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Simon Sharplis
Mathematics Education Officer

Introduction:

Definition

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

<u>Purpose of Mathematics for life in our world</u>
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 productive discourse especially in the sciences and to some extent in the humanities.

It offers fuel for:

- Creativity
- Originality
- Imagination

The Subject Strands:

- Number
- Geometry
- Measurement
- Statistics and data handling
- Patterns, functions and algebra

Integration

Across subjects

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

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

Thematic Integration

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

TERM 1 SUMMARY	No. of
UNITS	**SESSIONS**
UNIT 1: ON THE BEACH *AT 1: LO 1; LO 2* *AT 1: LO 1* *Success Criteria*: 1 – 4 AT 1: LO 2 Success criteria: 1 – 3	 24 12
UNIT 2: Out of the Box AT 2: LO 1 Success criteria: 1 – 4	 15
UNIT 3: Helping Mummy AT 3: LO 1; LO 4 AT 3: LO 1 Success criteria: 1 – 6 AT 3: LO 4 Success criteria: 1 – 4	 12 12
UNIT 4 : My Favourite THINGS AT 5: LO 1 Success criteria: 1	 6

UNIT PLAN WITH SUGGESTED TEACHING, LEARNING & ASSESSMENT ACTIVITIES

TERM 1 STRAND 1 Number UNIT 1: ON THE BEACH

AT 1	**LO 1: Demonstrate an understanding of number up to 10** ***Success Criteria***

- Count and build up to 10 objects using games, songs etc.
- Play games, sing songs and use bodies to make numbers
- Discuss, use and write number sets up to 10 and represent them in a variety of ways
- Compare sets of objects using simple vocabulary (e.g. 'large', 'small', 'many', 'few', 'same number as', 'equal to', 'more than' 'less than', 'bigger than' etc.)

ACTIVITIES

Count and build up to 5 objects using games, songs etc.

1.1 Through stories (including possibly songs), students are introduced to objects (e.g. balloons, ice pops, pizzas, cookies, flowers, bags, fingers, blackbirds, elephants, hammers, fishes) that catch their attention. They want to talk about the objects. They want to know how many; in other words, they want to know their number. They are led to say, "To find out we must count." They sing songs, rhymes, games relating to counting objects (e.g. the letters in a word, the days of the week, the footprints on the sand).

1.2 Students are engaged in singing number songs enacted with appropriate gestures, pictures, etc.

Baa, Baa Black Sheep	**One, Two, Buckle My Shoe**	**One,Two, Three, Four Five**	**Peter Plays with One Hammer**
Baa Baa black sheep have you any wool? Yes sir, yes sir, **three** bags full. **One** for the master, **one** for the dame, and **one** for the	**One**, **two** buckle my shoe; t**hree**, **four** shut the door; **five**, **six** pick up sticks; **seven**, **eight** lay them straight; **nine**, **ten** a big fat hen.	**One**, **two**, **three**, **four**, **five** once I caught a fish alive, **six**, **seven**, **eight**, **nine**, **ten** but I let it go again. Why did you let it go? Because it bit	Peter plays with **one** hammer, **one** hammer, **one** hammer; Peter plays with **one** hammer this fine day (*pound one hand on table*)

little boy who lives down the lane.		my finger so. Which finger did it bite? The little finger on the right.	Peter plays with **two** hammers, **two** hammers, **two** hammers; Peter plays with **two** hammers this fine day (*pound two hands on table*) etc
One Can Bend **One** can bend very nicely; **two** can jump very high; **three** can hop like a bunny**;** **four** like a swallow can fly; **five** can fly like a policeman; **six** can stride over a gate; **seven** can ride on a see-saw, but no one can ride as fast as light.	**When I Was Only One** When I was only **one** I had just begun. When I was **two** I was nearly new. But when I was **three** I was as busy as a bee. One little two little three little school boys; four little five little six little school boys; seven little eight little nine little school boys; ten little primary school boys	**One Elephant went out** **One** elephant went out to play upon a spider's web one day. He thought it such tremendous fun, and so he took one more elephant to play. **Two** elephants went out to play… (continue to ten)	**One and Two Went Walking** **One** and **two** went walking; **three** and **four** were talking; **five** and **six** sat drinking; while **seven** and **eight** lay thinking.
One, **Two**, **Three**, **Four** **One**, **two**, **three**, **four** Mary at the cottage door; **five**, **six**, **seven**, **eight** eating cherries from a plate. **Two**, **four**, **six**, **eight** Mary at the cottage gate … **two**, **four**, **six**, **eight** eating cherries from a plate.	**Ten Big Buns** **Ten** big buns in a baker's shop, big and brown with sugar on the top; a boy took **one** and then there were **nine**. **Nine** big buns in a baker's shop… (continue until none is left)	**Ten Fingers Standing** **Ten** little fingers standing up tall, **two** little ears to hear mom call; **one** little nose that I can blow, **ten** little toes all in a row.	**Two Little Black Birds** **Two** little blackbirds sitting on a wall; **one** named Peter, the other name Paul. Fly away Peter, fly away Paul; come back Peter, come back Paul.

1.3 Students are asked to notice that on the table are some, say, bottle tops. They are engaged in discussion using questions such as the following. "Do you know how many?" "Can we find out?" "What could we do to find out?"

.4 Through modelling, students are helped to move the objects one by one in a line and count as they do so. Students have opportunity to rearrange the objects and count again. Students take turns giving the objects one by one to a group member and counting as they do so. The counting aloud may be done by a third member, or the entire class, while the object transfer is from one student to another. They are engaged in discussion using questions such as: "How many pencils did Jayanie give Cody?"

1.5 Students sing and do action to number songs. E.g. One little finger (3X) tap, tap, tap. Point to the ceiling, point to the floor and lay it on your lap. Two little finger… Three little finger…etc.
Johnny works with one hammer, one hammer, one hammer. Johnny works with one hammer and then he works with two. Johnny works with three hammers, three hammers, three hammers. Johnny works with three hammers and then he works with four...
1, 2 tie your shoe; 3, 4 knock at the door; 5, 6 pick up sticks; 7, 8 close the gate; 9, 10 write with your pen

1.6 Additional activities include student taking steps across the room (possibly on a number track marked on the floor) and counting as they go; clapping their hands or beating a drum and counting aloud as they do so. (A number track is made on the classroom floor showing numbers 1 to 10 in the spaces. 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 teaching 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 (indicate) where we are.)

1.7 Students are shown a picture of, say, the yard (or environment) and asked to identify various objects, count the objects and say the number of each type of objects in the yard (or shop, etc) for totals not exceeding 10.

1.8 Students observe as other students (up to 10) enter the classroom one by one. They count as the students enter. Students are asked to say which number comes before a particular number, say, 5 and to complete sentences such as the following. James has OO marbles and his friend Tim has OOO. Together they have _____ marbles.

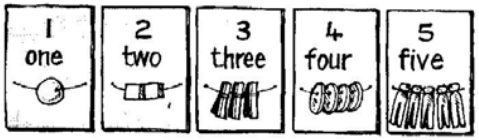
Play games, sing songs and use bodies to make numbers

2.1 Students observe as a numeral for a number is formed by the teacher in the air, in sand tray, in paint and proceed to do likewise.

2.2 Students engage in number formation. writing numbers, reading numbers, as stories about these numbers are read to them. Students trace over a dotted outline of a numeral for a number.

Discuss, use and write number sets up to 10 and represent them in a variety of ways

3.1 Students engaged with teacher in making wall chart showing the numbers.



Compare sets of objects using simple vocabulary (e.g. 'large', 'small', 'many', 'few', 'same number as', 'equal to', 'more than' 'less than', 'bigger than' etc.)

4.1 Students are presented with different sets and asked questions that let them complete sentences using 'large', 'small', "few, same number as', equal to' 'more than', 'less than', bigger than, etc. (Who has the same number of fingers as toes? Same number of eyes as ears? Same number of blue balloons as red balloons? Who has a large number of beads? Who has many holes on their paper? Who has few holes? Who has more seeds than trees? More mangoes than nuts? Which animal in this picture has more legs than eyes? Who drew few butterflies? Who drew many?)

AT 1	**LO 2: Solve simple real life problems relating to counting** **Success Criteria** ▪ Complete simple number sequences ▪ Use concrete materials to solve problems ▪ Use counting on strategy

ACTIVITIES

Complete simple number sequences

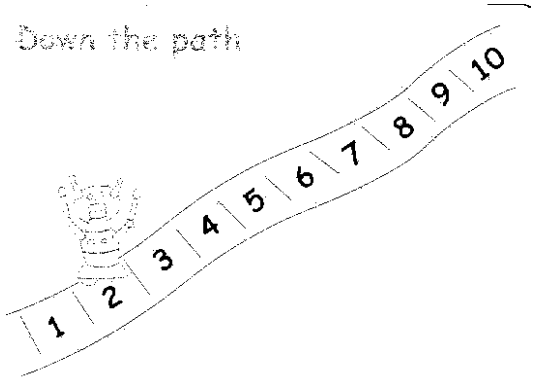
1.1 Join in rhymes like: One, two, three, four, five, once I caught a fish alive.
Ask questions e.g. Which number comes before 5?
Show this using a line on the classroom floor and containing numbers 1 to 10. _____
1 2 3 4 5 6 7 8 9 10

1.2 Engage students in using a story that helps them see how the sequence arises in the first place. For example, have them imagine someone collecting certain objects, say, mangoes or raindrops (or some other items suggested by students), in a bag. Now there is only 1 mango in the bag. After a while, that number is 2, then 3, and so on. This means one has the sequence 1, 2, 3, □, □. Students then fill the spaces in this sequence with appropriate numbers.

Use concrete materials to solve problems

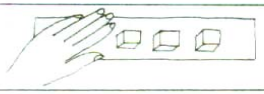
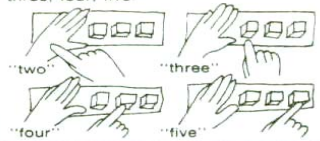
2.1 Engage in solving problems such as: James has ⊗⊗ marbles; Tim has ⊗⊗⊗. Together they have _____ marbles.

2.2 Students are told a story in which someone decides how far up a track to jump by rolling a 1 to 6 dice. The person starts on 2. After 2 moves, the person is on 8. Students are asked to find all the different ways the person could do this.



Use counting on strategy

3.1 Use the technique shown below – give students lots of practice.

TEACHER	CHILDREN
Teacher: "Put five blocks on your paper."	
Teacher: "Use one hand and cover up two."	
Teacher: "Watch me say how many is under my hand—twooo, three, four, five. Again, twoooo, three, four, five. Now, you try it."	"Twooo, three, four, five, twooo, three, four, five."  "two" "three" "four" "five"
"Use your hand to cover up three blocks. Threeee, four, five. Again, threeeeeee, four, five."	"Threeeee, four, five, threeeee, four, five."
Teacher: "Now, cover up two blocks. Ready?"	"Twooooooo, three, four, five, twooooooo, three, four, five."

3.2 To count the fingers of both hands, students look at the fingers of one hand and say '5'. Then they look at the fingers of the other hand and continue '6', '7', '8', '9', '10'. Students observe as some students are lined up in front of the room. Some are counted off from one end and asked to sit. Students count all of the students beginning with the seated group as a single count.

RESOURCES

Counters, number charts, cards, games, songs, rhymes, sand tray, paint, number track

ASSESSMENT

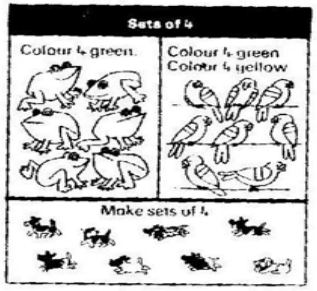
1. Shown pictures of similar shapes in each case (e.g. circles in one case, rectangles in another case, etc), can colour a specified number, say, 4, of each shape.

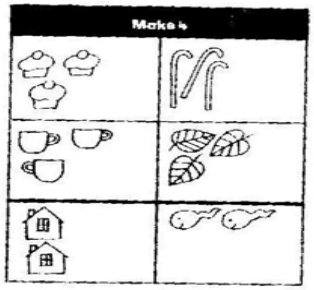
2. Shown pictures of similar objects in each of say, four separate cases, together with a series of different numbers one of which is the number of objects in the case, can choose the number.

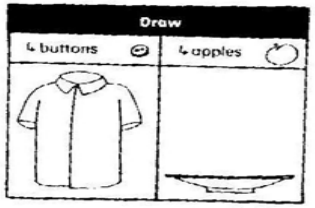
3. Shown a jar with some beans (or other objects) totalling no more than 10, can count the beans and record their number on a label on the jar.

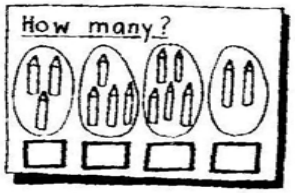
4. Shown an empty jar with a number (no greater than 10) on a label on the jar, can put that number of objects (say beans) in the jar.

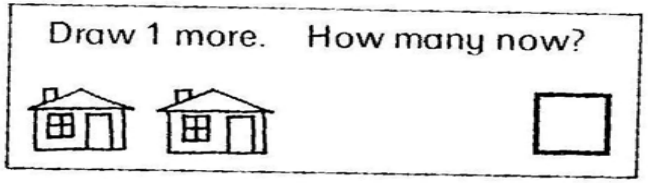
5. Shown pairs of sets or boxes, can indicate (e.g. tick, circle, etc.) the more that has more, fewer, etc.

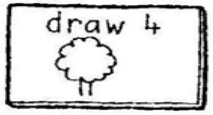

Sets of 4
Colour 4 green.
Colour 4 green
Colour 4 yellow
Make sets of 4

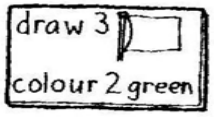

Make 4

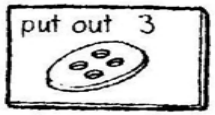

Draw
4 buttons
4 apples

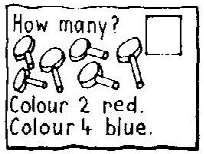

How many?

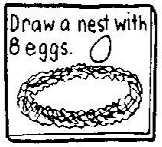

Draw 1 more. How many now?

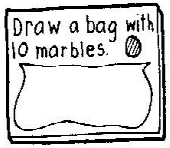

draw 4


draw 3
colour 2 green


put out 3


How many?
Colour 2 red.
Colour 4 blue.


Draw a nest with
8 eggs.


Draw a bag with
10 marbles.

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

AT 2	**LO 1: Describe, name and classify 3-D shapes based on observations** ***Success Criteria***

- Describe the attributes of 3-D shapes using words such as 'roll', 'slide', 'flat', 'round', 'curved', etc.
- Sort 3-D shapes on the basis of their attributes, e.g. shape, size and function in real life
- Identify examples of 3-D shapes in real life
- Use 3-D shapes to make objects

ACTIVITIES

Describe the attributes of 3-D shapes using words such as 'roll', 'slide', 'flat', 'round', 'curved', etc.

1.1 Students are in pairs or small groups. On each table are a variety of objects illustrating 3-D shapes, including cylinders, cones, spheres, cubes, cuboids. Students interact with these illustrations as teacher initiates and guides discussion, using appropriate stories and prompts such as the following. From our collection, let us choose an item without looking to see which is chosen. Now we wish to see if it rolls. How can we do this? Does it roll? Why does it roll? (Why does it not roll?) Will it roll if it is round? Will it roll if it is flat? Where can we find others like it? (Similar questions asked to investigate if the item stacks.) Students tell (or listen to) a story about some object that rolls or stacks.

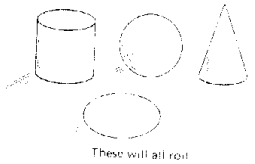
1.2 In the classroom, students are exposed to a display of objects, including examples which model cubes, cuboids, cylinders, cones, spheres. Students observe. With the help of the teacher, students discuss the objects and ask questions. They have opportunity to note where (e.g. at home, at the market, etc.) they have seen similar objects; that the objects all have a shape, just as we all have names. But some are not shaped in the same way. Have volunteers choose objects, identify them and tell whether they are boxed-shaped, ball-shaped or can-shaped (shaped like a box, a ball or a can).

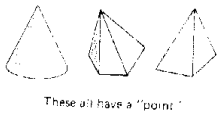
1.3 Play game using 3-D shapes e.g. I can stand; I can roll. What am I? They have opportunity to begin to tell story of what happens by an object's shape.

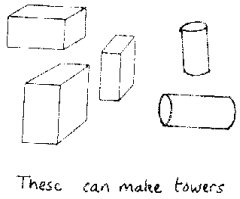
Sort 3-D shapes on the basis of their attributes, e.g. shape, size and function in real life

2.1 Students sort 3-D shapes (e.g. tubes, tins, packets, toilet rolls) on basis of attributes (e.g. colour, size, shape, etc.) and talk about their results giving reasons for it. In the discussion, students come to use words such as 'cube', 'cuboid', 'cone', 'cylinder', 'sphere' to identify 3-D shapes by name. they are allowed to find objects that are like each of these shapes.

2.2 Give children a variety of 3-D shapes. Tell them to sort shapes in two groups. Ask why they put them in those groups. Get students to sort the shapes according to simple informal properties.







Sorting can also be done according to shapes which ; are hard or soft, have holes or do not have holes, have flat tops, have a triangle, rectangle etc.

Identify examples of 3-D shapes in real life

3.1 Students are engaged in playing game to find different 3-D shapes. Example, one person says, "I spy something that looks like a cone." Another seeks clue by asking, "Is it on top of the table?" etc.

Use 3-D shapes to make objects

4.1 Students are asked to observe an object (such as a toy rocket, a house, a car, a truck) displayed somewhere in the classroom. They are asked to look in their pile of 3-D shapes and find shapes to come up with a creation that looks like the object. Using these shapes, students make simple models or patterns (e.g. castle, steps). Students are engaged in (i) identifying what they used while working and (ii) discussing why what they have produced is like the original object, (iii) considering if other pieces could be used to get the same result.

Children can use these shapes to build simple models of their own.

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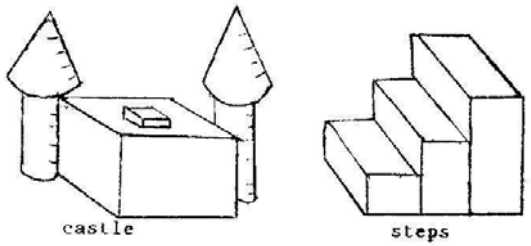


RESOURCES

Picture cut-outs, classroom objects (e.g. marbles, globes, oranges,), books, drinking straws, blocks, environment (e.g. to look at different buildings); shells, cans, plastic bottles, newspaper clippings, charts; on a walk to find a cone; on an outing to find a sphere

ASSESSMENT

1. Can identify basic shapes.
2. Shown a series of plane (flat) shapes, can colour the shapes that are the same as another in, say, a box.

3. Shown a series of solid shapes, can colour each shape that is a cylinder.
4. Shown a picture or model involving different shapes, can count (i) the cubes, (ii) the cones, (iii) the cylinders (iv) the spheres
5. Can use basic shapes to make models. Given an object having a particular feature (such as flat and curved faces) and some construction blocks, can come up with a creation like the object.
6. Can say which shape stacks easily and why

TERM 1 STRAND 3 Measurement UNIT 3: HELPING MUMMY

AT 3	**LO 1: Describe and compare the length of different objects using appropriate vocabulary** ***Success Criteria***

- Discuss and describe lengths of objects using phrases such as 'short', 'long', 'wide', etc.
- Compare lengths of objects using phrases such as 'longer than', 'shorter than', 'wider than', etc.
- Discuss and describe heights of objects using phrases such as 'tall', 'short'.
- Compare the heights of objects using phrases such as 'taller than', 'shorter than', etc.
- Discuss and describe distances using phrases such as 'short', 'long', 'far', 'away', 'nearby', etc.
- Compare distances using phrases such as 'shorter', 'longer', 'closer', 'further', etc.

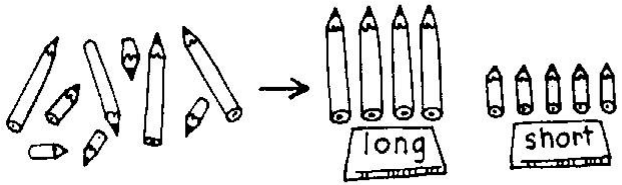
ACTIVITIES

Discuss and describe lengths of objects using phrases such as 'short', 'long', 'wide', etc.

1.1 Students are asked to look at some objects (which may include pieces of strings and rods of various lengths) displayed somewhere in the classroom. They are engaged in discussion using questions such as the following. "What can we make with these things?" "What about a toy truck?" "Or a kite, maybe?" Why would this rod not be suitable as an axle for this truck? "Do you know how long it is?" "Can we find out?" "What could we do to find out?"

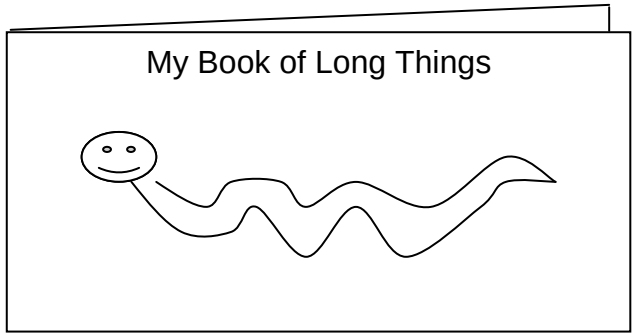
1.2 Students observe pairs of objects of different lengths (e.g. pencils, erasers, umbrellas). Students are led to discuss and describe length. They proceed to sort.

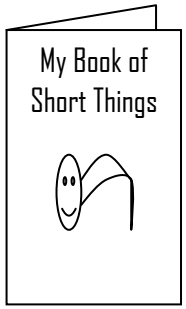
Teachers might start this work by sorting out materials with the children. A set of pencils, rods, straws, or crayons, all of the same type and color but of two clearly different lengths, could be sorted into 'long' ones and 'short' ones.



This should be repeated several times using other materials.

1.3 Create classroom books of long and short things from pictures etc. e.g.

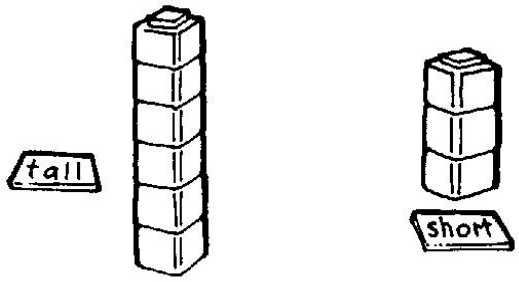




Compare lengths of objects using phrases such as 'longer than', 'shorter than', 'wider than', etc.
Compare the heights of objects using phrases such as 'taller than', 'shorter than', etc.

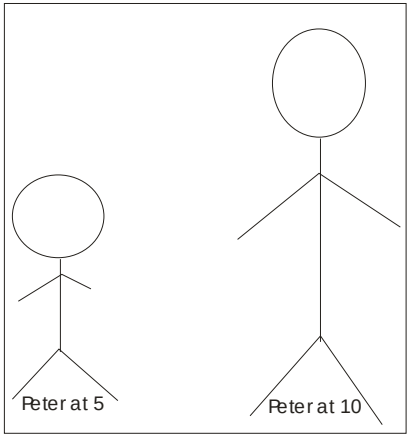
2.1 Students compare their heights and select the tallest and shortest child in the class. They build some things that are then labelled 'tall' and some that are labelled 'short'

The words "tall " and "short" can be introduced in a similar manner e.g.



Building towers of bricks or interlooking cubes would help to put over the idea.

2.2 Students are shown a picture like the one below and led to compare the heights of someone at two different ages, using sentences such as 'Peter is taller at ten than at five' or 'Peter is shorter at five than at ten'.



2.3 Students use non-standard units (hand spans, strides, books, building blocks, matchboxes, straws, pencil length) to measure (the lengths of) objects in and out of the classroom.

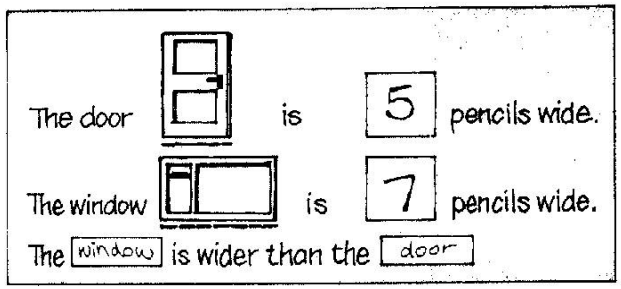
Use matchboxes, straws etc as non standard units. Give children enough of these so they can be placed end to end and counted.

e.g.

The string is 6 match boxes long.

2.4 Students are to compare longer and shorter

When (1) has been well established, comparison of lengths can be undertaken.



Discuss and describe distances using phrases such as 'short', 'long', 'far', 'away', 'nearby', etc.

3.1 Ask students: Is your home close to close to school? Who lives nearby? Etc.

3.2 Students are presented with situation and led to use simple phrases to describe distances. Tom and Jerry left the classroom. Tom went to the class next door; Jerry went to principal's office etc. Students are questioned and allowed to answer in simple phrases. E.g. Who do you think will return faster to the class and why?

AT 3	**LO 4: Sequence events using vocabulary appropriate to age** **Success Criteria** ▪ Use time vocabulary appropriately: e.g. today, yesterday, tomorrow, morning, afternoon, etc. ▪ Use songs and rhymes to name the days of the week. ▪ Use pictures to sequence simple events ▪ Identify and talk about activities that happen at night and day

ACTIVITIES

Use time vocabulary appropriately: e.g. today, yesterday, tomorrow, morning, afternoon, etc

1.1 Students sing song "Good morning Mr. Sun" and are questioned on song.

Use songs and rhymes to name the days of the week.

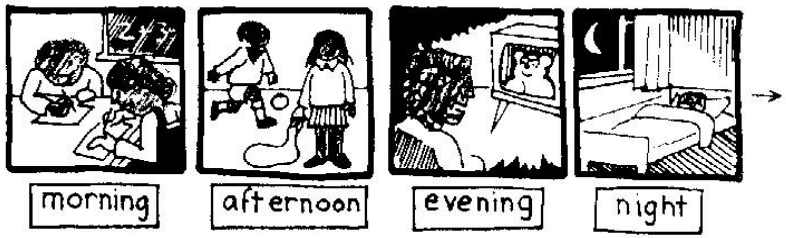
2.1 Students use rhymes like: (i) Solomon Grundy, (ii) Friday's Street, (iii) Sunday's Child. They discuss what happens on each day. They are asked questions on rhymes.

Use pictures to sequence simple events

3.1 Discuss events with students. Ask them what happened before, what happened after, e.g. What did you do before you came to school?

3.2 Students use pictures to sequence daily activities. With use of a calendar or days-of-the-week chart, students are helped to sequence events. E.g. Today is _____ Yesterday was _____. Tomorrow will be _____.

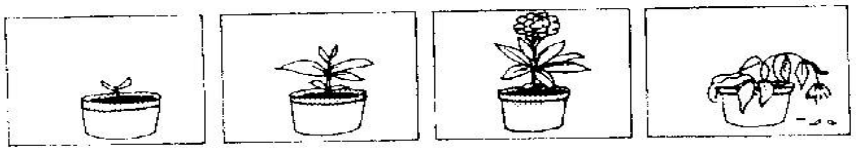
This is an important sequence which is continuous or 'forms a loop' by constantly repeating. This idea might be helped by arranging pictures of events which happen at these times.



The sequence should be extended to repeat again ... night, morning .....

3.3 Students are presented with pictures and asked to put them in a time sequence.

Provide groups of children with 3 or 4 pictures. Get them to put them in a time sequence e.g.



3.4 Students observe pictures showing different events which take place during a normal day and are led to sequence pictures.

Identify and talk about activities that happen at night and day

4.1 Students are shown pictures depicting day and night and engaged in discussing what happens each time. They have opportunity to say such things as: "In the day we have breakfast and go to school. In the night we have dinner and go to bed."

RESOURCES

Height chart, pieces of string, sticks, days-of-the-week chart, objects in classroom, crayons, songs, pictures, flash cards words LONG and SHORT; wall friezes; time words e.g. before, now, after, yesterday, today, tomorrow, first, next, fast, slow, late, early, ago; morning afternoon, evening, night

ASSESSMENT

LO 1:

- Shown objects in a series of boxes, can draw a longer one in each box.
- Shown pairs of objects, can circle the shorter one.

LO 2:

- Shown pictures of containers such as cup, students can circle those that are full.

- Shown sets of containers, for each set can tick the two containers which hold the same amount.

LO 3:

- Shown pairs of objects, can circle the lighter one
- Shown pairs of objects, can circle the heavier one.

LO 4:

- Shown two pictures illustrating night time or day time, can circle the one indicating night time and the one showing day time.

LO5:

- Shown pictures of coins in a sequence, can circle the 5 cent5

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

AT 5	**LO 1: Discuss how one number relates to another in familiar situations** ***Success Criteria***

- Talk about and show relationships between items e.g. glove is to hand as shoe is to feet (or hat to head)

ACTIVITIES

Talk about and show relationships between items e.g. glove is to hand as shoe is to feet (or hat to head)

1.1 A large circle is drawn on the classroom floor. A student is asked to enter the circle and to stand on a single leg. Question is asked: How many feet are in the circle? How many shoes? (Answers: 1 foot, 1 shoe) Now the student is asked to stand on both legs. Again question is asked: How many feet in the circle? How many legs? (Answers: 2 feet, 2 shoes). A second student is asked to join in the circle and to stand on one leg. Again question is asked: How many feet in the circle? How many shoes? (Answers: 3 feet, 3 legs.) The discussion continues until students are able to do predictions such as predicting how many shoes in the circle when there are, say, 6 legs (up to 10). [NB: The emphasis here is on how the feet's number relate to the shoes'

number. Students are led to answer questions such as the following. If we have 2 feet in the circle, how many shoes we have in the circle? If we have 10 feet in the circle, how many shoes we have in the circle?]

1.2 A somewhat more challenging variation of this: A volunteer is asked to step up front. A question is asked: How many heads at the front of the classroom? How many feet? (Answers: 1 head, 2 feet) A second student is asked to join up front. Again question is asked: How many heads at the front of the classroom? How many feet? (Answers: 2 heads, 4 feet) This continues until students are led to note that if there are, say, 3 heads at the front of the classroom, then there are 6 feet. Students are allowed to draw or complete pictures to show each situation and are guided to complete sentences such as: 1 head goes with _____ feet; 2 heads go with _____ feet; ____ heads go with 6 feet, or 1 head happens with _____ feet; 2 heads happen with _____ feet; ____ heads happen with 6 feet. [Teacher note: What we are heading to is the point that what happen are number pairs, such as (1, 1), (2, 2), (3, 3), (4, 4), (5, 5), in this case. This could be treated as part of the larger theme that some things go together, or some things happen together.]

1.3 Students are shown a bicycle in a room and asked to say how many in the room and how many tyres. (Answer: 1 bicycle, 2 tyres). They observe as a second bicycle appears and asked to say how many bicycles and how many tyres. (Answer: 2 bicycles, 4 tyres). They are asked to say how many tyres there would be if another bicycle appeared in the room.

1.4 Students are shown a three-sided flat shape on a table and asked to say how many of that shape on the table and how many sides. (Answer: 1 shape, 3 sides). They observe as a second shape appears on the table and asked to say how many of that shape and how many sides. (Answer: 2 shapes, 6 sides). They are asked to say how many sides there would be if another of that shaped appeared on the table.

1.5 Students are presented with different items that are used or worn in the home/school e.g. gloves, hat, coat, boots, scarf, tie, skirts/pants, blouse/shirt, umbrella. They identify each item. They show relationship between items and body part.

1.6 Students play game to show relation e.g.
You use two of me to keep your two hands warm. What am I?
You use one of me to shelter one, two, three or even more of you from the sun/rain

TERM 2 SUMMARY	No. of
UNITS	**SESSIONS**
UNIT 1: ON THE BEACH *AT 1: LO 3* *AT 1: LO 3* *Success Criteria*: 1 – 5	28
UNIT 2: OUT OF THE BOX AT 2: LO 2 Success criteria: 1 – 6	16
UNIT 3: HELPING MUMMY AT 3: LO 2 Success criteria: 1 – 2 AT 3: LO 5 Success criteria: 1 – 3	6 12
UNIT 4 : GOING SHOPPING AT 4: LO 1 Success criteria: 1 – 3	12

UNIT PLAN WITH SUGGESTED TEACHING, LEARNING & ASSESSMENT ACTIVITIES

TERM 2 STRAND 1 Number UNIT 1: ON THE BEACH

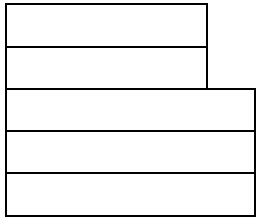
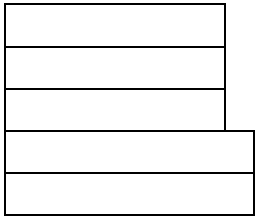
AT 1	**LO 3: Create and solve real life problems involving addition and subtraction with totals up to 10** ***Success Criteria***

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

ACTIVITIES

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

1.1 Students are engaged in observing, discussing, illustrating and writing addition of 3 by 2 and then of 2 by 3.

 One group lays down a stack of 3 books. On this	

another lays down a stack of 2 books. The situation is pictured on the chalkboard. Students observe both the stack of books and the illustration and ask, "What happens here? What happens to 3?" They are led to say 2 added to (on) 3. How do we write this in mathematics? They are led to introduce the expression 2 +3.	One group lays down a stack of 2 books. On this, another lays down a stack of 3 books. The situation is pictured on the chalkboard. Students observe both the stack of books and the illustration and ask, "What happens here? What happens to 2?" They are led to say 3 added to (on) 2. How do we write this in mathematics? They are led to introduce the expression 3 +2.
Students are engaged in finding the result by counting (counting on from the larger addend). Students observe that the result totals 5.	Students are engaged in finding the result by counting (counting on from the smaller addend). Students observe that the result totals 5.

1.2 Students observe as a definite number (say 6) of them appear in front of the classroom. That number is then joined by some more students (say 3). Students are led to come up with a suitable addition expression to say what happened.

1.3 Students engage in "hand game" *(See below)*

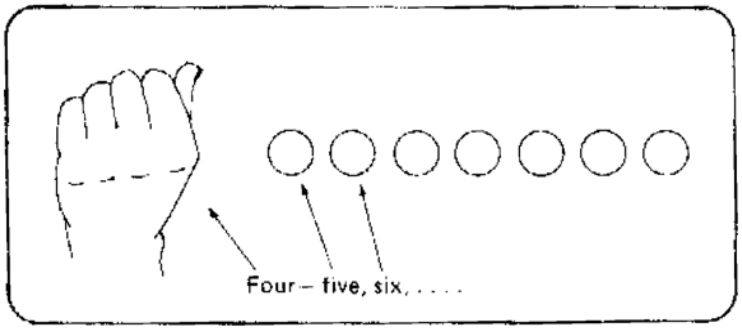
TEACHER	ACTIVITY
"Take four beans and put three of them in one hand and one in the other" (Remove the container of beans so that each child has only four beans.)	The children follow the directions.
"When it is your turn, open your hands one at a time and tell the group how many beans you see. Watch, and I'll do it first."  "Three and one."	The children practice opening their hands and reading the combinations, saying either "three and one" or "one and three," depending upon which hand the child opens first—either is correct. The word "and" should be the signal for opening the second hand.
"This time *you* decide how many to put in each hand. You must still have four all together. Is it okay to put all your beans in one hand? Sure!" (Be sure to make this point so the children will include zero in their combinations.)	Each child takes a turn opening hisorher hands and the group reads the combinations formed. The child showing the objects to the group opens hisorher second hand at the word "and": Two and two. Three and one. Four and zero. One and three

It is important that the child showing the objects not talk. This will encourage the group to focus on the objects. When the child talks, the group tends to look at the child's mouth instead of looking at the objects to determine the quantity.

Write number sentences to represent addition up to 10.

2.1 Students are presented with cards showing words, expressions and symbols related to addition. Students discuss what the sign + means. Altogether, plus, add.

2.2 Students are asked to take specific number of manipulatives (and push them under something, say a hand). To (or on) that number they are asked to add another number. Students talk about how to write what they did. Students use the horizontal format 3 + 4 to say of 4 that to (or on) it 3 is added. They use the horizontal forma 4 + 3 to say of 3 that to it 4 is added.



Counting on: Hide four. Count, starting with those hidden.

Students are posed with addition questions. Example: If we link 4 cubes and then to (on) this we add 2 more, what do we write to say this? How many do we have altogether?

Students are shown addition expressions such as 3 + 5 and asked to make up stories for them (using pictures, manipulatives, words). They suggest, for example, that 3 + 5 means someone takes 5 along a road and to (on) this takes 3 more (in the same direction). The expression 5 + 3 would mean the person first takes 3 steps and to this takes 5 more.

Students roll a number cube (or a die), note the number that turns up, rolls the number cube (or die) again and use the two numbers to complete the missing parts in expressions such as _____ + _____, taking care to ensure that the numbers are put in the right places (the number that turns up first is the one written after the + sign).

Students work out what number must be added to a specific number to get a particular number. Example, what number must be added to 6 to get 9, which is □ + 6 = 9

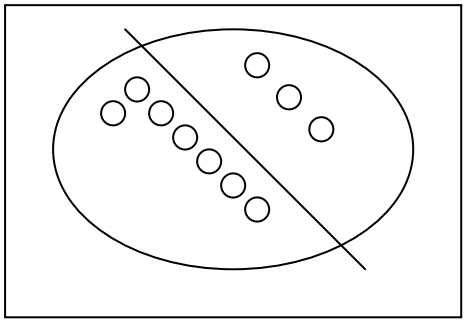
Use objects and pictorial representations and games to subtract one number from another, with both numbers being less than or equal to 10.

3.1 Students sing and complete number songs involving subtraction and addition. E.g. Ten green bottles… Five little ginger cats playing near the door… Students complete number stories and write number sentences. Addition example: I have 2 nuts in my right pocket and 3 in my left pocket. How many do I have altogether? Cassandra receives 3 ribbons from her Mum. She receives 2 more from her Dad. How many has she received now? Subtraction examples: Cody had 4 wheels to make his toy truck. He lost 1 of them. How many did he have left? When she entered the garden, Tiffany saw 7 birds. She watched as 3 birds flew away. How many remained?

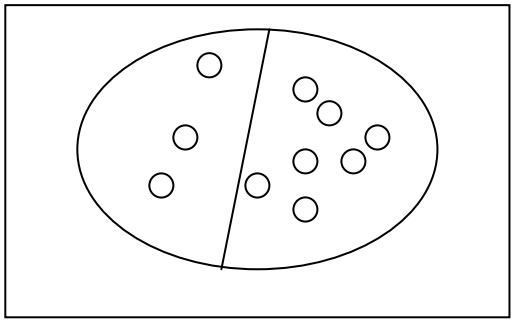
3.2 [C/G] Johnny works with one hammer…

3.3 [I/P] Use bottle tops to find which numbers add to 5: (a) 1 + 3 (b) 4 + 1 (c) 2 + 3 (d) 0 + 5 (e) 4 + 2

3.4 Students use appropriate pictures or stories to make sentences such as "10 take away equals 7" (10 – 3 = 7) and "10 take away 6 equals 4" (10 – 6 = 4)

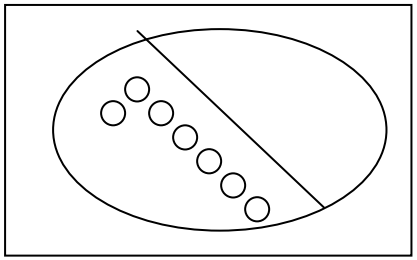


7 + 3 = 10

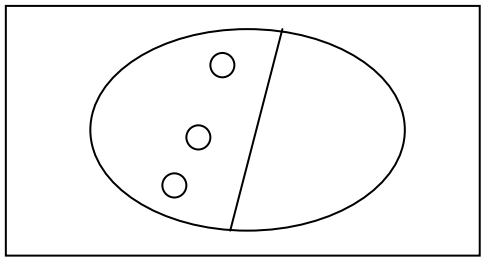


3 + 7 =10

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



10 – 3 = 7



10 – 7 = 3

Create and solve simple problems involving addition and subtraction.

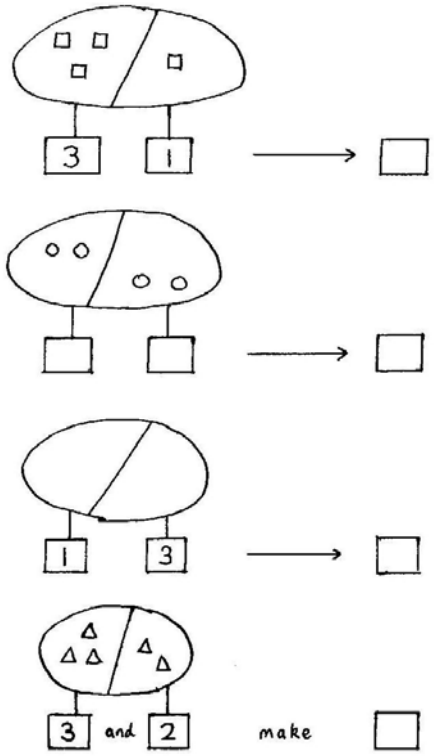
4 Students play games involving '+' and '-' e.g. hot-scotch, bingo. Students subtract using concrete materials and pictures. Students are presented with number sentences and allowed to create their own problems and solve them.

RESOURCES

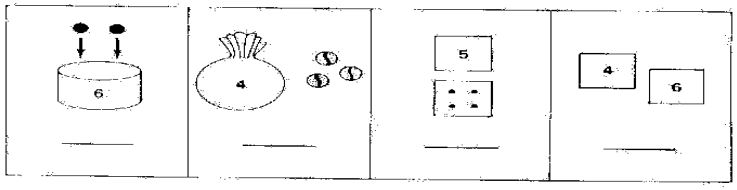
Number stories, concrete materials, games. A variety of objects or manipulatives including cut-outs and pictures, die or number cube, cards with words and symbols used in addition and subtraction (example: plus, add, take away, equals, +, -, =)

ASSESSMENT

- Shown an illustration such as first having 4 objects placed and on it placing, say, 5 others, can write an expression (such as 5 + 4) that says the same thing.
- Shown an addition expression such as 2 + 3, can say what is added to what, for example, that we have 3 books and on it we place 2 others.
- Shown an equation such as (i) 2 + 3 = 5 or (ii) 3 + 2 = 5, can give (draw or talk about) an example of a story that illustrates each.
- Shown worksheet as shown below, can answer correctly



- Shown a worksheet as below, can complete the exercise



A progression of counting-on activities for worksheets.

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

AT 2	**LO 2: Sort and classify 2-D shapes based on observation and use them to make simple patterns and pictures** ***Success Criteria***

- Describe the attributes of 2-D shapes
- Sort 2-D shapes on their basis of their attributes e.g. shape and size
- Identify objects in real life that are made up of 2-D shapes
- Use cut-outs of 2-D shapes to make patterns and pictures
- Play games to reinforce use of prepositions such as 'above', 'below', 'in', 'on', 'outside', etc.
- Identify rectangles, triangles and circles by name

ACTIVITIES

Describe the attributes of 2-D shapes

1.1 Students are posed with question: What can we do if we have a solid shape? They are led to see we can draw around its face. Students draw around the faces of solids. They are introduced to 2D shapes or flat shapes (use of some story and colouring the inside of each flat shape produced).

1.3 Students are asked to dramatize shapes, e.g., dramatize the shape of a circle, triangle, rectangle, or a square, etc., on floor or trace these in the air; they can be given opportunity to observe the formation of circles (circular ripples) as a stone hits the water in a pond.

Identify objects in real life that are made up of 2-D shapes

2.1 Students are engaged in playing game looking for different shapes. One person says, "I spy something that is round." And seeks for some clue by asking, "Is it beside a rectangle?" Another says, "I spy something that is rectangular" etc.

2.2 Students are given opportunity to listen to some story in which mention is made of flat shape and engaged in discussing where in the environment these shapes can be seen.

2.3 Students are asked to show these shapes in different forms and/or sizes using paper cut-outs, drinking straws, string, geometry.

2.4 Students are engaged in tracing and colouring shapes.

Sort 2-D shapes on their basis of their attributes e.g. shape and size

3.1 Students are engaged in discussing how to sort shapes; are led to see that they could let all shapes with the same size be in the same group, or all with the same shape in the same group; Student are then asked to do the sorting.

3.2 Students are presented with a variety of 2D shapes, including squares, rectangles, triangles, circles of different sizes and, in the case of triangles, different kinds. Students engage in sorting, e.g., by size or shape or both size and shape. They are questioned on what they observe and guided to note similarities and differences in the shapes. Students say

- How many different shapes?
- How many triangles _____
- How many squares _____
- There are more _____ than _____

Use cut-outs of 2-D shapes to make patterns and pictures

4.1 Students are shown/given pattern.

- Students write the number of shapes in all.
- Students draw their own patterns.

Play games to reinforce use of prepositions such as 'above', 'below', 'in', 'on', 'outside', etc.

5.1 Students are shown chart with different colour shapes and sizes and engaged in guess game using chart to reinforce use of prepositions. Example: I am blue. I am a square inside a rectangle. What is my name?

Identify rectangles, triangles and circles by name

6.1 Students given a list of shapes and a list of names and asked to match shapes to names.

6.2 Students are led to play game, "What is my name" in which one student identifies the shape when some information about it is given. Example, one person says, "I have four sides. And all my sides are equal. What is my name?" Another responds, "a square."

RESOURCES

Various plane shapes, paper cut-outs to stick and paste, picture cut-outs, newspaper clippings, charts, classroom objects, books, drinking straws, string, geoboard, on a walk to find a triangle; on an outing to find a square.

ASSESSMENT

- Can identify things by shape, e.g., response appropriately when told, "Pass me a triangle."
- Shown a series of plane (flat) shapes, can colour each shape that is a triangle.
- When asked to find, say, a toy that is hidden as given clues involving directional language such as 'up', 'down', 'over', 'under', 'between', 'through', 'on top of', 'beside', 'to the right of', can respond appropriately to find the item.

TERM 2 STRAND 3 Measurement UNIT 3: HELPING MUMMY

AT 3	**LO 2: Describe and compare the capacity of different containers using appropriate vocabulary**
	Success Criteria

- Describe capacity of containers using phrases such as 'full', 'empty', 'half full', etc.
- Compare capacity of containers using phrases such as 'holds more', 'holds less' etc.

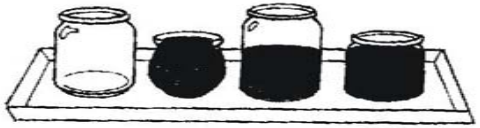
ACTIVITIES

Describe capacity of containers using phrases such as 'full', 'empty', 'half full', etc.

1.1 Students listen as a story is read in which someone wishes to help by bringing some water (juice, milk, sand) to another, say, a friend. They are questioned on how they would do this, what they would use and why. By exercises involving pouring and filling, they are led to say the cup **holds** water. And so do other containers.

1.2 Students allowed to observe different containers with liquids of different colours etc. at different levels and led to describe capacity.

1.3 Student collect containers of different shapes and sizes and led by practical exercises and questioning to establish the terms half full, full, empty. Students observe as sand (or water) is poured into a container from a smaller container. They are led to see that the bigger container is not full. If the cup (or other container) has half of what it can hold, it is half full (or half empty). Students are shown a cup (or other container) with some water and asked, "Is there water in the cup?" They are led to say that the container is not empty. Students observe as the contents of the cup are removed. Again they are asked, "Is there water in the cup?" They are led to say the cup is empty.



Compare capacity of containers using phrases such as 'holds more', 'holds less' etc.

2.1 Students use containers of different shapes (e.g. chubby and small coke) to compare capacity. They are allowed to fill different containers with sand from a sandbox (or water from a source) to observe which holds more and which holds less. They are engaged in seeking answers to questions such as "Which holds more water, this cup or this bottle?"

AT 3	**LO 5: Solve simple real life problems involving representation and combination of coins up to 10c** ***Success Criteria***

- Identify and describe the 1 cent, 2 cent, 5 cent and 10 cent coins.
- Represent 2 cents, 5 cents and 10 cents in different ways, using coins and drawings.
- Find the total value of a set of coins up to a total of 10 cents.

ACTIVITIES

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

1.1 Students are told a story to help them suggest that money is bound to come to us. It comes through a person. Students are allowed to share some experience when they may have got some money, say, by their mums or dads. They observe that money may come as coins. Students are presented with real coins that they are allowed to manipulate and describe.

1.2 Students inspect various coins to note that each has a value, noted by a number on one side of the coin. Students engaged in discussing what they would do if they wished to know the value of the coin in their hand. Students are asked to reach for a particular coin (such as a one cent) and show it to a partner or class member. Students' attention is brought to some related symbols and their meanings

symbol	Meaning
1 c	One cent
2 c	Two cents
5 c	Five cents
10 c	Ten cents

Represent 2 cents, 5 cents and 10 cents in different ways, using coins and drawings.

2.1 Use coin from coin bank to represent different amounts up to 10 c. I am in a shop. For a candy, I want to give 10c using other coins. How can I do so? Students led to see that the various ways include (5, 5), (2, 2, 2, 2, 2) and (1, 1, 1, 1, 1, 1, 1, 1, 1, 1).

2.2 Students trace around and shade real coins.

Find the total value of a set of coins up to a total of 10 cents.

3.1 Students use coins (1c, 2c, 5c, 10c) to buy things from the shop corner.

3.2 Students are questioned e.g. which one cost the most? John buys an apple and a lollipop. How much will he pay for both of them together?

RESOURCES

Sets of each type of coins (1c, 2c, 5c, 10c), a pretend shopping lists that students themselves develop (prices 10c or less)

ASSESSMENT

LO 2

- Shown two containers, can indicate (by pointing to one, by writing a corresponding letter, or by circling a picture) which holds more.
- Shown two containers, can suggest how to check which container holds more.

LO 5

- Given various coins, can sort coins into their denominations
- Know and can use symbols such as 1c, 2c, 5, 10c. Know that a 5c piece has more value than, say, a 2 c piece.
- Given various coins, can find their total value.

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

AT 4	**LO 1: Collect simple data through observations and describe results orally** ***Success Criteria***

- Collect simple sets of data in the class and school environment using observation
- Discuss and talk about the results of data collection and classification activities
- Use counting to determine the number of objects in group

ACTIVITIES

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

1.1 Students bring in a fruit or favourite toy for the lesson. (Leaves, stones, etc. can also be collected from school environment.)

Discuss and talk about the results of data collection and classification activities

2.1 Students are red a story in which someone has to tidy-up toys or clothing. They are engaged in discussing which items should go together and why. For example, suppose of the 10 students in a class, 6 have shoes and 4 don't. The 4 may have to remain in a different group.

2.2 They are shown (and engaged in discussing) examples of how books are sorted on a bookshelf (e.g. by size), how food items are organised in a fridge – e.g. fruit together, vegetables together, drinks on one shelf. They are then encouraged to collect and sort (group) other items (data); e.g. crayons by colour, cutlery by shape or type, coins by denominations. Students then count to determine the number (find how many items) in each group.

2.3 Each student is presented with a variety of objects, e.g., shells, beads, blocks and pictures. Students are engaged in discussing how easy it is to sort or arrange the objects on a line so that "birds of a feather" are together. They are led or prompted to suggest that that one way is to take them item by item without concern to which we are selecting and then trying to place the item taken. Another way is to first consider lining up all items of a particular sort (say, all beads). Once this case is taken care of, we then move to consider all the items of another sort, say, all shells. They are engaged in discussing why the second way is easier. They are guided to think of sorting the objects and to discuss and compare certain features of the different classes that result, for example, whether there are more beads collected than shells.

Use counting to determine the number of objects in group

3.1 Students are shown a scene in which there are various objects, which in one case could be cut-outs of shapes, including, say, triangles, rectangles, squares, circles and in another case could involve coins or other objects. And they are asked to say what they see. Students are posed with questions such as the following: Do you see circle(s)? If yes, how many? Do you see shells? How many? Do you see teddies? How many? Are there any carrots? How many?

RESOURCES

A variety of objects (e.g. sticks, stones, crayons)

ASSESSMENT

- Questioning and observation: check that when given a variety of objects, the student can demonstrate how the objects can be sorted.
- Shown a group and an object left out of the group, can suggest why the object is not included in the same group.
- Shown objects sorted into two or more groups, can say the number in each group.
- Shown objects sorted into two or more groups, can say which group has more (or less) and how many more (or less).

TERM 3 SUMMARY	No. of
UNITS	**SESSIONS**
UNIT 1: ON THE BEACH *AT 1: LO 4* *Success Criteria*: 1 – 3	24
UNIT 2: HELPING MUMMY AT 3: LO 3 Success criteria: 1 – 3	12
UNIT 3: GOING SHOPPING AT 4: LO 2 Success criteria: 1 – 3	15
UNIT 4: MY FAVOURITE THINGS AT 5: LO 2 Success criteria: 1 – 2	12

UNIT PLAN WITH SUGGESTED TEACHING, LEARNING & ASSESSMENT ACTIVITIES

TERM 3 STRAND 1 Number UNIT 1: ON THE BEACH

AT 1	**LO 4: Understand whole and a half** ***Success Criteria***

- Identify and discuss a whole and a half.
- Colour to show halves and wholes of given diagrams or objects.
- Divide objects in different ways to show halves (e.g. cut, share, fold, colour)

ACTIVITIES

Identify and discuss a whole and a half.

1.1 Students are presented with different objects e.g. fruits, cake, bread, banana, etc. Students manipulate and discuss the objects. They are led to say that each is a whole, e.g., whole banana, a whole bun, a whole cake, etc. Students are engaged in discussing what can happen to an object from the set. They are led to say that the object (e.g. the banana) can be given a cut. They are engaged in discussing what may happen if the object is cut. They are led to say that the object may separate into two pieces or parts.

1.2 Students observe as object (e.g. fruit, cake, bread) is cut so that it separates into two parts. Students engaged in discussing how to call a piece. They are led to say if the piece is part of the whole, it is called a fraction. So a fraction is part of a whole. [Note to teacher: The parts do not have to be equal for them to be fractions.]

1.3 Students observe as a whole is cut so that it separates into two parts. They observe further as one part is given to some student and the other part to another student. Students are engaged in discussing who got more of the item and why. They are led to say that the reason is that the item was not cut into two halves. They compare halves with whole.

Colour to show halves and wholes of given diagrams or objects.

2.1 Students fold papers into halves. They are allowed to colour half of paper.

2.2 Students are shown pictures (involving, say, triangle, rectangle, circle, square and a line through each) and asked to say which shows half.

Divide objects in different ways to show halves (e.g. cut, share, fold, colour)

3.1 Students are presented with an even number of paper in the shape of, say, squares. They are asked to colour one-half in a particular colour and the other half in a different colour.

3.2 Students observe as an even number of students (not exceeding 10) stand in a line. A student not in that line is asked to touch half of them. Students are questioned to say the number touched. In the case of 10 students in the line, for example, they are led to say that the number touched is 5.

3.3 For an even number of, say, pencils on a desk (or forks on a table), a student is asked to bring half of them to another.

3.4 For an even number of spaces, students are asked to colour half of the spaces.

RESOURCES

A variety of objects (e.g. slices of bread)

ASSESSMENT

- Shown shape, can colour half.
- Shown a shape with part coloured, can write 'yes' or 'no' to say whether the part coloured is half
- Shown a picture of an object (such as a house) that is cut into two, can identify each part as a fraction.
- Shown a shaped that is folded, can say if it is folded into two halves.

- Shown an even number of objects (not exceeding 10), can take or indicate half (say, by throwing away half or bringing half to someone).

TERM 3 STRAND 3 Measurement UNIT 2: HELPING MUMMY

AT 3	**LO 3: Describe and compare the mass of different objects using appropriate vocabulary** ***Success Criteria***

- Describe objects as heavy, light, very light, etc.
- Compare the mass of objects, using phrases such as 'heavier than', 'lighter than', 'as heavy as', etc.
- Sing, recite rhymes, riddles relating to mass.

ACTIVITIES

Describe objects as heavy, light, very light, etc.

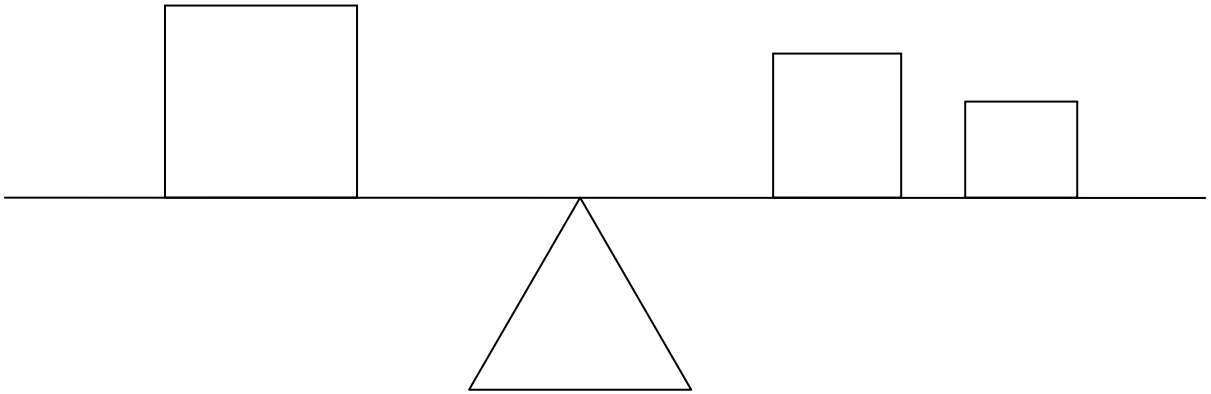
1.1 Students are presented with a variety of objects or materials and asked to say if the item is to be given the label 'light' or the label 'heavy'. Students sort items. Students observe as the teacher takes a particular item from the pile. They are asked for suggestions on why it is heavy. They are led to say it is heavy because in it is something we call mass.

Compare the mass of objects, using phrases such as 'heavier than', 'lighter than', 'as heavy as', etc.

2.1 Students observe as the teacher shows two match boxes (whose contents they cannot see. They are unaware that one match box is packed with relatively very heavy items, such pebbles and the other with paper). They are asked which of the two is heavy and which is light (or whether each is as heavy as the other) just by looking at them. Students predict which is heavy and which light (or whether each is as heavy as the other). They are then allowed to put one in each hand and in this way come to say what the answer is. Students are led to say one thing is heavier than another if it has more mass. (It is mass that lets things be heavy. If no mass enters something, that thing would not be heavy. On the other hand, if more mass enters item A

than item B, item A would be heavier than item B. If the mass that enters item A is the same as what enters item B, then A is as heavy as B.) Students are given pairs of items and put one in each hand to find out which is heavier.

2.2 Students are given a balance and items that can be placed on either of its arms. Students search for the point at which it shows "as heavy as."



'as heavy as'

2.3 Students are shown pairs of pictures of, say, leaf, pumpkin, cotton, orange, feather, rock and asked to circle the light (or heavy) object in each pair.

RESOURCES

Objects of different sizes, flash cards, crayons, cut-out shapes, fruits, equal-arm balance

ASSESSMENT

- Shown pairs of familiar items (or pictures of such items), can say (indicate by ticking the right item, for example) which is heavy and which is light (or which is heavier).
- Shown an object said to be heavy, can describe why that item is heavy, by mentioning the word *mass*.
- Shown a picture of a balance with an item on each arm, can indicate whether the diagram shows 'as heavy as'.

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

AT 4	**LO 2: Use concrete objects to represent and compare data** ***Success Criteria***

- Represent data graphically using objects e.g. matchboxes.
- Use concrete objects to represent and compare data.
- Compare data using phrases such as 'more than', 'less than', 'one more than', 'the same as' etc.

ACTIVITIES

Represent data graphically using objects e.g. matchboxes.

1.1 Students are shown objects (such as shapes) that come in four different colours, say, red, blue, green and yellow. They are asked to each choose a single shape (or whatever the objects are). Students sing some song made by teacher (E.g. student sing, "We came to the zoo and saw many shapes. Some of us chose red." Those who chose red stand and proceed to place their shapes on the right column of a chart, as the one shown.

Red	Blue	Green	Yellow

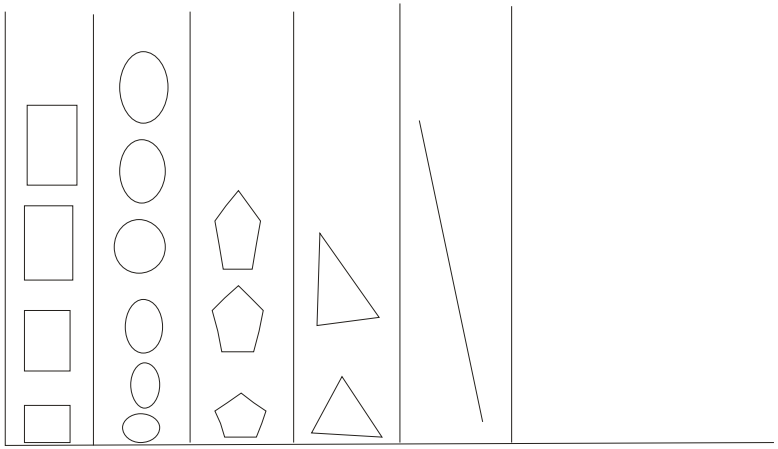
Song continues, "We came to the zoo and saw many shapes. Some of us chose blue." Those with blue do similarly and the song continues until the shapes are all correctly placed on the chart. Students are asked questions on the chart to help them compare the different numbers.

1.2 Students are shown chart depicting 4 different colours. Individual students given a block representing a colour on the chart. Students place block in the correct column on the chart. Students answer questions on the chart.

1.3 Students are shown a picture depicting a scene e.g. on the beach or at the market and allowed to use the picture to fill a worksheet.

Use concrete objects to represent and compare data.

2.1 Students are told a story in which a named individual saw some figures in a book on geometry and decided to make a pictograph as shown below. Students answer questions referring to more than and less than



Rectangle circle polygon triangle straight line

2.2 Students are presented with similar pictures, which could include descriptions such as the following. The pictograph shows the fruit brought by some students into school. The pictograph shows the animals raised by a farmer in a farm. The pictograph shows the plants grown by a farmer in a garden. The picture shows the fruit bought by my Mum from the market. The chart shows the watches brought by students into class. In each case, the pictograph shows the toys my friend sold in a day. They are engaged in answering questions based on the pictograph.

RESOURCES

Coloured objects or shapes, Worksheet for each student, various pictoraphs.

ASSESSMENT

- Shown data (e.g. visitors came to our school. Some came on Monday. Some came on Tuesday. Some came on Wednesday. Some came on Thursday. Some came on Friday) can sort according to some attribute such as day or colour.
- Can display sorted data using pictographs.
- Can use chart to answer questions.

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

AT 5	**LO 2: Observe and talk about patterns and shapes in familiar situations** ***Success Criteria***

- Talk about, identify, predict and continue simple patterns.
- Make and complete simple patterns with shapes and symbols.

ACTIVITIES

Talk about, identify, predict and continue simple patterns.

1.1 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.

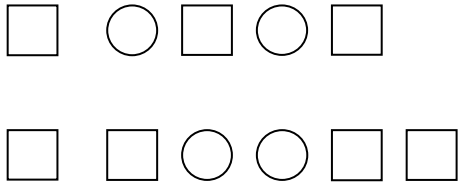
1.2 Students are shown simple pattern and asked to talk about it. In one pattern, for example, 2 claps are followed by 1 jump. In another, 2 circles are followed by 1 triangle (or two buttons by 1 triangle). In a third example, a line of say, 5 students enter the classroom (or some part of the classroom) 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.

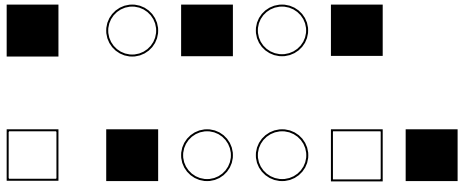
1.4 Students observe as someone lays down a row of spoons pointing in different directions in a particular pattern e.g. (up, down, down, up, down, down) and they are asked to continue the pattern.

Make and complete simple patterns with shapes and symbols

2.1 Give students cut out squares and circles and have them to complete e.g.



2.2 Repeat 2.1 but instead use squares and circles of different colours e.g.



2.3 Repeat 2.1 but instead use squares and circles of different sizes.

2.4 Complete simple number sequences such as:

a. 2, 3, 4, 5, ___

b. 5, 4, 3, __, 2, 1 etc.

EXEMPLAR LESSON PLAN	TERM 1		
UNIT 3: Helping Mummy	TOPIC: Measurement		
TIME: 30 minutes			
EXPECTED BACKGROUND KNOWLEDGE OF STUDENTS: Students have the words long, short, wide in their speaking vocabulary and they know what they mean.			
LEARNING OUTCOME 1: Describe and compare the length of different objects using appropriate vocabulary.			
SUCCESS CRITERIA: Students will be able to compare lengths of objects using phrases such as 'longer than', 'shorter than', 'wider than', etc.			
ORGANISATION & TIME	**TEACHER ACTIVITY**	**PUPIL ACTIVITY**	**RESOURCES**
WAY IN 5 min	▪ Teacher presents items to students ▪ Teacher provides 3 trays labelled long, short and wide plus a variety of items.	▪ Students describe items in terms of long, short and wide. ▪ Students place item in appropriate tray after discussing the length of the items.	Trays, flashcards, items of various sizes
DEVELOPMENT 15 min	1. Teacher presents tray with long objects, short objects and wide objects. 2. Teacher presents a tray with long objects. Asks students to describe the length of the objects and to say whether they	▪ Students identify which tray has long objects and wide objects. ▪ Students describe the lengths of objects in the tray and whether they are the same length.	

	are all (of) the same length. 3. The teacher writes the word *longer* on a card and puts it on the board. 4. Repeat steps 2-3, with 'short' and 'wide' 5. Teacher presents an item.	▪ Students read and spell the word. ▪ Students will be allowed to compare pairs of items from the long tray using the word longer. ▪ Students find from trays items which are wider, longer and shorter than the one presented.	
CONCLUSION 5 min	▪ Teacher gives every student an item. ▪ Teacher goes around class providing assistance where necessary.	▪ Students will go around the class comparing these items while using the words *longer*, *shorter*, *wider*.	
WAY ACROSS 5 min			
ASSESSMENT	Write *longer*, *shorter*, *wider*. Teacher shows pictures of three pairs of items, each involving, say, a book.	Next to each pair of pictures, students complete sentences such as: a. The book is _____ b. The book is _____ c. The book is _____	
EVALUATION OF LESSON			

EXEMPLAR LESSON PLAN TERM 2			
UNIT 1: ON THE BEACH TOPIC: Addition			
TIME: 30 minutes			
EXPECTED BACKGROUND KNOWLEDGE OF STUDENTS Students can ▪ Count to 10 ▪ Make pictorial representation of numbers			
LEARNING OUTCOME 3: Create and solve real life problems involving addition and subtraction with numbers up to 10			
SUCCESS CRITERIA Students will be able to use pictorial representation to solve real life problems involving addition with totals no greater than 10.			
ORGANISATION & TIME	**TEACHER ACTIVITY**	**PUPIL ACTIVITY**	**RESOURCES**
WAY IN 5 min	Teacher presents a scenario: Dianne went to the garden with her mummy on Saturday. She decided to go find some guavas. She found 4 guavas on a tree and 2 more guavas on another tree. How many guavas did Dianne get?	One student will be asked to draw on the board what Dianne got from the garden.	Pictures
DEVELOPMENT 17 min	The teacher then asks the class, "How many guavas did Dianne get?"	1. Students give answer and explain how he/she got the answer. 2. Students come forward	

	Teacher presents another problem orally. Kizzy has 6 seeds. Kizzy finds 3 more. Kizzy has _____ seeds now. **Teacher goes over steps with students** **<u>Guided practice</u>:** **Teacher presents problems on the board** **<u>Graded Practice</u>**	**and demonstrate what was said in step 1. (NB: Student is encouraged to use + and = signs when showing the problem.)** **3. Students volunteer to come forward and solve problems on the board by drawing pictures and using the + and = signs.** **▪ Students read problems.** **▪ Students solve problems with teacher** **Students solve given problems in groups of 3.**	
CONCLUSION **5 min**		**Students discuss or present solution to problems.**	
WAY ACROSS **5 min**			
ASSESSMENT **3 minutes**	**Draw and solve these problems.** **Kyron has 3 bats. Kyron gets 5 more bats. Kyron has _____ bats now.**	**Tyhiesia has 4 books. She gets 6 more books. Tyhiesia has _____ books now.**	
EVALUATION OF LESSON			

EXEMPLAR LESSON PLAN TERM 3			
UNIT: ON THE BEACH TOPIC: Fractions			
TIME: 30 minutes			
EXPECTED BACKGROUND KNOWLEDGE OF PUPILS: ▪ Students can count to 10. ▪ Students have the words whole and half in their speaking vocabulary.			
LEARNING OUTCOME 4: Understand whole and a half			
SUCCESS CRITERIA: Students will be able to identify half of a single object.			
ORGANISATION & TIME	TEACHER ACTIVITY	PUPIL ACTIVITY	RESOURCES
WAY IN 5 min	Teacher presents objects in whole and pieces in a bag.	▪ Students take something from the bag and tell what he/she has taken. ▪ Students discuss why he/she took what they did.	Bag of whole objects and pieces of objects.
DEVELOPMENT 15 min	▪ Teacher presents an apple and a cane. ▪ Teacher then cuts apple in half and allows students to tell what she just did. ▪ After word half has been elicited from students, teacher allows students to tell what is half of an object. ▪ Present students with candy (e.g. twisters) and allow them to cut it in half.	▪ Students identify items. ▪ Tell what teacher did. ▪ Tells what is ½ of an object. ▪ Cuts candy in half. ▪ Show cut candy and say why it is half. ▪ Discuss with teacher what a half is. ▪ For the cut oranges, students tell which is a half and why.	Orange, apple, cane, candy, shape cut-outs (knife)

	▪ Discuss with students what a half is (1 of 2 equal parts). ▪ Teacher presents two oranges, 1 cut in half (2 equal parts), the other in two unequal parts		
CONCLUSION 5 min	The teacher will ▪ guide and allow students to… ▪ distribute half of objects to every student	▪ Students then revisit their cut candies, compare the 2 pieces and say whether they were all in half. ▪ Students go around to find who has the other half. They tell how they know whoever they have chosen had their other half.	
WAY ACROSS 5 min		Students tell of times when they were given half of something or had to share something in half.	
ASSESSMENT	▪ Teacher shows pictures involves shapes through which lines are drawn indicating half only in some instances ▪ Teacher shows pictures involving shapes through which lines are drawn indicating half.	▪ Students circle those cut in half ▪ Students Colour $\frac{1}{2}$ in each case	
EVALUATION OF LESSON			

Glossary

Capacity: By an object's capacity is meant the amount it holds. Thus by a tin's capacity we mean the amount it holds.

- Remember that capacity can be measured. It can be measured using some non-standard unit. But it can also be measured in a standard unit, in which case we can well expect the measurement to be more precise.
- Remember too that capacity can change. It is easy to imagine the tin being squeezed in such a way that its capacity decreases (is now much less).

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Bright Sparks 2

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

Exploring Geometry: a curriculum guide (Dominica Mathematics Curriculum)

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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