Mathematics Curriculum Guide: Grade 1

ACKNOWLEDGEMENTS

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.

Purpose of Mathematics 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	
UNITS	**SESSIONS**
UNIT 1: ON THE BEACH 1 - Number *AT 1: LO 1* *Success Criteria*: 1 – 4	24
UNIT 2: ON THE BEACH 2 - Number AT 1: LO 3 Success criteria: 1 – 4	24
UNIT 3: OUT OF THE BOX - Geometry AT 2: LO 1 Success criteria: 1 – 5	8
UNIT 4 : HELPING MUMMY 1 - Measurement AT 3: LO 1 Success criteria: 1 – 5	10
UNIT 5: HELPING MUMMY 2 - Measurement AT 3: LO 2 Success criteria: 1 – 2	5
UNIT 6: HELPING MUMMY 3 - Measurement AT 3: LO 3 Success criteria: 1 – 3	6
UNIT 7: ON THE BEACH 3 - Number AT 1: LO 4 Success criteria: 1 – 4	8
UNIT 8: MY FAVOURITE THINGS - Patterns AT 5: LO 1 Success criteria: 1 – 2	15

UNIT PLAN WITH SUGGESTED TEACHING, LEARNING & ASSESSMENT ACTIVITIES

TERM 1   STRAND 1 Number   UNIT 1: ON THE BEACH 1 – Number (3 weeks)

AT 1	LO 3: Create and solve real life problems involving addition and subtraction with numbers no greater than 20 *Success Criteria*

1. Use objects, pictorial representations and games to add two numbers, with totals up to 10
2. Write number sentences to represent addition up to 10
3. Identify and discuss situations in their everyday activities (e.g. games) where they use addition and subtraction
4. Use objects and pictorial representations and games to subtract one number from another, with both numbers being less than or equal to 10
5. Create and solve simple problems involving addition and subtraction

Begin year with a review Unit of key ideas in addition/subtraction of numbers up to 10.

ACTIVITIES

Use objects, pictorial representations and games to add two numbers, with totals up to 10

1.1   Students are given bottle tops or other objects.
- They are asked to put out a few. They are asked to find the number they put out.
- They are asked to say what they did to find the number.
- They are led to reveal that to find the number they *counted*.
- They are engaged in making statement such as, "We have put out some marbles. Their number is 3.
- They discuss "What we wish to do to this number."
- They are led to say "We wish to add 4 to it" or "We wish to add 4 on it"

4

+

3
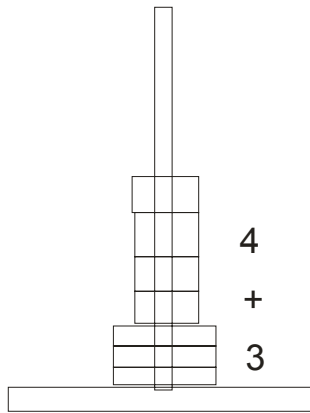
- Show this another way viz.

4   +   3
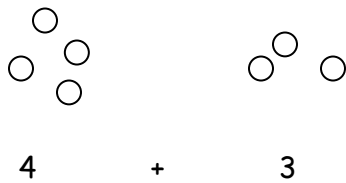
Ask how many tops altogether? By counting students arrive at the answer.
How can you write this? (4 + 3 = 7). Repeat for other numbers, give lots of practice.
For activity 1.1 ensure each child has a bag/box/container with 10 bottle tops or counters and the number/symbols viz.

1	2	3	4	5	6	7	8	9	+	-	=

The teacher can then call out 'show 4 bottle tops', pause while each student does this (teacher monitors) 'now put down 3 tops', pause while each student does this (teacher monitors). 'How many tops altogether?' Show this as a number

sentence'. Students will put down the number/symbol cards:

| 4 | | + | | 3 | | = | | 7 |

Teacher can easily monitor whole class.

1.2   Repeat 1.1 but this time use pictorial representations.
Show the number | 4 | 'What is this number?' 'Draw 4 circles' [O O O O]. Show the number | 3 |
'What is this number?' 'Draw 3 more circles [O O O O   O O O]. 'How many circles altogether?' (7)
'Read the problem' (4 and 3 make 7). ' Write the problem' (children write 4 + 3 = 7).

1.3   Play bingo games. Make bingo boards e.g.

8	6	8
5	2	7
9	5	3

4	4	3
2	8	9
8	5	6

Give one board to each student. Call out sums such as 3 + 5 etc. Students cover answer with a counter. First
Student to 'bingo' wins. [This type of game can be played every day for 5 minutes.]

Write number sentences to represent addition up to 10

2.1

Teacher	Children
'Draw 6 circles'	O O O O O O
'Make enough Xs to get the number 9	O O O O O O X X X
'Read the problem'	Six and three is nine

'Write the problem'	6 + 3 = 9

2.2 Give students practice in making the 'story' of different numbers. Draw two chalk circles on each child's desk and give each child six (say) bottle tops. Tell children to put some tops in one circle and some in the other and record their answers, e.g. 4 + 2 = 6 or 5 + 1 = 6. Ask children to find as many different arrangements as they can. Repeat for different numbers.

Use objects and pictorial representations and games to subtract one number from another, with both numbers being less than or equal to 10

4.1 Give students bottle tops. Tell them to put out 4 tops (say) viz.

O   O   O   O

'Take away 3 tops'. 'How many left?' (1)
Children can record using cards

4	-	3	=	1

Repeat for other numbers, give lots of practice.

4.2 Repeat 4.1 but this time use pictorial representations.
Show the number ☐4 'What is this number?' 'Draw 4 circles' [O O O O].

Cross out 3 circles O O O O X 'How many are left?' (1)
'Read the problem' (4 take 3 make 1). ' Write the problem' (children write 4 - 3 = 1).

4.3

Teacher	Children
'Draw 6 circles'	O O O O O O
'Cross off enough circles to get down to 4'	O O O O ØØ

'Read the problem'	Six take away two is four
'Write the problem'	6 – 2 = 4

4.4   Play bingo games as in 1.3 but this time call out subtractions.

4.5   Write down as many subtractions as you can that give 5 as the answer. Repeat for other answers.

Create and solve simple problems involving addition and subtraction

5.1   Get children to make up simple problems involving addition or subtraction.

UNIT PLAN WITH SUGGESTED TEACHING, LEARNING & ASSESSMENT ACTIVITIES

TERM 1   STRAND 1   Number   UNIT 2: ON THE BEACH 2 (3 weeks)

AT 1	**LO 1: Demonstrate an understanding of number up to 20** *Success Criteria*

1.   Count and build up to 20 objects using games, songs etc
2.   Discuss, use and write number sets up to 20 and represent them in a variety of ways
3.   Play games to develop number sense (bingo, matching, jigsaws etc.)
4.   Compare sets of objects using appropriate vocabulary in a variety of ways (e.g. 'one more than,' 'one less than,' using = symbol etc.)

ACTIVITIES

Count and build up to 20 objects using games, songs etc

1.1   By being read a story, students are provoked to think, "We are going to look at numbers in the classroom." They observe as certain items are placed on their desks. They are asked to look at the beans (or other items) on the desk.

They are posed with question, "What can we do to find their number?" They are led to say, "We can count." They are engaged in counting various sets of objects (say, books) in sequence orally. As they are counted, books (teddies, counters) can be stacked to model an illustration as follows.

20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1

1.2   Students are asked to watch and count steps as they are being made in sequence by someone jumping on a number line (or number track) which has been drawn on the classroom floor.

Objects	•	••	•••	••••	•••••	••••••	•••••••	••••••••	•••••••••	••••••••••
Their number as a figure	1	2	3	4	5	6	7	8	9	10
Their number as a word	One	two	three	four	five	Six	seven	eight	nine	Ten

They are asked to call out the number as someone points to it, or to point to the number as its name is mentioned. They write the number in figures and in words.

They are asked to give, say, 15 of the items (bottle tops, straws, or what have you) to a neighbour. They are posed with question: "How do you know it is 15 you give?" and led to say, "I count them." Students are posed with questions intended to help/ encourage students discuss (talk about) numbers, talk about how to get them, where they come in relation to others (e.g. 15 comes between 14 and 16, etc.) and to get a handle on counting.

1.3   Play bingo type games. Make boards such as

12	16	9	11
14	5	17	13
8	6	10	19
20	2	18	15

13	16	20	11
14	7	17	12
18	4	10	8
1	2	19	15

Give each student a bingo board and counters, call out numbers, students cover the correct number (monitor). First to bingo wins.

1.4   Repeat 1.4 but instead show cards with words

| twelve | | fifteen |

Etc. instead of saying numbers.

Discuss, use and write number sets up to 20 and represent them in a variety of ways

2.1   A number track is made on the classroom floor showing numbers 1 to 20 in the spaces. Students are asked to count the spaces in the track.   With a student standing on the first space on the track, the question is asked, "Where are you?" The student is guided to say, "I am at 1." This may be followed by the teacher asking, "Where is he/she, class?" to which the class is led to say, "She is at 1." The student is now allowed to jump to another space on the track. Again the question is posed, "Where are you now?" etc. Other students take turns to jump. In the ensuing discussion, the following point is established: Numbers are important or useful because we can use them to say where we are.

2.2   Students observe as other students (up to 20) enter the classroom one by one. They count as the students enter.

2.3   Students are prompted, "Tell me the number of fingers on your right hand" and are led to say "5". "Now tell me the number of fingers on your left hand." "5". "Tell me the number of fingers on your both hands." "10". Students are led to say, "So one way to talk about 10 is to say 5 and 5." We mean 10 if we say 5 + 5. With concrete objects, students are engaged in activity that allow them to complete sentences such as the following:
10 means 5 + 5
10 means 4 + ____
10 means 3 + ____
10 means 2 + ____
10 means 1 + ____

2.4   Students told a story of a neighbourhood in which some individuals could be found. Students observe as a strip representing, say, 12 objects is positioned between one representing 10 and another representing 20.

1	2	3	4	5	6	7	8	9	10

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

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

Students discuss where a given number lies in relation to two others, for example, where 12 is in relation to 10 and 20. They note that 12 is between 10 and 20. Students make remark, such as, "I have 12 mangoes. I have between 10 and 20 mangoes." "This page has 12 words I like; this page has between 10 and 20 words I like." Students see a number attached to each of, say, 3 students according to their height. The class observes as these students then adjust themselves until they are in order of height.   In one case when the numbers are 10, 14, 20, students asked question, such as "Is the number 14 also between 10 and 20?" Students asked to give some examples not between 10 and 20.

2.5   Using a number strip

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

(i) point to numbers – let students say their name.
(ii) cover a number – what number is covered?

Compare sets of objects using appropriate vocabulary in a variety of ways (e.g. 'one more than,' 'one less than,' using = symbol etc.)

3.1   Students solve problems by counting. They respond to questions such as:
- Who is the first, last, third… in this line?
- What is on the fourth page of this book?
- Point to the sixth bead in this line
- What is the eleventh letter of the alphabet?

3.2   Students respond to questions such as:
- Which is less: 15 or 18?
- Which is more 12 cents or 21 cents?
- Are there enough covers for these bottles?
- Susan has 6 cents. Alice has 9 cents. Who has fewer cents?
  How many more cents has Alice than Susan?
- Find page 14 in this book of 20 pages.
- Tell me a number between 11 and 16.
- Write the numbers between 2 and 10 on the number line.
- Write a number in the box so that the three numbers are in order.
  3 ☐ 8
- The time is between 2 o'clock and 7 o'clock. What time could it be?

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

AT 2	LO 1: Classify 3-D shapes according to their own criteria and explain criteria used
	Success Criteria

1. Discuss and record the attributes of 3-D shapes, using words such as flat, round, curved, can roll, slide, stack etc.
2. Sort and classify 3-D shapes on the basis of their attributes such as shape, size and/or use
3. Explain and select their own criteria to classify 3-D shapes
4. Classify real objects according to the 3-D shape they make
5. Use 3-D shapes to make objects

ACTIVITIES

Discuss and record the attributes of 3-D shapes, using words such as flat, round, curved, can roll, slide, stack etc.

1.1   Students are read a story in which 3-D shapes are mentioned, e.g., in which someone blows bubbles (spheres) using gum or soap water. They are engaged in talking about 3-D shapes, e,g, shape that balloon takes when it is blown, or that food items take when they are cut. Students presented with a list of 3-D shapes that includes cube, cone, cylinder, sphere and asked to (i) colour every sphere red; every cube blue, every cylinder green, every cone yellow and every cuboid brown and (ii) name the shapes.

Sort and classify 3-D shapes on the basis of their attributes such as shape, size and/or use

2.1   Students are presented with items from shop corner. They sort and classify on basis of attributes.

These will all roll

These all have a "point"

These can make towers
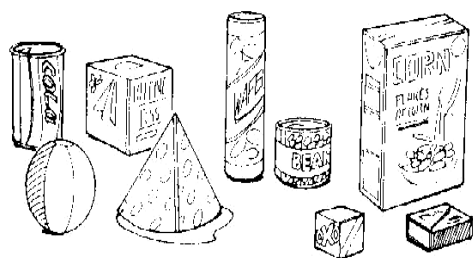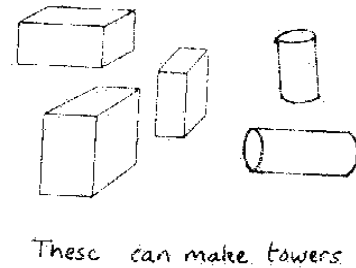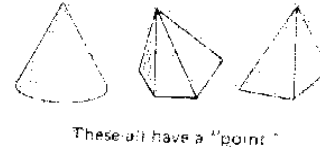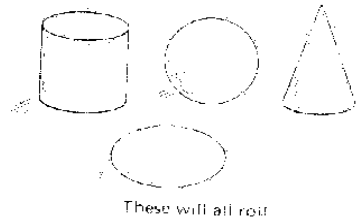
Sorting can also be done according to shapes which:
    a) are hard, are soft
    b) have holes, do not have holes
    c) have flat tops etc.

Explain and select their own criteria to classify 3-D shapes

3.1   Students list similarities and differences between shapes. Students sort shapes based on attributes.

3.2   Students differentiate between solids and non-solids

Classify real objects according to the 3-D shape they make

4.1   Students are shown real objects and allowed to classify according to 3-D shapes they make.

Use 3-D shapes to make objects

5.1   Students use shapes to create objects of their own.

castle   steps
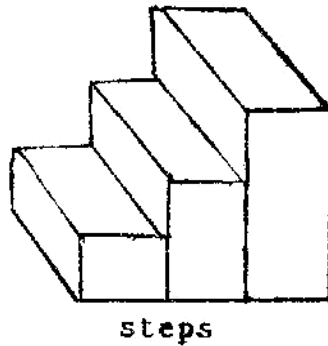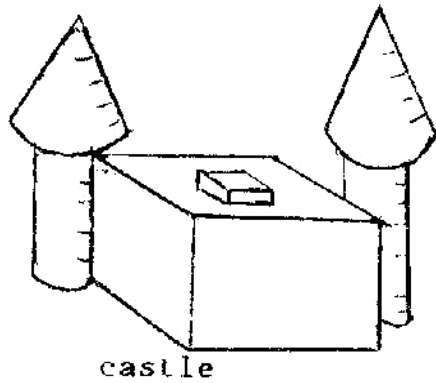
RESOURCES
Blocks, boxes (e.g. cereal box), sugar cube

ASSESSMENT
- Shown various 3-D shapes, can sort them according to shape, size or other attribute.
- Shown a 3-D shape, can say whether or not it is a cone, a cylinder, a cube, a sphere and can talk about the features that make it that.

TERM 1   STRAND 3 Measurement   UNIT 4: HELPING MUMMY 1 (1 week)

AT 3	LO 1: Estimate and measure length of different objects using non-standard units

	Success Criteria
	1. Recognise as sight words 'short', 'long', 'tall', 'near', 'far' etc.

1. Recognise as sight words 'short', 'long', 'tall', 'near', 'far' etc.
2. Estimate and compare estimates of lengths and heights of objects using non-standard units
3. Measure and record lengths and heights of objects using non-standard units
4. Estimate and measure distances in the school environment using non-standard units
5. Compare two linear measurements using phrases such as longer

ACTIVITIES

Recognise as sight words 'short', 'long', 'tall', 'near', 'far' etc.

1.1   Students are told a story in which a girl, Mary, is sad because someone cut a piece from her skipping rope and now it is too short. A boy, Troy, is sad because the stick that he wants to use to drive his toy truck is too long. Students are led to observe that it often happens that the reason some of us are sad is that some of the things that are interesting to us are either too long or too short. Students share examples from their own experience when they thought certain named things were long or short.

a footprint   a handspan   a pace

1.2   Stu   to sort them into groups of 'long' and
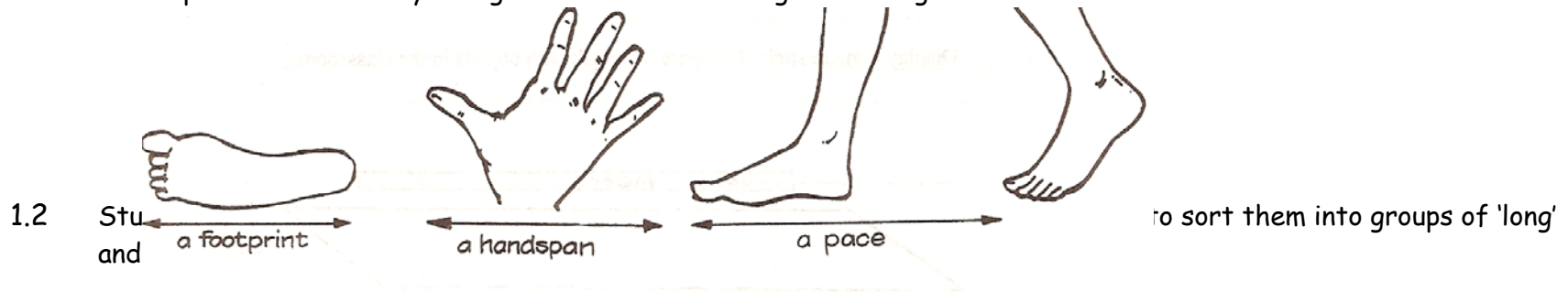
Measure and record lengths and heights of objects using non-standard units

3.1   Students told a story in which some friends found a variety of objects (e.g. leaves, popsicle sticks, table legs) and wanted to get the sense of whether they were long or short. They got the idea to use a reference object (a hand span, for example) to assist them. In one exercise, students use their feet to decide how

long the classroom floor is, by walking with feet appropriately aligned. In one classroom, they notice that they can fit 20 of their own feet on the classroom floor and take this to mean that the classroom floor is 20 'feet' long. (NB: The inverted commas are used here to show that 'feet' in this case is not feet as it exists in the imperial system for measuring.)

3.2   Student use instruments that they themselves make to estimate and measure (the lengths of) objects. "I am going to measure the length of this stick." "I am going to measure the length of this skipping rope." Their lengths are discussed.

3.3   In groups, students are given non-standard units of measure and a worksheet to measure items indicated on worksheet.

Estimate and measure distances in the school environment using non-standard units

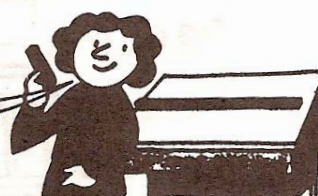4.1   Students estimate distances around the school in non-standard units and proceed to make a better measurement. "With the right tool we can make better measurement."

Work with a partner. You need rods.

The length of my desk top measures about 6 rods.

I   Guess first and then measure with rods.

Object	Number of rods	
	My guess	My measure
Length of my desk		

RESOURCES

A variety of objects of different length e.g. stick, skipping rope,

ASSESSMENT
- Shown objects or their pictures of different lengths, can sort according to the length of the object by indicating whether the object is short or long.
- Shown an object, can indicate an approximate length of the object in non-standard units. Example, shown the top of a desk, can indicate that it is about 4 hand spans long.
- Shown a variety of objects of different lengths, can put them in order of length.
- Shown two objects, can say what is the same and what is different about them. Shown two doors, for example, can say, "They are both doors but the first is longer."
- Shown an object such as a string when coiled and again straightened out, can indicate that their lengths are the same.

TERM 1   STRAND 3 Measurement   UNIT 5: HELPING MUMMY 2 (1 week)

AT 3	LO 2: Compare sizes of shapes by direct comparison
	Success Criteria

1. Use words and phrases such as 'large', 'smaller', 'larger than' etc. to describe the size of a shape.
2. Compare the size of shapes by placing one on top of the other

ACTIVITIES

Use words and phrases such as 'large', 'smaller', 'larger than' etc. to describe the size of a shape

1.1 Students are told a story in which two friends enter a house to spend the night and are shown two beds, one much bigger than the other, and are asked which of the two they would prefer for sleeping. The friends express that they prefer the bigger bed and when asked why they begin to talk about its size. Students are asked to suggest what the friends say about its size. The size is such that to completely cover the bed, you use, say, two sheets (of a definite size), whereas to completely cover the smaller bed, you use a single sheet.

Compare the size of shapes by placing one on top of the other

2.1 Students create large and small surfaces by arranging their desks so that in one case a desk is left by itself, in another case, two are placed so that their tops form a single surface, in another case, four are arranged so that their tops form a single surface. Referring to the top surface of each arrangement, students identify what they call a "smaller top", a larger top, etc. They guess how many sheets of paper would cover the first arrangement, the second, and so on. They work to discover facts about each shape (the top of the desk being a shape). They note, for example, that to cover the first they would need 4 sheets of paper, to cover the second, they would need 8 sheets of paper, and so on. They tape together the sheets of paper that cover each of the arrangements. They place the sheets that cover the first on the sheets that cover the second. This allows them to make comparisons such as saying the first is only half the size of the second.

2.2 Students observe as shapes are placed one on the other and students are allowed to compare.

TERM 1   STRAND 3 Measurement   UNIT 6: HELPING MUMMY 3 (1 week)

AT 3	LO 3: Estimate and measure the capacity of different objects using non-standard units
	Success Criteria

1. Recognise as sight words 'full' and 'empty'
2. Estimate and compare estimates, measure and record the capacity of containers using non-standard units
3. Compare the capacity of containers using non-standard units, using phrases such as holds more than, holds less than, etc.

ACTIVITIES

Recognise as sight words 'full' and 'empty'

1.1   Students are told a story in which someone asks another, "What is this in your hand?" to which the other says, "A container." Students proceed to identify examples of containers, citing such objects as cups, buckets and bottles. They explain that it is a container because it can hold something, for example, some water, some juice, some milk or some sand.

1.2   Students are shown containers of different capacities (including an empty one) on table and engaged in discussing how much they hold. They consider how they can fill a particular container. We can fill this container by using how many of this other container to pour, say, water into it? We can fill this cup by using how many of this spoon to pour water into it?

Estimate and compare estimates, measure and record the capacity of containers using non-standard units

2.1   Students are presented with examples of non-standard units e.g. cups, bottles spoons, etc. Students look at empty jars of different capacities on table and estimate the number of non-standard units needed to fill jars. Students then carry out actual measurements and compare.
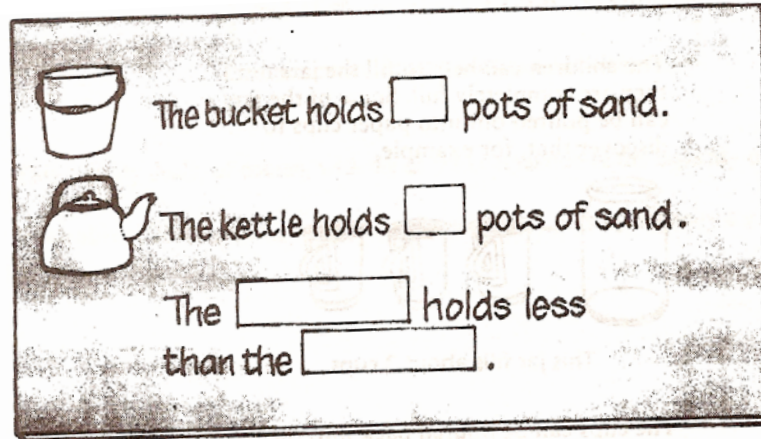
The bucket holds ☐ pots of sand.

The kettle holds ☐ pots of sand.

The ☐ holds less than the ☐ .

Compare the capacity of containers using non-standard units, using phrases such as holds more than, holds less than, etc

3.1   Students are given different containers of different capacities and asked to compare, stating which one holds more, less, etc. Using non-standard units they find actual capacities.

RESOURCES

An assortment of containers, including cups, bottles, spoons, paint; pairs of objects (candle, pencil, banana) differing greatly in length or height or size; real clocks, model clocks; coins

ASSESSMENT

LO 1
- Project: Given paint, students can make foot and hand prints and use them to measure objects and complete table as shown below.

Object	Foot print		Handprint	
	Estimate	Actual	Estimate	Actual
▪ Table ▪ Bed ▪ Door				

LO 2
- Shown pairs of objects (e.g., candle and pencil, apple and banana) on paper, can circle the tall object in each group.
- Shown pairs of objects (e.g. water melon and orange, egg and marble), can circle the small object in each group.

LO 3
- Shown pairs of containers, can tick the full container in each group.

TERM 1   STRAND 1   Number   UNIT 7: ON THE BEACH 3 (1 week)

AT 1	LO 4: Understand whole, half and quarter

Success Criteria
1. Identify and discuss a whole and parts of a whole
2. Identify and discuss one-half and one-quarter of a whole
3. Explain what one-half and one-quarter mean
4. Represent one-half and one-quarter of a whole. Read and write the fractions $\frac{1}{2}$ and $\frac{1}{4}$

ACTIVITIES

Identify and discuss a whole and parts of a whole

1.1   Students told story in which on a picnic or outing someone enters a room and finds a whole fruit (e.g. pear or ripe banana) or drink (e.g. soft drink) or lunch or a whole set of say, four balloons and (for some reason) is inclined to give away part of it to a friend. Students observe objects (e.g. sheets of paper, sticks of chalk) that are in whole and parts of a whole, as these are presented by the teacher. They discuss what is a whole and part of a whole. They are led to note that a whole has two parts. They identify whole and parts of whole.
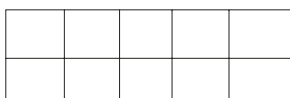
Identify and discuss one-half and one-quarter of a whole

2.1   Students observe as a whole strip representing, say, 10 is cut so that it separates into two parts. Students note that each is part of the whole, or a fraction of the whole. Students asked, "Is 5 a part of 10?" What part of 10 is 5? Answer: 5 is half of 10. For the whole strip, students are asked to colour half. Students given an even number of objects (say, 16 pebbles) and asked to give half to a partner. Students asked how many is given. Students asked whether 8 is part of 16. Students asked to say what part of 16 is 8. They note that 8 is half of 16. (Some students might be ready to deal with questions such as: If half is 4 rabbits, what is the whole? If half is six green bottles, what is the whole? If half is 7 balloons, what is the whole? If half is 10 dollars, what is the whole?)

Explain what one-half and one-quarter mean

3.1   Students observe as objects are presented in whole and parts of whole. Students identify whole and parts of whole. Students engaged in playing game in which, for example, someone says, "I am thinking of a number. Half of that number is 5. What is that number?" [NB: Students are led to appreciate that to see what we mean by half, we must look at the whole. For example, if the whole is an orange consisting of 12 pegs, then half is 6 pegs. If the whole is a piece of paper which is square-shaped, then half is that rectangle which when doubled gives the original piece of paper.]

3.2   Students observe as a whole is cut into halves and each of the results is itself cut into halves, resulting in 4 equal parts. Students asked to say what part of the whole each is. This may be done when the whole is an orange, when the whole is a sheet of paper, and when the whole means 20 dots evenly spread on a sheet of paper. In the case of the orange, students note that each part is a quarter of the entire orange. In the case of the sheet of paper, each part is a quarter of the sheet of paper. In the case of the number 20, each part is 5. Students are questioned: "What part of 20 is 5?" "They are led to say "5 is a quarter of 20." Students respond to questions such as, "Which would you prefer to have, three-quarters of an orange or half of an orange?" Students discuss two quarters in relation to a half.

Represent one-half and one-quarter of a whole.   Read and write the fractions ½ and ¼

4.1   Students work with grids or strips to make observations such as "2 is a quarter of 8" and to colour in a quarter of the objects in a grid.

♥ ♥	♥ ♥	♥ ♥	♥ ♥
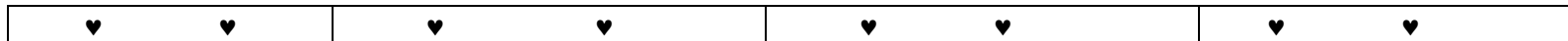
4.2   Students are shown numbers 1 to 10 on the number line. They work with these numbers looking for examples of the relation 'is half of'. They come up with examples such as '1 is half of 2', '2 is half of 4', '3 is half of 6', '4 is half of 8' and '5 is half of 10'. In each of these examples, use is made of suitable models or illustrations. In illustrating '1 is half of 2', for example, students allow one student to stand in one part of the classroom and two students in another section. Then they point to these students as they recite the sentence '1 is half of 2'.

RESOURCES
Number cards (0 - 20), counters, number tracks, number lines, songs, rhymes, games relating to counting (e.g., bingo)

ASSESSMENT
LO 1:
- Shown a jar with some beans (or other objects) totalling no more than 20, can count the beans and record their number on the label on the jar.

- Shown an empty jar with a number (no greater than 20) on a label on the jar, can put that number of objects (say beans) in the jar.
- Shown objects in two sets, can match one-to-one and complete number sentences by writing a missing number when the relation between two numbers is "is 1 less than" or "is 1 more than".
- Shown a number track with numbers 1 to 20 and some spaces covered or missing numbers, can indicate which number is missing or covered through an oral or written response.
- Shown a triple of numbers (such as 5, 7, 10 or 10, 14, 20) represented as strips, can make observations such as "14 is between 10 and 20."

LO 4:
- Shown a figure such as a square, rectangle or circle, can demonstrate one-half (1/2) or one-quarter (1/4).
- Shown, say, 12 boxes representing a whole grid, can indicate that a quarter is 3 boxes.
- Shown a sentence such as _____ is a quarter of 12, can complete the missing part(s).
- Shown a number line (showing numbers from, say, 0 to 5), can find (or mark the position of) one-half (1/2) or one-quarter (1/4).

TERM 1   STRAND 5 Patterns, Functions & Algebra   UNIT 8: MY FAVOURITE THINGS

AT 5	**LO 1: Describe the relation of one number to another in familiar contexts** *Success Criteria*

1. Identify and discuss simple relationships between two numbers e.g. 'is one more than', 'is one less than', 'is greater than' etc.
2. Find the result of simple operations on numbers e.g. 'add one', 'subtract two' etc.

ACTIVITIES

Identify and discuss simple relationships between two numbers e.g. 'is one more than', 'is one less than', 'is greater than' etc.

1.1   Students are related a story in which two groups are engaged in some activity, such as picking mangoes. One group says, "Like us, they are picking mangoes. Each time we pause to check, we find that <u>their number is one more than ours</u>." Students are questioned to suggest some possibilities, as exemplified below.

	Our number	Their number
1st check:	1	2
2nd check:	5	6
3rd check:	9	10

1.2   Students engaged in completing items such as the following: (i) ▢ is 1 more than ▢; (ii) ▢ is 2 more than ▢, etc.

1.3   Students observe as someone claps and stomps a foot in a particular sequence, e.g. (clap, stomp; clap, stomp. Or: clap, stomp, stomp; clap, stomp, stomp etc.) Students model what they see. They are then engaged in discussing the pattern. They are led to say that in the second example the number of stomps is one more than the number of claps (and the number of claps is one less than the number of stomps). They are asked to suggest and demonstrate simple dances that include repeated steps and movements. They are posed with questions that require them to say how the two numbers compare (whether one less then, etc).

1.4   Students told a story in which someone sees some cases, which are in different combinations: a single case by itself, a combination of two cases, a combination of three cases, etc. It is found that if we open 1 case, we find 2 sweets. If we open 2 cases (that is, a single combination involving two single ones), we find 4 sweats. If we open 3 cases, we find 6 sweets. If we open 4 cases, how many sweats might we find? The number of cases and the number of sweets are (1, 2), (2, 4), (3, 6). Students asked what the relationship is. They are led to see that the number of cases we open is half of the number of sweets we find. ['is half of']

1.5   Students are involved in building a picture as the one which immediately follows, in which the first loop has numbers 1, 2, 3, 4, 5 and the second loop, numbers 2, 4, 6, 8, 10. Students observe as the teacher draws the first

line to show the connection between a pair of numbers. They are asked to continue the drawing, to draw lines to show the connection between each pair. They are involved in talking about the relationships.

Is half of

1 ——— 2
1 ——— 4
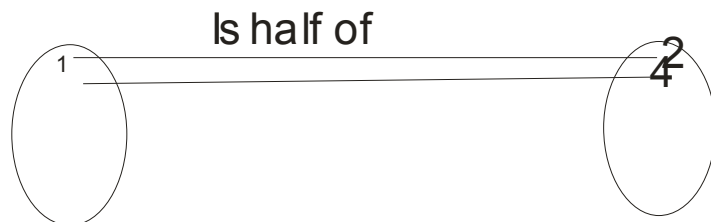
1.6   Students are involved in building a picture as the one which immediately follows, in which the first loop has numbers 1, 2, 3, 4, 5 and the second loop, numbers 2, 3, 4, 5, 6. Students observe as the teacher draws the first line to show the connection between a pair of numbers. They are asked to continue the drawing, to draw lines to show the connection between each pair. They are involved in talking about the relationship. ['is one less than']

Find the result of simple operations on numbers e.g. 'add one', 'subtract two' etc.

Is one less than

1 ——— 2
2 ——— 3
3
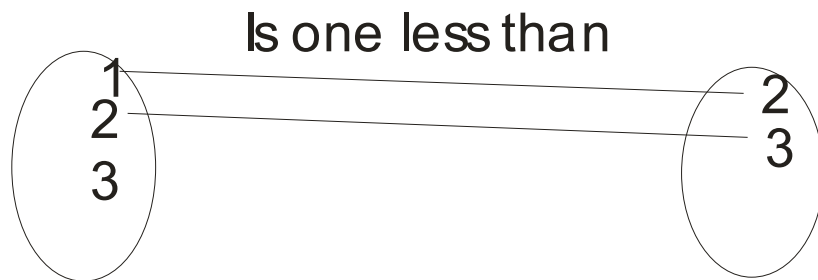
2.1   Students are involved in building a picture as the one which immediately follows, in which the first loop has numbers 2, 3, 4, 5, 6 and the second loop, numbers 1, 2, 3, 4, 5. Students observe as the teacher draws the first line to show the connection between a pair of numbers. They are asked to continue the drawing, to draw lines to show the connection between each pair. They are involved in talking about the relationship. ['is one more than']
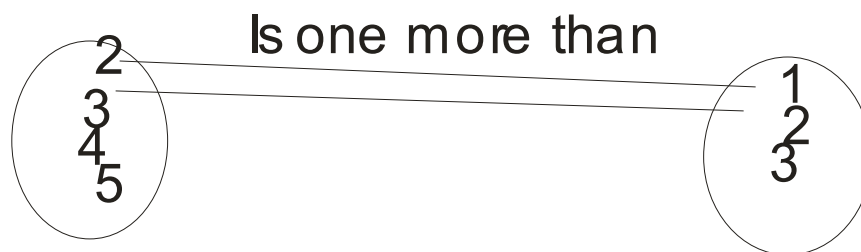
Is one more than

2.2   In a party we can show tickets. If we show 1, we get 2 chances; if we show 2, we get 4 chances; if we show 3, we get 6 chances. The number of chances we get is always double the number of tickets we show. This is modelled (to students) using slips of papers of different colours for the tickets and the chances. Students make drawing of this. Repeat for similar situations.
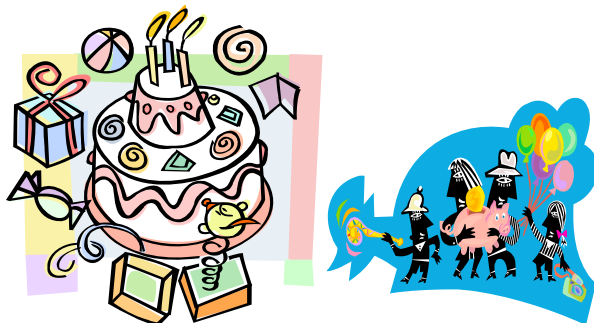
2.3   Students observe a picture in which 1 teddy takes a position on the table and two take positions under the table. Then appears another case in which 2 teddies are on the table and 3 are under. This pattern continues to allow students to make a table such as the one shown. Students identify and discuss the relationship between these two numbers.

Teddies on the table	Teddies under the table
T	⊥⊥
TT	⊥⊥⊥
TTT	⊥⊥⊥⊥
TTTT	⊥⊥⊥⊥⊥
TTTTT	⊥⊥⊥⊥⊥⊥

2.4   Students are told a story in which some "learners" are on a trip or passage in a vehicle which is being pulled by a string as shown. The passage is designed in such a way that the learners will come through a machine, a function machine. Once they enter the machine, their number changes. It is now 1 more. Students find the result when the starting number is given. They use their calculation to complete a table. Repeat for different function machines.[NB: It is suggested that a model of this be made using a large cardboard box and other suitable materials.]
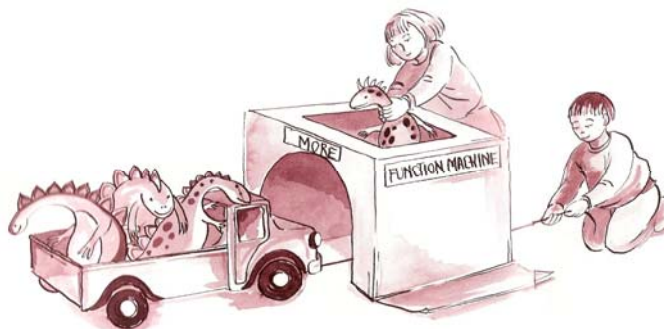
Starting number	1	2	3	4	5
Result					

RESOURCES
Function machine model

ASSESSMENT

- Shown a scene such as fowls and their legs, can identify the connection between the two numbers.
- Shown a drawing which is incomplete, can continue the drawing to show the relationship between pairs of numbers.
- Shown a picture or model in which a machine adds 1, adds 2, subtracts 1, subtracts 2, etc, can find the result when told what the starting number is.

TERM 2 SUMMARY	
UNITS	SESSIONS
UNIT 1: ON THE BEACH - Number *AT 1: LO 2* *Success Criteria*: 1 -4	16
UNIT 2: ON THE BEACH - Number *AT 1: LO 2* *Success Criteria*: 1 -4	24
UNIT 3: OUT OF THE BOX - Geometry AT 2: LO 2 Success criteria: 1 – 6	10
UNIT 4: HELPING MUMMY 1 - Measurement AT 3: LO 4 Success criteria: 1 – 3	8
UNIT 5: HELPING MUMMY 2- Measurement AT 3: LO 5 Success criteria: 1 – 6	16
UNIT 6: GOING SHOPPING - Statistics AT 4: LO 1 Success criteria: 1 – 3	10

UNIT PLAN WITH SUGGESTED TEACHING, LEARNING & ASSESSMENT ACTIVITIES

TERM 2   STRAND 1   Number   UNIT 1: ON THE BEACH 4 (2 weeks)

AT	LO 2: Create and solve real life problems relating to counting
	Success Criteria

1. Ask questions that can be solved by counting
2. Count a) in sequence b) in 2's c) in 5's to answer questions
3. Count backward from 10 to answer questions
4. Discuss ways of arranging objects so that they are easier to count

ACTIVITIES

Ask questions that can be solved by counting

1.1   In relating stories to them, students are asked questions that require them to count. Example: We are looking for acorns. So far we have 3. But we want 5. What number must we be granted in addition? [NB: (i) Instead of acorns, other more familiar names could be used. (ii) Variation can be achieved here by simply changing the numbers. (iii) Explicit mention of the word <u>addition</u> here suggests that similar stories can be used as a springboard for launching into a discussion of addition.]

1.2   How many desks are in the class? How many books are on the table? How many birds are in the picture? Students respond and tell what they did to arrive at an answer. Students are presented with a picture and posed with question

that requires them to count to give an answer. Students are presented with a series of pictures and allowed to formulate questions that require one to count to give an answer.

1.3   Students are presented with pictures and allowed to formulate questions which require counting to get answers.

We are looking for books. So far we have the number shown in this picture. But we want 20. What number are we missing?
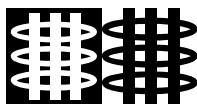
How many rings are in this picture?

1.4   Use number line or track to count. From a set of cards on which numbers from 0 to 20 are written, students pick up cards one at a time and put each in the correct place on a number line/ track.

0																				20
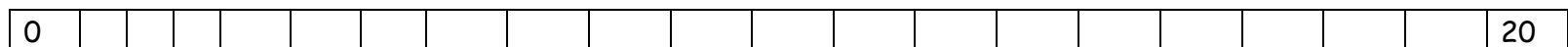
1.5   Students are afforded opportunity to **'count on'** from a given number.

1.6   Students each put down 6 (say) bottle tops O O O O O O then 3 more O O O. How many altogether? (9)
       How many in the first group? (6) Now **count on** viz.

       O O O O O O   O   O   O
          'six'   'seven' 'eight' 'nine'

       Repeat, for other additions, students are encouraged or guided to record answers (6 + 3 = 9)

1.7   Students complete number sentences such as

       5 + | * * | = | |

        By counting on 'five'; 'six', 'seven'.

1.8   Complete missing addend type problems such as 5 + | | = 7 etc. by counting on - 5, 6 (show one finger), 7 (show
       another finger), so | | is 2.

Count a) in sequence b) in 2's c) in 5's to answer questions

2.1   On a large number track, possibly drawn on the classroom floor, students make hops, first, of 2 to 20 and then of 5 to
       20 whilst saying the numbers they land on. On a number line/ track, they mark hops of 2 to 20, and then hops of 5 to
       20.

Count backward from 10 to answer questions

3.1   Students are shown the first few terms of number sequences which are increasing or decreasing in steps of 2 or 5. They are asked to suggest the number that comes next or to continue the sequence. Look at the pattern: 18, 16, 14, … What number comes next? Look at the pattern: 20, 15, ☐, 5 What number is missing?

3.2   Students are shown ten objects which are in a line. They are asked to point to the tenth object. Then they are asked to count back from 10 to 6. They say how many they count.

Discuss ways of arranging objects so that they are easier to count

3.1   Students are told a story in Elma enters a yard in which are some flowers. She wants to count them. She does this by first regrouping the flowers in twos or fives. Students discuss why counting the objects might be easier once they are arranged in, say, twos or fives. Students are presented with up to 20 objects which they proceed to count by first rearranging them in twos.

RESOURCES

Counters, number line/ track, relevant number stories.

ASSESSMENT
    ▪   Shown a number line or track with missing numbers, can fill in the missing numbers

	2	3	4		6		8	9	10		12	13		15

- Can respond to questions such as (i) on this number track, mark hops of 2 to 20; (ii) on this number track, mark hops of 5 to 20.
- Shown up to twenty items, can count them in twos or fives.

UNIT PLAN WITH SUGGESTED TEACHING, LEARNING & ASSESSMENT ACTIVITIES

TERM 2   STRAND 1 Number   UNIT 2: ON THE BEACH 5 – Number (3 weeks)

| AT 1	LO 3: Create and solve real life problems involving addition and subtraction with numbers no greater than 20 *Success Criteria*

1. Use objects, pictorial representations and games to add two numbers, with totals up to 20
2. Write number sentences to represent addition up to 20
3. Identify and discuss situations in their everyday activities (e.g. games) where they use addition and subtraction
4. Use objects and pictorial representations and games to subtract one number from another, with both numbers being less than or equal to 20
5. Create and solve simple problems involving addition and subtraction

ACTIVITIES

**Use objects, pictorial representations and games to add two numbers, with totals up to 20**

1.1   Students are engaged in discussion to help them remember that a number comes to us when we count. They are questioned to say we may wish to add the number that appears to us.

1.2   Students are engaged in observing, discussing, illustrating and writing addition of 10 by 5 and then of 5 by 10. This may be done using an abacus (e.g., one in which students make use of beads from a necklace). Let us say the number that comes to us is 3. This means we have the following abacus illustration.
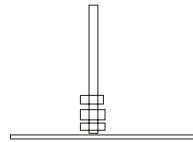
Now to this number we may wish to add 2. The illustration now becomes
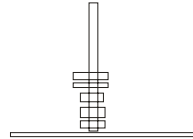
This is an illustration of the expression 2 + 3

If the number that appears is 10 and we wish to add it by 5, the situation may be illustrated as follows:
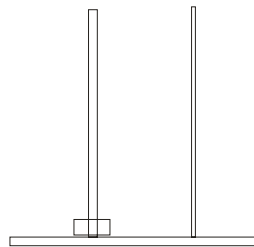
10
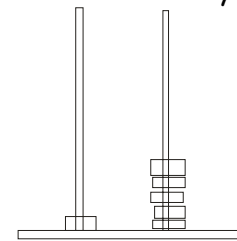
10 + 5

Or 15

One group lays down a stack of 10 books. On this another lays down a stack of 5 books. The situation is pictured on the chalkboard. Students observe	One group lays down a stack of 5 books. On this another lays down a stack of 10 books. The situation is pictured on the chalkboard. Students observe both the stack of books

both the stack of books and the illustration and ask, "What happens here? What happens to 10?" They are led to say 5 added to (on) 10. How do we write this in mathematics? They are led to introduce the expression 5 +10.	and the illustration and ask, "What happens here? What happens to 5?" They are led to say 10 added to (on) 5. How do we write this in mathematics? They are led to introduce the expression 10 +5.
Students are engaged in finding the result by counting. Students observe that the result totals 15.	Students are engaged in finding the result by counting. Students observe that the result totals 15.

1.3   Students make and talk about stories that can be represented using addition. Example: (i) I read 10 books that are interesting to me. Then on this I read 5 more. Write an expression to show this. (ii) I read 5 books that are interesting to me. Then on this I read 10 more. Write an expression to show this. (iii) I put 5 dollars under my pillow. Then on this I put 3 more. How can I show this? (iv) I put 3 dollars under my pillow. Then on this I put 5 dollars. How can I show this?

Write number sentences to represent addition up to 20

2.1   On a number track (possibly drawn on the classroom floor), start at 0 and take/move 3 steps in the forward direction. Where are we now? What must we do if we wish to get to 5? Add 2 steps to the 3 already taken. How do we write this in mathematics? We write 2 + 3 to say to 3 steps we add 2 steps. So, in effect, 2 + 3 means 5. We have the number sentence 2 + 3 = 5

2.1   Instead of first taking/moving 3 steps on our number track, let us begin by taking 2 steps. Now what must we do if we wish to get to 5? Add 3 steps. How do we write this in mathematics? We write 3 + 2 to say to 2 steps we add 3 steps. So, in effect, 3 + 2 means 5. We have the number sentence 3 + 2 = 5

2.2   Armed with the experience from such activity, students talk about how to use a number track to add one number to another and how to write the story in mathematics. They also discuss the difference between pairs of expressions such as 2 + 3 and 3 + 2, in terms of what is done first on the number track.

Identify and discuss situations in their everyday activities (e.g. games) where they use addition and subtraction

3.2   Students are introduced to subtraction as something we can do if we wish to undo an addition. It is something (an operation) in which we are engaged if we are withdrawing some money from a purse or an account. Students are engaged in a simulation or demonstration as suggested below.

Someone enters a room or a section of the classroom and there sees stack of 10 books, say, on a table. On this the person proceeds to put 5 more books. The situation is acknowledged as an example of an addition. Students observe both the stack as it was before acted upon and the stack after the operation is performed and are led to ask, "What must we do to undo what the person just did?" They are led to say 5 must be taken away the result. 5 must be taken away from 15. How do we	Someone enters a room or a section of the classroom and there sees a stack of 5 books, say, on a table. On this the person proceeds to put 10 more books. The step taken is acknowledged as an example of an addition. Students observe stack of books before and after it is acted upon and are led to ask, "How can we undo what was just done to this stack? They are led to say subtract 10 from 15. How do we write this in mathematics? They are led to introduce the expression 15 – 10. (Students pay attention to the fact that this is the subtraction of 10 from 15, or the taking

write this in mathematics? They are led to introduce the expression 15 – 5. (If they are ready for it, students can be asked to see that this is the same as 10 + 5 – 5)	away of 10 from 15. It could mean the subtraction of 10 apples from 15 apples, the subtraction of 10 students from 15 students, the subtraction of 10 sweets from 15 sweets, etc.)
Students are engaged in finding the result by removing 5 books one by one as they count. Students observe that the result is 10.	Students are engaged in finding the result by counting. Students observe that the result is 5. (If they are ready for it, students can be informed that the result is the difference)

3.2   In a particular activity, the first 3 spaces on the number track are covered with 3 stickers of a particular colour (say, blue). Then the next 2 spaces are covered with 2 stickers of a different colour (say, red). The stickers show the steps we have already taken on the track. We are at 5 after taking 3 steps then 2 more. We wish to get back to where we where when we had taken only the first 3. In other words, we wish to get back to 3. How can we do so?

We consider how we got to 5 in the first place. We notice that that happened by our adding (including) 2 steps to the 3 we had already taken. This suggests to us that to get back to where we were, that is, to 3, we would have to take away (subtract, remove, exclude) 2 steps.
Students are introduced to the notation used to indicate subtraction. To say we take away 2 from 5, we write 5 – 2. This is subtraction of 2 from 5. It is read 5 take away 2, or 5 minus 2. It means 2 is subtracted from 5.

Students sing and complete number songs involving subtraction and addition. E.g.
Ten green bottles…
Five little ginger cats playing near the door…
Johnny works with one hammer…

Use objects and pictorial representations and games to subtract one number from another, with both numbers being less than or equal to 20

4.1   Students use bottle tops to find which numbers add to 15: (a) 11 + 3   (b) 14 + 1   (c) 12 + 3   (d) 0 + 15   (e) 4 + 12

4.2   Students use bottle tops or other concrete objects to find which difference is 7: (a) 11 – 3   (b) 15 – 8   –
        (c) 16 - 9   (d) 7 – 0   (e) 12 – 4

RESOURCES

Counters, number lines/ tracks, relevant stories about numbers.

ASSESSMENT
- Shown two numbers such as 5 and 10 (whose sum is no greater than 20), can illustrate how to add (i) 5 to 10 or (ii) 10 to 5 [Can solve simple problems using pictorial representation.]
- Shown an equation such as (i) 10 + 5 = 10 or (ii) 5 + 10 = 15, can give (or make reference to) an example of a story which illustrates the situation. [Example: (i) To the 5 birds in this cage, I add 10. Now their number is 15; (ii) I am collecting stamps. First I collect 10. Then on this I find 5 more. Now their number is 15.]
- When provided with materials or objects that stack, can build models for pairs of expressions such as 3 + 4 and 4 + 3.
- Shown a number sentence with missing parts, can complete the missing parts. Example: 12 = 3 + ____; 8 – 3 = ____.
- Shown a set of numbers, can say which member meets a stated condition. Example: Of the numbers 2, 3, 5, 6, 9, 10, which is less than 3? Which is double 5? Which is half of 6? Which is between 8 and 10? Which is the same as 4 + 1? Which is the same as 3 twos? (NB: In this case, the numbers 2, 3, 5, 6, 9, 10 could be shown on a vertical or horizontal number line.)

## TERM 2   STRAND 2 Geometry   UNIT 3: OUT OF THE BOX (1 week)

AT 2	LO 2: Sort 2-D shapes and investigate patterns that can be made from them
	Success Criteria

1. Identify and talk about examples of 2-D shapes (rectangles, squares and circles) in their environment
2. Sort and classify 2-D shapes on the basis of their attributes e.g. shape, size and number of sides
3. Explain and select and use their own criteria to classify 2-D shapes
4. Recognise sight words square, circle, triangle using matching games
5. Sketch 2-D shapes

ACTIVITIES

Identify and talk about examples of 2-D shapes (rectangles, squares and circles) in their environment

1.1   Students are told a story about flat shapes. I started to think about 2-D shapes as I was looking in the box. The shape of the classroom floor. The shape of the top of some desks. How they are. How they are the same. How they are different. Which are with three sides. Which are with four sides. Of those that are with four sides, which are squares. Circles and squares. how they are the same and how they are different.
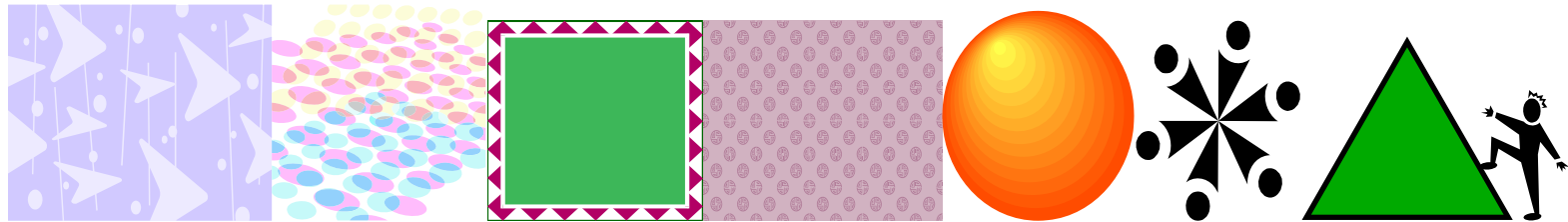
Sort and classify 2-D shapes on the basis of their attributes e.g. shape, size and number of sides

2.1   Students are asked to show (i) an example of a triangle – in the classroom, on a poster, on a page; (ii) how to produce a triangle like one that is given to you. On a sheet of paper, a line is drawn, say, from top to bottom. Students note that this means the sheet now has two parts. On one part, say, the right part, a triangle on which paint or other suitable material has been (freshly) spread is stuck. Now the entire paper (plane) is given a fold along the line previously drawn. Students are asked to say what they now see. A shape appears on the other section of the paper. It is a shape *like the one used*. Students compare this to what happens when they stand in front of a mirror (or hold a shape in front of a mirror). This could be seen as one way to make a shape like another that is given to you. The two are identical in shape. One is a model of the other.
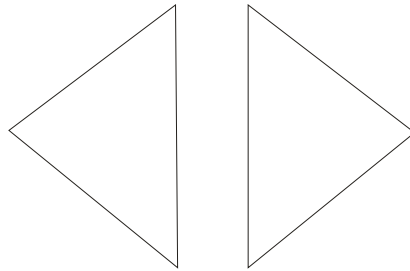
 Students asked to imagine the two triangles getting closer until they both touch the line to form one triangle. This is then clarified by repeating the above exercise, this time ensuring that one side of the triangle on which the paint is spread touches the line.

Students look in the environment for shapes that could be regarded to have resulted in this manner, that is, by one shape being placed on a flat sheet, some material being spread on it, the sheet given a fold, movement occurring on the plane until the shape that appears forms one with the other used to form it.
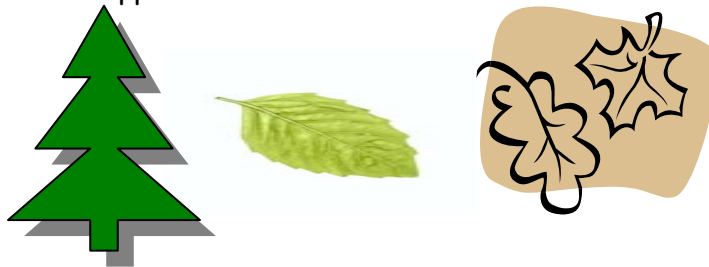

2.2   Students are given a variety of 2-D shapes. They are encouraged to sort the shapes into two groups by:

(i) size   (ii) shape   (iii) size and shape etc. (iv) number of sides   (v) number of corners etc.

**Explain and select and use their own criteria to classify 2-D shapes**

3.1   Students are given (or are asked to find) a variety of 2-D shapes. They proceed to sort the shapes into two groups using their own criteria. They are then asked to reveal for the rest of the class how they grouped their shapes. Write the grouping criteria on the board (this will lead to using correct terms).

3.2   Students are asked to describe which features of a square make it an example of a rectangle.
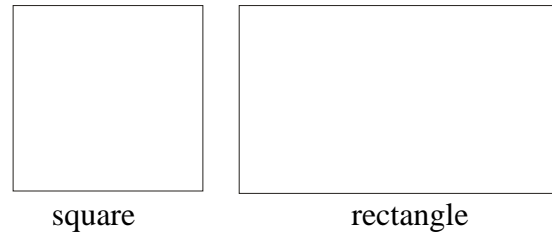
square   rectangle

3.3   Students are told a story in which some friends found a way to build a castle using, say, triangles, squares, rectangles, circles. Students make their own shapes using cut-outs and glue.

Recognise sight words square, circle, triangle using matching games

5.1   Students are asked whether they know what a flat shape is called if it is three-sided and what a flat shape may be if it is four-sided. Students are introduced to the names of various flat shapes. Students match shapes to their correct names.
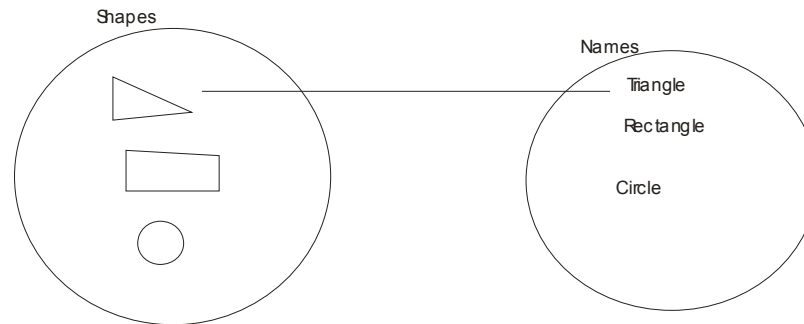
5.2   Students are exposed to bingo boards made with words triangle, square, rectangle etc. in each cell etc.

triangle	square	rectangle
circle	square	circle
triangle	rectangle	square

Class is shown cut-outs or pictures of various 2-D shapes. Students cover bingo board for each shape identified. First to bingo wins.

RESOURCES
Cut-outs, glue, sheets of paper, including manila paper, marker, paint

ASSESSMENT
- Shown various shapes, can sort them according to whether they are three-sided or four-sided.
- Shown a flat shape, can say whether or not it is a triangle, a rectangle, a square, a circle and can talk about the features that make it that.
- Shown a symmetrical shape, can talk about how it may have been produced.
- Shown a flat shape, can sketch another like it.

TERM 2   STRAND 3 Measurement   UNIT 4: HELPING MUMMY 1 (1 week)

AT 3	**LO 4: Estimate and measure mass of different objects using non-standard units** *Success Criteria*

1. Recognise as sight words 'heavy' and 'light'
2. Estimate and compare estimates, measure and record mass of objects in non-standard units
3. Compare the mass of two objects, using phrases such as heavier than, lighter than, etc.

ACTIVITIES

Recognise as sight words 'heavy' and 'light'

1.1   Students are given a number of different objects of different weights and allow to sort them into groups of 'heavy' and 'light'.

1.2   Student use balances to compare mass of objects.

e.g. (i) Students compare weights by putting one in each hand.
     (ii) Students sort objects and compare using the words heavier, lighter, etc. using a balance.

Estimate and compare estimates, measure and record mass of objects in non-standard units

2.1   Student use balances to estimate and measure the mass of objects.

Using non-standard units (e.g. nails, blocks etc.) estimate then find mass of objects using a balance.

Complete tables such as:

Object	Guessed mass	Actual mass
Pencil case	6 blocks	4 blocks
Pen		

RESOURCES

Various objects, balance

ASSESSMENT

- Shown two items of clearly different masses, can estimate how many of one item would be roughly as heavy as the other.
- Shown two items, can correctly place them in the following spaces: ☐ is heavier than ☐ or ☐ is lighter than ☐

TERM 2   STRAND 3 Measurement   UNIT 5: HELPING MUMMY 2 – Measurement (2 weeks)

AT 3	LO 5: Tell and write time appropriate to age and use a calendar to obtain simple information
	Success Criteria

1. Recognise as sight words the days of the week, 'today', 'month', 'year'
2. Name the month of special events in their lives
3. Explain the different things they do each day of the week
4. State and write the date of the current day
5. Represent the time for real events that occur on the hour and half hour, using an actual or model clock
6. Read and write time on the hour in several ways (e.g., 8:00, eight o'clock)
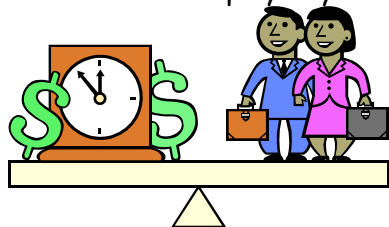
ACTIVITIES

Recognise as sight words the days of the week, 'today', 'month', 'year'

1.1   Students make flash cards of days of the week, month of the year, etc. which can be placed around the classroom.

Name the month of special events in their lives

2.1   Students tell their birth month which is later displayed as a chart.
2.2   Students employ rhymes, e.g. we go to school…

Explain the different things they do each day of the week

3.1   Students are presented with chart with the days of the week and asked to fill with pictures

State and write the date of the current day

4.1   Students fill in   dates on large calendar

Represent the time for real events that occur on the hour and half hour, using an actual or model clock

5.1   Students are presented with real life events on flash cards e.g. when you wake up in the morning. Students show time on model clocks.

5.2   Students are presented with model clocks showing time and asked to match time in words and figures using flash cards.

RESOURCES

Real clocks, model clocks

ASSESSMENT

- Shown some events, can sequence the events by correctly numbering them. Example

  ____ I go to bed at 8:30   ____ I go to school at 8:00.

  ____ I get up at 6:30   ____ I have a snack after school

  ____ I eat supper at 7:00   ____ It's lunch time at noon.

  - Shown time on the hour or half hour using real or model clock, can indicate the time in different ways, example, digitally.

**TERM 2   STRAND 4 Statistics and Data Handling   UNIT 5: GOING SHOPPING (1 - 2 weeks)**

AT 4	**LO 1: Collect simple data through observation and record results** *Success Criteria*

1. Classify objects and persons according to self-selected criteria
2. Collect simple sets of data in the class and school environment through observation
3. Record collected data using simple number statements

ACTIVITIES

Classify objects and persons according to self-selected criteria

1.1   Students listen to a story read by teacher. They are engaged in discussing the numbers and kinds of pets (or other items of interest) that someone in the story looked after. The class then produces a way to group the pets found in the story.
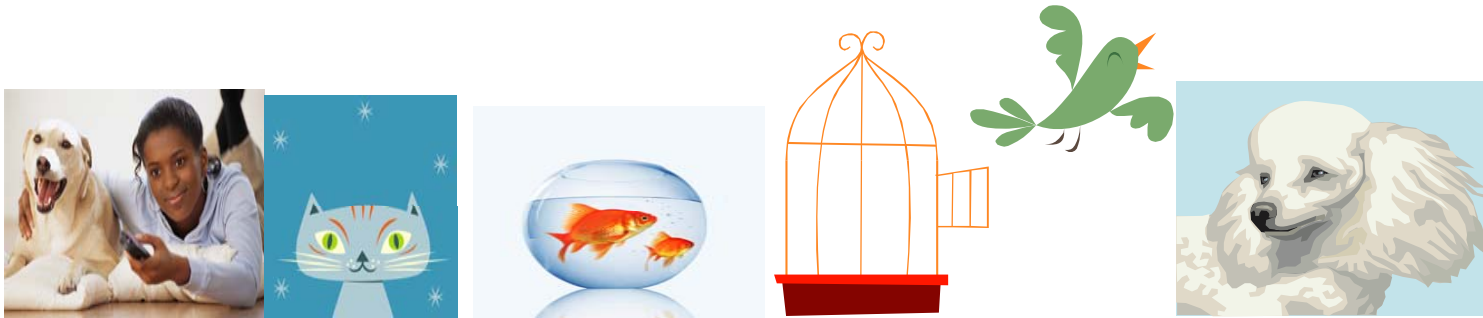
1.2   Students are then given opportunity to share which of them have pets at home and what kind. The various kinds of pets are recorded on chart paper and then students are allowed to put a mark (e.g. a box, circle or tally) after the pet that they have. [In term 3, under LO 2, a bar graph is created to represent the data and then students are engaged in discussing what they notice about the graph.]

1.3   Students are given a variety of objects and allowed to identify different ways in which the objects can be sorted (e.g. buttons according to colour, shape, size or number of holes). They are encouraged to use more than one attribute at a time, e.g., sorting buttons according to colour and number of holes. They are engaged in explaining how they sorted the items.

Collect simple sets of data in the class and school environment through observation

2.3   Students are guided in conducting a classroom survey or interview. They are engaged in talking about the things they would like to find out about each other, e.g., favourite TV shows, authors, ice cream flavours, etc. Students are allowed to form groups according to interest. Each group is to collect data related to one of the topics, the groups deciding when they will collect the data and how they will do so. Students are asked to record the data in simple

number sentences. They are engaged in discussing the ways in which they do so. They are then allowed to display their results on the class bulletin board.

RESOURCES

Storybook on pet, a variety of objects, including containers and seeds, labels for objects.

ASSESSMENT

- Shown some items, can suggest a way to classify them
- Shown various items, can record information using pictures or sentences.
- Presented with a scenario in which, say, someone wishes to prepare a party for her friends but does not yet know what sorts of things to include, can suggest a survey they could conduct to answer the question.

TERM 3 SUMMARY	
UNITS	SESSIONS
UNIT 1: ON THE BEACH - Number *AT 1: LO 3* *Success Criteria*: 1 – 5	24
UNIT 2: HELPING MUMMY - Measurement AT 3: LO 6 Success criteria: 1 – 5	12
UNIT 3: GOING SHOPPING - Statistics AT 4: LO 2 Success criteria: 1 – 4	10
UNIT 4: MY FAVOURITE THINGS - Patterns AT 5: LO 2 Success criteria: 1 – 2	6

UNIT PLAN WITH SUGGESTED TEACHING, LEARNING & ASSESSMENT ACTIVITIES

TERM 3   STRAND 1 Number   UNIT 1: ON THE BEACH – Number (3 weeks)

AT 1	**LO 3: Create and solve real life problems involving addition and subtraction with numbers no greater than 20** *Success Criteria*

1. Use objects, pictorial representations and games to add two numbers, with totals up to 20
2. Write number sentences to represent addition up to 20
3. Identify and discuss situations in their everyday activities (e.g. games) where they use addition and subtraction
4. Use objects and pictorial representations and games to subtract one number from another, with both numbers being less than or equal to 20
5. Create and solve simple problems involving addition and subtraction

ACTIVITIES

Through teacher mediation students continue activities such as those started in Unit 2 of term 1 (but with numbers up to 20) and the ones in Unit 2 of term 2. At the end of this unit they should have mastered LO 3.

Use objects, pictorial representations and games to add two numbers, with totals up to 20
Write number sentences to represent addition up to 20

1.1   Students are given 15 (say) bottle tops or other suitable objects. Students partition them in as many ways as possible viz.

O O O O O O O O O   / O O O O O O   OR   O O O O / O O O O O O O O O O O etc.
     9   **+**   **6**   **4**   **+**   **11**

Students record and talk about their results. They repeat for 'stories' of other numbers.

1.2   Students can also be allowed to do activity 1.1 on squared paper e.g.

●	●	●	●	●	●	●	●	●	○	○	○	○	9	+	4	=	13
●	●	●	●	●	●	●	●	○	○	○	○	○	8	+	5	=	13

This could be an activity that students launch into after being asked, "Is there a way for us to find 13? Can we find it by adding a number to 4? Which number? Can we find it by adding a number to 5? Which number?" etc

1.3   Students are encouraged to count on when doing simple additions e.g.

    O O O O O O O   O   O   O   O   O

        'seven'   'eight' 'nine' 'ten' 'eleven' 'twelve'

Hence, 5 + 7 = 12. Students are afforded lots of practice.

1.4   Students engage in activities to show that addition can be recorded vertically e.g.

O O O   O O O O
O O O   6   O O O O   8

O O O   O O O
  O O   + 5   O   + 4
           11   12

1.5   Students are shown additions on the number line e.g. 7 + 5 = ☐

                                    + 7

0   1   2   3   4   5   6   7   8   9   10   11   12   13

This shows 7 being added to/ on 5. The result is 12.

Use objects and pictorial representations and games to subtract one number from another, with both numbers being less than or equal to 20

2.1   Students are given 12 (say) bottle tops or other suitable objects. Students count them. 'How many are there?' (12). 'Take away 3 tops'. 'How many tops are left?' (Students count to see that the answer is 9). Record answer 12 – 3 = 9.

2.2   Students are given some bottle tops or other suitable objects. Students count them to find that their number is, say, 12. Students partition them into two groups e.g.

O O O O O O O   O O O O O   OR   O O O O O O O O O   O O O etc.
   12 – 5 = 7   12 – 3 = 9

2.3   Students perform subtractions by drawing circles and crossing out. For example 'I have 13 bread rolls. Someone eats 4 of them. How many rolls do I have left?' (Or: 'I am left with what number?')

Show 13 rolls: O O O O O O O O O O O O O
Eat 4 rolls   O O O O O O O O O Ø Ø Ø Ø so 9 are left

That is, 13 – 4 = 9

2.4   Students are introduced to comparative form of subtraction:

Kay has 15 marbles: O O O O O O O O O O O O O O O
Ann has 7 marbles: O O O O O O O

How many more marbles does Kay have?
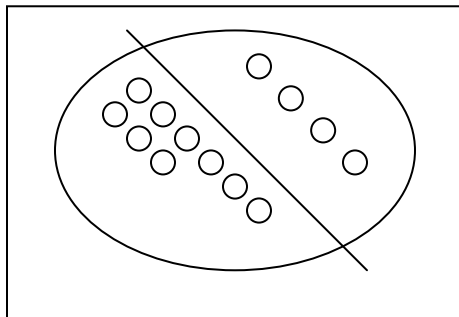
Students are given lots of practice.

2.5   Students use number line to show and perform subtractions e.g. 12 – 7 = 5

- 7

0   1   2   3   4   5   6   7   8   9   10 11 12 13
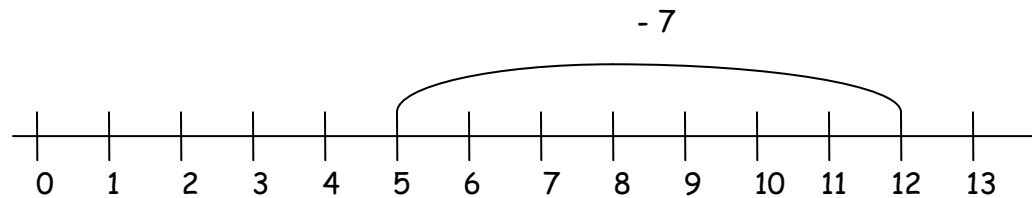
2.6   Relate addition to subtraction by showing bottle tops partitioned into two groups e.g.
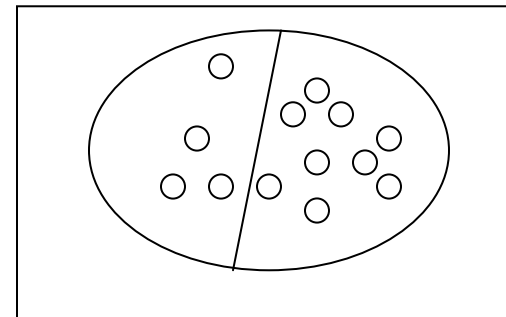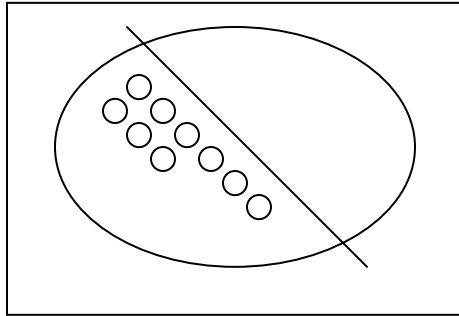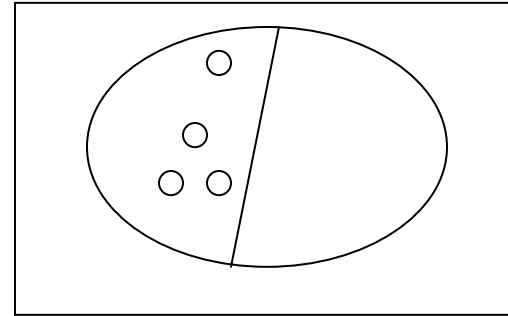
9 + 4 = 13   4 + 9 =13

By covering or removing the bottle tops from one of the groups the subtraction facts can be seen e.g.

13 − 4 = 9   13 − 9 = 4

Create and solve simple problems involving addition and subtraction

5.1   Students solve problems such as

        James has 13 mangoes, he is given 5 more. How many does he have now?

        James has 13 mangoes, Joy has 8 mangoes. How many more mangoes does James have?

        James has 13 mangoes, he ate 5. How many mangoes are left?

        James has 13 mangoes. John has 5 more mangoes than James. How many does John have?

        In each case students should model answers using bottle tops (say) to represent the mangoes. Answers should be recorded.

5.2   Students repeat 5.1 but use pictorial representations.

ASSESSMENT

- Shown an addition combination such as the expression 9 + 6, can indicate the result.
- Shown an addition arranged vertically, can record the answer.
- Shown an addition arranged horizontally and with the accompaniment of a number line, can say what the result is.
- Shown similar items as above but for subtraction, can indicate the answers.

TERM 3   STRAND 3 Measurement   UNIT 2: HELPING MUMMY (2 weeks)

AT 3	LO 6: Create and solve real life problems involving representation and combination of coins *Success Criteria*

1. Identify and describe the 1 cent, 2 cent, 5 cent, 10 cent and 25 cent coins.
2. Create and solve real life problems involving representation and combination of coins.
3. Find the total value of a combination of coins, with totals up to 20 cents.
4. Role-play shopping to make change from amounts up to 20 cents, using counting on.
5. Create and solve problems involving money

ACTIVITIES

Identify and describe the 1 cent, 2 cent, 5 cent, 10 cent and 25 cent coins.

1.1   Students talk of ways to help mummy. They are led to say, "We can go to the shop for mummy." When you ask for something in the shop, you will be asked for some money. Students given a number of different coins consisting of 1 cent, 2 cent, 5 cent, 10 cent and 25 cent pieces. They observe them as examples of money. They are led to sort these into appropriate groups. They give reasons for putting all 1 cent pieces together, all 2 cent pieces together, etc. They look for and mention features common to the coins. They explain what to look for on a coin if you want to know whether it is a 1 cent coin, a 2 cent coin, etc. They identify coin by the number on each coin.

1.2　Students are questioned: "Show me a 1 cent. Give me a 25 cent. Which is better to have, 10 cent piece or 25 cent piece? Why?"

Create and solve real life problems involving representation and combination of coins.

2.1　Students work to discover various ways to make (i) 5 cents using 1 cent, 2 cent; (ii) 10 cents using 1 cent, 2 cent, 5 cents; (iii) 25 cents using 1 cent, 2 cent, 5 cent and 10 cent pieces.

2.2　Students discuss how to make an amount such as 15 cents. They notice that the amount cannot be made with just one coin, that it can be made using just 1 cent coins. They come up with ways or combinations such as (10, 5), (5, 5, 5), (5, 5, 2, 2, 1), (5, 2, 2, 1, 2, 2, 1), (2, 2, 1, 2, 2, 1, 2, 2, 1)

Find the total value of a combination of coins, with totals up to 20 cents.

3.1　Students work to discover relationships such as: five 2 cent coins is the same as two 5 cent coins (5×2 means 2×5); double 10 cents means 20 cents (2×10 means 20).

Create and solve problems involving money

4.1　Students do reasoning about money, through problems such as the following. I am going to the shop. I have 25 cents in my pocket. Which of these can I buy? In the shop, 3 people have 5 cents each. How much do they have altogether? Mack bought an item from the shop. He had no 1 cent coin. He paid 9 cents. Which coins did he use

ASSESSMENT

- Shown a combination of coins, can indicate the amount it makes. For example, shown two 10 cent pieces, can indicate that makes 20 cents.
- Shown a combination of coins, can indicate which other combination it is the same as. For example, shown two 5 cent pieces, can indicate that is the same as five 2 cent coins.
- Shown various coins including 1 cent, 2 cent, 5 cent, 10 cent, can show two or more ways to make a particular amount not exceeding 25 cents.
- Shown various combinations of coins, can say which combination meets a stated condition. Example: Of the combinations (2, 2, 2), (10, 5, 2), (5, 5), (10, 10), (5, 5, 5), which is between 15c and 20c? Which is the same as five 2c coins? Which is less than 15c? Which is double 10c? (NB: The combinations to be shown either as real coins or pictures of coins.)
- Shown two sets of coins, can say how they are related. Example, shown ten 1c coins and one 10c coin, can indicate that they are equal.

TERM 3   STRAND 4: Statistics and Data Handling   UNIT 3: GOING SHOPPING (1 week)

AT 4	LO 2: Use pictures and simple charts to represent and compare data
	Success Criteria

1. Represent collected data using objects
2. Describe how data are collected in simple pictographs, where one picture represents one unit of data
3. Describe similarities and differences between pictographs and bar graphs
4. Read and interpret the data represented in simple pictographs and bar graphs

ACTIVITIES

Represent collected data using objects

1.1   Students are told a story in which Tom enters a yard and sees that in the yard are objects (things) of different sorts. He decides to make four groupings – stones, leaves, toothpastes, matches, box drinks. He wants to find how many of each, so he goes around collecting each item. Each item he collects, he puts a tally in the correct place in a table that he is preparing. Once he is through collecting the items, he finds the total for each kind of object. They are invited to help Tom to complete the table to make a tally chart. (NB: A possible variation is to say, for example, Jennifer enters a classroom and sees that in the classroom are juices of different sorts – orange, grapefruit, pineapple, guava, etc.)

Objects	Tally	Total
Stones	||||		6
Leaves	|||| ||||	
Toothpastes	|||	
Matches	|||| ||	
Box drinks	||	

1. Students told a story in which Jane writes the names of the students in her class on separate small cards and considers the names to see how many letters are in each name. She makes five groupings as follows

Names	Tally	Total
Names with 3 letters		
Names with 4 letters		
Names with 5 letters		
Names with 6 letters		
Names with more than 6 letters		

Students are invited to help Jane complete the exercise by using the names of students in their own class.

Describe how data are collected in simple pictographs, where one picture represents one unit of data

2.1   Students are told a story in which two friends at school, Troy and Jennifer, are given some flat shapes by their teacher and asked to sort the shapes in some way and display the results in a graph of their choice.
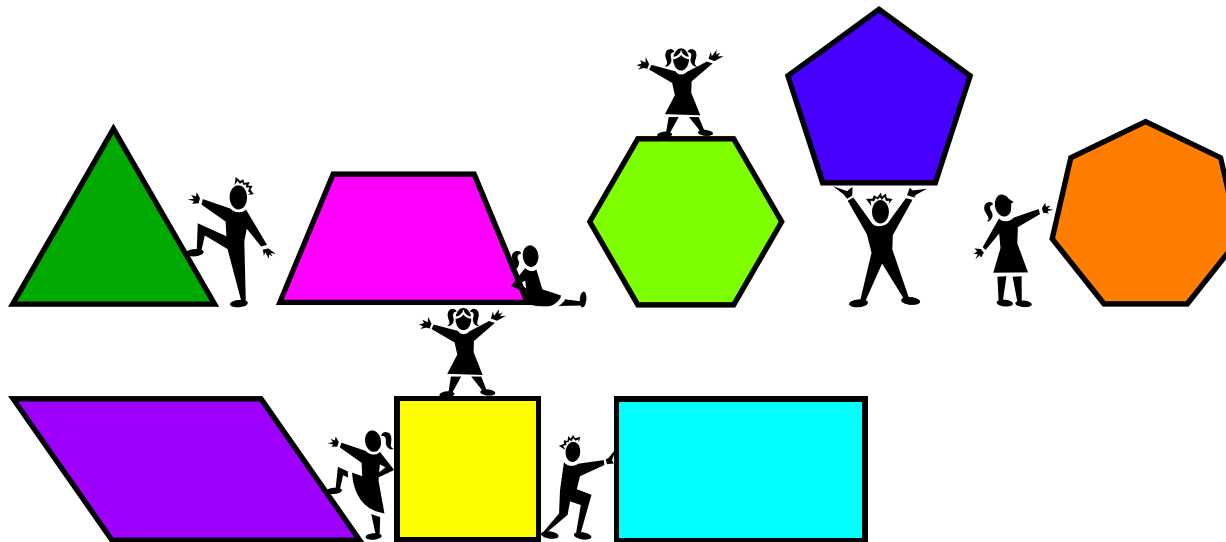
The friends decided to make or prepare a special table, a tally chart, in which they use four groupings

Flat shapes	Tally	Total
3 sides		2
4 sides	||||	
5 sides		1
More than 5 sides	|||	

Students use tally chart to make pictograph. They describe pictograph and answer simple questions.

Describe similarities and differences between pictographs and bar graphs

2.2   Students told story in which a group of friends – Bob, John, Pam, Jane – are playing to see who can win an apple-eating contest.

Names	Number of apples eaten

Bob	♥ ♥ ♥
John	♥ ♥ ♥
Pam	♥ ♥
Jane	♥ ♥ ♥ ♥ ♥
	♥ = 1 apple

Number of Apples
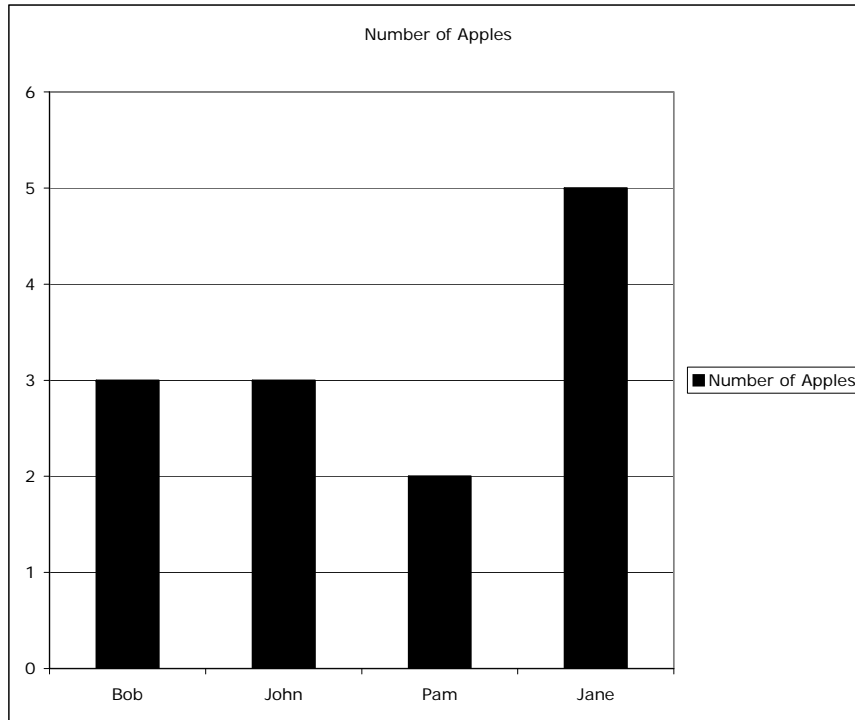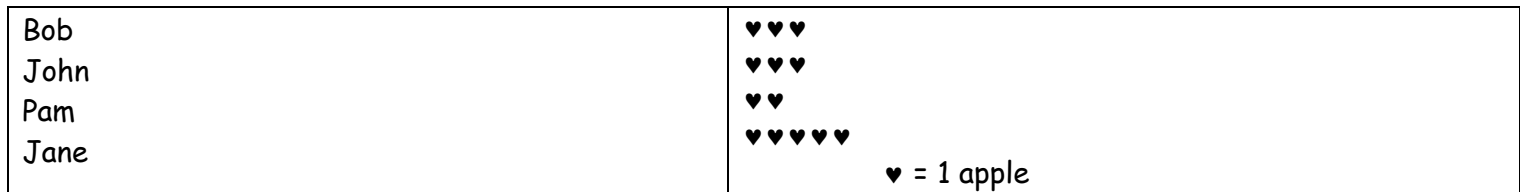
Students invited to use a pictograph to create a bar graph. They proceed to state the similarities and differences between the two. They are questioned by teacher on the different graphs. (Both present the same information but in different ways)

RESOURCES
Objects of various sorts from a particular place, example, the market

ASSESSMENT

5. Shown various objects, can represent using a tally chart
6. Shown a tally chart, can use it to make a pictograph
7. Shown a pictograph, can read it to answer simple questions.
8. Shown some representation (such as a bar chart or a table) with missing parts, can complete the missing parts in the representation. For example, if shown the bar chart below and told it pictures the number of students absent each day (from Monday to Thursday), can complete the following table

Monday	3
Tuesday	?
Wednesday	1
Thursday	?

TERM 3   STRAND 5 Patterns, Functions and Algebra   UNIT 4: MY FAVOURITE THINGS (1 week)

AT 5	LO 2: Identify and create simple patterns using a variety of materials
	Success Criteria

1. Make and complete patterns using circles, triangles, rectangles and squares
2. Create and solve simple problems involving pattern prediction and completion

ACTIVITIES

Make and complete patterns using circles, triangles, rectangles and squares

1.1   Students are told a story in which some flowers planted in someone's yard are in a pattern. Students talk about what a pattern is. Students observe as teacher presents a pattern in, say, dance using action, an object, a picture, a symbol or some other device. Students are asked to imitate (show) the pattern.

1.2   Students are shown simple pattern and asked to talk about it. In one pattern, for example, 2 claps are followed by 1 jump. In another, 2 circles are followed by 1 triangle (or two buttons by 1 triangle). In a third example, a line of say, 5 students enter the classroom (or some part of the classroom) one by one and slowly to allow students to see that if 1 student enters, then 2 hands enter; if 2 students enter, then 4 hands enter, and so on. Students are then given opportunity to continue patterns and create patterns of their own.

1.3   Students observe as someone claps and stomps foot in a particular sequence, e.g. (clap, stomp; clap, stomp. Or: clap, stomp, stomp; clap, stomp, stomp etc.) Students model what they see. They are then engaged in discussing the pattern. They are asked to suggest and demonstrate simple dances that include repeated steps and movements.

1.4   Students observe as someone lays down a row of spoons pointing in different directions in a particular pattern e.g. (up, down, down, up, down, down) and they are asked to continue the pattern.

1.5   Students told a story in which a mango tree is shaken, by someone on the tree. Someone under the tree notices that after the first shake, 1 mango falls from the tree. After the second shake, 3 mangoes fall. After the third shake, 5 mangoes fall. After the fourth shake, 7 mangoes fall. In fact, the number of mangoes that fall from the tree are 1, 3, 5, 7 … Students are asked to suggest the number that will fall after the fifth shake and to give reason. Students are asked to explain the pattern that the numbers show in how mangoes fall from the tree. Students observe and talk about the number of mangoes falling in the first shake and the number of mangoes falling in the second shake and describe the difference between them. Students do the same for the number of mangoes falling in the second shake and the number falling in the third shake. They continue this way until the difference between the numbers in any pair of shakes is noted. Students led to conclude, "When we take the numbers of mangoes that fall for successive shakes and subtract the bigger from the smaller, we always get 2." [NB: What we always get when we perform an operation is sometimes called a constant. It is for constants that we search in science. And it is to them we pay attention.]
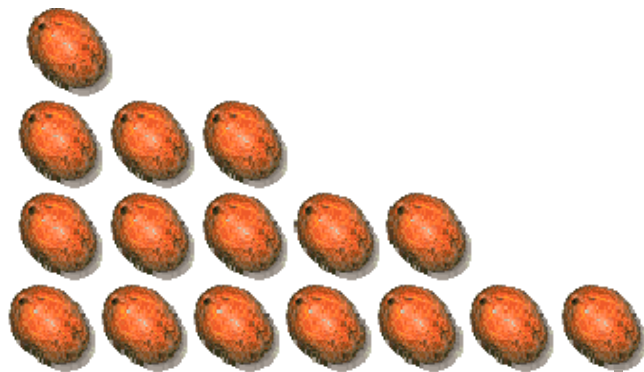
1.6   Students are told a story in which someone (say, a student in the class) blowing a whistle has an effect on another (such as the teacher). After the first blow of the whistle, one object (say a pebble) is dropped. After the second blow, 4 objects are dropped. After the third blow, 7 objects are dropped. After the fourth blow, 10 objects are dropped. Students are asked to predict the number that will be dropped after the fifth blow and to continue the pattern 1, 4, 7, 10… Students talk about the relationship between each pair of numbers in this sequence, for example, the relationship of 4 to 1, of 7 to 4, of 10 to 7. They observe that the difference is always 3.
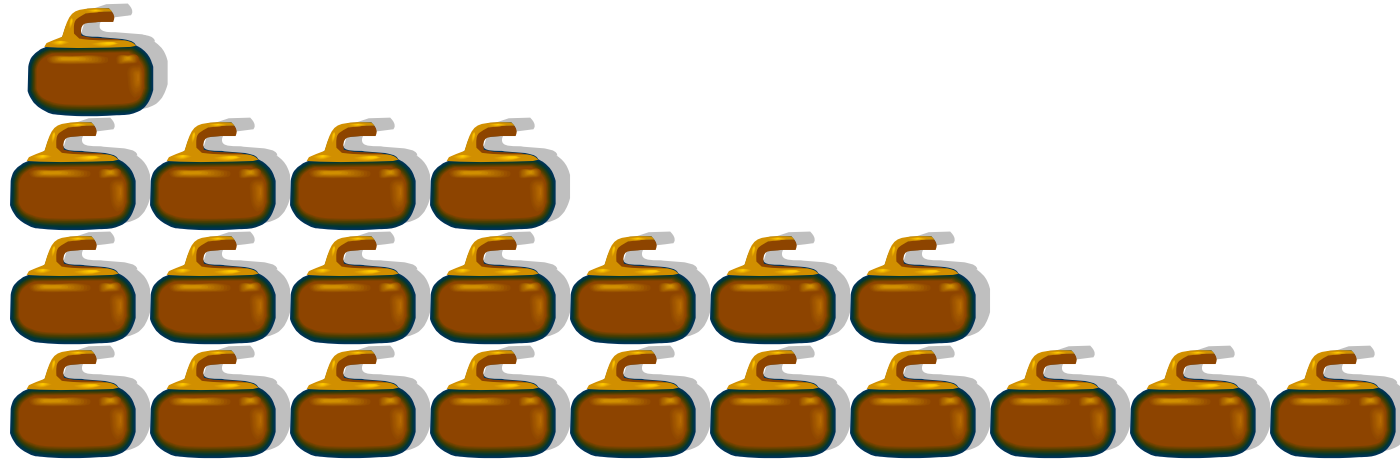
Create and solve simple problems involving pattern prediction and completion

2.1   Students are engaged in creating stories that give rise to such simple number patterns and they proceed to solve related problems.


RESOURCES
Cut-outs of shapes, numbers on cards, various concrete objects to make patterns

ASSESSMENT
  ▪ Shown a sequence of shapes that repeats such as O Δ □ O Δ □ O Δ □ ..., can continue the sequence.
  ▪ Shown a sequence such as 2, 3, 5, 2, 3, 5, 2, 3, □, can indicate what □ means and continue the sequence.
  ▪ Shown a sequence of shapes or numbers, can suggest the shapes or numbers that are repeated

EXEMPLAR LESSON PLAN	TERM 1

UNIT 2: ON THE BEACH 2	TOPIC: Fractions

TIME: 30 minutes

EXPECTED BACKGROUND KNOWLEDGE OF STUDENTS:
Students can count, have the words *whole* and *half* in their speaking vocabulary.

LEARNING OUTCOME 4:
Understand whole, half and a quarter.

SUCCESS CRITERIA:
- Identify and discuss one-half and one-quarter of a whole.
- Explain what one-half and one-quarter mean.

ORGANISATION & TIME	TEACHER ACTIVITY	STUDENT ACTIVITY	RESOURCES
WAY IN 5 min	Teacher asks "Which shows 1/2?" Write on blackboard.	Students get a whole pad of paper and show 1/2. Each student checks his/her own paper. Emphasize value of honesty.	
DEVELOPMENT 15 min	▪ Teacher gives oranges to students. ▪ Teacher asks students, "What do we call 1 part?" ▪ Explain "One-part of the whole orange is one-fourth. It is written 1/4." ▪ Here is another figure	▪ Students cut oranges into 2 equal parts, then into 4 equal parts ▪ Students give responses on how one-part is called. One-fourth or 1/4 ▪ Students come to the chalkboard; divide the	Paper cut-outs, concrete materials, illustration on the chalkboard

	■ Ask students: into how many parts it is divided? How do we call one part? ■ Show students a rectangle. ■ Teacher shows students some figures on the chalkboard and asks, "Which figure shows 1/4? Which shows 1/2?"	rectangle into four equal parts. To Student shades 1/4. ■	
CONCLUSION 5 min	■ Teacher asks "What is 1/4 of the whole?" ■ Teacher confirms their answer. One-fourth or ¼ of the whole is one part of the 4 equal parts of one whole.	■ Students will be allowed to suggest answer.	
WAY ACROSS 5 min	■ Science, language, VPA		
ASSESSMENT	■ Teacher presents a series of figures and asks students to shade 1/4 of each figure. ■ Teacher gives a series of figures, parts of which are shaded in each case. Students are asked to circle the letter of the figure whose shaded part shows 1/4.	Students copy exercise in their notebook and write their answers.	

EVALUATION OF LESSON

EXEMPLAR LESSON PLAN	TERM 2		
UNIT 1: ON THE BEACH		TOPIC: Solving Problems	

TIME: 30 minutes

EXPECTED BACKGROUND KNOWLEDGE OF STUDENTS:
Students can count up to 20.

LEARNING OUTCOME 2:
Create and solve real life problems relating to counting.

SUCCESS CRITERIA:
Students will be able to solve given questions that involve questions.

ORGANISATION & TIME	TEACHER ACTIVITY	STUDENT ACTIVITY	RESOURCES
WAY IN 5 min	- Teacher will call out the number 3 and ask a student to add 2, then call another student to add2 to the new number until they reach the number 19. - Then the teacher will let students subtract 1 till they get back to 3.	Students will add 2 to 3 until they get to 19. Then they will subtract 1 from 19 until they get back to 3.	
DEVELOPMENT 15 min	- The teacher will give students dice to roll and to add the outcomes. - Teacher will write problem for	- Students will roll dice and count the number they see. - Students will solve	Dice

	students to solve.	problem in their books; and two students will write the correct answer on the chalkboard. ■ Students will be allowed to make questions for their classmates to solve.	
CONCLUSION 5 min	Teacher will allow students to read questions and present answers.	Students will read questions and present answers.	
WAY ACROSS 5 min	VPA, Science, Social Studies		
ASSESSMENT	■ Paul has 3 seeds. His father gave him 6 more seeds. How many seeds does Paul have now? _____ ■ How many fish are there? [diagram]	You will be adding 2 5, ___, ___, 11, ___, ___, 6, ___, 10, ___, ___, ___,	
EVALUATION OF LESSON			

EXEMPLAR LESSON PLAN	TERM 3		
UNIT 1: ON THE BEACH	TOPIC: Number		
TIME: 30 minutes			
EXPECTED BACKGROUND KNOWLEDGE OF STUDENTS: Students will be able to subtract number up to 10			
LEARNING OUTCOME 3: Create and solve real life problems involving addition and subtraction with numbers no greater than 20.			
SUCCESS CRITERIA: Use objects and pictorial representations and games to subtract one number from another, with both numbers being less than or equal to 20.			
ORGANISATION & TIME	TEACHER ACTIVITY	STUDENT ACTIVITY	RESOURCES
WAY IN 5 min	After song, teacher gives some mental problems e.g.: "There are 10 birds in a tree; 5 flew away. How many are left?" NB: Teacher informs students that they must answer without paper and pencil.	▪ Students sing a 'counting song' – One and two and three, four and five and six, seven eight and nine. There now I can count to ten. La…lala….. ▪ Students solve mental problems.	
DEVELOPMENT 15 min	▪ Teacher makes 3 groups. Gives each envelop with number tiles. ▪ Distribute white paper as a	▪ Students will paste the number tiles on the subtraction combination.	Envelop, number tiles, chart

	chart.	Number chart.	
	- Teacher will introduce the word *difference* with proper timing during the discussion. - The teacher says, "Bring me two numbers whose difference is 6" or, "Bring me two numbers whose difference is 9" etc.	Group 1 Group 2 20 – 8 = 20 – 7 = 17 – 8 = 15 – 7 = 16 – 8 = 16 – 9 = 18 – 9 = 17 – 9 = 18 – 4 = 14 – 5 = Group 3 20 – 4 = 17 – 4 = 16 – 7 = 18 – 7 = 13 – 7 = Each group will show chart to the class and read the subtraction combination found in it.	
CONCLUSION 5 min			
WAY ACROSS 5 min			
ASSESSMENT			

EVALUATION OF LESSON

REFERENCES

Developing Measurement Concepts: a curriculum guide (Dominica Mathematics Curriculum 1996. Nick Goldberg)

Exploring Geometry: a curriculum guide (Dominica Mathematics Curriculum)

GREAT WEBSITES FOR MATHS TEACHERS

1.   http://www.standards.dfes.gov.uk/primary/teachingresources/?subject=S_900361&yeargroup=&term=

Detailed unit plans from UK's standards site. You must check out these resources.

2.   http://www.kented.org.uk/ngfl/subjects/numeracy/index.htm

Another top class site for teachers!

3.   http://www.teachingideas.co.uk/maths/contents04number.htm

Loads of maths (and other subject) ideas from Downs Primary School

4.   http://www.teachinglinks.co.uk/mathematics.htm

Just what it says!

5.   http://www.woodlands-junior.kent.sch.uk/maths/

If your school has internet access this is a great site for interactive maths games