MINISTRY OF EDUCATION MALAYSIA

Integrated Curriculum for Primary Schools

Curriculum Specifications

MATHEMATICS
YEAR 2

Curriculum Development Centre
Ministry of Education Malaysia
2003

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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 enviroment 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)
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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 sand 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.

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TOPIC: WHOLE NUMBERS

LEARNING AREA: NUMBERS TO 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Say and use the number names in familiar contexts.	• Teacher shows picture cards or number cards. Pupils listen and repeat each number after teacher. • Pupils recite the number sequence to 1000. • Pupils count to 1000 using objects such as ice-cream sticks, straws, chips, multi-based blocks and Cuisenaire rods.	i. Say the number names to 1000. ii. Recognise numerals to 1000. iii. Count up to 1000 objects by grouping them in hundreds, tens, fives, twos and ones.	Encourage pupils to pronounce the number names correctly. Pupils should count systematically to keep track of the count. Count a larger collection of objects by grouping them in hundreds, tens, fives, twos and ones. Overcome difficulties and recognise recitation errors. Check on pronunciation of number names. Check for accuracy.	number numerals one hundred, one hundred and one, one hundred and two, …, nine-hundred and ninety-nine, one thousand count tens fives twos ones

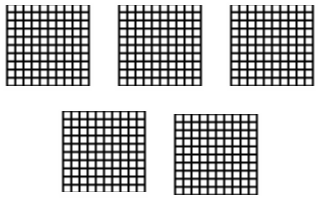
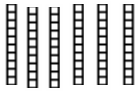
TOPIC: WHOLE NUMBERS

LEARNING AREA: NUMBERS TO 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
2. Read and write numbers to 1000.	• Teacher says a number, pupils write the numeral. • Teacher flashes a number word card, pupils read the number word: e.g. **Six hundred and forty-two.** • Pupils read and spell the number words to one thousand. • Pupils match numerals with number words up to one thousand. • Pupils write the number words.	i. Write numerals to 1000. ii. Read number words to one thousand. iii. Write number words to one thousand. .	Overcome difficulties in spelling. Check on pronunciation of number names. Check for accuracy in spelling.	number names number words one hundred, one hundred and one, one hundred and two, …, nine hundred and ninety-nine, one thousand

TOPIC: WHOLE NUMBERS

LEARNING AREA: NUMBERS TO 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
3. Know what each digit in a number represents.	• Represent 568 with objects such as Cuisenaire rods or multi-based blocks. e.g.  5 hundreds   6 tens 8 ones The digit 5 in 568 represents 500, 6 represents 60 and 8 represents 8. • Pupils partition two-digit or three-digit numbers into hundreds, tens and ones. e.g. 702 702 is 7 hundreds, 0 tens and 2 ones.	i. Recognise the place value of numbers.	Emphasise the place value of each digit in two-digit and three-digit numbers. e.g. 1. 83 2. 190 Hundreds H / Tens T / Ones O 8 3 1 9 0 Emphasise the use of zero as a place holder. e.g. In 406, 0 represents tens.	number digit hundreds tens ones place holder two-digit three-digit partition

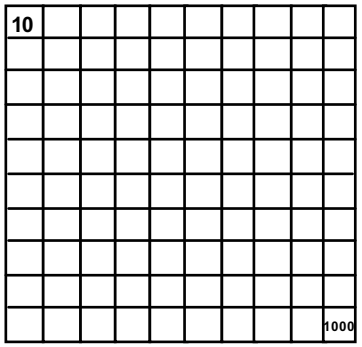
TOPIC: WHOLE NUMBERS

LEARNING AREA: NUMBERS TO 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
4. Understand and use the vocabulary of comparing and arranging numbers or quantities to 1000.	• Pupils count on and count back in ones: e.g. 300, 301, 302 … e.g. 241, 240, 239 … • Pupils count on and count back in twos: e.g. 0, 2, 4, … e.g. 122, 120, 118 … • Pupils count on and count back in fives: e.g. 30, 35, 40, … e.g 570, 565, 555 … • Pupils count on and count back in tens: e.g. 283, 293, 303 … e.g. 600, 590, 580 … • Pupils count on and count back in hundreds: e.g. 418, 518, 618 … e.g. 1000, 900, 800 …	i. Arrange numbers to 1000: a. count on and count back in ones. b. count on and count back in twos. c. count on and count back in fives. d. count on and count back in tens. e. count on and count back in hundreds.	Arrange in order a complete set of numbers. Include counting on and back in multiples of 10 and 100. e.g: 10, 20, 30 … 100, 200, 300 … Emphasise that a number following another number in the counting on sequence is larger. Emphasise that a number following another number in the counting back sequence is smaller. Check for accuracy in counting on and counting back.	number names number words one hundred, one hundred and one, one hundred and two, …, nine hundred and ninety-nine, one thousand arrange count on count back next before after between

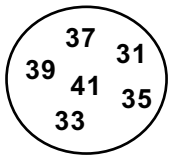
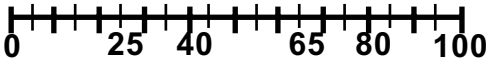
TOPIC: WHOLE NUMBERS

LEARNING AREA: NUMBERS TO 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils locate the correct position of a number on a hundred grid by counting on or back in tens or hundreds. e.g. Write **670** on the grid. 		Use hundred grids for counting on and back in tens and hundreds.	

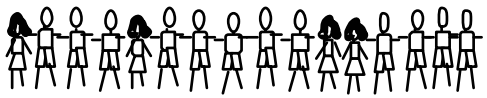
TOPIC: WHOLE NUMBERS

LEARNING AREA: NUMBERS TO 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils compare two numbers using concrete or manipulative materials such as Cuisenaire rods or multi-based blocks. e.g. Which is more, 217 or 271? • Pupils arrange a group of numbers in order. e.g.  Ascending order: 31, 33, 35, 37, 39, 41 Descending order: 41, 39, 37, 35, 33, 31 • Pupils use number line to arrange numbers in order. e.g. 65, 40, 80, 25 	ii. Compare two numbers and say which is more or less. iii. Arrange numbers in order: a. compare the numbers; and b. position the numbers on a number line.	Arrange numbers in sequence of ones, twos, fives and tens.	more less arrange order number line smaller smallest larger largest ascending descending

TOPIC: WHOLE NUMBERS

LEARNING AREA: NUMBERS TO 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
5. Understand and use ordinal numbers in different contexts.	• Teacher introduces ordinal numbers eleventh to twentieth through activities. e.g. 20 pupils line up in a straight line. Each pupil says his/her number: One, two, … twenty. The pupil who says 'eleven' is the 'eleventh' in the line. • Pupils respond to questions in different contexts such as: a. Who is the eleventh, twelfth, … in this queue? b. What is the twelfth month of the year? c. Point to the thirteenth bead from the right.  d. What position is the eleventh boy in the row? 	i. Say ordinal numbers from eleventh to twentieth. ii. Use ordinal numbers in different contexts.	Pupils recall ordinal numbers from first to tenth to denote position. Emphasise the relationship between cardinal and ordinal numbers up to twentieth. Check pupils' pronunciation and spelling of ordinal numbers.	arrange order first, second, third, fourth fifth, sixth, seventh, eighth ninth, tenth, eleventh, twelfth, thirteenth, fourteenth, fifteenth, sixteenth, seventeenth, eighteenth, nineteenth, twentieth. last next before after

TOPIC: WHOLE NUMBERS

LEARNING AREA: ADDITION WITH THE HIGHEST TOTAL OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Understand addition as combining two groups of objects.	• Model concept of addition using concrete and manipulative materials such as chips, multi-based blocks and Cuisenaire rods. • Pupils carry out addition mentally involving: a. 1-digit numbers and multiples of 10. e.g. 3 + 50 = b. 1-digit numbers and multiples of 100. e.g. 400 + 7 = c. pairs of multiples of 10 to make 100. e.g. 20 + ☐ = 100 • Pupils add two numbers up to two digits without regrouping. e.g. Tens T / Ones O 5 / 1 + 4 / 3	i. Add two numbers without regrouping: a. two 1-digit numbers; b. a 2-digit number and a 1-digit number; and c. two 2-digit numbers.	Emphasise that adding zero to a number leaves the number unchanged. e.g: 768 + 0 = 768 Emphasise mental calculation. Include addition using standard written method. e.g. 1. 5 + 8 2. 62 + 7	numbers add plus total sum groups regrouping zero digit multiples standard written method one-digit two-digit

TOPIC: WHOLE NUMBERS

LEARNING AREA: ADDITION WITH THE HIGHEST TOTAL OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils add two numbers up to two digits with regrouping. e.g. 1. 15 + 7 = 2. 76 + 29 = Tens T / Ones O 7 6 + 2 9 • Pupils add two numbers up to three digits without regrouping. e.g. 1. 521 + 6 = 2. 350 + 48 = 3. 647 + 102 =	ii. Add two numbers with regrouping: a. a 2-digit number and a 1-digit number; and b. two 2-digit numbers. iii. Add two numbers without regrouping: a. a 3-digit number and a 1-digit number; b. a 3-digit number and a 2-digit number; and c. two 3-digit numbers.	Emphasise that adding zero to a number leaves the number unchanged. Emphasise mental calculation. Include addition using standard written method. e.g. 1. 49 + 38 2. 502 + 61	numbers add plus total sum groups regrouping zero digit multiples standard written method one-digit two-digit three-digit

TOPIC: WHOLE NUMBERS

LEARNING AREA: ADDITION WITH THE HIGHEST TOTAL OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils add three 1-digit numbers; a. without regrouping: e.g. 4 + 3 + 2 = b. with regrouping: e.g. 5 + 7 + 6 =	iv. Add three 1-digit numbers.	Emphasise that adding zero to a number leaves the number unchanged. Emphasise mental calculation. Include addition using standard written method. e.g. 1. 5 1 + 2 — 2. 6 3 + 8 —	numbers add plus total sum groups regrouping zero digit multiples standard written method one-digit

TOPIC: WHOLE NUMBERS

LEARNING AREA: ADDITION WITH THE HIGHEST TOTAL OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
2. Use and apply knowledge of addition in real life.	• Pupils find unknown numbers in number sentences.	i. Find unknown numbers in number sentences.	Use and apply knowledge of addition in a variety of contexts including real life situations. Emphasise finding unknown numbers in number sentences as follows: a. 16 + 5 = ☐ b. 34 + ☐ = 60 c. ☐ + 27 = 138 d. ☐ + ☐ = 85 e. ☐ = 74 + 9 f. 519 = 300 + ☐ g. 600 = ☐ + 200 h. 463 = ☐ + ☐ Emphasise mental calculation.	add plus sum total unknown number sentence regrouping zero digit multiples one-digit two-digit three-digit

TOPIC: WHOLE NUMBERS

LEARNING AREA: ADDITION WITH THE HIGHEST TOTAL OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils solve problems by simulating or modelling the situation. e.g. Mat has 23 chickens. He buys 6 more chickens. How many chickens has he now? • Pupils make up a number story to a given number sentence. **46 + 12 = 58** e.g. I have 46 stickers and Kumar has 12 stickers. Altogether we have 58 stickers.	ii. Solve problems involving addition in real life situations.	Use and apply knowledge of addition in a variety of contexts including real life situations. Select problems according to pupils' ability and proficiency in language.	add plus sum total number sentence regrouping zero digit multiples one-digit two-digit three-digit

TOPIC: WHOLE NUMBERS

LEARNING AREA: SUBTRACTION WITHIN THE RANGE OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Understand subtraction as "take away" or "difference" between two groups of objects.	• Model concept of subtraction using concrete and manipulative materials such as, chips, multi-based blocks and Cuisenaire rods. • Pupils carry out subtraction mentally involving: a. multiples of 10 e.g. 70 – 40 = b. multiples of 100 e.g. 600 – 200 = c. a 2-digit number and a 1-digit number. e.g. 15 – 3 = • Pupils subtract two numbers without regrouping: e.g. 54 – 31 = Tens T / Ones O 5 4 – 3 1	i. Subtract two numbers without regrouping: a. a 1-digit number from a 1-digit number; b. a 1-digit number from a 2-digit number; and c. a 2-digit number from a 2-digit number.	Emphasise that subtracting zero leaves a number unchanged. e.g. 415 – 0 = 415 Emphasise mental calculation. Include subtraction using standard written method. e.g. 1. 6 – 2 2. 47 – 3 3. 98 – 50	subtract take away minus How many left? What is left? regrouping zero digit multiples standard written method one-digit two-digit

TOPIC: WHOLE NUMBERS

LEARNING AREA: SUBTRACTION WITHIN THE RANGE OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils subtract two numbers with regrouping. e.g. 1. 24 – 8 = 2. 71 – 53 = Tens T | Ones O 7 | 1 – 5 | 3 • Pupils subtract two numbers without regrouping. e.g. 1. 748 – 6 = 2. 365 – 20 = 3. 914 – 503 =	ii. Subtract two numbers with regrouping: a. a 1-digit number from a 2-digit number; and b. a 2-digit number from a 2-digit number. iii. Subtract two numbers without regrouping: a. a 1-digit number from a 3-digit number; b. a 2-digit number from a 3-digit number; and c. a 3-digit number from a 3-digit number.	Emphasise that subtracting zero leaves a number unchanged. Emphasise mental calculation. Include subtraction using standard written method. e.g. 1. 82 – 5 2. 639 – 107	subtract take away minus How many left? What is left? regrouping zero digit multiples standard written method one-digit two-digit three-digit

TOPIC: WHOLE NUMBERS

LEARNING AREA: SUBTRACTION WITHIN THE RANGE OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils subtract three 1-digit numbers. e.g. 9 – 1 – 3 =	iv. Subtract three 1-digit numbers.	Emphasise that subtracting zero leaves a number unchanged. Emphasise mental calculation. Include subtraction using standard written method. e.g. 8 – 2 – 5 = $\begin{array}{r} 8 \\ -\ 2 \\ \hline 6 \end{array} \qquad \begin{array}{r} 6 \\ -\ 5 \\ \hline 1 \end{array}$ Use manipulatives to help pupils see the relationship between addition and subtraction. e.g. 4 + 5 = 9 9 – 4 = 5 9 – 5 = 4	subtract take away minus How many left? What is left? standard written method regrouping zero digit multiples standard written method one-digit

TOPIC: WHOLE NUMBERS

LEARNING AREA: SUBTRACTION WITHIN THE RANGE OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
2. Use and apply knowledge of subtraction in real life.	• Pupils find unknown numbers in number sentences.	i. Find unknown numbers in number sentences.	Use and apply knowledge of subtraction in a variety of contexts including real life situations. Emphasise finding unknown numbers in number sentences as follows: a. 8 – 6 = ☐ b. 45 – ☐ = 20 c. ☐ – 13 = 76 d. ☐ – ☐ = 58 e. ☐ = 149 – 25 f. 300 = 867 – ☐ g. 275 = ☐ – 43 h. 180 = ☐ – ☐ Emphasise mental calculation.	subtract take away minus difference How many left? What is left? regrouping zero digit multiples standard written method one-digit two-digit three-digit

TOPIC: WHOLE NUMBERS

LEARNING AREA: SUBTRACTION WITHIN THE RANGE OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils respond to questions phrased in a variety of ways such as: 1. What is the difference between 20 and 32? 2. What number must you take from 40 to leave 26? 3. Find pairs of numbers with a difference of 10. • Pupils solve problems by simulating or modelling the situation. e.g. 1. Hema buys 20 cards. If she gives 6 cards to her sister, how many cards has she left?	ii. Solve problems involving subtraction in real life situations.	Continue to develop the understanding of subtraction as taking away and finding the difference between two numbers. Use and apply knowledge of subtraction in a variety of contexts including real life. Select problems according to pupils' ability and proficiency in language.	subtract take away minus difference between How many left? What is left? regrouping zero digit multiples standard written method one-digit two-digit three-digit

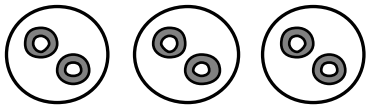
TOPIC: WHOLE NUMBERS

LEARNING AREA: SUBTRACTION WITHIN THE RANGE OF 1000

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	2. Class Bestari has 45 pupils and Class Maju has 38 pupils. How many more pupils are there in Class Bestari? • Pupils make up a number story to a given number sentence. e.g. **50 - 12 = 38** There are 50 children in the bus. 12 are standing and 38 are sitting.			

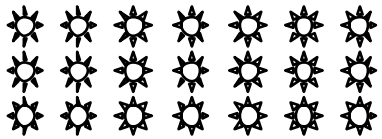
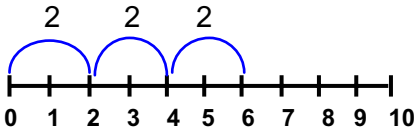
TOPIC: WHOLE NUMBERS

LEARNING AREA: MULTIPLICATION WITHIN 2, 3, 4 AND 5 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Understand multiplication as repeated addition. (2, 3, 4 and 5 times-tables)	• Pupils model concept of multiplication as repeated addition using concrete and manipulative materials. e.g. Pupils form 3 groups of 2 cookies. Pupils count the number of groups and the number of cookies in each group. Pupils write the number sentences to find the total number of cookies in 3 groups.  2 + 2 + 2 = 6 3 x 2 = 6 Relate multiplication to repeated addition.	i. Recognise multiplication as repeated addition.	Introduce multiplication as repeated addition.	add 2 and 2 … add 3 and 3 … add 4 and 4 … add 5 and 5 … equals times multiply multiplied by double skip counting times-tables multiplication tables

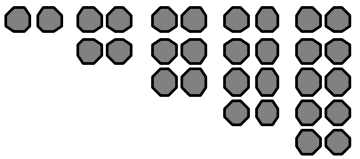
TOPIC: WHOLE NUMBERS

LEARNING AREA: MULTIPLICATION WITHIN 2, 3, 4 AND 5 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils write number sentences for multiplication. e.g.  1. 3 + 3 + 3 + 3 +3 + 3 + 3 = 21 7 x 3 = 21  2. 3 x 4 = 12  3. 3 x 2 = 6	ii. Write number sentences for multiplication.	Use 'x' and '=' signs in a number sentence. Relate 'x' to *times* and *multiply*. Read number sentence, 4 x 5 = 20 as "four times five equals twenty" or "four multiplied by five is equal to twenty".	times multiply multiplied by double skip counting times-tables number sentence multiplication

TOPIC: WHOLE NUMBERS

LEARNING AREA: MULTIPLICATION WITHIN 2, 3, 4 AND 5 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils build up multiplication tables of 2, 3, 4 and 5 using concrete or manipulative materials or pictorial representation.	iii. Build up the multiplication tables of 2, 3, 4 and 5. iv. Multiply two 1-digit numbers.	Include activities such as making number patterns using manipulatives or ICT to build up multiplication tables. e.g.  Include standard written method. e.g. 8 x 3 ___	times multiply by multiplied by double skip counting times-tables build

TOPIC: WHOLE NUMBERS

LEARNING AREA: MULTIPLICATION WITHIN 2, 3, 4 AND 5 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
2. Know by heart the multiplication tables of 2, 3, 4, and 5.	• Pupils list all possible combinations of two numbers that equal to a given product. e.g. Product is 12 6 x 2 = 12 4 x 3 = 12 3 x 4 = 12 • Activities such as using flash cards and saying aloud multiplication facts can be carried out. • Pupils memorise multiplication tables by singing or chanting. • Pupils respond rapidly to oral and written questions such as: e.g. 6 times 2 equals …? Multiply 7 by 4.	i. Recall rapidly the multiplication tables of 2, 3, 4 and 5.	Pupils must know by heart the basic facts of multiplication involving the 2, 3, 4 and 5 times-tables. Relate skip counting by twos, threes, fours and fives to multiplication. Emphasise mental calculation.	times multiply times-tables skip counting equals recall

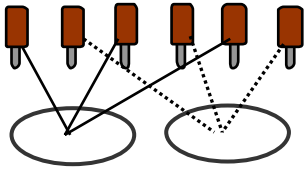
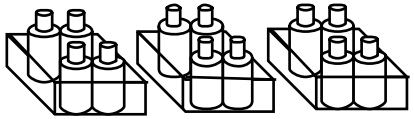
TOPIC: WHOLE NUMBERS

LEARNING AREA: MULTIPLICATION WITHIN 2, 3, 4 AND 5 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
3. Use and apply knowledge of multiplication in real life.	• Pupils find unknown numbers in number sentences. e.g. ☐ x 3 = 15 ☐ x ☐ = 36 • Pupils solve problems by simulating or modelling the situation. e.g. 1. A bicycle has 2 wheels. How many wheels are there on 7 bicycles? 2. Tina puts 5 buns each in 3 plates. Altogether there are …buns. • Pupils make up a number story to a given number sentence. e.g. **9 x 2 = 18** Zam bought 9 packets of balloons. Each packet has 2 balloons. Altogether he has 18 balloons.	i. Find the unknown numbers in number sentences. ii. Solve problems involving multiplication in real life situations.	Use and apply knowledge of multiplication in a variety of contexts including real life situations. Emphasise finding unknown numbers in number sentences such as: a. 4 x 2 = ☐ b. 9 x ☐ = 18 c. ☐ x 3 = 9 d. ☐ x ☐ = 24 e. ☐ = 7 x 4 f. 32 = 8 x ☐ g. 30 = ☐ x 5 h. 45 = ☐ x ☐ Emphasise mental calculation. Select problems according to pupils' ability and proficiency in language.	unknown numbers times multiply multiplied by doubles times as many times-tables skip counting equals solve

TOPIC: WHOLE NUMBERS

LEARNING AREA: DIVISION WITHIN 2, 3, 4 AND 5 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Understand division as sharing equally or grouping. (Corresponding to 2, 3, 4 and 5 times-tables)	• Pupils model concept of division using concrete and manipulative materials. **a. Sharing equally** e.g. 6 ice-creams are shared equally between 2 boys. Each boy gets 3 ice-creams.  **b. Grouping** e.g. There are 12 bottles. A box can be filled with 4 bottles. Therefore 3 boxes are needed.  $12 \div 4 = 3$	i. Recognise division as sharing equally. ii. Recognise division as grouping.	Relate division as sharing equally or grouping.	share sharing equally group grouping times-tables division

TOPIC: WHOLE NUMBERS

LEARNING AREA: DIVISION WITHIN 2, 3, 4 AND 5 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils write number sentences for division. e.g. **21 ÷ 3 = 7** • Pupils use concrete or manipulative materials or pictorial representation to divide numbers.	iii. Write number sentences for division. iv. Divide numbers within the multiplication tables.	Use '÷' and '=' signs in a number sentence. Relate '÷' to *share equally*, *group in twos, group in threes, group in fours or group in fives* and *divide*. Read number sentence, 24 ÷ 4 = 6 as "twenty-four divided by four equals 6" or "twenty-four divided by four is equal to six". Use manipulatives to help pupils see the relationship between division and multiplication. e.g. 20 ÷ 4 = ☐ 4 x ☐ = 20 Use multiplication tables to develop division skills. Include standard written method. e.g. $3\overline{)27}$ Exclude division with remainders.	share equally group in twos group in threes group in fours group in fives divide divided by standard written method

TOPIC: WHOLE NUMBERS

LEARNING AREA: DIVISION WITHIN 2, 3, 4 AND 5 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
2. Derive quickly division facts. (Corresponding to 2, 3. 4 and 5 times-tables)	• Activities such as using flash cards and saying aloud can be carried out. • Pupils respond rapidly to oral and written questions, such as: Share 18 between 2. Divide 32 by 4.	i. Derive quickly division facts of 2, 3, 4 and 5 times-tables.	Pupils derive quickly the division facts involving the 2, 3, 4 and 5 times-tables. Emphasise mental calculation.	share equally group in twos group in threes group in fours group in fives divide divided by derive

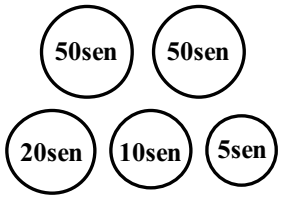
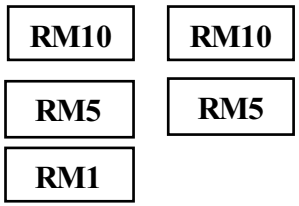
TOPIC: WHOLE NUMBERS

LEARNING AREA: DIVISION WITHIN 2, 3, 4 AND 5 TIMES-TABLES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
3. Use and apply knowledge of division in real life.	• Pupils find unknown numbers in number sentences. e.g. 18 ÷ □ = 9 • Pupils solve problems by simulating or modelling the situation. e.g. 1. A baker bakes 16 buns. She puts 2 buns in every box. How many boxes can she fill? 2. There are 36 books. Four children share them equally. How many books does each child get? • Pupils make up a number story to a given number sentence. e.g. **28 ÷ 4 = 7** Mrs.Tan has 28 stamps. She has four children. Each child gets 7 stamps.	i. Find the unknown numbers in number sentences. ii. Solve problems involving division in real life situations.	Use and apply knowledge of division in a variety of contexts including real life situations. Emphasise finding unknown numbers in number sentences as follows: a. 8 ÷ 2 = □ b. 16 ÷ □ = 8 c. □ ÷ 3 = 5 d. □ ÷ □ = 9 e. □ = 32 ÷ 4 f. 9 = 36 ÷ □ g. 7 = □ ÷ 5 h. 8 = □ ÷ □ Select problems according to pupils' ability and proficiency in language.	divide share equally group number sentence

TOPIC: MONEY

LEARNING AREA: MONEY TO RM50

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Understand and use the vocabulary related to money.	• Pupils show enough coins to make up a small amount. e.g. **RM1.35**  • Pupils show enough notes to make up a given amount. e.g. **RM31**  	i. Represent the value of money in 'RM' and 'sen'.	Encourage pupils to tell the value of money correctly. Introduce RM50 note. Show pupils genuine notes and coins. Pupils are aware that RM1 is available in both forms, coin and note. Emphasise **'0'** in the **'sen'** value. e.g. 1. RM12.**0**5 2. RM38.6**0**	money sen ringgit RM coins notes value amount

TOPIC: MONEY

LEARNING AREA: MONEY TO RM50

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Understand that RM5.25 means RM5 and 25 sen. • Pupils respond to questions such as: 1. How many sen are there in RM1? 2. Write 165 sen in RM and sen. 3. Write in RM and sen the total of two RM10 notes, three RM5 notes and six 10 sen coins. • Provide coins of different denominations and pupils make up to RM5 using different combinations of coins. • Provide notes of different denominations and pupils make up to RM50 using different combinations of notes.	ii. Exchange: a. coins up to RM5; and b. notes up to RM50.	Pupils check for accurate amount exchanged.	money sen ringgit RM coins notes value How much?

TOPIC: MONEY

LEARNING AREA: MONEY TO RM50

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
2. Use and apply knowledge of money in real life.	• Set up bargain counters with articles priced up to RM50 for practical buying and selling. Provide a box of coins and notes of different denominations for "shopkeeper" and provide "customers" with some denominations of coins and notes. Show transactions in written forms. • Create "Card Shop" scenario. Pupils bring old cards from home. Each card is labelled with a price tag. Pupils carry out buying and selling activities. • Pupils use mental addition or subtraction to solve problems.	i. Add money up to RM50. ii. Subtract money up to RM50.	Addition and subtraction involves: a. sen only; b. RM only; and c. RM and sen. Limit: a. addition to the highest total of RM50; and b. subtraction within the range of RM50. Include addition and subtraction of money using standard written method. e.g. 1. RM13.45 + RM 6.10 _____ 2. RM40 - RM10 _____ Inculcate moral values involving money.	money sen ringgit RM coins notes value add subtract How much?

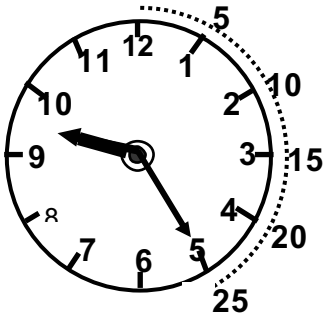
TOPIC: MONEY

LEARNING AREA: MONEY TO RM50

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils solve problems. e.g. 1. I have RM6 and my mother gives me RM2. How much do I have now? 2. A banana costs 10 sen less than a mango. A mango costs 70 sen. How much does a banana cost?	iii. Solve problems involving money in real life situations.	Encourage pupils to explain methods used. Emphasise the development of the ability to choose the correct operation. Select problems according to pupils' ability.	money sen ringgit RM coins notes value How much? solve

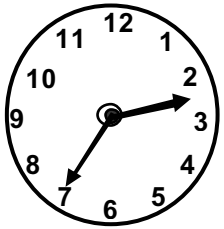
TOPIC: TIME

LEARNING AREA: READING AND WRITING TIME

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Understand, read and write the vocabulary related to time.	• Teacher introduces the minute hand using a clock face. • Pupils count in fives from 0 to 60 as teacher moves the hand around the clock face. • Teacher marks 5, 10, 15 … 60 (minutes) on the clock face and pupils count in fives. e.g. 25 minutes  	i. Read time to five minutes. ii. Write the time to five minutes.	Begin with analogue clock. Use clock faces which show the numerals 1 to 12 and have clearly marked minute intervals. Emphasise the difference between the hour hand and the minute hand. Emphasise each mark on the clock face means 1 minute. Pupils read time in at least two ways. e.g. 5:10 *Five ten.* *Ten minutes past five.* Write the time, for example, seven twenty as 7:20.	time hour hand minute hand minutes o'clock clock face analogue clock

TOPIC: TIME

LEARNING AREA: READING AND WRITING TIME

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Teacher uses a clock face to show various times. e.g. "It's one thirty." "It's three fifty-five." "It's ten minutes past six." • Pupils write the given time. a.  **2:35** b. Teacher says the time, for example *nine fifteen* and pupils write: 9:15. • Pupils draw the hour and the minute hands to show time.		Exclude cases where the minute hand is between two numbers. Check on pupils' pronunciation when reading time.	clock o'clock hour hand minute hand minutes past

TOPIC: TIME

LEARNING AREA: RELATIONSHIP BETWEEN UNITS OF TIME

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Understand the relationship between units of time.	• Teacher explains the comparative order of units of time and that there are 60 minutes in an hour and 24 hours in a day.	i. Use units of time and know the relationship between: a. hour and minutes; and b. day and hours.	Introduce standard units for time and show the relationship between them. 1 hour = 60 minutes 1 day = 24 hours	minutes hour day

TOPIC: TIME

LEARNING AREA: SOLVING PROBLEMS INVOLVING TIME

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Use and apply knowledge of time in real life.	• Pupils respond to questions such as: a. What do you do at 6:30 in the morning? b. What do you do at 9:55 every night? • Pupils solve problems. e.g. 1. Sonia got on the bus at 10:00 o'clock. The journey took 15 minutes. What time did she get off the bus? 2. Raju went into a shop at 10:30 and came out at 10:45. How long was he in the shop?	i. Solve problems involving time in real life situations.	Select problems according to pupils' ability and proficiency in language.	What time …? How long? minutes solve

TOPIC: LENGTH

LEARNING AREA: INTRODUCTION TO LENGTH

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Understand and use the vocabulary related to length.	• Pupils observe the heights of two pupils in class. Pupils say one is tall and the other is short. • Teacher shows objects of different lengths such as rulers, ribbons, pencils, rope, pupils' fingers, hands etc. Pupils to say: a. Ruler is long. b. Pencil is short.	i. Use the vocabulary related to length in practical contexts.	Emphasise the vocabulary related to length.	measure length height tall short long high low

TOPIC: LENGTH

LEARNING AREA: MEASURING AND COMPARING LENGTHS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Measure and compare lengths by direct comparison and using uniform non-standard units.	• Pupils compare the lengths of two objects. e.g. 1. Length of two rulers The rulers must be lined up side by side with one end of each ruler aligned. **A**  **B**  Ruler A is longer than ruler B or Ruler B is shorter than ruler A. 2: The heights of 2 pupils. a. Kinu is taller. b. Diah is shorter. c. Kinu is taller than Diah. Repeat the activity with various objects.	i. Compare the lengths of two objects by direct comparison.	Length is the distance measured between two points. Compare two objects at a time. Begin with two objects of great difference in length and later of less difference. Emphasise measuring and comparing lengths by direct comparison (side by side). Use uniform non-standard units to measure and compare lengths.	length compare measure taller than shorter than longer than higher than lower than

TOPIC: LENGTH

LEARNING AREA: MEASURING AND COMPARING LENGTHS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils measure lengths of objects using uniform non-standard units. e.g. 1. Measure the length of a pencil with paper clips.  2. Measure the length of classroom with pupils' steps. 3. Measure the desks using the span of pupils' hands.	ii. Measure lengths of objects using uniform non-standard units.	Use various uniform non-standard units to measure lengths. Introduce standard units for length and show the relationship between metre and centimetre. 1 metre = 100 centimetres Record measurement in metres and centimetres.	length measure compare tall long high low short taller longer shorter higher lower metre centimetre standard unit
2. Measure and compare lengths using standard units.	• Repeat the activities above using standard units, metre and centimetre.	i. Measure lengths of objects using standard units. a. metre; and b. centimetre.		

TOPIC: MASS

LEARNING AREA: INTRODUCTION TO MASS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Understand and use the vocabulary related to mass.	• Engage pupils in activities that will create an awareness of mass. e.g. 1. Hold, push, pull and lift objects such as sand bags, plasticine, bricks, bags of marbles … 2. Carry and move objects. 3. Sort and separate 'light objects' and 'heavy objects'. 4. Discuss the idea of splitting a heavy load into several smaller loads.	i. Use the vocabulary related to mass in practical contexts.	Mass is the amount of matter in an object. Emphasise the vocabulary related to mass.	light heavy small large not heavy too heavy not light lift push size pull balance plasticine sand bricks marbles

TOPIC: MASS

LEARNING AREA: MEASURING AND COMPARING MASSES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Measure and compare masses by direct comparison and by using uniform non-standard units.	• Pupils compare two masses by pushing, pulling or hefting. e.g. 1. Lift two objects, one in each hand and decide which is heavier or lighter. 2. Push two boxes in turn across the floor and decide which is heavier or harder to push. 3. Pull two objects in turn and decide which is harder or easier to pull. • Pupils find objects of similar mass from a variety of objects given.	i. Compare the masses of two objects by direct comparison.	It is not always true that: a. Large things are heavier than small things; and b. Two things of the same size have the same mass. Compare only two objects at a time. Begin with two objects of great difference in mass and later of less difference. Emphasise measuring and comparing masses by direct comparison (side by side).	hefting lighter than heavier than weigh weight small large less mass more mass greater mass as heavy as not as heavy harder to push easier to lift not as light

TOPIC: MASS

LEARNING AREA: MEASURING AND COMPARING MASSES

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils experiment with the equal arm balance with a variety of materials. 1. How many chalks are needed to balance five pencils? 2. How many marbles are needed to balance a cup? • Pupils work in groups to guess the masses of objects by using different non-standard units. **Objects** / **Guess** / **Actual** Book / ...marbles ...chalks ... buttons / ... marbles ... chalks ... buttons	ii. Measure masses of objects using uniform non-standard units.	Use uniform non-standard units to measure and compare masses. Introduce the standard unit; kilogram for measuring masses. 1 kilogram = 1000 grams Record weights in kilograms.	equal arm-balance guess check balance measure nearly the same lightest heaviest non-standard standard unit kilogram
2. Measure and compare masses using standard unit.	• Engage pupils in weighing activities using scales. e.g. Weighing 1 kilogram of sugar Weighing 2 kilograms of flour Weighing 3 kilograms of sand	i. Measure masses of objects using standard unit.		

TOPIC: VOLUME OF LIQUID

LEARNING AREA: INTRODUCTION TO VOLUME OF LIQUID

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Understand and use the vocabulary related to volume of liquid.	• Pupils fill and empty containers, describing them as full, half full, empty, or as having more or less liquid in them after filling or emptying. • Pupils do 'Guess and Check' activities. e.g. 1. How full will this bottle be when I pour in this jug of water? 2. Will all the water in the glass go into the cup?	i. Use the vocabulary related to volume in practical contexts.	Volume of liquid is the amount of space occupied by liquid. Emphasise the vocabulary related to volume.	volume liquid capacity measure full half full empty fill up more less much

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
Pupils will be taught to:		***Pupils will be able to:***		
1. Measure and compare volumes of liquids by direct comparison and by using uniform non-standard units.	• Pupils demonstrate and explain: a. that a milk carton holds more milk than a cup. b. that a jug may hold the same amount of water as a milk carton. c. that if one cup holds more sand than another then it can also hold more water. • Pupils investigate the volumes of two different containers (of different sizes) by filling the containers with water using a cup. **Containers / Capacities / Results** **A** — **15 cups** — **Holds more** **B** — **12 cups** — **Holds less**	i. Compare the volumes of two liquids by direct comparison.	When comparing volumes of liquids, containers must be filled to the top. Compare only two volumes of liquids at a time. Begin with volumes of great difference and later of less difference. Emphasise measuring and comparing volumes of liquids by direct comparison.	volumes liquids capacities full empty level holds more than holds less than holds about the same as holds a lot more than holds just a little more than not quite as much as

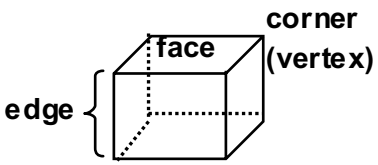
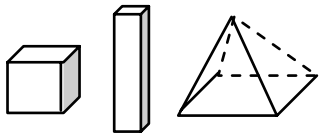
TOPIC: VOLUME OF LIQUID

LEARNING AREA: MEASURING AND COMPARING VOLUMES OF LIQUIDS

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils experiment with a variety of containers to measure volumes of liquids. e.g. 1. How many cupfuls of water will fill up a jug? 2. How many bottles of water will fill up a pail?	ii. Measure volumes of liquids using uniform non-standard units.	Use uniform non-standard units to measure and compare volumes. Emphasise filling each containers with water to the top. Introduce the standard unit; litre for measuring volumes of liquids. 1 litre = 1000 millilitres	measure volumes liquids capacity cupfuls non-standard unit standard unit litre
2. Measure and compare volumes of liquids using standard unit.	• Engage pupils in measuring volumes of liquids using measuring cylinders. e.g. Measuring 1 litre of water. Measuring 2 litres of water. Measuring 3 litres of water.	i. Measure volumes of liquids using standard unit.	Record volumes of liquids in litres.	

TOPIC: SHAPE AND SPACE

LEARNING AREA: THREE-DIMENSIONAL SHAPES (3-D SHAPES)

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Understand and use the vocabulary related to 3-D shapes.	• Pupils identify the appearance of three-dimensional shapes as a whole. e.g. a cube  • Teacher puts a selection of 3-D shapes in a box. Pupils compare and sort shapes by criteria which refer to faces, number of edges and corners. e.g. 3-D shapes with flat faces. 	i. Identify the appearance of a three-dimensional shape as a whole. ii. Compare and sort three-dimensional shapes according to properties. iii. Label parts of three-dimensional shapes.	Pupils identify the appearance of three-dimensional shapes as a whole: a. in drawing; and b. in different positions. Pupils may also compare two solid shapes with one another. e.g. a. "They are both flat all over." b. "One has longer sides."	cube cuboid cone cylinder sphere pyramid edge corner face vertex flat faces curve curved faces same different

TOPIC: SHAPE AND SPACE

LEARNING AREA: THREE-DIMENSIONAL SHAPES (3-D SHAPES)

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
	• Pupils are given sets of 3-D shapes which are already sorted. Pupils say the reasons for sorting them in that way.			bigger more longer square round circle triangular rectangular circular

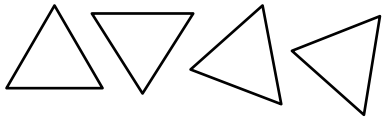
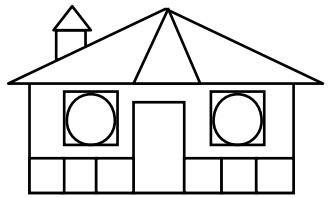
TOPIC: SHAPE AND SPACE

LEARNING AREA: THREE-DIMENSIONAL SHAPES (3-D SHAPES)

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
2. Describe and classify common 3-D shapes.	• Teacher describes shapes. Pupils guess the objects and relate the objects to the 3-D shapes. e.g. "It is round all over." "It is flat on the bottom." • Pupils ask 'Yes' or 'No' questions about a hidden shape in order to identify it. e.g. "Does it have a curved face?" "Does it have a rectangular face?" "Does it have three corners?"	i. Identify three-dimensional shapes based on descriptions.	Use mathematical vocabulary to describe features of 3-D shapes. Encourage pupils to ask questions on the features of the 3-D shapes. Computer based activities are encouraged.	cube cuboid cone cylinder sphere pyramid edge corner face curve curved faces same different bigger longer square round circle triangular rectangular circular

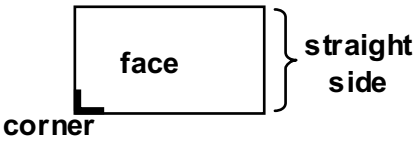
TOPIC: SHAPE AND SPACE

LEARNING AREA: TWO-DIMENSIONAL SHAPES (2-D SHAPES)

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
1. Understand and use the vocabulary related to 2-D shapes.	• Pupils identify the appearance of two-dimensional shapes as a whole. e.g. 1. A triangle in different positions.  2. Pupils identify squares, rectangles, circles and triangles in a diagram. 	i. Identify the appearance of a two-dimensional shape as a whole. ii. Compare and sort two-dimensional shapes according to properties.	Pupils identify the appearance of two-dimensional shapes as a whole: a. in drawing; b. in different positions; and c. in shapes/ diagrams.	square triangle circle rectangle oval faces sides corners flat straight curve round

TOPIC: SHAPE AND SPACE

LEARNING AREA: TWO-DIMENSIONAL SHAPES (2-D SHAPES)

LEARNING OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE	VOCABULARY
Pupils will be taught to:		***Pupils will be able to:***		
2. Describe and classify common 2-D shapes.	• Pupils label parts of 2-D shapes. e.g.  • Teacher describes a shape and pupils guess the 2-D shape. e.g. "It has a flat face." "It has three straight sides." "It has three corners." • Pupils ask 'Yes' or 'No' questions about a hidden shape in order to identify it. e.g. "Does it have a curved side?" "Does it have a round face?"	iii. Label parts of two-dimensional shapes. i. Identify two-dimensional shapes based on descriptions.	Use mathematical vocabulary to describe features of 2-D shapes. Descriptions can be verbal or written.	square triangle circle rectangle oval faces sides corners flat straight curve round