Mathematics Curriculum Guide: Grade 3

Contents

Introduction:

Definition

The question as to what is mathematics arises when we seek to understand the bases/roots of our human activities. Mathematics can well be regarded as the foundation stone of many of our human activities. Mathematics deals with a collection of objects which includes points, lines, numbers and events all of which are basic notions in our thinking. The concern is not so much with the objects themselves as with the relationships and patterns they show.

The study of mathematics involves observing, discovering and investigating patterns and relationships especially as illustrated and modelled in the real world.

<u>Purpose of M</u>athematics for life in our world

It provides the capacity to

- Think in precise terms
- Develop (process/problem solving) skills, that are needed for:
    - Making connections
    - Reasoning
    - Communicating
    - Problem solving

- Have confidence in building or interpreting quantitative descriptions

Contribution of Mathematics to the Curriculum

Mathematics provides a foundation for <u>productive discourse</u> especially in the sciences and to some extent in the humanities.

It offers <u>fuel</u> for:

- Creativity
- Originality

- Imagination

The Subject Strands:
- Number
- Geometry
- Measurement
- Statistics and data handling
- Patterns, functions and algebra

Integration
Across subjects
Mathematics concepts can be integrated into almost all other subjects of the national Curriculum and conversely mathematics can integrate concepts, skills and attitudes of other subjects. For example:

- Social Studies and HFLE: Social issues and trends that form the basis of life can provide the raw data needed for Statistics/Data Handling.
- In mathematics, students learn to estimate and make accurate measurements which are skills required to engage in learning experiences in Science. Measuring time is a life skill integrated into all subjects.
- Mathematics has its own vocabulary and mathematical literacy needs to be acquired in the early grades. This reinforces and consolidates the learning in Language Arts.
- Mathematics is about problem solving, mathematics contributes to the development of life skills and the holistic development of the learner.

Thematic Integration
It is possible to use a thematic approach to integrate across and within subject areas. For example, Nature provides opportunities for thematic integration not only across strands in mathematics but across other subjects.

TERM 1 SUMMARY	
	No. of
UNITS	SESSIONS
UNIT 1: ON THE BEACH 1 - Number AT 1: LO 1 Success Criteria: 1 – 4	16
UNIT 2: ON THE BEACH 2 – Number (place value) Success criteria 1 – 5	24
UNIT 3: OUT OF THE BOX – geometry (3-D shapes) Successive Criteria: 1 – 2	8
UNIT 4: HELPING MUMMY – measurement (length) Success Criteria: 1 – 4	16
UNIT 5: ON THE BEACH 3 – number (comparison/investigation) Successive Criteria: 5 – 7	16
UNIT 6: MY FAVOURITE THINGS – patterns Successive Criteria: 1 – 3	16
	96

UNIT PLAN WITH SUGGESTED TEACHING, LEARNING & ASSESSMENT ACTIVITIES

TERM 1   STRAND 1 Number   UNIT 1: ON THE BEACH

AT 1	LO 1: Demonstrate an understanding of number up to 1 000
	Success Criteria

1. Count and build sets up to 1 000 objects in a variety of ways
2. Count in a variety of ways: counting forward, counting backwards, skip counting, counting on
3. Count by 2's, 5's, 10's, 20's, 25's, and 100's
4. Identify, use and write numbers up to 1 000 and represent them in a variety of ways

ACTIVITIES

Count and build sets up to 1 000 objects in a variety of ways

1.1   Students listen as a story is related in which some items were on a vehicle going from one town to another. At some point the vehicle is shaken in such a manner that some fall off and left scattered on a flat surface. A passer by approaches. She wants to find their number. Students are asked to suggest what she can do. Students are given a pile of (up to 1000) items such as beads, seeds, beans, buttons, pebbles, nuts, sheets of papers. They are allowed to take items one by one from the pile and count aloud as they do so. A supportive environment for students to learn skills and strategies in finding a number.

1.2   Students work with other cases and build a picture as the one below, but going as close to 1000 as is needed.
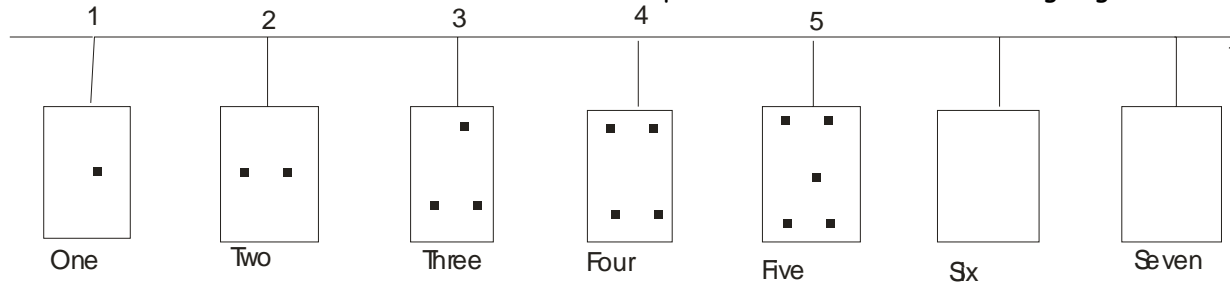
Students are reminded that (i) the dots stand for any objects – e.g., fruits, buttons, grains, coconuts, spoons, books, words, letters, boxes, animals, birds, plants, stars, galaxies, flowers – and (ii) the same information is contained in each of the three ways/ forms in which each number appears.

Students are led to see that the numbers can appear on a square as shown and are led to complete the square.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32								

Students are engaged in discussing the order of the numbers. They note, for example, that 100 comes before 101, or 101 comes after 100. The numbers are covered with cards. Students asks which card comes in the 5th position, the 95th position, etc. Students note general rules, example, smaller numbers come before larger ones, or larger numbers come after smaller ones.

1.3 Students are given straws or beads to represent numbers. A ten can be represented by a bundle of ten straws or placing ten beads in a cup, and a hundred by 10 bundles of 10 straws. Students use these straws to make numbers.

1.4 Students are given number cards e.g.

300	20	4

They use these numbers to represent three-digit numbers.

1.5   Students work in pairs. One student writes down a number and the other has to write it down in words.

Count in a variety of ways: counting forward, counting backwards, skip counting, counting on

2.1   Students play oral game. They are placed in a circle. The rule of the game is to add 3. Students continue. If someone gives the wrong answer, that student is out. The last student is the winner.

2.2   Students play game "Simon says." They stand in a semi-circle (or in another fashion) with a leader to begin. Only when the leader says "Simon says" before a command must the student react as says. Use is made of such expressions as "Simon says 'count backward from a hundred'", "Stop", "Simon says 'stop'", "Count by 2's". The person who does not respond to Simon says or does otherwise is out. The game continues until the class comes to a winner.

2.3   Use number chart: students are given 100 number squares in which they are to fill in the missing numbers

1		3		5		7		9	
11		13		15		17		19	
21		23		25		27		29	
31		33		35		37			
41		43		45		47			

2.4   Students observe as teacher makes 100 number squares, cut out the numbers, divide students in groups. Students arranged by 3, 4, 5. They are given example (such as 45 ___ 47 ___) to fill out the missing numbers.

Count by 2's, 5's, 10's, 20's, 25's, and 100's

3.1 Students listen as a story is related in which some items were arranged in 2's and were on a vehicle going from one place to another. At some point the vehicle flips in such a manner that some fall off and left, not completely scattered, but partially ordered in 2's, on a flat surface. A passer by approaches. He wants to find their number. Students are asked to suggest how he can count them and are prompted to say "by 2's." Students are given a pile of (up to 1000) items such as beads, seeds, beans, buttons, pebbles, nuts, sheets of papers. They are allowed to take items one by one from the pile and count aloud as they do so. By being related such stories, they are afforded a supportive environment to learn skills and strategies in finding a number.

3.2 Students are placed in groups. Each group given a die, different coloured counters (red, etc) and a game board.

2	4	5	6	10	12	15
20	24	25	30	45	46	50
55	62	70	75	80	92	100
120	140	165	200	220	242	250
300	320	340	355	360	400	402

Students take turns to roll the dice. Whatever number is thrown, the player covers a multiple of this number on the board with his counter. The first player to cover four squares in a row on the board with his counter wins.

Identify, use and write numbers up to 1 000 and represent them in a variety of ways

4.1 Students are given flash cards with numbers in words and figures. They match words to figures by playing game tea cup and saucer: e.g.

136		One hundred and thirty-six

949		Nine hundred and forty-nine

4.2 Students match numbers to words: three hundred sixteen (361); six hundred thirty-one (163); one hundred sixty-three (136); three hundred sixty-one (636); one hundred thirty-six (316).

4.3 Students are presented with a number chart.

189	283	675	419	872	340	700
375	777	79	679	82	892	100
613	4	870	79	706	113	9
100	954	14	927	78	152	60

Students are allowed to (i) shade numbers greater than 500 but less than 1 000 and (ii) describe patterns that appear.

4.4 Students use number riddles to identify numbers e.g. guess the numbers when hints are given. (i) I am a 3-digit number; (ii) I am less than 300 but more than 250; (iii) I can be shared into two equal groups; (iv) My last digit is 8; (v) My middle number is one less than 8. What number am I?

4.5 Bingo games: Students are placed in groups of four. They are given a bingo board (as shown below), counters and a different card from a set of bingo cards.

1	2	6	12
3	5	6	7
8	3	5	11
4	10	9	6

Students roll the dice and the number shown is covered on the bingo board. First player that has a covered row wins. Variation: roll dice twice and appropriate sum, difference or product is covered on the board.

4.6 [Use of game] Students play number games. Numbers are written both in words and figures on number cards. Students are handed the ones written in words and the ones written in figures are placed in their desks. Students with cards go to the front of the class and (individually) read the number written on their card. Students are asked to look in their desk to find the card with the number written in figures. Individual students are then invited to come up to the front of the class and match the card to the words.

RESOURCES

Base ten materials, flash cards, fruits, counters, bottle tops, straws, bingo game cards, fraction pies, etc.

ASSESSMENT

1. Shown some expression (such as 80, 70, ___, ___, 40 and 776, 777, 778, ___, ___, ___) with missing numbers, can fill in the missing numbers.

2. Can use
   a. hundred square to count by different numbers, example, by 5, 10
   b. number track or number line drawn on the floor to count backwards by 2, 3, 4, 5 beginning with the biggest number. (Skip from the beginning number to the one that follows)

3. Shown a number, can write the word. For example, write the word
   a. 50 _____   b. 68 _____

4. Shown a word for a number, can write the figure. For example, write the number
   a. Eighty-nine _____   b. three hundred and seventeen _____

TERM 1   STRAND 1 Number   UNIT 2: ON THE BEACH 2

AT 1	LO 2: Create and solve simple problems using place value and whole number concepts
	Success Criteria

1. Use number lines to round off 2-digit numbers to the nearest 10
2. Find the place value of any number up to 3-digits
3. Write 2 and 3-digit numbers in expanded forms
4. Create and solve problems involving place value
5. Classify numbers as even and odd

ACTIVITIES

Use number lines to round off 2-digit numbers to the nearest 10

1.1   Students are shown two numbers, say, 10, 20 which are multiples of 10 and asked to put these numbers in order (or say which comes first on the number line). They observe as these numbers appear on the number line, as illustrated below.
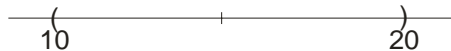

Students are questioned to suggest which number comes exactly midway between these two numbers. Once they say 15, they are led to notice that 15 is close to 10 and also close to 20. They are asked, "Is it closer to 10 than to 20?" Once they say, "No," they are pressed to see that 15 is as close to 10 as it is to 20. (Example, if your home is at 10, your friend's home is at 20 and the school is at 15, both you and your friend would have to walk or travel the same distance to get to school.) It is the midway between 10 and 20. Students are shown other examples of pairs of multiples of 10 (such as 20 and 30, 30 and 40 and so on), as illustrated below, and asked to mark the midway for each.
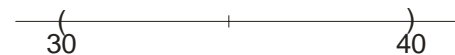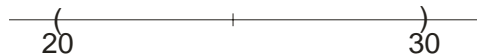
1.2   Students are asked to revisit the pair 10, 20 as shown on the number line. They are related a story in which Cynthia is at 12 when she notices that it is about to rain. To get shelter, she can run either to 10 or to 20. Students are asked to reveal whether they would advise Cynthia to run to 10 or 20 and why. This leads to a discussion which makes clear that while 12 is close to 10 and also to 20, it is closer to 10. Students are asked, "What do you get if you round 12 to the nearest 10?" They are led to see that the answer is 10.

1.3   Students are shown a picture as below and asked to look at it and suggest a number on it which is closer to 20 than 10. For the choice of number, they are asked to say why it is closer to 20.

```
    (———————————+———————————)—————
    10          15          20
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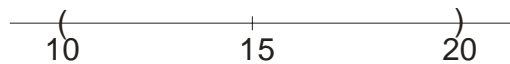
Suppose the number suggested is 16. Students are asked to imagine that Roy is at 16 when he hears that a hurricane is coming and that every one must go quickly to the nearest shelter. If Roy can get shelter at 10 and also at 20, to which number would we advise him to go and why. Students are asked, "What do you get if 16 is rounded to the nearest 10?"

1.4   Students are related a story in which Shirley is returning home from a party. She knows that her mum might ask her about the people who were at the party, example, what their number was. She thinks that although the number is 49, it is better to keep 50 in her mind, because it is easier to remember. Students are shown a picture as illustrated below and asked to show roughly where 49 lies. They are asked to explain why we get 50 when 49 is rounded to the nearest 10.

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    (———————————+———————————)—————
    40          35          50
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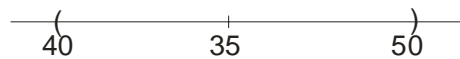
1.5   Students are related a story in which a class is on a trip from 10 to 20 on the number line. Midway on that trip, they must get to the nearest shelter to avoid some unpleasantness. The class can get shelter at both 10 and 20. Students are asked to suggest the number to which they would ask their teacher take the class and why. They are asked, "What do we get when 15 is rounded to the nearest 10?"

1.6   Students are engaged in a discussion in which they suggest what they think would be the rules in rounding numbers. They are led to say (i) always round to the number that you are closer to and (ii) when you are midway, round to the bigger number.

Find the place value of any number up to 3-digits

2.1   Students are related a story in which Roger is in the company of some stars. He knows their number is 153. His friend says their number is 1 hundred + 5 tens + 3 ones. Students are asked to suggest whether what Roger's friend says is the same thing and why. They are led to understand that the '1' in 153 means 1 hundred, the '5' means 5 tens and the '3' means 3 ones.

2.2   Students are related a story in which Alice finds some nice things. She knows their number is 464. Students are engaged in discussing the 4's in this number, their places in the number and their values. They are led to see that the '4' in the hundreds place means 4 hundred and the '4' in the ones place means 4 ones.

2.3   Students are related a story in which Mark is telling his mum about digits and their values. He says that if it is in the hundreds place, a digit means that many hundreds; so if the digit '9' is in the hundreds place, as it is in 901, it means 9 hundred. Students are asked to suggest if Mark is correct and to suggest other examples he could use.

Write 2 and 3-digit numbers in expanded forms

3.1   Students are asked to revisit the story in which Roger is in the company of some stars and knows their number is 153. They are questioned to make use of the place value chart and reveal the number as 100 + 50 + 3.

3.2   Students are given opportunity to put other 2 and 3-digit numbers in their expanded forms.

Create and solve problems involving place value

4.1   Students are related a story in which while Johnny is ready about stars, he finds their number is reported to be 300 + 40 + 5. Students asked to put the number in its shortened form.

4.2   Students are related a story in which Sonia counts her oranges and finds that their number is 271. Student are asked to reveal whether their number is greater than or less than 217.

4.3   Students are related a story in which, in a match with Australia, West Indies scored 518. They are pointed to a particular digit in this number and asked to reveal its value.

Classify numbers as even and odd

Students are related a story in which Sharline has some nice things (marbles, say) she wants to share between her two friends, Chad and Bernard, so that each has the same number. Students are shown various numbers (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, …) that Sharline may have and are asked to find in which case a remainder of 1 is left and in which case no remainder is left. In each case where no remainder is left, students are led to ask why no remainder is left. They are led to say the reason is that the number is an even number. Similarly, when a remainder of 1 is left, students are led to say this is because the number is odd.

Students observe as the numbers (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, …) appear on the chalkboard. They watch as these numbers then split into two groups.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, ...

2, 4, 6, 8, 10, 12, 14, ...   1, 3, 5, 7, 9, 11, 13, ...
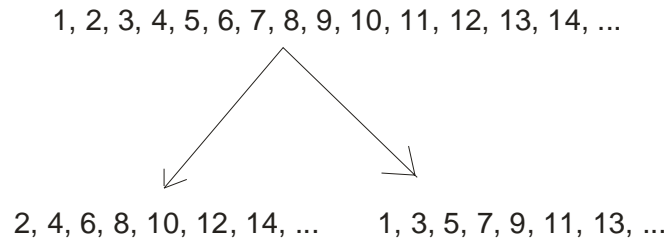
They are questioned to suggest how we could describe each group. They are led to say that numbers in the first group each leaves no remainder after division by 2. Numbers in the second group each leaves the same remainder of 1 after division by 2. This means in the counting numbers we have even numbers and odd numbers.

RESOURCES
Base ten materials, number lines, counting chart, crayons, markers

ASSESSMENT
1. Shown a place value chart, can use it to complete a statement. Example: Fill in

Hundreds	Tens	Ones
| | | | |	|||	||\\\| | |

____ hundreds _____ tens _____ ones

_____ + _____ + _____ = _____

2. Shown a number in its expanded form, can reveal the shortened form. Example: Put in missing number
    a. 400 + 50 + 3 = _____   b. 627 = _____ + _____ + _____
3. Shown a number of one of the digits underlined, can indicate the value of that digit. Example: Identify the position of the underlined digit.
    a. 9̲0   b. 5̲01
4. Shown a list of numbers, can reveal the even (or odd) numbers from it.
5. Shown two numbers, can reveal the even (or odd) numbers between them.

TERM 1   STRAND 2 Geometry   UNIT 3: OUT OF THE BOX

AT 2	LO 1: Classify and identify by name the properties of regular 3-D shapes
	Success Criteria

1. Sort examples of the cube, cuboid, cylinder, cone and spheres
2. Identify and discuss the properties (faces, edges and vertices) of regular 3-D shapes

ACTIVITIES

Sort examples of the cube, cuboid, cylinder, cone and spheres

Students are allowed to bring in various examples of objects similar to (or models of) 3-D shapes. Students are engaged in sorting these shapes, using terms such as 'cubes', 'cuboids', 'cylinders', 'cones' and 'spheres'.

Students are given drawn shapes and allowed to group these shapes. Students are given drawings of various 3-D shapes and allowed to colour these shapes in different colours. Example: cubes coloured red, cone coloured blue, etc.

Students observe as teacher draws shapes. They are then asked to name the shapes.

Students observe as teacher writes the name of shape. They are then asked to draw the shapes.

Students draw examples of objects in the environment and write the solid shape of which it is a model. Example, in one space they draw an orange and next to it in an adjacent space they write 'sphere'.

Students are given a list of objects and names of various 3-D shapes. For each object, students decide what geometric shape it is like, by ticking the appropriate space. [cp. Bright sparks 3 page 104]

Identify and discuss the properties (faces, edges and vertices) of regular 3-D shapes

2.1   Students are set in groups and given various 3-D shapes. Students draw up table to label # of faces, edges, vertices.
2.2   Students are told a story in which, to win a prize, someone had the challenge to come up with a solid shape using some faces. Students are given a solid shape and some faces and asked to indicate (example, by colouring) which of the faces are needed to make the solid shape. This is done for a cube and repeated for a cuboid, a cylinder, a triangular prism.

Cube

Cuboid

Cylinder

Triangular prism
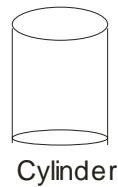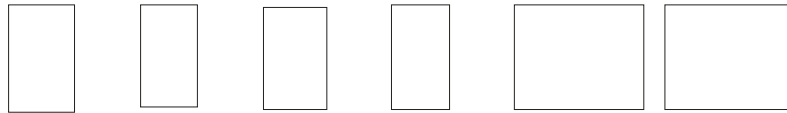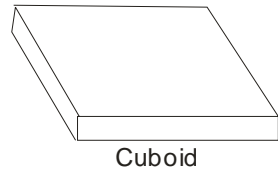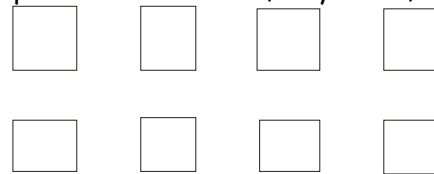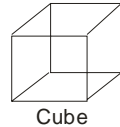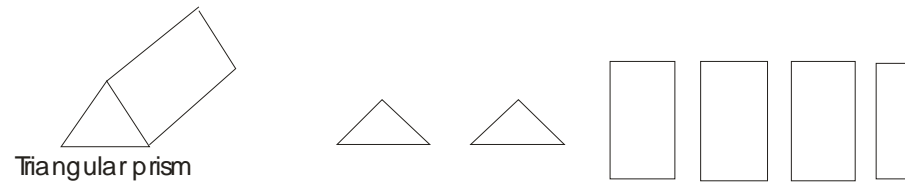
RESOURCES
Paper, scissors, ruler, crayon, cut-out shapes, 3-D shapes

ASSESSMENT
1. Shown a list of shapes in some order, such as a cube, a cylinder, a cone, a cuboid, a sphere and a list of names, such as cone, sphere, cube, cylinder, cuboid, can match the shapes to their names.
2. Given a table such as what follows, can complete the table

Name of shape	No. of faces	No. of edges	No. of vertices
Cylinder			
Cone			
Cube			
Cuboid			

TERM 1   STRAND 3 Measurement   UNIT 3: HELPING MUMMY

|	
AT 3	**LO 1: Estimate and accurately measure lengths and distances using standard units** *Success Criteria*

1. Compare estimates, measure and record length in metres
2. Select appropriate instruments to measure length
3. Identify, discuss and explain the concept of perimeter and use measurements and addition to find the perimeter of simple shapes
4. Solve simple real life problems related to length

ACTIVITIES

Compare estimates, measure and record length and distance in metres

1.1   Students are shown (or are involved in making) an arrangement in which a string is tied to two poles, as illustrated.
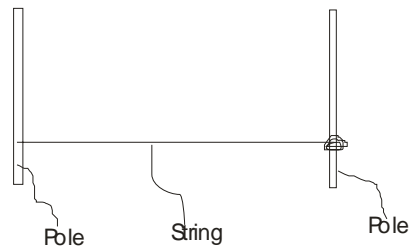
Pole   String   Pole

They are led to see that between the two poles is a distance. They such and such the distance is related to the length of the string. It is the length of the string when the string is stretch. We can say (give, find, express) the distance in metres if we know how long a metre is. Students are shown a metre and asked to guess the distance in metres. They are then involved in using an appropriate instrument (e.g. a metre rule or a measuring tape) to find a better (or more accurate) reading of the distance. They then change the position of one of the poles by unwinding some of the strings. They proceed to guess the

distance and then to measure more accurately using the instrument. They continue in this way to get data and complete a table, as suggested below.

Trial	Distance (by guessing)	Distance (by measuring)
1		
2		
3		
4		
5		

1.2   Students are placed in groups. They are allowed to estimate and record the heights of various students and then use an appropriate instrument (possibly metre ruler) to find the actual height. Students compare each other's heights.

1.3   Students told a story in which someone enters a yard and finds sticks or flowers of various lengths. Their lengths are found, first by estimation and then more accurately using an instrument.

Students perform this task and use their results to complete the table.

| Flower	Height (by guessing)	Height (by measuring)
1		
2		
3		
4		
5		

1.4   Students are told a story in which two friends are in a conversation about a rod or a stick. One says (decides, infers) that the rod or stick is longer today than how it was yesterday. When asked how he knows, his response is that he measured it. [Because of the space or opportunity measurement creates for knowledge, it is important to have measurement. How is having a measurement possible? We must be granted an instrument if we are not to avoid a measurement. By an instrument in this sense is meant, for example, a metre rule. Precision can appear in the measurement. find a way to bring precision into the measurement we (let ourselves) take at a point.

**Select appropriate instruments to measure length and distance**

2.1   Students form groups and are asked to name various things (instruments) we use to measure length (or distance). They are involved in class discussion on group findings.

2.2   Students placed in groups and given various measuring instruments (ruler, tape measure, etc.). They are allowed to measure various things in the classroom.

Identify, discuss and explain the concept of perimeter and use measurements and addition to find the perimeter of simple shapes

3.1   Students are told a story in which Mr. Jones has a garden that he wants to fence to prevent goats and other animals from entering. They are asked to suggest what he must do before buying the wire for the fence. Students are such and such the distance around something (e.g. an island or a piece of paper or any other shape) is its perimeter.

3.2   Students are shown a picture of Mr. Jones garden and asked to find the distance around the garden, or the garden's perimeter.

20 metres

10 metres
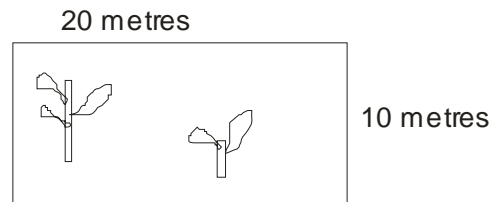
3.3   Students are placed in groups and given cut-outs of different shapes. They measure lengths and find perimeter.
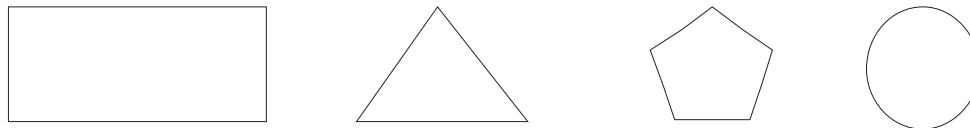
They measure lengths and find perimeter

3.4   Through appropriate stories, students are given situations in which measurements are to be made and they suggest in which unit (e.g. mm, cm, m). Examples: (i) a grain of rice   (ii) The distance from Portsmouth to Grand Bay (or from their home to school) (iii) the length of a football field (iv) the length of a pillow.

3.5   Students are given worksheets with a few problems. They sit in groups, discuss the problems and come up with solutions. Examples: (a) The length of one side of a rectangle is 8 cm. If the width is 5 cm, what is the perimeter of the rectangle? (a) A square has a perimeter of 16 cm. What is the length of a side of the square?

Solve simple real life problems related to length and distance

4.1   Students are related a story in which when Alicia stretches a rubber (or elastic) band an additional 6 cm, and observes it is now 16 cm. They are asked to reveal the length before it was stretched.

4.2   Students are related a story in which Chad has two cards, a red and a blue. The red card is 4 cm wide and 9 cm long. The blue card is 6 cm wide and 8 cm long. Chad wonders which of the two cards has the longest distance around it. Students are asked to help Chad solve the problem by drawing the cards and then measuring the distances using a string or a ruler.


RESOURCES

Metre rule, tape line, strip, rulers, school yard, building, classroom, objects in classroom

ASSESSMENT

1. Shown a table with missing items, can complete the table. Example: Complete the table

Object	Unit of measure
Desk	
Classroom floor	
School yard	
Finger nail	
Pencil point	

2. Shown regular shapes with dimensions indicated, can find the perimeter. Example: Find the perimeter of the following shapes

A)   5cm 3cm
B)   10cm 6cm
C)   7cm
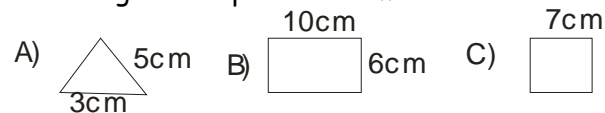
3. Posed with a simple problem related to length, can solve the problem. Example: Solve these
   a. Mother bought 3 m of cloth for Joan's skirt and 3 m 75 cm for the blouse. How much cloth was bought? Length of cloth bought = _____

b. Joan walked around the flower garden twice. How far did she walk?

6 m

2 m
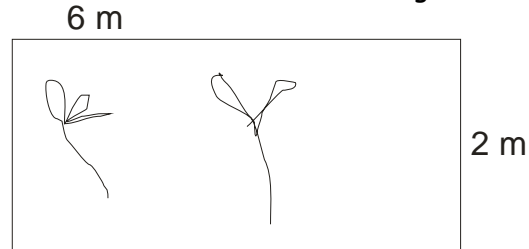
c. Tom threw the cricket ball 9m 50cm to Ray who threw it 2m 60cm. Did it reach Ravi who was 12m away?

The throws were ___m ____ cm ____m _____ cm
Answer: _____m ____cm

| AT 3	LO 2: Use 2-D shapes to cover surfaces
	Success Criteria

1. Cover 2-D shapes with squares and rectangles
2. Count the squares, rectangles that just cover a 2-D shape

ACTIVITIES

Cover 2-D shapes with squares and rectangles

1.1   Students are given cut-out shapes of various sizes and allowed to work in groups using cut-outs to cover different surfaces such as their desks, book, teacher's desk, etc.

Cover shape
With small
Squares
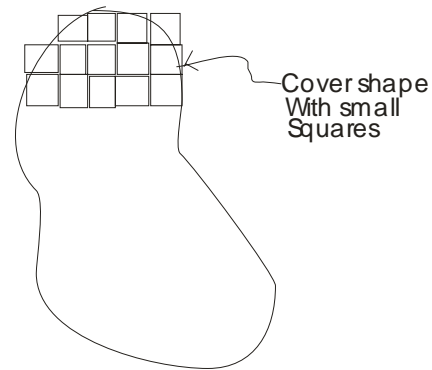
**Count the squares, rectangles that just cover a 2-D shape**

2.1   Students are related a story in which some friends, Debra, Theodore and Cleme worked as a group using cut-out squares or rectangles to cover various surfaces. The group is now left with the task of revealing the number that just covers each surface. Students asked to help this group by counting squares or rectangles that cover each surface.

2.2   Students are each given a piece of squared paper of the same size. They are allowed to design a tile pattern and colour it. They cover different surfaces in the classroom using the tiles. They use the recorded measurements to arrange the items in order of area from biggest to smallest.

2.3   Students are questioned to appreciate that when it is covered, each surface has (reveals) a number of unit squares that just covers it. This number is the area. Students are led to make statements such as: Area of surface = ____ small squares or area = _____ unit squares.

RESOURCES
Desks, cut-outs, exercise books, graph paper, crayons, scissors

ASSESSMENT

1. Shown a surface, can cover it using cut-out squares or rectangles.
2. Shown a covered surface, can count the squares that just cover it and reveal the number found as the area of the shape. Example: What is the area of these shapes

A)

B)

C)

D)
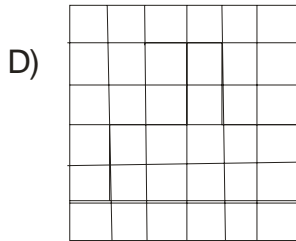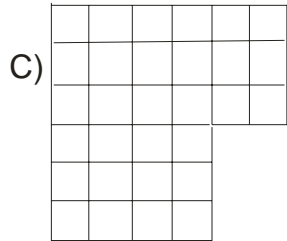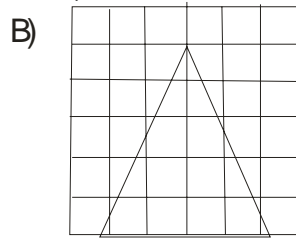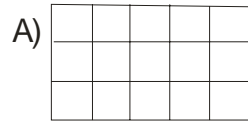
TERM 1   STRAND 1   Number   UNIT 1: ON THE BEACH 3

AT 1	LO 1: Demonstrate an understanding of number up to 1 000
	Success Criteria

5. Compare and order sets of numbers up to 1 000 and represent them in a variety of ways
6. Use a calculator, pen and pencil procedure or mental strategies to investigate number concept
7. Create and solve problems involving whole number concepts

ACTIVITIES

Compare and order sets of numbers up to 1 000 in a variety of ways

5.1   In looking for examples of comparisons, students introduced to use of signs more than (>) and less than (<). They note an example of a comparison is the expression 1 < 2, in which the less than sign occurs. Another example occurs when we write 246 > 241 to say of 246 that it is greater than 241.

5.2   Students are given number cards and are allowed to arrange these numbers from biggest to smallest, smallest to biggest.

5.3   Students are given number puzzles and are allowed to order the numbers from biggest to smallest, smallest to biggest.

5.4   Students are grouped according to number. Ex. groups of 2, 4, 5, 6. In this way, students get to observe and compare numbers (decide which is smallest and biggest)

5.5   Students are given a list of numbers to order from smallest to largest: (i) 636, 210, 336, 987, 263; (ii) 733, 721, 701, 373; (iii) 103, 130, 133, 131, 123

5.6   Students are given a list of numbers to arrange from largest to smallest: (i) 555, 595, 505, 515; (ii) 929, 979, 901, 945; (iii) 876, 531, 111, 463

5.7   (i) Students compare numbers using the signs more than and less than. Example: using each set of numbers below, write number sentences using the signs < or >. (a) 58 and 51 (b) 106 and 160 (c) 395 and 398 (ii) Tickets to a movie are numbered in order. Write the missing ticket numbers

Ticket	Ticket	Ticket	Ticket	Ticket	Ticket
20	21	____	____	____	25

Ticket	Ticket	Ticket	Ticket	Ticket	Ticket
___	___	___	___	99	100

Use a calculator, pen and pencil procedure or mental strategies to investigate number concept

6.1   Students are placed in groups. Each group is given a calculator (or at least 2 calculators per group). Students familiarise themselves with the buttons on the calculator. The class identifies the digits 0 – 9, addition, subtraction and equal sign. Students are taught number concepts through calculator use. Example:
Teacher: input 5000 on your calculator. Subtract 100 from this number. Write down your answer. Continue subtracting 100 until zero is reached. Explain what you have done.

6.2   Students are given cards with sums on them. In groups, students are allowed to work out the problem, first with mental procedure then with pencil and paper: ex. 10 + 5 = __; 20 + 10 = __.

6.3   Students are given calculators. They hear teacher read examples such as "10 + __ = 20". They use calculator to work out the examples.

Create and solve problems involving whole number concepts

7.1   Students are told a story in which Susan picked 98 oranges and Sam picked 89 oranges. They are asked to decide (i) who picked more and (ii) how many more.

7.2   Students are related a story in which Rock observes that the mangoes in his kitchen are spread so that 2 are on the table, 4 on the counter and 6 in the fridge. He wants to find their number. Students are asked to help Rock find their number.

7.3   Mr. George is 47. His son is 29 years younger. How old is his son?

RESOURCES
Flash cards, calculator

ASSESSMENT

5. Shown some numbers, can write them in order of size. For example,
    a. Write these numbers in order of size. Start with the smallest number: 89, 53, 68, 107, 75, 128
    b. Write the numbers in order of size. Start with the largest: 711, 117, 171, 173, 107
6. Shown numbers in a pattern, can continue the pattern. For example, continue the pattern

3	8	13				

TERM 1   STRAND 5 Patterns, Functions & Algebra   UNIT 4: MY FAVOURITE THINGS

| AT 5	**LO 1: Use diagrams to show relation of one number to another in familiar contexts** *Success Criteria*

1. Describe how one number behaves when another number increases or decreases
2. Predict the outputs for simple inputs (e.g. 'add 3' 'multiply by 2' etc. and vice versa
3. Solve problems by looking for relationships or patterns

ACTIVITIES

Describe how one number behaves when another number increases or decreases

1.1   In an exercise some Grade 3 students pretend the world is a box in which are some "nice things," say, flowers. (This could be thought of as the world's population.) It can pass through a tunnel that they call a function machine.
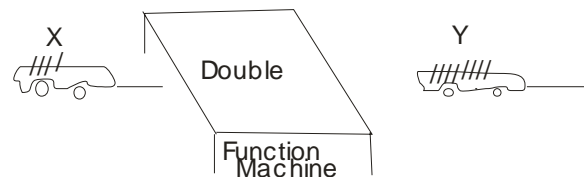
Before the world enters the tunnel, a count is taken of the flowers in it. Then the world passes through the tunnel. It does so with the result that the flowers in it are affected – their number increases. (The world's population increases.) In a particular exercise, students of Grade 3 found that the two sets of numbers are as shown below.

Number before (X)	Number after (Y)
1	2
2	4
3	6
4	8
5	10

Students look for a pattern. They observe a pattern. They see that the number that comes out is always double (twice) the number that goes in. They talk about how the number after behaves when the number before goes from, say, 1 to 2.

Predict the outputs for simple inputs (e.g. 'add 3', 'multiply by 2', etc. and vice versa)

2.1   For the example above, students predict the number after when the number before is found (or given). They solve problems by working out what the number before is if the number after is, say, 20 or some other number.

2.2   Students given opportunity to be involved in constructing a "triangle-looking" system on the classroom floor as illustrated….
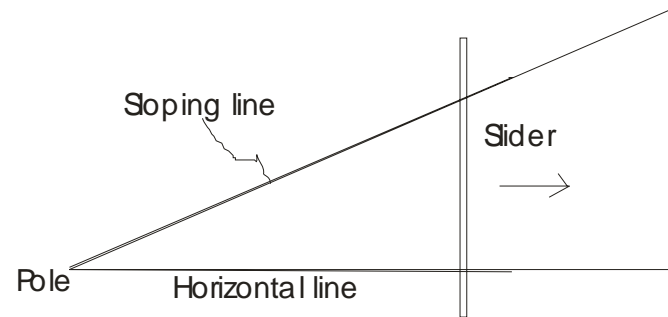
Make equal-sized steps to get from the pole to the slider along the horizontal line, counting the steps as they are made. Then do the same to go along the slider from where it crosses the horizontal line to where it meets the sloping line. The exercise is used to get a table of values, as the example below.

How many steps up?	2	3	4	5
How many steps across?	4	6	8	10

Students are asked questions based on the table. If I take twice as many steps up, the number of steps across will also be twice as many. Students asked to predict the number of steps across when the number of steps up is given, or to predict the number of steps up when the number of steps across is given.

**Solve problems by looking for relationships or patterns**

3.1   Students are told a story in which John has 2 new ideas after the first day of school, 4 new ideas after the second day and 6 new ideas after the third day. Students work out the number John is likely to have after (i) the seventh day of school, (ii) the tenth day of school.

3.2   Students are told a story in which Alice has 4 hens the first time her friend David comes by to see her. She has 13 hens the second time David appears. She has 22 hens the third time David shows up. Students work out the number she is likely to have on the fifth occasion that David comes.

RESOURCES

Material to construct model function machine, various objects that can be used as 'nice things'.

ASSESSMENT

1. Shown a picture of a function machine and a table with some numbers missing, can complete the table. For example, can complete the table for the following arrangement.

X   Y

Half
(Divide by 2)

Function
Machine
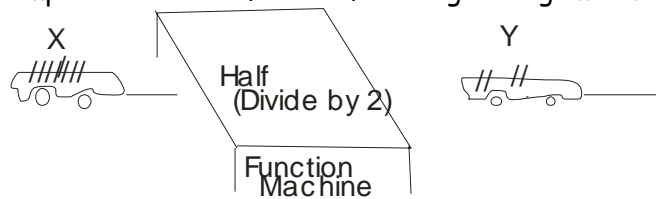
Number before (X)	Number after (Y)
10	5
20	10
30	
40	20
50	

2. Shown an arrangement as above, can identify the connection between the two sets of numbers.
3. Shown arrangements or sequences as illustrated below, can complete
   a. 2, 4, 6, 8, ___, ___
   b. 29, 27, 25, 23, ___, ___
   c. 14, 18, 22, 26, ___, ___

TERM 2 SUMMARY	
UNITS	No. of SESSIONS
UNIT 1: ON THE BEACH 1 *AT 1: LO 3* *Success Criteria: 1 – 4*	24
UNIT 2: OUT OF THE BOX AT 2: LO 2 Success criteria: 1 – 4	10
UNIT 3: ON THE BEACH 2 AT 1: LO 3 Success criteria: 5 – 7	16
UNIT 4 : HELPING MUMMY AT 3: LO 3 Success criteria: 1 – 3 AT 3: LO 4 Success criteria: 1 – 4	12
UNIT 5: GOING SHOPPING AT 4: LO 1 Success criteria: 1 – 3	12
	74

UNIT PLAN WITH SUGGESTED TEACHING, LEARNING & ASSESSMENT ACTIVITIES

TERM 2   STRAND 1 Number   UNIT 1: ON THE BEACH 1

AT 1	LO 3: Create and solve real life problems involving addition and subtraction with numbers up to 1 000 and involving multiplication and division of one and two digit numbers *Success Criteria*

1. Explain and use several strategies to recall the basic facts for addition and subtraction up to 20.
2. Discuss and use several strategies to add a 1, 2 or 3-digit number to a 1, 2 or 3 digit number, without and with regrouping, totals up to 1 000, in real life situations.
3. Discuss and use several strategies to subtract a 1, 2 or 3-digit number from a 3-digit number, without and with regrouping in real life settings.
4. Create and solve problems involving addition and subtraction of whole numbers with totals up to 1 000.

ACTIVITIES

Explain and use several strategies to recall the basic facts for addition and subtraction up to 20

1.1   Drills: Use flashcards with basic addition and subtraction facts.
1.2   The ten game: A student jumps on a number and then can only go to another number if it will make 10.

| 3	5	9	3
4	2	10	4
5	7	1	8
8	5	0	6

1.3   Students are introduced to the addition game "Make Twenty." This is a game in which 2 to 4 players using 4 sets of number cards (0 to 20) proceed according to the following rule. Each player is dealt three cards and the rest of the cards are placed in a face down pile.

The first player picks up a card from the pile and checks to see if he/ she is able to make 20 (that is, if he/ she has numbers that add to 20) and still discard one card. If he cannot, he discards a card (face up) and player two picks up a card from the face down pile or picks up the top card in the discard pile. A player who makes 20 wins 5 points. The first player to get 20 points wins.

Variation: Deal 8 cards to each player and try to make as many combinations that make 20 as possible. Combinations can be put down as soon as they are made. The game ends when one player has no cards left <u>after</u> discarding one and putting down the combinations to 20. Winner has the most sets to make 20.

Discuss and use several strategies to add a 1, 2 or 3-digit number, without and with regrouping, totals up to 1 000, in real life situations

2.1   Number noughts and crosses: Students work in pairs and draw noughts and crosses board.
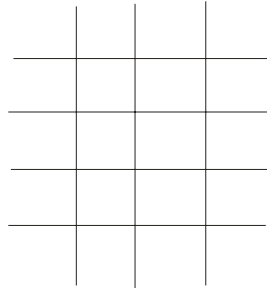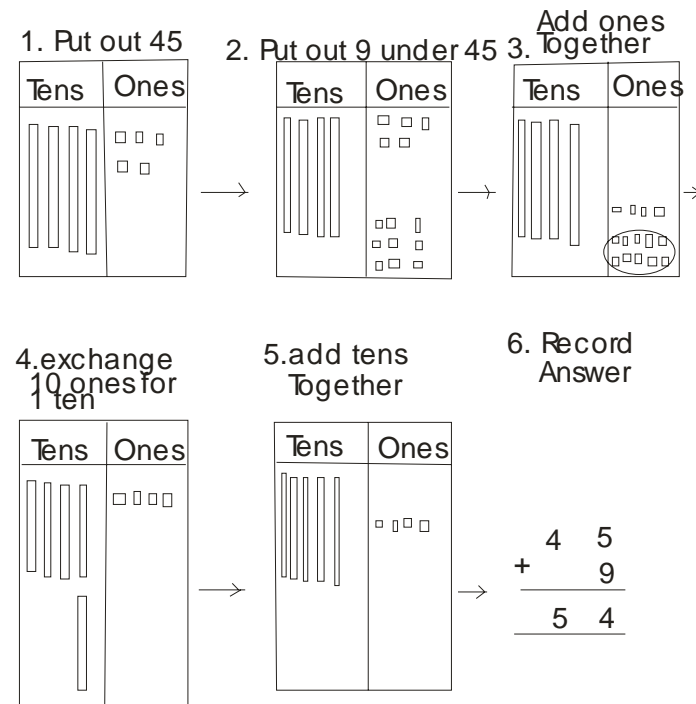

Players take turn to write down one of the numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 in one of the free squares on the board. No number can be written twice. The first player to complete a line which adds to 11 wins. Variation: First to make line adding to 12, 13, etc wins.

2.2   Students are involved as teacher demonstrates addition with and without regrouping using base ten materials.

Tens	Ones
‖	▫ ▫ ▫ ▫ ▫
‖‖	▫ ▫

+

Hundreds	Tens	Ones
▢ ▢	‖‖‖	▫ ▫ ▫ ▫ ▫
▢ ▢	‖‖‖‖	▫ ▫ ▫ ▫ ▫ ▫

= _____

= _____
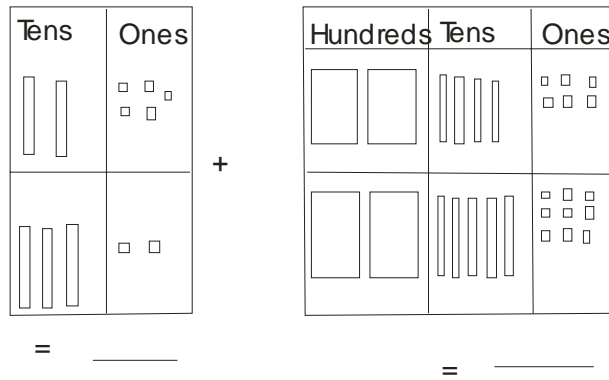
2.3   Students are involved as teacher deals with addition of a single digit number and a two digit number. This time there is an exchange from units to tens (carrying). As before, use is made of materials to demonstrate how to add, say, 45 + 9:

Add ones

1. Put out 45   2. Put out 9 under 45 3. Together

Tens	Ones

Tens	Ones

Tens	Ones

4. exchange
10 ones for
1 ten

5. add tens
Together

6. Record
Answer

Tens	Ones

Tens	Ones

```
   4   5
+      9
  ─────────
   5   4
```

Students do some examples in a similar way, only recording the answer once they have found it using the materials.

2.4   Students are shown how the written technique is related to use of material. For example with 45 + 9:

Add the ones and exchange ten ones for one ten. Record the 4 in the ones column of the answer.

```
  1
 45     '9 and 5 are 14. Write down the 4 ones in
+ 9      The ones column and carry 1 ten'.
_____
   4
```

Write the ten in the tens column. Add the tens.
Record the 5 in the tens column of the answer.

```
  1
 45      '1 tens and 4 tens are 5 tens. Write down
+  9      The 5 in the tens column. The answer
_____      Is 54'.
 54
```

2.5   Students are involved in adding 2 digit numbers to 2 digit numbers with regrouping. Again they are allowed to model steps using their base 10 materials.

What number
Is in the ones
Column? (14)

3 6

+ 4

Will you need
To make a
Trade?

Group ones

How many tens will you
Make? (1)
How many ones will be
Left? (4)
Good! Make the trade now.
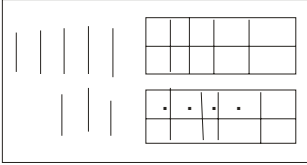
Trade for a ten

Let's stop
now and
record
exactly
what we
have done.
You had 14

1
3   6
4   8

4

Ones, and you made one ten and four. Write a
small "1" at the top of the tens column to show the
ten you put there and a "4" in the answer space of
the ones column for the four ones left.
Look at the tens column on your mat. You have 1 ten
on top, 3 from the 36 and 4 more from the 48.
    See how your paper shows the same thing?

|	.	
1		
3	6	Now add all the tens together. Write the
+ 4	8	
8	4	number of the tens in the answer space for the tens column.

Now add all the tens together. Write the number of the tens in the answer space for the tens column.

 Once students have made the connection from the base 10 model to the symbols, they are engaged in doing additions without the use of the materials.

Discuss and use several strategies to subtract a 1, 2 or 3-digit number from a 3-digit number, without and with regrouping in real life settings

3.1   Students observe as real life problem is written on the board. Example: Mary went to the furniture shop and she bought a table for 395 dollars and a sofa for 544 dollars. How much did she pay in total? Class discussion to ensure understanding. Divide class into groups where each group comes up with solution to the problem. Students present solution orally. They are asked to say (i) which solution is best and (ii) why.

3.2   Students are engaged in making use of problem solving strategies, including (i) act it out (ii) draw diagrams (iii) write number sentences (iv) Guess and check. They are challenged to find faster ways.

3.3   Students observe as teacher demonstrates subtraction of numbers using base 10 materials (with and without regrouping).

Hundreds	Tens	Ones	
☐ ☐	⦀⦀⦀	▫ ▫ ▫ ▫ ▫	
☐	⦀⦀⦀⦀⦀	▫ ▫ ▫ ▫	= _____

Hundreds	Tens	Ones	
☐ ☐ ☐	⦀⦀⦀⦀⦀⦀	▫ ▫ ▫ ▫ ▫ ▫ ▫ ▫ ▫	
☐ ☐	⦀⦀⦀⦀	▫ ▫ ▫ ▫ ▫ ▫	= _____

Create and solve problems involving addition and subtraction of whole numbers with totals up to 1 000

4.1   Students are presented with problem situation. The problems are solved together using different strategies. Example: (A) Jack picked 273 oranges. Tommy picked 83 more than Jack. (i) How many oranges did Tommy pick? (ii) How many oranges do they have altogether? (B) Mary had 142 letters to share. She dropped 13. How many did she share?

4.2   In groups students create simple problems involving subtraction. Groups can make subtraction problem books for display.

4.3   Students are presented with a puzzle such as an incomplete magic square, where the numbers in each row, column and diagonal add up to the same total. Students complete the magic square and proceed to make examples of their own

6	19	20	
17	12	11	14
13	16		10
18		8	

RESOURCES
Flashcards, base 10 materials, bingo and card games

ASSESSMENT
1. Shown a number, can work out the number that must be added to it to get a particular result. For example, (i) can say what must be added to 4 to get 10; (ii) can find the number if told 3 plus the number is 9.
2. Can answer question in a story of subtraction. Lead had 468 marbles. She gave 56 to Donna. Example: How many marbles does she have now?
3. Can handle completion type items involving the basic operation of addition and subtraction. For example, can complete the following tables.

Number	+ 4
5	_____
8	_____
____	12
_____	8

Number	- 3
10	_____
_____	6
_____	4
5	_____

TERM 2   STRAND 2 Geometry   UNIT 2: OUT OF THE BOX

AT 2	LO 2: Investigate properties of 2-D shapes in terms of sides and lines of symmetry
	Success Criteria

1. Identify and name and draw curves and line segments
2. Define and show lines of symmetry
3. Investigate and draw lines of symmetry in cut-outs and diagrams
4. Make tessellation patterns of different types of simple 2-D shapes using cut-outs

ACTIVITIES

**Identify and name and draw curves and line segments**

1.1   Students are told a story in which some boys and girls decided they were going to look for lines. Students talk about where lines are found. They cite illustrations such as wires between electrical poles, telephone lines, cloth lines. Students observe as a straight line and a curve line (a curve) appear (that is, are drawn) on the chalkboard. For each line, they are asked to say if it is straight or curve. Students engaged in sorting lines as straight lines or curves. Students introduced to the term *line segment*, as any part of a straight line. Students engaged in discussing the difference between straight lines, curves and line segments. Students given exercise in which for each example they write: line, line segment or curve.

1.2   Students are told a story in which someone says lines are important. Students are engaged in discussing why lines are important. They are led to say without lines we cannot make triangles and other 2-D shapes. Lines are needed to get the sides of a triangle.

1.3   Students are given or shown shapes as diagrams or cut-outs and asked to discuss (talk about) their sides (e.g. how many they are, whether they are of the same length and if not which is longer or shorter; which has more sides, etc.)

Define and show lines of symmetry

2.1   Students are led to arrive at the following definition. Let a line appear so that the shape has two parts and both parts are spread evenly about the line. Then the line is a line of symmetry.

2.2   Students are asked to think of A and B as two parts of a shape. Between these parts let a line appear as shown. Is this line a line of symmetry?

A   B
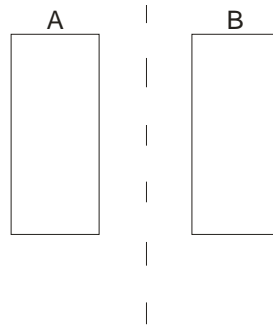
2.3   Students are asked to suppose now that a storm passes and with the effect that the shape is left missing a piece, say, from part B, as shown. Is the line still a line of symmetry?

A   B
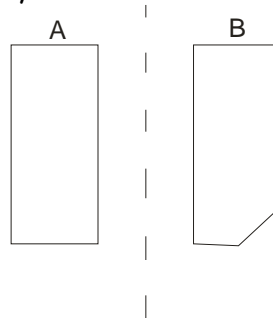
2.4   Students observe as teacher places an object in front of a plane mirror. They are posed with questions to let them see that when it is put through a reflection (in other words, reflected), the object gives an image that looks the same as itself. This is illustrated letting students see a picture as shown.

Object   Image
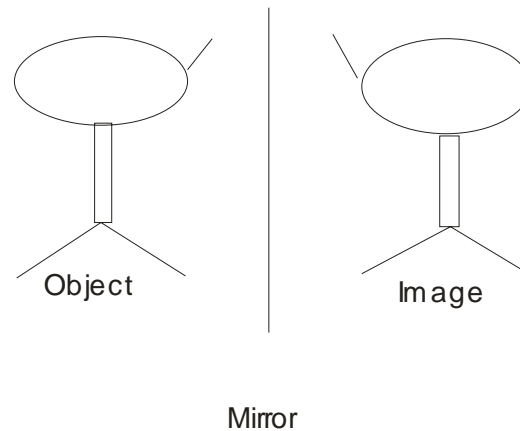
Mirror

Students are involved in a discussion of the fact that the image they see when they stand in front of a mirror looks the same as themselves. Students are led to say that the reason the object looks the same is that it has reflection symmetry. (The mirror line is a line of symmetry.)

2.5   Students are shown a leaf (or some leaves). They are questioned on the lines they see associated with the leaf. They are led to say that one of the lines is (or serves as) a line of symmetry. They observe as (the teacher acts such that) a piece is cut from the leaf. Students are helped to observe that depending on how the cut happens, the line of symmetry disappears; it no longer serves as a line of symmetry. Students are engaged to come up with a definition such as: a line is (or serves as) a line of symmetry if the two parts on both sides of the line can be positioned so that they cover each other exactly.

2.6   Students are given cut-out shapes, including rectangles, triangles, circles. They observe as teacher demonstrates and explains how we identify lines of symmetry by paper folding. Students are asked to find out which of the cut-outs have lines of symmetry.

2.7   Students use cut-out shapes to show lines of symmetry in real life situations – e.g. books, pineapples, butterflies.

2.8   Students trace pictures and complete them to show that the dotted line becomes a line of symmetry.

Investigate and draw lines of symmetry in cut-outs and diagrams

3.1   Students are told a story in which an investigation of a line of symmetry happens by some friends when they hear that the mathworld is one with lines of symmetry in it. The investigation creates opportunity for students (i) to supply examples of shapes having lines of symmetry, (ii) illustrate ways in which the symmetry (or even spread) is broken, (iii) to see that the line of symmetry disappears if the symmetry is broken.

3.2   Students told a story in which someone falls from a tree and thereby loses one of his arms. Students discuss whether this means his body loses its symmetry (even spread) and explain why the line is no longer a line of symmetry.

Before
fall

After
fall
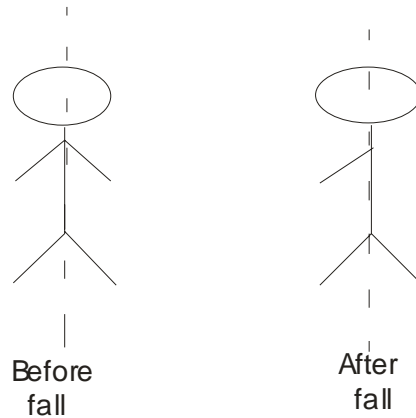
Make tessellation patterns of different types of simple 2-D shapes using cut-outs

4.1   Students are told a story in which some friends consider what they can do with shapes and when someone says, "I have an idea," they are introduced to the idea of a tessellation pattern. Students talk about what a tessellation pattern is.

4.2   Students are given cut-out shapes. They trace shapes to form patterns of their own. They also colour the patterns.

[Include examples of tessellation patterns.]

RESOURCES

Cut-out shapes, diagrams, crayons, manila paper or construction paper

ASSESSMENT

1. Shown curves and line segments, can identify which are curves and which are line segments, e.g., by writing (C) next to curves and (L) next to line segments. For example, can write (C) next to the curves and (L) next to the line segments of each of the following.
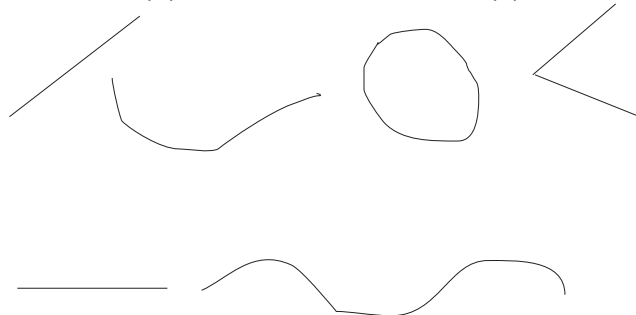
2. Given some shapes, can complete each to make it symmetrical. For example, can complete these shapes to make each symmetrical.
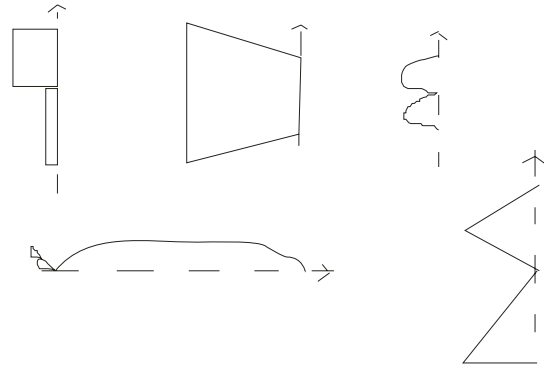
3. Shown a shape, can draw lines of symmetry. For example,
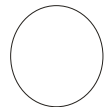   a. can draw lines of symmetry in each of the following
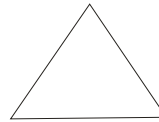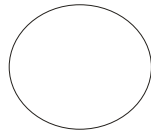
   b. can use folding to complete statements such as the following

   This triangle has _____ lines of symmetry
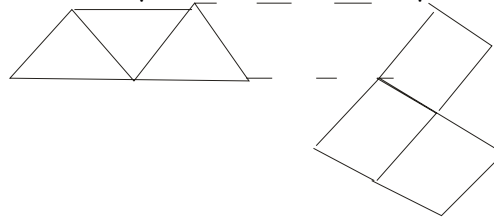
   This square has _____ lines of symmetry

   This circle has _____ lines of symmetry

   Which of these shapes has more lines of symmetry
   than you can count? It is the _____

4. Shown a pattern to be continued or completed, can complete or continue the pattern. For example, can continue the following

TERM 2   STRAND 1   Number   UNIT 3: ON THE BEACH 2

AT 1	LO 3: Create and solve real life problems involving addition and subtraction with numbers up to 1 000 and involving multiplication and division of one and two digit numbers *Success Criteria*

5. Use several strategies (e.g., concrete objects, skip counting, properties of multiplication, bingo and card games) to develop the multiplication basic facts for the 2, 3, 4, 5, 6, 8 and 10 times table.
6. Discuss and use a variety of strategies to solve simple problems involving multiplication and division of 2-digit numbers by 1-digit numbers in real life settings.
7. Discuss and use mental computation strategies or the calculator to carry out calculations where necessary.

ACTIVITIES

Use several strategies (e.g., concrete objects, skip counting, properties of multiplication, bingo and card games) to develop the multiplication basic facts for the 2, 3, 4, 5, 6, 8 and 10 times table

5.1   Students are given objects on their desks and asked to make '2 groups of 3'. They are asked to give a number sentence that represents this story. They write 3 + 3 = 6. They are questioned or led to remember this is not the only way to represent the

story, that there is a way which involves multiplication. They are led to remember that to say '2 groups of 3' we write 2×3. So another way is the number sentence 2×3 = 6. **Teacher note**: In addressing multiplication, one has to answer three questions: (i) To what number does the multiplication happen? (ii) By what number does the multiplication? (iii) For what number does the multiplication happen?

5.2   Students are told a story in which some friends enter a room in which are 3 nice things (such as cookies). They ask what can happen to the number 3. To answer this question, someone introduces the word *multiplication*. The person says multiplication can happen to 3. Students are allowed to see that the multiplication that happens to 3 can happen by any other number, that, for example, it can happen by 2. Students are introduced to the sign for multiplication. Students are introduced to the following rules. **The number by which the multiplication happens comes *before* the multiplication** sign. Thus in the expression 2×3, the multiplication happens by 2. **The number to which the multiplication happens comes *after* the multiplication sign.** Thus in the expression 2×3, the multiplication happens to 3. Students are shown some number expressions such as 1×4, 3×2, 5×3, 6×2, 8×2, 3×4, 4×2, 6×6, 2×9, 5×7, 3×1, 10×2, 2×10, 20×1. For each, they are asked to indicate to which number the multiplication happens and by which number it happens.

5.3   For what number does the multiplication happen? To let them see the answer, students are engaged in saying what the expression 2×3 gives. They draw out that the expression gives another way to say 2 groups of 3 each. They use concrete objects (such as bottle tops) to show or illustrate it as (°°°), (°°°). Armed with this illustration, students are ready to be asked, "How many do we get if we put these groups together?" To find the answer, students count. They make the statement, "2×3 is 6". For the expressions (i) 1×4, (ii) 3×2, (iii) 5×3, (iv) 6×2, (v) 8×2, (vi) 3×4, (vii) 4×2, (viii) 6×6, (ix) 2×9, (x) 5×7, (xi) 3×1, (xii) 10×2, (xiii) 2×10, (xiv) 20×1, students (a) make an illustration that indicates what each expression gives, (b) they proceed to count to figure out the answer or result for each and (c) for each they make a statement, "___×___ is ___".

5.4   Completing the expression: Students complete simple number expressions or sentences for multiplication that happens by 2. For example: 2×__ is the same as ___. Or: 2×___ = ___. Students continue as suggested below to build the 2 times multiplication table.

2x1 is	2x7 is
2x2 is	2x8 is
2x3 is	2x9 is
2x4 is	2x10 is
2x5 is	2x11 is
2x6 is	2x12 is

*Multiplication that happens by 2 gives us a table of numbers called the 2 times multiplication table.*

5.5 Students are engaged in giving a story or illustration for saying '4×5 is 20'.

5.6 Students engaged in the use of multiplication tables to complete results

×	3		7
	6		
		25	
			56

5.7 Students investigate what is the same and what is different about adding and multiplying. For the two number sentences 4 + 4 = 8 and 2×4 = 8, students talk about these two cases in terms of what happens to 4. They are led to note that in one case 4 is added by itself. In another case, 4 is multiplied by 2.

Discuss and use a variety of strategies to solve simple problems involving multiplication and division of 2-digit numbers by 1-digit numbers in real life settings

6.1 Students are related a story in which Cordelle is at a Kabouwé Festival. In his sight appear 5 Kabouwés, each with 4 tires. His attention is drawn to the tires. He wants to find their number. Students discuss a problem-solving strategy that involves <u>drawing a picture or a diagram</u>, as illustrated below.
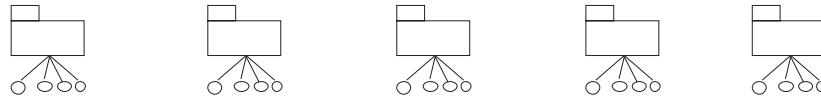
Students are led to see that for us the picture suggests that the number Cordelle seeks is in the expression 5×4 or the expression 4 + 4 + 4 + 4 + 4, that it is 20.

6.2 Students are related a story in which Lisa is in a garden. In her sight appear 6 spiders, each having 8 legs. Her attention is drawn to the legs. She wants to find their number. Students are asked to show how Lisa could solve this problem.

6.3   Students are related a story in which Jacinta is at a party when she sees someone coming with 12 cakes to put on 3 plates. How many on each plate? Students are led to see that to help us work out the answer, we can use a picture or diagram as illustrated below.
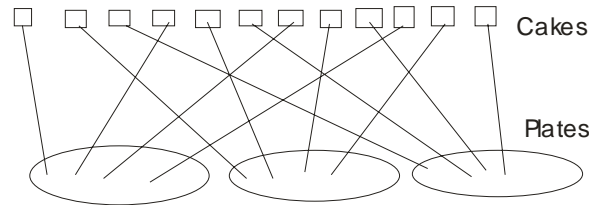
6.4   Guess and check. I think of a number, then multiply it by 9. The answer is 315. What was my number?

Discuss and use mental computation strategies or the calculator to carry out calculations when necessary

7.1   Students are engaged in using calculator to complete number sentences such a

$$1 \times 90 + 21 =$$
$$12 \times 90 + 31 =$$
$$123 \times 90 + 41 =$$

Students describe the pattern they notice and predict the answer for the next number sentence in the sequence

7.2   Students play the game "Speedy Calculator Controller" with 2 – 4 persons. The players aim to make the calculator show a selected number by pressing only a specific set of keys. The players select the number and the keys to be pressed. Example: "make the calculator show 150 by pressing only the 3, 7, +, - and = keys." The player who obtains the number with the least number of presses wins the game.
Players can modify the game by varying the number and/ or the keys to be pressed. They can also play a series of games, with the overall winner being the person with the most wins.

7.3   Students use a calculator to investigate whether, when each of a, b is a number, we find that a×b is the same as b×a. Example, they find 43×21 and then 21×43 and based on the result decide whether we would be making a correct statement if we write: 43×21 = 21×43. They proceed to try other statements.

7.4   Students are shown a number sentence such as 27∗19∗81 = 432. Students proceed with the calculator to reveal which operation keys were pressed.

7.5   Mental strategy: Students are led to see that instead of trying to work out 6 of 99 (or 6×99) directly, we could first consider 6 of 100 (that is, 6×100), which is 6 more than the answer we seek. This means the problem is 600 – 6 and the answer is 594.

7.6   Students are walked through other example. To work out 4×11, we could first consider 4×10, which is 4 less than the answer we seek. This suggests that the problem is 40 + 4 and the answer is 44.

RESOURCES

Flashcards, base 10 materials, bingo and card games

ASSESSMENT

1.   Shown a number, can work out the number that must be added to it to get a particular result. For example, (i) can say what must be added to 4 to get 10; (ii) can find the number if told 3 plus the number is 9.

2.   Can answer question in a story of subtraction. Lead had 468 marbles. She gave 56 to Donna. Example: How many marbles does she have now?

3.   Can handle completion type items involving the basic operations: For example, can complete the following tables.

Number	x 5
1	
3	
	25
	40

Number	divided by 2
8	
10	
16	
	7

4. The student can describe how the multiplication sign is used in an expression of the form __×__. For example, in the expression 3×4, the student can say 'Since 3 comes before the sign, the multiplications happens by 3. And since 4 comes after the sign, the multiplication happens to 4.'

5. Given an expression such as 3×4, the student can say (i) the multiplication happens to 4; (ii) the multiplication happens by 3; (ii) the multiplication happens for 12.

6. Given that a multiplication happens by a number between 2 and 8, the student can construct the resulting multiplication table. For example, if told that the multiplication happens by 5, the student can build the 5 times table.

TERM 2   STRAND 3 Measurement   UNIT 4: HELPING MUMMY

AT 3	LO 3: Create and solve real life problems involving basic standard units of capacity
	Success Criteria

1. Sort and order containers with various fractions of the litre (1/4, ½, ¾)
2. Solve problems involving the litre as a unit of capacity.
3. Solve simple real life problems involving capacity.

ACTIVITIES

Sort and order containers with various fractions of the litre (¼, ½, ¾)

1.1 Students are told a story in which Nadine's mother draws her attention to some glasses on the table and ask Nadine to bring one of them so she can be given some orange juice. Nadine wants to use glass B rather than glass A. Students are asked to suggest why.

A   B

1.2   Students are questioned to realise that each container's capacity can be measured. To measure the capacity, we use a unit called the litre. Students are shown a bottle whose capacity is 1 litre and asked to estimate the capacities of other bottles (chosen so that reasonable estimates might be ¼ litre, ½ litre, ¾ litre, 1¼ litre, etc.). Students proceed to check how close their estimates were by carrying out an exercise to see how many of a smaller bottle must be poured into a litre bottle to completely fill it, or how many litre bottles must be poured into a larger bottle to completely fill it.

1.3   Students.

Solve problems involving the litre as a unit of capacity

2.1   Students are related a story in which Shana had a bottle with 1 000 litres of water. They are asked to find the number of 50 litres she could take away from it.

2.2   Students are given capacities 12 ℓ, 9 ℓ, 5 ℓ, 17 ℓ, 2 ℓ, 14 ℓ. They are asked to reveal which of these capacities add up to 25 ℓ.

2.3   Students are told a story in which Ann observes that container A holds 2 ℓ of water, container B holds 4 ℓ and container C holds 6 ℓ. Students are asked to say how much the containers hold altogether.

Solve simple real life problems involving capacity

3.1   Students are shown a container marked as illustrated and told it holds 5 litres. Students work out how many litres of red paint are in the container.
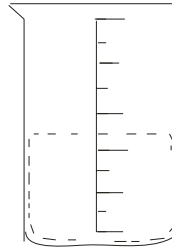
Students are related a story in which someone takes 1½ litres of red paint from the container. They proceed to work out how many litres are left.

3.2   Students are related a story in which Jesse and Kay were planning a party. They wanted 1 litre of ice cream for 8 children. There were 40 children invited to the party. How many litres of ice cream should they buy?

RESOURCES
Bottles, capacity containers, tea/ table spoons, different liquids

ASSESSMENT
1. Shown some containers graduated in millimetres, can indicate which holds a given simple fraction. Told that the containers below measure millimetres, for example, can indicate
    a. Which container is ¼ of a litre full.
    b. Which container is half a litre full.
    c. Which container holds 1 litre.
    d. Which container has more than ½ a litre but less than 1 litre.
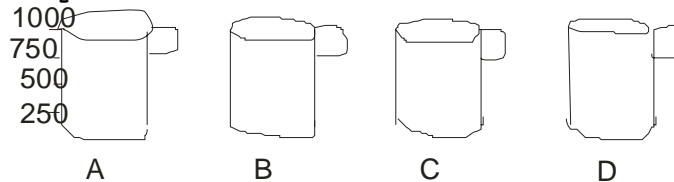
2. The students of grade 3 are planning a class party. They want 1 litre of ice cream for every 8 children. If there are 40 students in the class, how many litres of ice cream should they buy?

3. Which of the following holds less than 1 litre?
   a. A bottle of perfume b. a bath tub c. an ice pop   d. a bottle of wine e. eye drops f. a kitchen sink g. a tub of ice cream

AT 3	LO 4: Estimate and accurately measure mass using standard units
	Success Criteria

1. Compare estimates, measure and record the mass of everyday things using the kg as the unit of measure
2. Identify and discuss situations in everyday life where the kg is used as the unit of measure.
3. compare the mass of two or three objects
4. solve simple real life problems related to mass

ACTIVITIES

Compare estimates, measure and record the mass of everyday things using the Kg as the unit of measure

1.1   Beforehand, students are allowed to bring in items such as a bag of sand, a small coconut, grapefruit, etc. For each item students guess what its mass is and proceed to find the mass using an instrument. They use their results to complete a worksheet

| Object	Mass (by guessing)	Mass (by measuring)
Dasheen		
Coconut		
Breadfruit		
Grapefruit		
Pawpaw		

Students discuss how good their estimates were.

Identify and discuss situations in everyday life where the Kg is used as the unit of measure

2.1   Students work in groups where they discuss and list different situations where the kg is used as a unit of measure.

2.2   Students are presented with pictures of things from the environment. Students identify the objects they would use the kg to measure.

2.3   Students are given a kilogram scale. They measure the mass of each student in small group/ class. The information is displayed in a table or chart.

Compare the mass of two or three objects

Students are allowed to bring in various objects – e.g. orange, banana, marble, stone, different snacks. They object are placed into pairs. Students pick the heavier or lighter object and then check by using a balance or scale.

Students are presented with a series of pictures. They identify the heavier and lighter objects. For example, identify the heavier ones:
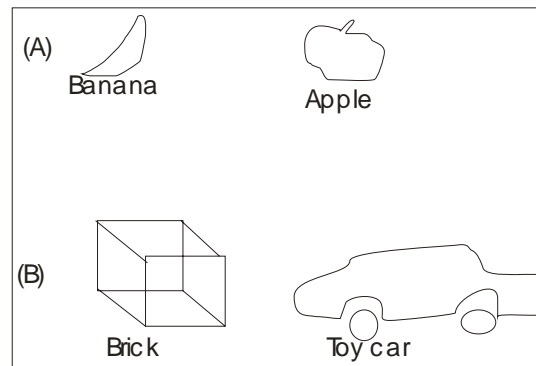
Identify the lighter ones:
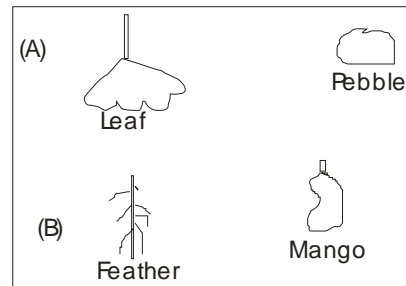
Solve simple real life problems related to mass

4.1   Students role play a huckster buying produce to ship overseas. They are presented with problems based on the role play.

4.2   Students are presented with a scenario of a butcher selling meat and work on problem based on the situation. Example:

        (i)   John bought 8 kg of meat. Peter bought 5 kg more than him. How many kg of meat did Peter buy?

        (ii)   One quarter of the cow weighed 65 kg. If he sold ¾ of the cow, how many kg of meat was sold?

        (iii)   One cow weighed 227 kg. The other one weighed 60 kg less. How heavy was the other cow?

        (iv)   Mr. Joe sells his meat at $ 5.00 a kg. The other butcher sells his at $ 5.25 a kg. Whose meat would you buy and why.

RESOURCES
Kilogram scale, different scales (kitchen, bathroom, concrete materials), balance, shop items from shop corner

ASSESSMENT
1. Shown some items, can write down what could be used for the weight of each. For example, can indicate what could be used for each of these (g or kg)

A) Dog

B) Breadfruit

C) Scissors

D) Mango

E) Feather

F) Bag of flour
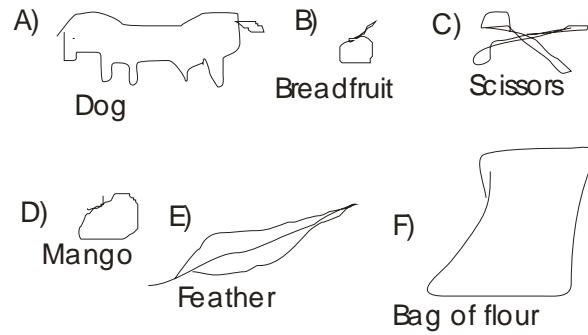
2. Choose the best unit of measure for each of the following.

Flashlight

A) 90 g   1 kg

Car

B) 1000 g   1000 kg
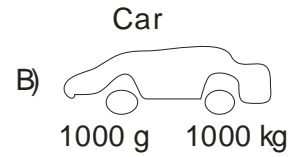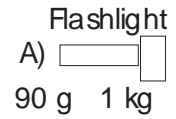
3. Mrs. Loving bought 22kg of fish to share equally among her 6 neighbours. How many kilograms will each receive if she took 4kg for herself?

TERM 2   STRAND 4 Statistics and Data Handling   UNIT 5: GOING SHOPPING

AT 4	LO 1: Collect data through observation and interview and record results.

1. Explain when it is appropriate to use observation and interview to collect data.
2. Collect sets of data related to their interest through observation and simple interviews.
3. Use number statements to record collected data.

ACTIVITIES

Explain when it is appropriate to use observation and interview to collect data

1.1   Students are allowed to talk about themselves. They are asked to suggest ways we could get information about these persons.
→ asking questions and observing (looking at) the person.
1.2   Students are allowed to get into groups. Each group is given a table containing a few questions. Example: How tall are you? What is your favourite game? Etc.

Collect sets of data related to their interest through observation and simple interviews

2.1   Students are asked to interview each other about their likes and dislikes. They are allowed to represented collected information in a table.
2.2   Students are asked to say what kind of juice they have for snack/ lunch. They are involved in recording this information on a table.
2.3   Students allowed to interview family members in terms of occupation. They put this information together in class.

Use number statements to record collected data

Students are allowed to say what they would like to be when they grow up. With collected information they are allowed to say # of students who would want to be a teacher, doctor, nurse, farmer, banker.

As groups, students are allowed to carry out an investigation as to how many students are in each class from K – 6. Example: There are ____ students in K.

Students are asked to say the number of persons in their family. This is recorded in a table. Students are allowed to write the number of persons each child has in his or her family. Ex: John has ____ persons in his family.

Students are allowed to say the number of girls and boys in each class and in the school.

RESOURCES

Tally charts, pictographs, bar graphs, worksheets, concrete objects

ASSESSMENT

1. The students of grade 3 were asked to select a class president. They wrote their results on a tally table.

Candidates	Tally
Ruel Ryan	⊬⊬ l
Leah Drew	⊬⊬ ⊬⊬ ll
Dianna Catin	⊬⊬ lll
Isaiah Rolle	lll

Candidates	Number
Ruel	6
Leah	12
Dianna	8
Isaiah	3

2. Use the table to answer the questions.
   a. ____ got the least votes.
   b. Dianna received ____ votes.
   c. _____ was chosen as the class president.
   d. What can you say about Leah based on the tally chart?

TERM 3 SUMMARY	
	No. of
UNITS	**SESSIONS**
UNIT 1: ON THE BEACH 1 *AT 1: LO 4* *Success Criteria*: 1 – 5	18
UNIT 2: HELPING MUMMY AT 3: LO 5 Success criteria: 1 – 3 AT 3: LO 6 Success criteria: 1 – 4	24
UNIT 3: ON THE BEACH 2 AT 1: LO 3 Success criteria: 5 – 7	12
UNIT 4: GOING SHOPPING AT 4: LO 2 Success criteria: 1 – 3	12
UNIT 5: MY FAVOURITE THINGS AT 5: LO 2 Success criteria: 1 – 3	16
	82

UNIT PLAN WITH SUGGESTED TEACHING, LEARNING & ASSESSMENT ACTIVITIES

**TERM 3   STRAND 1 Number   UNIT 1: ON THE BEACH**

AT 1	LO 4: Use and write fractions in a variety of ways in real life situations *Success Criteria*

1. Identify, discuss and compare simple fractions using concrete materials (halves, thirds, quarters, eighths)
2. Discuss and write, in words and numerals, the proper fraction that corresponds to a pictorial or concrete representation of a fraction of a whole.
3. Discuss and describe real life situations that involve fractions of a whole.
4. Calculate a fraction of a group of objects, using concrete objects, pictures/diagrams in real life settings.
5. Create and solve problems involving simple fractions.

ACTIVITIES

Identify, discuss and compare simple fractions (halves, thirds, quarters, eighths) using concrete materials

1.1   Students are told stories in which things are broken, whether intentionally or not. For example, in one story in which some persons on a boat are fishing, so much fish is caught that the net is broken. In another story in which some persons are about to have a meal, a whole bread is broken. In yet another story, an island experiences an earthquake and the earthquake is so strong that the island is broken into two pieces/ parts.

Whole island   Fractions
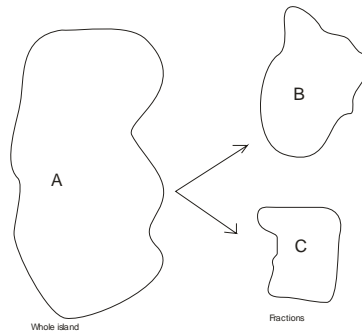
Students are reminded (led to recall) that when something is broken, each part/ piece is a fraction. Students watch as different things are broken. They are involved to say that each piece shown is a fraction. When a number is broken, for example, each part is a fraction. Present different whole objects e.g. fruits, bread, cake. Students are shown a picture as illustrated below and they are asked to read what it says.

Pieces of bread   The whole bread

2   'Is a fraction of'

4   16

8
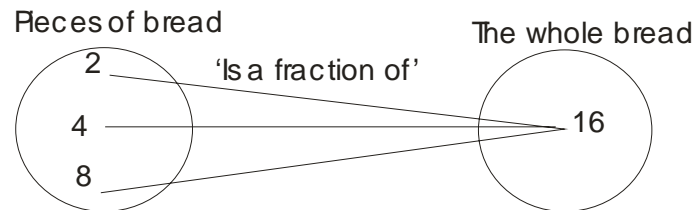
Here the whole bread involves 16 pieces; it can be broken into 16 pieces. If we take 2 of these pieces, we can say 2 is a part of 16, or 2 is a fraction of 16. But 16 has many fractions. So we must say which fraction of 16 that 2 is. To answer this question, we can use pictures, as shown below.

Whole   1 eighth
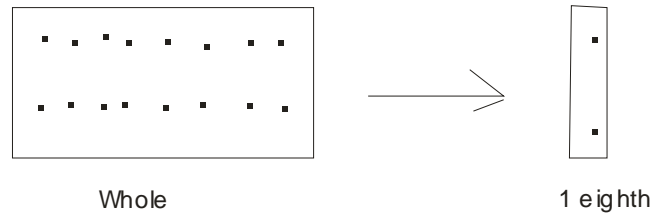
This shows that 2 is one-eighth of 16. In other words, 2 is $\frac{1}{8}$ of 16

Students are pointed to various numbers and (in each case) asked to say which fraction of a particular number it is. Example, they are pointed to 5 (on the part of a number line stretching from 0 to 10) or in some other picture as illustrated above and they are allowed to say what fraction of 10 is 5.

1.2   Students are given cut-outs of various simple fractions. They indicate whether the fraction is any of the following:

$$\frac{1}{2} \qquad\qquad \frac{1}{3} \qquad\qquad \frac{1}{4} \qquad\qquad \frac{1}{8}$$

Discuss and write in words and numerals the proper fraction that corresponds to a pictorial or concrete representation of a fraction of a whole

2.1   Students are given cut-out fractions of items such as grapefruit. They show one-quarter ($\frac{1}{4}$) of the item, one-half ($\frac{1}{2}$) of the item, three-quarters ($\frac{3}{4}$) of the item, etc.

2.2   Students are given fraction chart and allowed to colour the indicated fractions.

2.3   Students are allowed to make picture for $\frac{1}{2}$, 1/3, $\frac{1}{4}$, 1/8

**Discuss and describe real life situations that involve fractions of a whole**

3.1   Students are related a story in which Marie has a cake that she wants to separate into quarters for sharing. Students discuss the pieces that result and the number of persons who get a piece of this cake.

Calculate a fraction of a group of objects using concrete objects, pictures/ diagrams in real life settings

4.1   Students are told a story in which a teacher is singing a song that she wants her students to learn. At the end of the lesson, 10 of the 15 students are singing the song. Students are asked to reveal what fraction of the class picked up the song.

4.2   Students are told a story in which some friends are on an outing. At some point on that outing a wind blows so that 5 of the 20 friends are left without their hats. Students are asked to reveal the fraction of the friends that was left without their hats.

Create and solve problems involving simple fractions

5.1   Students are presented with a scenario in which John took one side of the pizza illustrated.
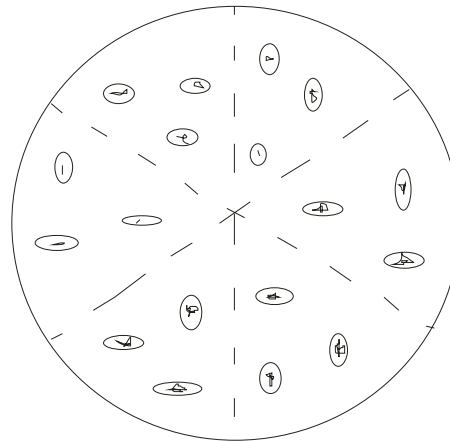
Pizza

Students proceed to complete statements such as:

(i)   John took $\frac{\square}{\square}$ of the pizza.

(ii)   John left $\frac{\square}{\square}$ of the pizza.

(iii)   My brother ate 1/8 of the pizza and then ate 1/8 more. What fraction of the pizza did he eat?

(iv)   My dad and sister together ate ½ of the pizza. Did they eat more or less than my brother? (Students may be asked to make a drawing to help if they are not sure.)

5.2   Students are related a story in which on Monday ½ of the class play cricket and on Wednesday 1/3 of the class play cricket. On which day did more students play?

RESOURCES
Fruits, bottle tops, straws, stones, drawings, cut-outs

ASSESSMENT

1. Shown some shapes with fraction shaded, can indicate the fraction shaded. For example, can indicate what fraction of each of the following shapes has been shaded.

A)   B)   C)   D)
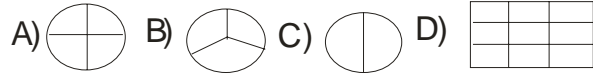
2. Shown a fraction, can show it as a drawing. For example, can draw these fractions

   A) $\dfrac{5}{10}$ B) $\dfrac{3}{4}$ C) $\dfrac{6}{8}$ D) $\dfrac{1}{2}$

3. Shown a whole, can select a specified fraction. For example, can circle the following:

A) $\dfrac{1}{4}$ Of 12 biscuits ○○○○○○○○○○○○

B) $\dfrac{1}{3}$ Of 9 lollipops 🍭🍭🍭🍭🍭🍭🍭🍭🍭

4. For a given whole that one has, can indicate the fraction left when a specified number is given away. For example, can answer the following:

   Mary had 10 mangoes. She gave 4 to John. What fraction does she have left?

5. Shown a set with some members shaded, can indicate the fraction shaded. For example, can write the fraction for the shaded part of each of set

A) ■ ■ ■ ☐ ☐

B) ⬠ ⬠ ⬠ ⬠ ⬟ ⬠

C) ⬤ ◯ ◯
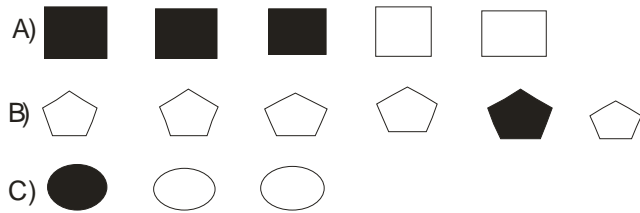
TERM 3   STRAND 3 Measurement   UNIT 2: HELPING MUMMY

AT 3	LO 5: Tell time in different ways appropriate to age; create and solve time-related problems
	Success Criteria

1. Read date and month from a calendar.
2. Tell, read, write and represent time on the honour, half-hour and quarter honour in a variety of ways, on an analogue or digital clock
3. Create and solve problems involving time and duration.

ACTIVITIES

Read date and month from a calendar

1.1   Students are presented with a calendar.

MARCH					2008	
Sun	Mon	Tues	Wed	Thurs	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Based on the calendar, they are posed with questions, such as the following.

(a) The calendar shows the month of _____.

(b) The 7th of March is a _____.

(c) There are _____ Saturdays in the month of March.

(d) Shari's birthday is the 23rd March. What day is this? A _____.

(e) The last day of March is a _____.

Tell, read, write and represent time on the honour, half-hour and quarter-hour in a variety of ways, on an analogue or digital clock

2.1   Students are shown model clocks on which time is represented on the hour, quarter and half hour, as illustrated.
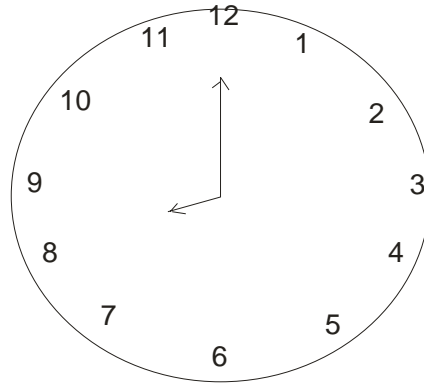
Students tell time and use their clocks to show time. A time (e.g. 9:15) is called out. Students represent it on clock.

Create and solve problems involving time and duration

3.1   Students are placed in groups. Each group is given a different sample question, as illustrated.
(1) Tom left his home at 8' o clock. He took 1 hour to get to school. What time did he reach at school?
(2) It takes half an hour to make a dress. Susan starts at 10 o' clock. Draw a clock and put in the time to show at what time Susan finishes the dress.
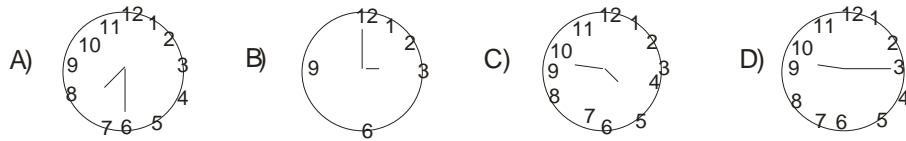
In their groups students discuss and use different strategies (e.g. timelines and clocks) to solve problems. Each group presents solutions of their problems to class.
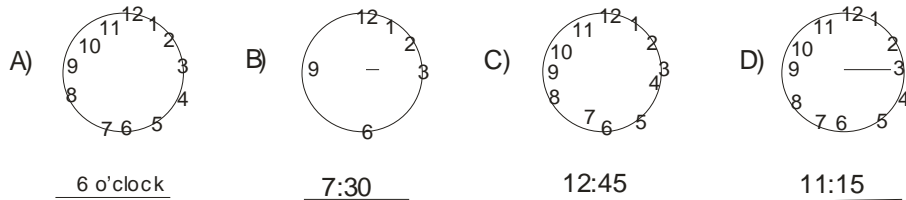
RESOURCES
Calendars, clocks, watches, clockfaces

ASSESSMENT
1.   Shown a clock, can indicate the time it shows. For example, can write the time shown on these clocks

A)   B)   C)   D)

_____   _____   _____   _____

2. Shown a clock without hands and the indicated time, can draw hands to show the time. For example, can draw hands to show the time:

A)   B)   C)   D)

   6 o'clock   7:30   12:45   11:15

3. Given simple story related to time, can use it to work out solution. For example, can do the following:

   (a) Sarah left home at 8:45 am. She took half an hour to get to school. What time did she arrive?

   (b) Darly left Dominica on the 15th February. He spent 7 days in St. Lucia. On what day did he return?

| February				2008		
Sun	Mon	Tues	Wed	Thurs	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	

AT 3	**LO 6: Create and solve real life problems involving simple calculations of money**
	Success Criteria

1. Read and write amounts of money up to $1 000
2. Represent amounts of money up to $50 using various combinations of notes, $1 coins and other coins as necessary
3. Calculate the cost of a set of items given cost of that item
4. Create and solve problems involving money with various amounts

ACTIVITIES

Read and write amounts of money up to $1 000

1.1   Students are related a story in which Andy enters a store and speaks to the keeper. He is shown a toy that he can get for $1 50.00. Students are asked to write the price that the storekeeper is asking. Students suggest other prices the storekeeper could have asked. Their suggestions are written.

1.2   Students observe as teacher uses specimen money to show the combination of notes and coins to illustrate examples found in text. Students are led to add up the total value of dollar notes first followed by coins.
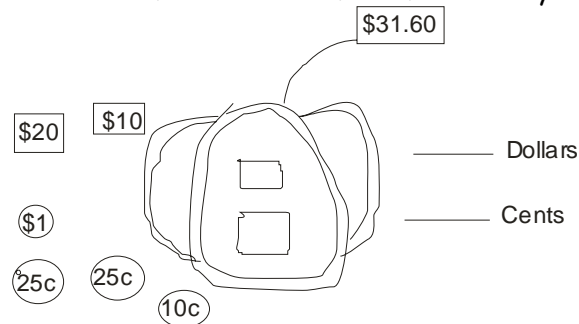
Students observe as teacher points to the price tag of the school bag. They are reminded (led to recall) that
-    we write the amount as $31.60
-    the dots separate the dollars from cents
-   the dollars are written on the left side of the dot and the cents on the right

- there are always 2 digits on the right side of the dot

Represent amounts of money up to $50 using various combinations of notes, $1 coins and other coins as necessary

2.1   Students observe as teacher uses coloured stones to make a shop. Explain that the stones are different prices (for example, red 25 c, blue $5 and green $20). Students are each given $50 to spend. They are allowed to work out all the possible combinations of stones they could buy. They draw all the ways in which they could pay for the stones using notes and coins.

Calculate the cost of a set of items given cost of that item

3.1   Students are placed into groups. Each group is given a variety of objects with the price tags on one of the objects, as illustrated.

$4.95 $6.50
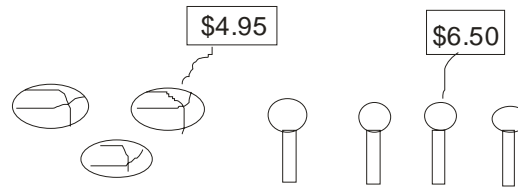
Students are to find the total cost of the items in each group of objects.

3.2   L

Create and solve problems involving money with various amounts

4.1   Students could collect all kinds of empty containers and borrow items from home to make a classroom market. Items are priced and counters and 'home made' notes could be used to make purchases and give change.

4.2   Students related a story in which Ann enters a shop and uses $1.00 to pay for 3 sweets.

15 ¢

Sweet

They are asked to reveal (i) the cost of 3 sweets and (ii) the change that Ann receives from $1.00.

4.3   Students are told a story in which Elma enters a store and sees a book and a calculator she wants.

Students are asked to find the total cost of the book and the calculator.

RESOURCES

ASSESSMENT

1. Shown
   a. A combination of coins, can write how much it is worth
   b. items on a list together with associated prices, can read and write the amount of money for an indicated item.
2. Shown an item with a particular price tag, can indicate possible combinations of coins or notes that could be used to pay for the item.
3. Shown various items with their price tags, can work out the cost for two or more of the items.
4. Shown an amount to be paid, can calculate change on a specified amount.

**TERM 2   STRAND 1 Number   UNIT 3: ON THE BEACH 2**

AT 1	LO 3: Create and solve real life problems involving addition and subtraction with numbers up to 1 000 and involving multiplication and division of one and two digit numbers *Success Criteria*

6. Discuss and use a variety of strategies to solve simple problems involving multiplication and division of 2-digit numbers by 1-digit numbers in real life settings.
7. Discuss and use mental computation strategies or the calculator to carry out calculations where necessary.

ACTIVITIES

Discuss and use a variety of strategies to solve simple problems involving multiplication and division of 2-digit numbers by 1-digit numbers in real life settings

6.1   Students are related a story in which we consider our eggs. Their number is 12, before the fowls lay. As the fowls lay, let their number be multiplied by 2. Students discuss a problem-solving strategy that involves <u>drawing a picture or a diagram</u>, as illustrated below.

2x12

12   24
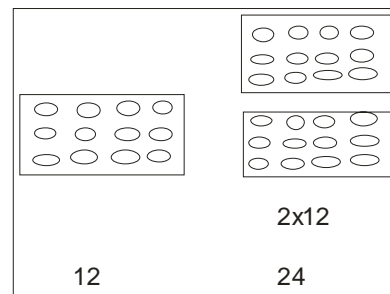
Students are led to see that the picture suggests that the number we seek is in the expression 2×12 or the expression 12 + 12, that it is 24.

6.2   Students are asked to imagine now that the number we have is 20. We can add another 20 to this, can't we? This means there comes the expression 20 + 20, which gives the result 40. If another 20 is added to it, we are left now with 60.

This work could have been done in another way – through multiplication. The expression 3×20 tells us that 20 is multiplied by 3. To carry out the calculation, we could recast the expression in the format

$$\begin{array}{r} 2\,0 \\ \times 3 \\ \hline \end{array} \qquad \begin{array}{r} 2\,0 \\ \times 3 \\ \hline 6\,0 \end{array}$$

6.3   Students are asked to imagine now that the number we have is 21. We know that it has some three's (3's) in it, because it is greater than 3. But we are not yet clear (certain) how many. Mathematics tells us that to ask how many 3's there are in 21, we can write the expression 21 ÷ 3.

One way to find out is to keep taking away (subtracting, removing) 3 from it until what's left (in our hand) is 0.
One approach uses the number line. Take a strip of paper on which are spaced numbers from 0 to 21. Now with this strip in hand, make a cut at 18, to remove the first 3. Then keep making other cuts until all the three's (3's) are removed (and what's left in hand is 0).

```
0  1  2  3  4  5  6  7  8  9  10 11 | 12 13 14 15 16 17 18 19 20 21
         |        |        |                    |           |
```
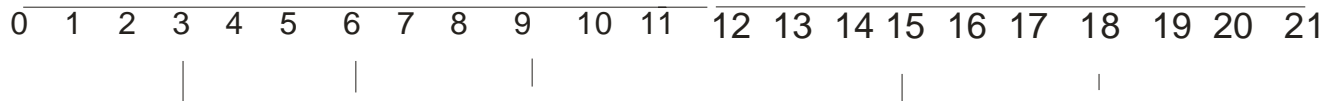
Another approach uses the procedure shown below.

```
3) 2 1
  - 3
  1 8
  - 3
  1 5
  - 3
  1 2
  - 3
    9
  - 3
    6
  - 3
    3
  - 3
    0
```

In this method, we keep subtracting 3 from what we have left until what is left is 0. We then count the three's (3's) that are removed, to find that (in this case) as many as 7 three's were removed. This enables us to conclude that 21 divided by 3 is 7. It

is summarised by writing $\overset{7}{3) 2\ 1}$ or 21 ÷ 3 = 7

6.4 Students are engaged in saying or writing a division statement corresponding to a given multiplication statement. For example, given the statement 7×5 = 35, they write 35 ÷ 5 = 7. And given the expression 5×7 = 35, they reveal 35 ÷ 7 = 5.

Discuss and use mental computation strategies or the calculator to carry out calculations when necessary

7.7 Students work mentally to complete written statements like: (i) 20×2 = □; (ii) □×2 = 60; (iii) 2×□ = 50
7.8 Students work mentally to complete written questions like (i) 50 ÷ 2 = □; (ii) □ ÷ 2 = 30

RESOURCES
Flashcards, base 10 materials, bingo and card games

ASSESSMENT

7. Shown a number, can work out the number it must be multiplied by to get a particular result. For example, (i) can say what 30 must be multiplied by to get 90; (ii) can find the number if told it is, say, 3 multiplied by a particular number. For example, given that $3 \times 45 = \square$, can find $\square$.

8. Can answer question in a story of division. Lead had 45 marbles. She shared it equally among 3 friends. Example: How many marbles does each friend receive?

TERM 3   STRAND 4: Statistics and Data Handling   UNIT 4: GOING SHOPPING

AT 4	**LO 2: Use, construct and interpret simple pictographs, charts and tables.** *Success Criteria*

1. Read the data presented in simple pictographs, bar graphs and tables
2. Construct simple pictographs, bar graphs and tables for real life problems
3. Interpret the data presented in simple pictographs, bar graphs and tables

ACTIVITIES

Read and write data presented in simple pictographs, bar graphs and tables

1.1 Students observe as teacher (i) presents simple pictographs, bar graphs, tables or charts and (ii) demonstrates how information is read from graphs and tables. Students are placed in groups. They look at chart and discuss among themselves information shown. They read data from chart through questioning.

Construct simple pictographs, bar graphs and tables for real life problems

2.1 Students devise and carry out a survey of six members of the class. For example, they could ask each student to choose their favourite fruit from a choice of three or four. Students present their results on a bar chart (as illustrated below, where 'A', 'B', 'C' and 'D' stand for the actual names students present).

No. Of STUDENTS

Fruits

NUMBER OF STUDENTS

7
6
5
4
3
2
1

A   B   C   D

Fruits
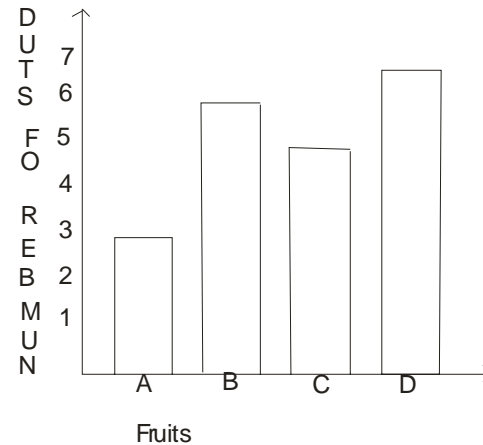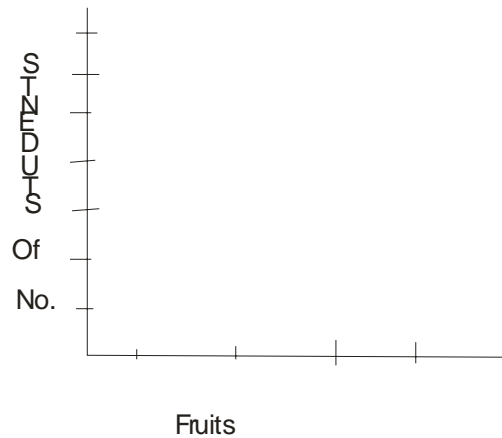
2.2 Students devise and carry out a survey of all the members of the class. Record data in the form of a tally and draw a pictograph using a suitable scale. Example:

Favourite game	Number of students
Basketball	⌿⌿⌿ ‖‖
Cricket	‖‖‖
Volley-ball	⌿⌿⌿ ⌿⌿⌿ ‖
Rounders	⌿⌿⌿ ‖

Students then use the information to construct a pictograph using a ☺ to represent 2 students.

Interpret the data presented in simple pictographs, bar graphs and tables

3.1   Students related a story in which each member of the class gave the teacher their favourite geometric object to show.

Square	Triangle	Circle	Line	Point
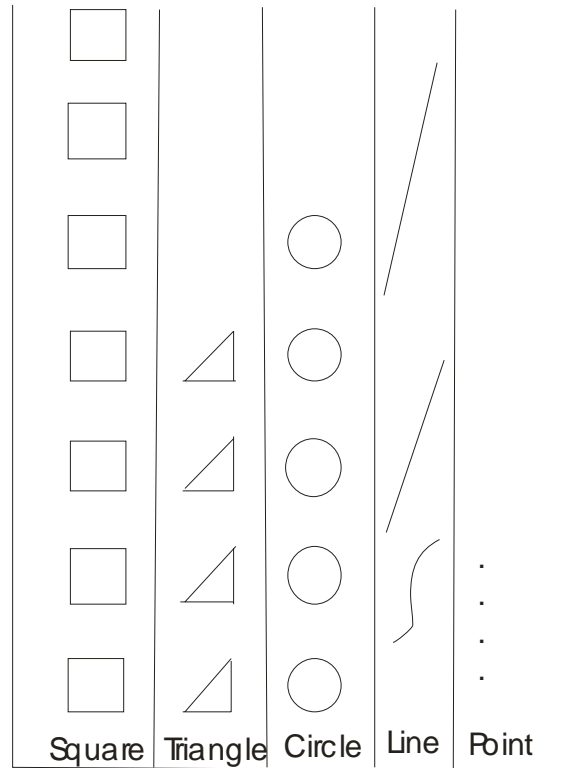
i.   The number that chose square is ____
ii.   The number that chose triangle is ____
iii.   The number that chose circle is ____
iv.   The number that chose line is ____
v.   The number that chose point is ____

vi.   ___ more students chose squares than points.

vii.   ___ was the most popular geometric object for the class.

3.2   Students are told a story in which some people were asked to name their favourite mango types. The results were used to make the following tally chart

Type	tally
Long	⧸⧸⧸⧸ ⧸⧸
Leeka	⧸⧸⧸⧸
Julie	⧸⧸
palwi	⧸⧸⧸⧸ ⧸
Tin	⧸⧸⧸⧸
Rose	⧸

Students are informed that Kyle wants to make a pictograph that shows the same information. They are shown what he started below and asked to help him by completing the pictograph and use ☺ to represent 1 person.

Lon. Lee. Julie. Palwi. Tin. Rose

Students use the graph to respond to questions:

ii.   Which type of mango was most liked by the people

iii.   Which type the people liked least

iv.   The number of people who chose mango long.

v.   The number of people who chose either leeka or tin.

vi.   The number of people who chose leeka

vii. The number of people who chose rose

viii. The total number of people making a choice

RESOURCES

Pictures, paper, manila, construction paper

ASSESSMENT

1. Shown information in a table, can use the table to construct a pictograph. For example, can construct a pictograph using this information.

Favourite fruit	Number of students
Banana	6
Orange	7
Apple	3
Grapes	5

2. Shown a bar graph, can use it to answer question. For example, can do the following exercise. The graph shows the types of ice cream preferred by 21 students.

84 84
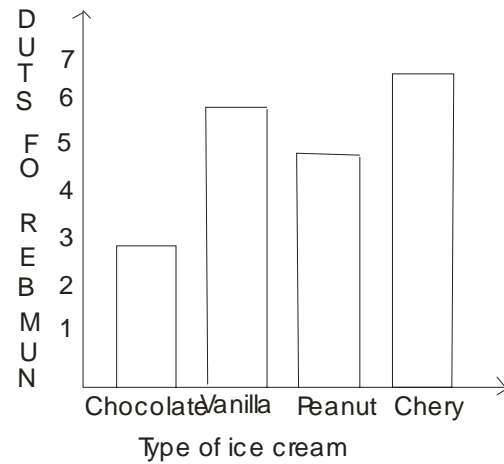
Type of ice cream

a) How many types of ice cream are shown in the bar grapg?

b) How many boys preferred
   i. Cherry?
   ii. Peanut?
   iii. Chocolate?
   iv. Vanilla?

c) Which type of ice cream is preferred by
   i. Most students?
   ii. The fewest students?

TERM 3   STRAND 5 Patterns, Functions and Algebra   UNIT 4: My Favourite Things

| AT 5	LO 2: Build simple number patterns and sequences
	Success Criteria

1. Count by 2's, 5's, 10's, 20's, 25's and 100's
2. Identify the patterns in a sequence of numbers.
3. Complete and solve problems involving sequences of numbers

ACTIVITIES

Count by 2's, 5's, 10's, 20's, 25's and 100's

Students are told a story in which Susan is with 2 'nice things' (which could be ribbons or mangoes or whatever students might find appealing). Every time Susan is met by, say, her Grandma, 2 is added to the previous number of 'nice things'. This means one has the sequence 2, 4, 6, 8, 10, 12, … Students given 100 squares and allowed to colour numbers by 2's, using a particular colour, say, green.

2   4   6   8
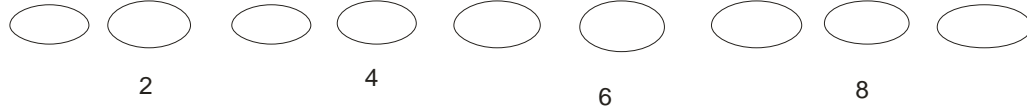
Students are told a story in which some friends enter a yard and proceed to look for stars. At the first stop, they find 5 stars; at their second stop, they find 10 stars; at their third stop, they find 15 stars. Students are told that the way stars are found means one has (we have) the sequence 5, 10, 15, 20, … Students are asked to suggest the number of stars that will be found at various stops, example, the fourth stop or the fifth stop. Students are then given a 100 sqaures and allowed to colour numbers by 5's using a particular colour, say, red, and thereby to continue the 5, 10, 15, 20, 25, 30, 35, 40…

Students are engaged in playing buzz game. Ex. 1, 2, 3, 4, buzz 6, 7, 8, 9, buzz… Person who does not give the correct answer is out.
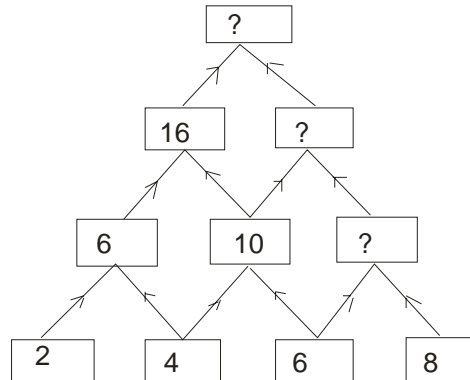
Identify the pattern in a sequence of numbers

Students are told a story in which some friends enter a room and hear claps being produced. A particular number is produced followed by some silence. Then comes another number followed by some silence, and so on. The friends try to work out how claps are produced. They arrive at the sequence 2, 4, 6, 8, … Students discuss the pattern. They are asked to predict the number of claps the friends heard (i) the fifth time, (ii) the sixth time, (iii) the seventh time. [Note: This sequence can be made with other numbers, e.g., with 5's, with 10's, with 25's, with 100's.] Students are allowed to fill in missing numbers in given sequences. Examples:

      i.   2, ____, 6, ____, 10
      ii.   10, ____, 30, ____, 50, ____
      iii.   ____, 10, ____, 20, ____
      iv.   25, ____, 75, ____, 125

Students are given number cards in groups and asked to order them from smallest to biggest. Example: (i) 25, 5, 20, 35, 30 → 5, 20, 25, 30, 35 (ii) 2, 10, 8, 12, 6, 4 → 2, 4, 6, 8, 10, 12

Students are shown a pyramid involving a patterns as illustrated below and asked to complete it.

Students are told a story in which a student called Fibonacci is working to solve a problem about how rabbits produce young ones. Eventually he comes up with the sequence of numbers 1, 1, 2, 3, 5, 8, 13, 21, … Students are asked to look for the pattern in this sequence, by considering how the previous two numbers are related to the last number, for example, how 1, 1 are related to 2; how 1, 2

are related to 3; how 2, 3 are related to 5 and so on. Students are asked to talk about what the pattern is and to continue the sequence by including at least three more entries.

Complete and solve problems involving sequences of numbers

Students are asked to give an example of a story which illustrates each of the following sequences of numbers and then to complete each: (i) 2, 4, 6, 8, ____, ____ (ii) 29, 27, 25, 23, ___, ___ (iii) 14, 18, 22, 26, ___, ___

EXEMPLAR LESSON PLAN	TERM 1
UNIT 2:	**TOPIC:** Place value

TIME: 30 minutes

EXPECTED BACKGROUND KNOWLEDGE OF STUDENTS:
Students can read and write numbers up to 999

LEARNING OUTCOME 2: Create and solve simple problems using place value and whole number concepts

SUCCESS CRITERIA 1:
Find the place value of any number up to 3 digits

ORGANISATION & TIME	TEACHER ACTIVITY	PUPIL ACTIVITY	RESOURCES
WAY IN 5 min	Teacher presents coloured number cards to students in their groups Teacher writes numbers on board	Each group takes a set of cards and forms two digit numbers Groups give their number Students read out the number and give place value using	Number cards Base ten materials
DEVELOPMENT 15 min	Teacher explains and demonstrates telling the place value using the base ten material and place value chart Teacher moves around class assisting groups where necessary	Students form 3 digit numbers with their cards Groups work using their material to find the place value of the numbers formed	Number cards Place value chart
CONCLUSION 5 min	Teacher questions students – e.g. what does the place value tell	Students tell how they find the place value of numbers Students answer questions on	

		lesson	
WAY ACROSS **5 min**		Students tell of instances when place value will be used	
ASSESSMENT	Teacher presents number with an underlined digit – e.g. 7<u>6</u>9, <u>2</u>54 a. 263 b. 507	Students tell the place value of underlined digit Students draw place value chart and put in numbers on the chart	

EVALUATION OF LESSON

EXEMPLAR LESSON PLAN   TERM 2
UNIT 1:   TOPIC: Division
TIME: 30 minutes
EXPECTED BACKGROUND KNOWLEDGE OF STUDENTS: Students can already divide by sharing into groups
LEARNING OUTCOME 4: Create and solve real life problems involving addition and subtraction with numbers up to 1 000 and involving multiplication and division of one and two digit numbers
SUCCESS CRITERIA: Students will be able to divide a 2 digit number by a 1 digit number using base 10 materials

ORGANISATION & TIME	TEACHER ACTIVITY	STUDENT ACTIVITY	RESOURCES
WAY IN	Presents scenario	Demonstrates different ways of	Question card

5 min	I have 52 marbles in a bag. I need to put them into bags of 4. How many bags do I need?	solving problem	Chalkboard Exercise books
DEVELOPMENT 15 min	Teacher demonstrates how to divide using base 10 materials Teacher presents other examples	Students observe and demonstrate their understanding by working on a few examples in their groups	Base 10 materials
CONCLUSION 5 min	Teacher recaps lesson through questioning	Students share findings with the rest of the class	
WAY ACROSS 5 min		Students tell of their experiences with sharing	
ASSESSMENT		Use base 10 materials to solve A) $6 \overline{) 72}$ B) $4 \overline{) 92}$	

		C) Joyce had 47 apples to share equally among her 3 friends. How many apples did each get? How many was left over?	
EVALUATION OF LESSON			

EXEMPLAR LESSON PLAN TERM 3

| UNIT: Helping Mummy | TOPIC: Time |

TIME: 30 minutes

EXPECTED BACKGROUND KNOWLEDGE OF STUDENTS:
- Students know what a calendar is
- Students know the days of the week and months of the year

LEARNING OUTCOME 5: Tell time in different ways appropriate to age

SUCCESS CRITERIA:
Students will read date and month from a calendar

ORGANISATION & TIME	TEACHER ACTIVITY	Student ACTIVITY	RESOURCES
WAY IN **5 min**	Teacher allows students to say rhyme involving month of the year. Teacher questions students based on rhyme e.g. How many months have 30 days? List the months containing 28 or 29 days.	Students sing out rhyme ▪ 30 days have September, April, June and November, etc. Students answer questions based on rhyme.	Rhymes
DEVELOPMENT **17 min**	Teacher presents groups with calendars Teacher gives to students a worksheet containing questions Teacher moves from group to group	Students observe and discuss information on calendar amongst themselves Students use calendars to answer questions Students give feedback	Calendars worksheets

	to ensure effective work is being done.		
CONCLUSION **5 min**		Students give the importance of a calendar	
WAY ACROSS **5 min**		Students tell of dates of different events of everyday life.	

ASSESSMENT **3 minutes**	Teacher gives each student a sample of a calendar and sheet containing questions e.g. Jun went to Antigua on October the 7th. If he spent 5 days, what day did he return?	Students answer questions based on calendar	
EVALUATION OF LESSON			