango juice equally. How much does each one get to drink? Pupils pose problems related to the four operations involving volume of liquid. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Solve problems involving volume of liquid in real life situations. 	<p>Check for accuracy in calculation.</p> <p>Select problems according to pupils' ability and proficiency in the language.</p> <p>Encourage pupils to explain methods used.</p>	<p>solve problems volume liquid capacity How much? add plus take away minus times multiply multiplied by share equally divide divided by pose</p>

TOPIC: SHAPE AND SPACE

LEARNING AREA: THREE-DIMENSIONAL SHAPES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Understand and use the vocabulary related to 3-D shapes.</p>	<ul style="list-style-type: none"> • Pupils are shown various types of prisms and they say out the names accordingly. • Pupils label parts of prisms. <div data-bbox="591 767 887 1153" data-label="Image"> </div> <p>e.g. A triangular prism.</p>	<p><i>Pupils will be able to:</i></p> <ol style="list-style-type: none"> Identify various types of prisms. Label parts of prisms. 	<p>Emphasise that a prism has the same cross-section along its length, and that its two end faces are identical.</p> <p>Emphasise that each prism is named according to the shape of its base:</p> <ol style="list-style-type: none"> triangular prism rectangular prism square prism 	<p>prisms hemisphere models face surface vertex edge base</p>

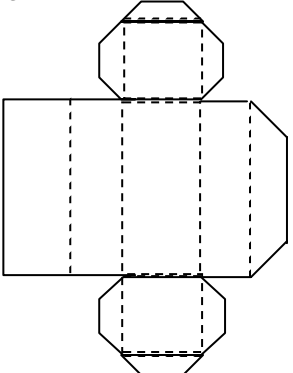
TOPIC: SHAPE AND SPACE

LEARNING AREA: THREE-DIMENSIONAL SHAPES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>2. Describe and classify 3-D shapes.</p>	<ul style="list-style-type: none"> • Pupils examine prisms and describe their features. • Pupils sort out a variety of solid shapes into prisms and non-prisms. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> i. Describe features of prisms. ii. Compare prisms and non-prisms. 	<p>Emphasise that all prisms have at least five faces, two bases of the same shape and all other faces are rectangular.</p>	<p>prisms end faces identical flat surface non-prisms</p>

TOPIC: SHAPE AND SPACE

LEARNING AREA: THREE-DIMENSIONAL SHAPES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>3. Build 3-D shapes.</p>	<ul style="list-style-type: none"> • Pupils make skeleton shapes from a construction kit or straws and count the number of faces, edges or corners. • Pupils build 3-D shapes from given nets. e.g.  <ul style="list-style-type: none"> • Pupils identify various 3-D shapes based on given nets. 	<p><i>Pupils will be able to:</i></p> <ol style="list-style-type: none"> Build 3-D shapes using suitable materials. Build 3-D shapes from given nets. Identify simple nets of 3-D shapes. 	<p>Provide nets of solids that pupils are familiar with.</p> <p>Emphasise features of 3-D shapes when identifying nets.</p> <p>Emphasise that a square is a rectangle but a rectangle is not a square.</p> <p>Encourage ICT based activities.</p>	<p>build shapes concrete simple nets identify rectangle square square ICT</p>

TOPIC: SHAPE AND SPACE

LEARNING AREA: TWO-DIMENSIONAL SHAPES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Understand and use the vocabulary related to 2-D shapes.</p>	<ul style="list-style-type: none"> Teacher shows labeled pictures of quadrilateral, semi-circles and regular polygons. Pupils say names of shapes after teacher. Teacher shows unlabeled pictures of quadrilateral, semi-circles and regular polygons. Pupils say names of shapes. Using cut out shapes, pupils form semi circles, quadrilaterals, pentagons, hexagons, heptagons and octagons and name them. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> Identify shapes of semi-circles and regular polygons. 	<p>Check for accuracy in:</p> <ul style="list-style-type: none"> identification of shapes; and pronunciation of names of shapes. 	<p>semi-circles quadrilaterals regular polygons pentagon hexagon heptagon octagon</p>

TOPIC: SHAPE AND SPACE

LEARNING AREA: TWO-DIMENSIONAL SHAPES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>2. Describe and classify 2-D shapes.</p>	<ul style="list-style-type: none"> Pupils are provided with a variety of 2-D shapes. They examine the shapes and list down the features. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> i. Describe features of two-dimensional shapes: <ul style="list-style-type: none"> a. semi-circles; and b. regular polygons. ii. Compare and sort polygons and non-polygons. 	<p>Check for accuracy in description of features of various 2-D shapes.</p> <p>Emphasise features such as faces, sides and angles.</p>	<p>semi-circles quadrilaterals regular polygon pentagon hexagon heptagon octagon describe features</p>

TOPIC: SHAPE AND SPACE

LEARNING AREA: SYMMETRY

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Recognise and sketch lines of symmetry.</p>	<ul style="list-style-type: none"> • Teacher explains and shows lines of symmetry: <ul style="list-style-type: none"> a. in the environment e.g. butterfly, kites, leaves, and human body. b. in two-dimensional shapes e.g. paper folding or cutting. • Use paper folding or mirrors (shiny surfaces) to show lines of symmetry. Discuss the lines of symmetry traced. • Pupils sketch lines of symmetry on given shapes or pictures. 	<p><i>Pupils will be able to:</i></p> <ul style="list-style-type: none"> i. Recognise lines of symmetry: <ul style="list-style-type: none"> a. in the environment; and b. in two-dimensional shapes. ii. Sketch lines of symmetry. 	<p>Lines of symmetry are lines that divide a regular shape or picture identically.</p> <p>Emphasise that line mirror is the line of symmetry.</p> <p>Encourage pupils to trace lines of symmetry.</p>	<p>symmetry lines of symmetry identical two-dimensional shapes symmetrical line mirror sketch</p>

TOPIC: DATA HANDLING

LEARNING AREA: COLLECTING AND ORGANISING DATA

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
<p><i>Pupils will be taught to:</i></p> <p>1. Collect and organise data.</p>	<ul style="list-style-type: none"> • Pupils collect data by carrying out simple surveys such as: <ol style="list-style-type: none"> a. modes of transport to school. b. favourite cartoon shows. c. birth months. 	<p><i>Pupils will be able to:</i></p> <ol style="list-style-type: none"> i. Collect data based on given situations. ii. Sort and classify data. iii. Organise data in a table. 	<p>Use situations that pupils are familiar with.</p> <p>Emphasise making and organising a table.</p> <p>Emphasise the use of tally in organising data and table.</p>	<p>collect data sort list count label organise information classify tally</p>

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