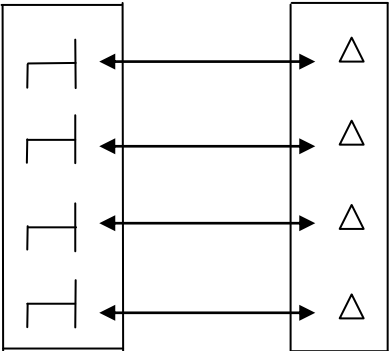
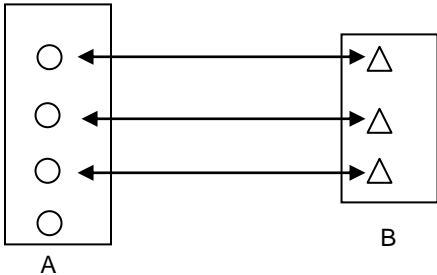
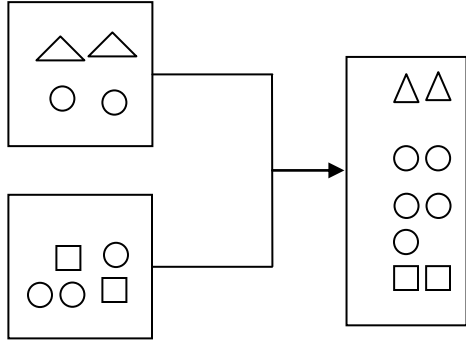


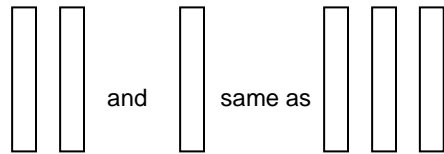
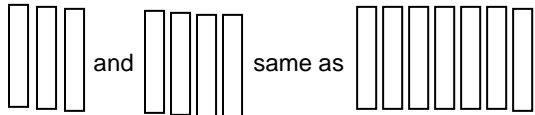
PRIMARY ONE

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 1.1 COUNTING OBJECTS	1.1.1 use one-to-one matching to find which group has as many objects as in a given group.	One-to-one matching <u>Vocabulary</u> matching, group, order, compare, read, number, numerals, recite, count, number name, more than, write	<p><u>TLMs:</u> Picture cards, counting materials, pebbles, bottle tops, pupils, chairs, tables etc.</p> <p>Guide pupils to use one-to-one matching to find whether a group of objects has many objects as a given group of objects.</p> 	

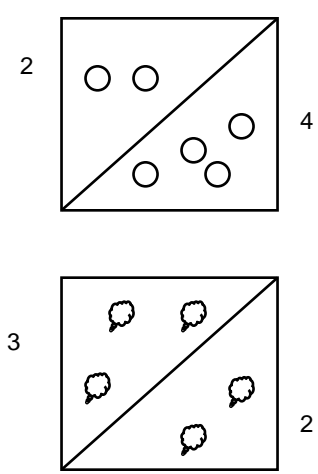
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1.1 (CONT'D) COUNTING OBJECTS	The pupil will be able to: 1.1.2 use one-to-one matching to find which group has one more object than a given group.	One more than	<p>TLMs: picture cards, pebbles, bottle tops, pupils, chairs, tables</p> <p>Guide pupils to put groups of objects in the natural order by adding one more object to a group of objects to establish the one more than pattern up to five objects.</p>  <p>Pupils to identify which group of objects has one-more than the other.</p>	Let pupils: Identify/draw two different groups with different number of items. Answer the following questions based on the different groups. <ol style="list-style-type: none"> Do the groups have the same number or a different number of items? Count the number of items in each group. Are they having the same number of items? Which group has more items and by how many? What will you do to make them the same? Match the items in one group to items in another using arrows. What did you observe after the matching?
	1.1.3 count by matching number names to objects in a group up to 20.	Count up to 20	<p>Guide pupils to put groups of objects in the natural order 1, 2, 3, 4, 5 up to 20.</p> <p>Let pupils match orally, number names with group of objects (Do not use written names at this stage).</p>	match number names with given group of objects.

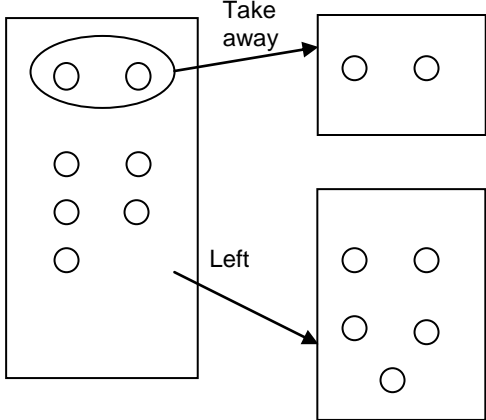
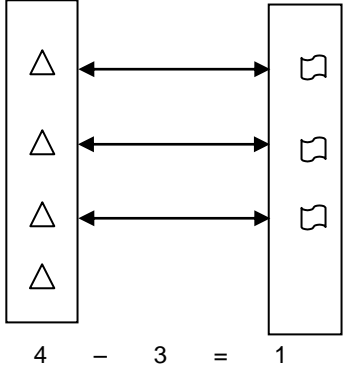
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 1.1 (CONT'D) COUNTING OBJECTS	1.1.4 use the last number name (or word) to find the number of objects in a group	Counting groups of objects Counting up to 50	Guide pupils to match number names with objects in a group (use picture cards). Guide pupils to match number names with actions. E.g. clap/jump a number of times, count the number of claps/jumps made and say aloud the last number name. Guide pupils to match number names with given groups of objects orally up to 50. (Do not use written names at this stage). Guide pupils to match number names with groups of objects (use picture cards/flash cards). Guide pupils to match number of jumps, clap a number of times (Do this in groups). Count the number of jumps/claps and say aloud the last number name as the number of jumps/cards made. Number Game. Children walk around in an open space. Teacher calls out a number and the children get into groups with that number of pupils. TLMS: sand tray, sand paper numeral cards, slate... Use a Counting Stick to count numbers up to 10. Jump along the stick and get children to say the number. Guide pupils to read and write numerals 1, 2, 3,..., 20 by using sand tray and tracing around sand paper numerals. Guide pupils to read and write the numerals 1 up to 20 in the sand. Do it one at a time. Guide pupils to read and write the numerals on an arm board (or board/slate) one at a time. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">3 ooo</div> <div style="text-align: center;">2 oo</div> <div style="text-align: center;">1 o</div> <div style="text-align: center;">0 </div> </div>	find how many objects are in a group by counting. say number names for given group of objects read and write numerals 1 – 20. identify groups that have no objects in them.
UNIT 1.2 NUMBER AND NUMERALS I	1.2.1 read and write numerals 1, 2, 3, ..., 20.	Reading and writing numerals 1 – 20 Vocabulary Numeral, number, zero		

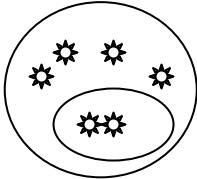
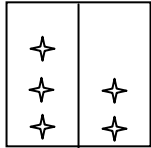
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 1.2 (CONT'D) NUMBER AND NUMERALS	1.2.2 read and write the numeral zero.	The numeral zero	<p>Explain the meaning of zero</p> <p>Teachers should use appropriate stories and questioning which explains the concept of zero as nothing or not there. e.g. (1) Identify a pupil in the class who has four legs. (2) How many pupils are taller than the school block?</p> <p>Explain the concept of zero as a place holder. When the number 9 increases to 10 a zero needs to be placed in the units column to act as a place holder.</p> <p>Guide pupils to write and read the numeral zero.</p>	write the numeral zero.
	1.2.3 read and write numerals 20 – 50.	Numerals 20 – 50	<p>Guide pupils to read the numerals 20 – 50 in ascending order, descending order and mixed-up.</p> <p>Guide pupils to write the numerals 20 – 50 in the sand, on boards and on paper (sand paper numerals may be used).</p>	write and read numerals 20 – 50.
	1.3.1 count and tell how many objects are in two groups of objects put together.	Putting two groups of objects together <u>Vocabularies</u> altogether, add, addition, plus, same as equal to, sum, together, join, estimate, total.	<p>TLMs: Bottle tops, seeds, sticks, shells, stones, books, pens, flash cards, unifix cubes Cuisenaire rods, number lines Game Boards.</p> <p>Guide pupils to form groups for two given numbers (0 – 9), put the groups together and find how many they make altogether.</p> <p>E.g.</p> 	find how many objects are there in two groups of objects put together.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 1.3 (CONT D) ADDITION: SUM UP TO 9	1.3.2 write addition sentences for two groups of objects and put together using the 'plus' and 'equal to' symbols.	Addition sentences	<p>Guide pupils to identify the plus sign (+) as adding numbers and equal to (=) sign as the symbol for same as.</p> <div style="text-align: center;">  $2 + 1 = 3$ </div> <div style="text-align: center;">  $3 + 4 = 7$ </div>	use the plus and equal to sign to perform operations.
	1.3.3 find the sum of two numbers (sum up to 9).	Addition of numbers 0 – 9	<p>Guide pupils to find the sum of two numbers that sum up to 9 using concrete materials. E.g.</p> $3 + 6 = \square$ $4 + 3 = \square$ $2 + 5 = \square$	<p>complete addition sentences.</p> $4 + 2 = \square$ $5 + 3 = \square$ $8 + 1 = \square$ <p>Add two numbers (sum up to 9).</p>
	1.3.4 find missing numbers (addends) in addition sentences.	Missing Numbers (Addends) (sum not greater than 9)	<p>Guide pupils to find missing numbers in addition sentences using “counting-on” method.</p> <p>E.g. $3 + \square = 5$. Begin with 3 and count how many to be added to get 5.</p>	<p>find missing numbers in addition sentences.</p> <p>E.g. $2 + \square = 3$ $\square + 3 = 4$ $1 + \square = 5$</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 1.3 (CONT'D) ADDITION: SUM UP TO 9 UNIT 1.4 NUMBERS AND NUMERALS II	1.3.5 solve simple story problems involving addition of two numbers (0 - 9) 1.4.1 use ordinal numbers to describe the positions of objects in a row up to the 9 th position. 1.4.2 recite simple rhythmic number patterns. 1.4.3 say or sing rhymes involving numbers up to 9.	Story problems on addition of numbers 0 – 9 Ordinal Numbers up to 9 th <u>Vocabularies</u> first, second, third....ninth, order ordinal, patterns, position Position of objects Patterns with one-digit numbers Number rhymes and songs	Pose story problems on addition of numbers 0 – 9 orally and solve. E.g. - John has 2 socks and 1 pen. How many things does he/she have altogether? - Mother bought 2 tins of milk and 3 loaves of bread. How many tins did she buy? TLMs: number cards, sitting positions, competition. Guide pupils to put objects in an order from a given reference point and indicate which comes first, second, third ..., ninth. Guide pupils to find the position of an object among others in a row. [Ensure the correct use of the position names to ensure the value of orderliness]. Races. Children race to complete a simple task on the chalk board. When completed they order themselves, or classmates order them, by where they finished. Guide pupils to repeat and continue simple rhythmic patterns involving 1-digit numbers E.g. (a) (1, 1, 1), (1,1,2), (1,1,3), (b) (5,5,1), (5,5,2), (5,5,3)..... (c) (2,1,1), (2,1,2), (2,1,3)..... Say and/or sing number rhymes involving 1-digit numbers. say: One, two, three, four, five, Once I caught a fish alive. Six, seven, eight, nine, ten, Then, I let it go, again. Why did you let it go? Because it bit my finger. Which finger did it bite? The little finger on the right. NB: The meaning of the rhyme should be explained to the pupils.	solve simple story problems on addition of numbers (0 – 9) Pick a card each with ordinal numbers on them and arrange themselves according to the numbers they have picked. identify objects in a given position up to 9 th . continue simple rhythmic number patterns. recite other number rhymes.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 1.5 SUBTRACTION 0 - 9	1.5.1 separate given collection of objects into two groups and find the number of objects in each group.	Idea of subtraction <u>Vocabulary</u> subtract, take away, minus, subtraction, separate, difference	<p>TLMS: Countable objects like sticks, shells, seeds, tins, stone, bottle tops, Number cards, Unifix cubes</p> <p>Guide pupils to form smaller groups, assist pupils to separate a given collection of objects into two groups and find how many objects there are in each group. E.g.</p> <div style="text-align: center;">  </div> <p>Encourage pupils to co-operate as they work in groups.</p> <p>Number Fans. Children give quick-fire answers, using their number fans, to questions asked by teacher.</p>	(a) separate groups of objects into two and find how many are in each group. (b) How many more are in each group? (c) How many less are in each group?

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupils will be able to:			Let pupils:
UNIT 1.5 (CONT'D) SUBTRACTION 0 – 9	1.5.2 find how many objects are left if a number of objects are (removed) or taken away from the group of objects.	Subtraction as 'Take Away'	Guide pupils to remove a number of objects from a given group and find how many objects are left. E.g.  Guide pupils to recognise the minus sign (-) as the symbol for take away.	take a given number of objects away from a bigger group of objects.
	1.5.3 find how many more or less objects are in one group than another by comparison.	Subtraction as comparison	Guide pupils to match two groups of objects and find how many more or less, one is more or less than the other.  $4 - 3 = 1$	compare two groups of objects and find how many more or less one is than the other.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 1.5 (CONT'D) SUBTRACTION 0 – 9	1.5.4 Write and complete subtraction sentences	Subtraction sentences	<p>Guide pupils to write and complete subtraction sentences for groups of objects using the minus (-) and equal to (=) signs</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p><u>Take away</u></p>  <p>$6 - \square = 4$</p> </div> <div style="text-align: center;"> <p><u>Matching</u></p>  <p>$3 - 2 = \square$</p> </div> </div> <p>Guide pupils to find the difference between two numbers by comparing/matching pupils. E.g. difference in the following pairs of numbers.</p> <p style="margin-left: 40px;">5, 3 is 2: i.e. $5 - 3 = 2$</p> <p style="margin-left: 40px;">4, 1 is 3: i.e. $4 - 1 = 3$</p> <p style="margin-left: 40px;">7, 4 is 3: i.e. $7 - 4 = 3$</p>	write the minus and equal to sign and complete subtraction sentences.
	1.5.5 solve simple story problems involving subtraction of two 1-digit numbers.	Word/Story Problems	<p>Guide pupils to solve simple story problems involving subtraction of two 1-digit numbers. E.g. Mummy bought 7 oranges and Daddy ate 3 oranges. How many oranges are left?</p> <p>Remember to make stories relevant to pupils in the classroom (e.g. use other children's names or people they are familiar with).</p>	solve simple story problems on subtraction from 0 - 9

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 1.5 (CONT'D) SUBTRACTION 0 – 9	1.5.6 use addition, take away and equal to signs in mathematical sentences		$7 - 2 = 5$ Guide pupils to use addition, take away, and equal to signs in mathematical sentences such as i. $2 \square 1 = 3$ ii. $4 \square 2 = 2$ iii. $5 + 2 = 7$	i. $7 \square 4 = 3$ ii. $8 \square 6 = 2$ iii. $5 + 4 = \square$
	1.6.1 sort out objects by their shapes.	Sorting objects by shapes <u>Vocabularies</u> roll, edges, faces, round, straight, solid, shape.	TLMS: Milk tin, Milo tin, match boxes, chalk boxes, cubes of sugar, bottles, pencils, books, etc. ‘Guess the Shape’ Show children all the shapes. Then put one into a bag. A child can feel shape through the bag and describe it to their classmates who must guess the shape from the description. Guide pupils to make a collection of solid shapes and group them according to similar shapes, those that can roll and those that cannot .	sort given objects by given criteria i.e. shapes, sizes, roll, etc.
	1.6.2 identify faces and edges of objects as round or straight edges	Faces and edges	Let pupils identify the faces and edges of objects like milk tin, boxes and classify them as round or straight by testing with straight edge objects.	identify faces, edges and corners of objects.
UNIT 1.6 SOLID SHAPES	1.6.3 sort objects with straight edges and those with round edges	Sorting objects by edges	Guide pupils to collect and handle shapes E.g. tins of milk, boxes, balls, cowries and sort them into those with straight and those with round edges.	find objects which do not belong to a given group of objects.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 1.7 TENS AND ONES	1.7.1 make a group of ten objects.	Tens as a unit Numbers 11 – 20 <u>Vocabulary</u> tens, ones, loose sticks, bundle sticks, multi-base blocks	TLMS: Bundle of sticks/straws, multi-base blocks. Number cards, Unifix cubes Guide pupils to discover 10 as one more than 9 Guide pupils to count objects in groups from 11 – 20 using straws or sticks in making bundled and loose sticks. Guide pupils to break numbers 11 – 20 into tens and ones.	bundle sticks into tens. count objects in tens and ones (11 – 20) and find how many sticks/straws are in a given set of bundled and loose sticks/straws.
	1.7.2 read two or more groups of ten objects as 20, 30, ..., 90 and read number names for 10 up 90.	Counting and reading in tens	Guide pupils to use base ten structured materials E.g. bundle of sticks. Count and read in tens, 10, 20, 30, 40, 50, 60, 70, 80 and 90. Use a Counting Stick to count numbers in 10's. Jump along the stick and get children to say the number.	bundle sticks/straws into groups of ten. read and write numbers 10, 20, ..., 90.
	1.7.3 break two-digit numbers into tens and ones	Expanded form of 2-digit numbers	Assist pupils to find bundle and loose sticks to represent given numbers and write the expanded form of the number. E.g. 43 is 4-tens and 3-ones. Use a 'Game Board' with one number in each space. Correctly Partition the number in the space to move on. Let pupils count bundled and loose sticks and say how many they are.	express two-digit numbers into tens and ones. E.g. 43 = 4 tens 3 ones 28 = 2 tens 8 ones 52 = 5 tens 2 ones
	1.7.4 read and write numbers 0 - 99	Reading and writing numerals 0 - 99	'Missing Numbers' Teacher writes a number sequence on the board with certain numbers missing. Children complete sequence by adding the missing numbers. [Orderliness as organisational skills]. Guide pupils to read and write numbers from 0 – 99.	complete/continue a given sequence of numbers from 0 – 99. E.g. 1. 31, 32, ..., ..., 2. 53, ..., 55, 56, ..., ...

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION												
	The pupils will be able to:			Let pupils:												
UNIT 1.8 ADDITION AND SUBTRACTION	1.8.1 add any two 1-digit numbers.	Addition of two 1-digit numbers (sum up to 19)	<p>TLMs: Bottle tops, sticks/straws, palm kernels, shells, pebbles flash cards, Unifix cubes.</p> <p>Guide pupils to find the sums of two 1-digit numbers using some of the materials above. (sum up to 19).</p> <p>Assist pupils to use materials to develop a table of the basic addition facts by finding pairs of 1-digit numbers that add up to 19 (or complete this table).</p> <table><tr><td>3</td><td>5</td><td>8</td><td>13</td></tr><tr><td>1 + 2</td><td>1 + 4</td><td>5 + 3</td><td>6 + 7</td></tr><tr><td>3 + 0</td><td>3 + 2</td><td>4 + 4</td><td>9 + 4</td></tr></table>	3	5	8	13	1 + 2	1 + 4	5 + 3	6 + 7	3 + 0	3 + 2	4 + 4	9 + 4	<p>find the sum of pairs of 1-digit numbers mentally.</p>
	3	5	8	13												
1 + 2	1 + 4	5 + 3	6 + 7													
3 + 0	3 + 2	4 + 4	9 + 4													

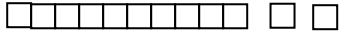
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 1.9 MEASUREMENT OF LENGTH, AREA, CAPACITY AND MASS	1.9.1 compare directly two objects and tell which is taller/longer/shorter.	Idea of length: Direct comparison of length of objects Developing awareness of differences between lengths and heights Vocabulary taller, longer, as long as, longer than, length, area, capacity, mass, height surface, holds more, holds less, as much as, small, large, difference	TLMs: Sticks of different Lengths, Pencils, Pens, Exercise Books. Story Telling. Teacher leads the class in a story which would involve the comparisons of length, area etc. Children contribute to the story commenting on and comparing between the relative sizes of each object. Guide pupils to observe differences in length and height by putting the sticks side by side. Talk about short/long stick, a tall/short girl/boy (all on a common base). Guide pupils to compare objects by placing them side by side on a common base to find which is taller, longer, as long as, etc.	tell which of two objects is taller, longer, as long as using the appropriate vocabulary or language. E.g. Stick A is longer than Stick B .
	1.9.2 use arbitrary units to compare the lengths and heights of various objects.	Comparison of length and/or height of objects	Place cut-out objects on surfaces of two objects and find how many each object takes. Guide pupils to use a “go between” when two objects cannot be put side by side for comparison E.g. the width of two different walls. Use pen/pencil to find out how many pens/pencils make the length of the teacher’s table, etc.	compare the lengths and heights of various objects.
	1.9.3 compare the size of two surfaces (areas) and tell which one is bigger/smaller.	Idea of area: Direct comparison of two surfaces Indirect comparison of two surfaces	Guide pupils to place two different surfaces side by side. Tell which is small and which is big. Guide pupils to use a “particular surface”. and place it on other surfaces (two) to find out how many of the “particular surface” covers the total surface area of the given surfaces.	compare two “Surfaces” using the words “small”, “big”. Place cut-out objects and find how many compare which takes a bigger surface area.
	1.9.4 compare the capacities (sizes) of two containers and tell which holds more or less or equal amount of water or sand.	Idea of capacity: Comparing the capacities of objects	Guide pupils to develop awareness of differences in the amount of material different containers can hold (E.g. sand or water) Guide pupils to compare sizes of two containers by pouring water/dry sand from one container into another using the words : holds more, holds less, as much as etc.	compare the sizes of two containers using the words more/less, as much as etc.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupils will be able to:			Let pupils:
UNIT 1.9 (CONT'D) MEASUREMENT OF LENGTHS, AREA, CAPACITY AND MASS	1.9.5 compare the weights of objects by observing and feeling differences in weight.	Idea of weight Vocabulary weight, compare, more, less, weighs, heavier, lighter	Guide pupils to feel weights of two objects by handling the objects to find out which weighs more or less.	compare the weights of various objects using simple balance
	1.9.6 compare the weights of objects using simple balance.	Comparing weights of objects	<p>Guide pupils to understand that small differences in weight cannot be determined by lifting.</p> <p>Children compare a number of identically sized containers with different weights in each. Children guess weight and order then weigh and order containers.</p> <p>Guide pupils to use a simple balance to compare the weight of various objects to determine which is heavier/lighter or as heavy as another.</p> <p>Guide pupils to observe that a big inflated football could weigh less than a small piece of stone (i.e. big size does not necessarily mean heavier weight).</p>	
UNIT 1.10 MEASUREMENT OF TIME AND MONEY	1.10.1 identify events which take a short time and those which take a long time	Idea of Time	<p>Guide pupils to develop awareness of passage of time or time taken by events E.g. sunrise, sunset, breakfast time, school closing time. Let pupils identify events which take a long time and those which take a short time.</p>	tell when certain events occur or will occur. Tell events which take long time and those which take short time.
	1.10.2 identify currency in circulation up to GH¢10.	Money Vocabulary money, time, currency, note, coin, sunrise, sunset, token money, play-shop, buy, change, balance	Guide pupils to identify the coins and currency notes in circulation up to GH¢10 and record them using the symbol GH¢.	
	1.10.3 use token coins up to GH¢1 to buy items in a play-shop.	Value of Money	Guide pupils to put price tags on items in a play-shop and use token money to buy from the play-shop.	

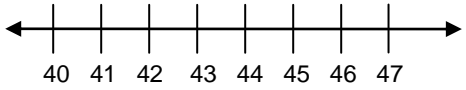
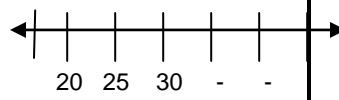
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 1.11 COLLECTING AND HANDLING DATA	1.11.1 collect data by counting objects	Collecting data Vocabulary data, collect, record, class, rows, columns,	TLMs: Countable objects (Tins, match boxes) Unifix cubes Guide pupils to collect data in the classroom by using given description, counting and recording number of items such as the birthday of pupils, kinds of textbooks for the class, number of pupils staying at a particular area and kinds of bottle tops. Guide pupils to represent the data they collect in visual form (rows and columns). Let pupils use countable objects such as milk tins, match boxes to represent the data. Game Boards. Number Fans.	collect and record data collected from the environment. represent data collected in concrete form.
	1.11.2 arrange the items collected in concrete form (rows and columns)	Representing data in concrete form		
UNIT 1.12 ADDITION AND SUBTRACTION OF NUMBERS (0 – 99)	1.12.1 add two numbers expressed as tens and ones without renaming/regrouping.	Adding tens and ones without renaming/regrouping Vocabulary renaming, regrouping, bundles, Dienes blocks	TLMs: Countable objects, bundles of sticks in tens, Dienes blocks, dice, playing cards, Unifix cubes Guide pupils to collect tins, boxes, etc. Guide pupils to arrange them in rows and columns. Guide pupils to add two numbers expressed as tens and ones without renaming/regrouping using bundles of sticks and Dienes blocks. E.g. 2 tens and 3 ones + <u>3 tens and 4 ones</u> <u>5 tens and 7 ones</u>	add two-digit numbers in tens and ones without renaming.
	1.12.2 add two 2-digit numbers without renaming and regrouping.	Addition of two 2-digit numbers	Guide pupils to add two 2-digit numbers without renaming or regrouping $\begin{array}{r} 57 \\ + 22 \\ \hline 79 \end{array}$	add two 2-digit numbers.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 1.12 (CONT'D) ADDITION AND SUBTRACTION OF NUMBERS (0 – 99)	1.12.3 subtract 2-digit numbers expressed as tens and ones without regrouping.	Subtracting two 2-digit numbers expressed as tens and ones.	Guide pupils to subtract two 2-digit numbers expressed as tens and ones without regrouping. 5 tens and 7 ones - <u>2 tens and 3 ones</u> <u>3 tens and 4 ones</u>	express numbers as tens and ones and subtract without regrouping.
	1.12.4 subtract two 2-digit numbers without regrouping.	Subtraction of two 2-digit numbers.	Guide pupils to subtract two 2-digit numbers without regrouping. E.g. 57 - 22 <u> </u> 35 <u> </u>	subtract two 2-digit numbers without regrouping
	1.12.5 solve simple story problems involving the use of basic addition and subtraction facts.	Word or story problem.	Pose simple story problems involving addition and subtraction of two 2-digit numbers for pupils to solve.	solve story problems on addition and subtraction of two 2-digit numbers.

PRIMARY 2

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 2.1 NUMBERS AND NUMERALS 0 - 100	2.1.1 assign numbers to groups of objects up to 100 objects.	Numbers 0 – 100 Structured Base Ten Materials Vocabulary bundle, squares, strips, longs, cubes regroup, groups of tens, less than, greater than, ordinal numbers, number line, 1 st , 2 nd , 3 rd , 4 th	TLMs: Multi-base blocks, bundles of stick and loose ones, seeds, counters, strips of square papers, number chart, calendar, number cards Guide pupils to make groups of tens and ones using the following objects: <ul style="list-style-type: none"> - bundles of ten sticks/straws and loose ones, - bags, seeds (beans, maize, palm kernel, flamboyant etc) and loose ones, - strips of ten squares and one-squares, - longs in base ten and ones-cubes. - assign numbers from 0 – 99 to groups of objects made of tens and ones. <div style="text-align: center;">  </div> 1 long and 2 cubes is 12. Number Fans. Partitioning Game. Children in small groups challenge other groups to see if they can partition two-digit numbers.	use objects to make groups of tens and ones for given numbers.
	2.1.2 break 2-digit numbers into tens and ones. read and write 2-digit numbers	Reading and writing 2-digit numbers using expanded form	Guide pupils to regroup numerals 10 – 99 as so many tens and so many ones; read and write numbers expressed as tens and ones as numbers 10, 11, 12, ..., 99 E.g. 3 tens and 4 ones is 34.	write a numeral to represent the number of objects in a given group (11 – 99).

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 2.1 (CONT'D) NUMBERS AND NUMERALS 0 - 100	2.1.3 make ten groups of 10 objects and name them as a group of one-hundred objects.	Hundred as a unit	<p>Guide pupils to assign the number 100 (one-hundred) to groups made of the following:</p> <ul style="list-style-type: none"> - ten groups of bundles of 10 sticks. - ten groups of bags of 10 seeds (a box of seeds). - ten strips each with 10 small squares (a flat of squares). - ten longs (a flat in base ten blocks). <p>Let pupils use a hundred chart to state numbers that increase by ten E.g. 10, 20, 30, ..., 100; 11, 21, 31, ..., 91; 13, 23, 33, ... , 93; etc.</p> <p>Let pupils assign structured groups of objects to numbers and find which one is largest.</p>	<p>identify a group of hundred objects.</p> <p>make groups of tens of objects for the number 100.</p> <p>complete sequences of numbers that increase by 10.</p> <p>assign numbers to groups of structured objects and find the largest</p>
	2.1.4 use the symbols > and < correctly to compare two 2-digit numbers up to 100.	Comparing numbers 10 – 100 by using symbols: > and <.	<p>Let pupils insert the symbols for greater than ">" and less than "<" between pairs of numbers E.g. 43 > 39 or 39 < 43.</p> <p>Teacher makes up a story about a 'Greedy Crocodile' to help explain the differences between the greater and less than signs. The greedy crocodile always wants to eat the 'greater' number of animals/children/pizzas etc.</p> <p>NOTE: Explain that the bigger number is found at the open end of the symbols. The smaller number is also found at the close end of the symbols.</p>	<p>put the symbols > or < between the following pairs of numbers.</p> <p>i. 35.....46 ii. 60.....80 iii. 60.....52 iv. 65.....62 v. 71.....69</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 2.1 (CONT'D) NUMBERS AND NUMERALS 0 - 100	2.1.5 use the ordinal numbers up to 50 th correctly.	Ordinal numbers	<p>Guide pupils to arrange themselves in a row and assign the ordinals 1st, 2nd, 3rd, ..., 50th position</p> <p>Guide pupils to assign the ordinals to days of the month, weeks of the year.</p> <p>Children are put into groups. Each group is given pieces of paper with an ordinal number/days of the week/months of the year etc. Each group must then race against each other to put themselves in the correct order.</p>	name the position of an object in a row.
	2.1.6 assign numbers 0 – 50 to points on the number line.	Number line	<p>Guide pupils to assign numbers to points on the number line.</p> <p>Guide pupils to draw a number line and assign numbers to points on the number line E.g.</p> 	<p>complete assigning numbers to points on the number line.</p> 
UNIT 2.2 ADDITION (0 – 18)	2.2.1 discover that the order of the addends does not change the sum.	Sums 0 – 18 (order of addends)	<p>TMLs: counters, number rods, cuisenaire rod, place value charts, flash cards, Unifix cubes</p> <p>Guide pupils to join groups of objects and relate it to addition of numbers.</p> <p>Guide pupils to change the position of numbers in addition sentences to discover the commutative property of addition. E.g. $4 + 5 = 5 + 4$</p>	<p>add two numbers, summing up to 18.</p> <p>use commutative property to complete addition sentences.</p>
	2.2.2 write addition sentences from word problems and solve them.	Word problems (sum 0 – 18)	<p>Guide pupils to make addition sentences from word problems and solve.</p> <p>Pair the children. Then encourage them to write their own word problems about their partners and pass them to that person to solve.</p>	solve word problems involving addition with sum up to 18.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 2.3 SUBTRACTION (0 - 18)	2.3.1 write subtraction sentences with none of the numbers greater than 18.	Subtraction as comparison of two groups of objects <u>Vocabulary</u> Comparison, difference, how many more, how many less, minus, take away	<u>TLMs:</u> counters, number rods, number track flash cards, unifix cubes. Let pupils revise subtraction as separation of objects from group(s).	write subtraction sentences for story problems and find the answers.
	2.3.2 complete subtraction sentences with none of the numbers greater than 18.	Subtraction sentences	Guide pupils to write subtraction sentences to show how many more and how many less objects there are in a group. Guide pupils to complete subtraction sentences by writing different subtraction names for numerals 0 – 19 E.g. $18 - 10$, $17 - 9$, $16 - 8$, $15 - 7$, etc.	find the difference of pairs of numbers 0 – 18 mentally.
	2.3.3 relate addition sentences to their corresponding subtraction sentences.	Solving subtraction sentences using corresponding addition sentences	Relate addition and subtraction sentences E.g. $3 + 5 = 8$ and $8 - 5 = 3$ and $8 - 3 = 5$	Subtraction of two numbers less than 18.
	2.3.4 write subtraction sentences relating to word problems and solve them.	Word problems involving subtraction (0 -18)	Use objects to act out word problems and discuss. Write subtraction sentences from word problems and solve. Pair the children. Then encourage them to write their own word problems about their partners and pass them to that person to solve.	use subtraction sentence to solve word problems.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 2.4 NUMBERS AND NUMERALS 0 - 1000	2.4.1 assign numbers to groups of objects up to groups of 1000 objects.	Numbers 0 – 1000	<p>TLMs: Multibase block, abacus, place value chart, straw, 10 by 10 square grid. Unifix cubes, numeral cards</p> <p>Guide pupils to assign structured groups of objects to given numbers E.g. 2 flats, 4 longs and 5 cubes is 2 hundred and forty-five or 245.</p> <p>Guide pupils to write numbers for given structured group of objects.</p> <p>Guide pupils to break 3-digit numbers in to hundreds, tens and ones, and read and write them.</p> <p>Guide pupils to put numerals in their correct places in a place value chart.</p> <p>Play 'Place Value Game'. Children have a place value grid. Teacher rolls a die or chooses a number at random and children need to place that number into their grid wherever they choose. The object of the game is to make the biggest/smallest number they can.</p>	<p>write the number that represents the objects in a given group of structured materials.</p> <p>express the numerals 100 – 999 as hundreds, tens and ones.</p>
	2.4.2 make ten groups of 100 objects and name it as a thousand (1000) objects.	Thousand as a unit	<p>Guide pupils to identify ten flats as a thousand units/cubes.</p> <p>Guide pupils to assign structured groups of objects to given numbers E.g. 2349 is 2 blocks, 3 flats, 4 longs and 9 cubes.</p>	<p>identify and write the numeral 1000 for a group of one thousand objects.</p> <p>write the numbers that represent objects in a given group of structured materials.</p>
	2.4.3 locate numbers 0 – 1000 to points on the number line and compare numbers using "<" and ">".	Comparing numbers on the number line	<p>Guide pupils to assign numbers 0 – 1000 to points on the number line and insert the symbols "<" and ">" between pairs of numbers.</p> <p>Play 'Greedy Crocodile Game'. An assortment of 1, 2, 3 and 4 digit numbers are put onto the chalk board. One child is chosen to be the 'greedy crocodile'. Another child chooses two of the numbers from the board and the 'crocodile' must decide which sign goes between the numbers.</p>	<p>fill in missing numbers in the number line.</p> <p>Insert the correct symbol (< or >) to compare two numbers.</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 2.5 MEASUREMENT OF LENGTH, CAPACITY AND WEIGHT	2.5.1 compare lengths and heights of objects with a metre rule.	Comparing lengths and heights with a metre stick Vocabulary Lengths, sand bag, measure, kilogram, height, compare, metre stick, capacity, litre, relationship, weight, scales, cm, m, depth, measurement, estimate, unit check, width, differences, actual.	TLMS: Metre stick, centimetre rule, metre rule, pencils, pens, containers scales, sticks, cloth. Take pupils to a textiles shop and let the storekeeper measure 3 or 4 metres of cloth for pupils to observe the use of the metre rule or invite the shopkeeper to come and demonstrate it in the classroom. Set children the tasks of collecting and recording the names of given objects which are longer than or shorter than a metre.	identify objects whose lengths or heights are longer or shorter than a metre rule.
	2.5.2 estimate and measure lengths and heights in metres.	Measuring lengths and heights in metres	Guide pupils to identify sticks whose lengths or heights are longer or shorter than a metre by comparing them with a metre rule. Guide pupils to estimate and measure lengths and heights in metres and record.	estimate, measure and record given lengths and heights in metres.
	2.5.3 state whether or not a given container can take more or less than a litre, or it is about a litre.	Capacity (litre)	Let pupils pour water from a given container into a litre container and determine whether the given container is more or less than or it is about a litre.	determine the capacity of a container in relation to the litre container.
	2.5.4 compare weights of objects with the kilogram.	Weight (kilogram)	Let pupils compare the weights of given objects with a kilogram sand-bag (or kilogram bean/seed bag) and sort them according to whether they are heavier than or lighter than or as heavy as the kilogram.	determine the weight of a given object in relation to a kilogram weight.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 2.6 ADDITION (SUMS 0 – 99)	2.6.1 find the sum of three or four 1-digit numbers.	Adding three or four 1-digit numbers Vocabulary: regroup, without regrouping, with regrouping, three-digit, addends, renaming, carrying	TLMs: cuisenaire rods, counters, multibase blocks, 10 by 10 square grid, flash cards, unifix cubes Guide pupils to use the number line to add three or four 1-digit number in horizontal or vertical form E.g. $2 + 3 + 5 =$ $\begin{array}{r} 5 \\ 3 \\ + 4 \\ \hline \end{array}$	find the sum of three or four 1-digit numbers
	2.6.2 find the sum of two 2-digit numbers which does not involve renaming.	Addition of 2-digit numbers	Guide pupils to revise groupings in tens using structured base ten materials as follows: <ul style="list-style-type: none"> - add objects grouped in tens E.g. - 3 bundles of ten sticks and 4 bundles of ten sticks make 7 bundles of ten sticks. - 5 longs and 3 longs make 8 longs. Guide pupils to add two numbers with 2-digit numerals using structured base ten materials and expanded form E.g. $23 + 15 =$ 2 longs and 3 cubes plus 1 long and 5 cubes. This makes 8 longs and 8 cubes by putting together cubes and then longs. $\begin{aligned} 23 + 15 &= (20 + 3) + (10 + 5). \\ &= (20 + 10) + (3 + 5). \\ &= 30 + 8 = 38. \end{aligned}$	add two 2-digit numbers (no regrouping/renaming).

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 2.6 (CONT'D) ADDITION (SUMS 0 – 99)	2.6.3 find the sum of three 2-digit numbers.	Sum of three 2-digit numbers (no regrouping)	Guide pupils to add three 2-digit numerals using structured base ten materials in expanded form. E.g. $24 \rightarrow 2 \text{ longs and } 4 \text{ cubes} \rightarrow 20 + 4$ $11 \rightarrow 1 \text{ long and } 1 \text{ cube} \rightarrow 10 + 1$ $+ 32 \rightarrow 3 \text{ longs and } 2 \text{ cubes} \rightarrow 30 + 2$ $\underline{67} \leftarrow 6 \text{ longs and } 7 \text{ cubes} \quad 60 \rightarrow 7$	add three 2-digit numbers (no regrouping).
	2.6.4 add two or three numbers using the commutative (order) property of addition.	Addition of two or three numbers using the commutative (order) associative order properties respectively	Guide pupils to change the order of addends and compare sum of two or three numbers E.g. $16 + 21 = 21 + 16 = 37$ $(7 + 4) + 5 = 11 + 5 = 16$ $7 + (4 + 5) = 7 + 9 = 16$ Find missing addends using the commutative (order) property of addition. E.g.(i) $17 + 22 = \square + 17$ (ii) $(8 + 6) + \square = 8 + (6 + 9)$	identify the missing addends using the commutative (order) associative order property

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 2.7 SUBTRACTION (NUMBERS LESS THAN 100)	2.7.1 perform subtraction operations involving 2-digit numbers using the expanded and short forms without renaming/regrouping.	Subtraction of 2-digit numbers without renaming/regrouping.	<p>TLMs: Multibase block, cuisenaire rods, counters, 10 by 10 square grid, flash cards, unifix cubes</p> <p>Guide pupils to perform subtraction of 2-digit numbers using the expanded and short forms without renaming/regrouping.</p> <p>Guide pupils to perform subtraction of 2-digit numbers</p> <p>E.g. $35 \longrightarrow 30 + 5$ $\begin{array}{r} -23 \\ \hline 12 \end{array} \longrightarrow \begin{array}{r} 20 + 3 \\ \hline 10 + 2 \end{array}$</p>	solve problems using the expanded and short forms without renaming/regrouping.
	2.7.2 perform subtraction operations involving 2-digit numbers using the expanded and short forms with renaming/regrouping.	Subtraction of 2-digit numbers with renaming/regrouping.	<p>Using the expanded and short forms with renaming/regrouping.</p> <p>E.g. $47 \longrightarrow 40 + 7 \longrightarrow 30 + 17$ $\begin{array}{r} -18 \\ \hline 29 \end{array} \longrightarrow \begin{array}{r} 10 + 8 \\ \hline 10 + 9 \end{array} \longrightarrow \begin{array}{r} 10 + 8 \\ \hline 10 + 9 \end{array}$</p>	solve problems using the expanded and short forms with renaming/regrouping.

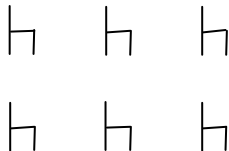

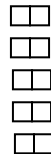
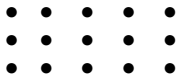
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 2.8 FRACTIONS	2.8.1 recognise half of a whole object.	One-half Vocabulary FRACTIONSs, parts, one whole, one half, one quarter, two quarters, three quarters, numerator, denominator, equal parts, equal shares.	<p>TLMS: Paper cut-outs, bars of soap, appropriate fruits (oranges, bunches of banana, loaf of bread, etc)</p> <p>Give examples of one whole objects in everyday life. E.g. – a loaf of bread. - an orange. - a bar of soap. - a piece of string. - a strip of paper.</p> <p>Give real situation which involves taking parts of a whole object. E.g. (i) two pupils sharing a loaf of bread equally. (ii) cutting a piece of string into two equal parts. (iii) folding a sheet of paper into two equal parts.</p> <p>Call each of the two equal parts of a whole object as one-half.</p>	Identify one-half of a whole object.
	2.8.2 find the number of halves in a given number of objects (up to 5).	The number of halves in a given number of objects	<p>Give real situations which involve halving (making halves) of whole objects and count the number of halves. i.e. Cut whole objects into two equal parts each and count the halves in the wholes.</p> <p>Fold sheets of paper each into two equal parts, and count the halves in the sheets.</p> <p>E.g. 1 sheet = 2 halves. 2 sheets = 4 halves.</p>	<p>Find the number of halves in a given number of whole objects.</p> <p>How many halves will there be if I cut each of the following into two equal parts? E.. a strip of paper ii. pencil iii. loaf of bread</p>


UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 2.8 (CONT'D) FRACTIONS	2.8.3 recognise one-fourth or one quarter of a whole object.	One-fourth	<p>Guide pupils to give real situations which involve making fourths.</p> <p>E.g. Folding a sheet of paper into fourths.</p> <p>Call each of the four equal parts of a whole object as one-fourth (one-quarter).</p>	Identify one-fourth of an object.
	2.8.4 find the number of fourths or quarters in a given number of whole objects (up to 5).	The number of fourths in a given number of objects	<p>Guide pupils to fold sheets of paper each into four equal parts, and count the fourths (quarters) in the sheet.</p>	Find the number of fourths in a given number of whole objects.
	2.8.5 identify a FRACTIONS of a group of objects.	FRACTIONS as part of a group	<p>Guide pupils to separate a group of four and eight objects into two equal groups of objects, and call each group by its FRACTIONS name, i.e. half.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>p π</p> <p>p π</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>○ ○ ○ ○</p> <p>● ● ● ●</p> </div> </div> <p>In each box the objects in the loop are half of the objects in the box.</p> <p>Guide pupils to separate a group of four and eight objects into four equal groups of objects each and call each group by its FRACTIONS name, i.e. one-fourth.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>p p</p> <p>p p</p> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>○ ○ ○ ○</p> <p>● ● ○ ○</p> </div> </div> <p>One-fourth of the objects in each box is enclosed in the loop.</p>	<p>Identify FRACTIONS represented by groups of objects.</p> <p>E.g.</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>* * * *</p> <p>* * * *</p> <p>* * * *</p> </div> <p>Circle one-fourth in the given box.</p>

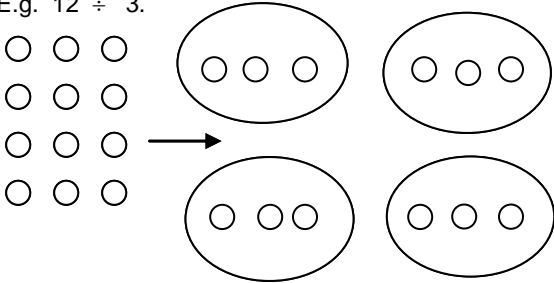
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
	The pupil will be able to:			Let pupils:
UNIT 2.9 MEASUREMENT OF TIME AND MONEY	2.9.1 use arbitrary units to measure time taken to complete simple events.	Measuring time using arbitrary time measures <u>Vocabulary</u> Time, minutes, seconds, hours, days, week, clock, watch, coins, pesewas, cedis, quarter past, half past, quarter to,	TLMs: Clock Face/Watches, currency denominations Guide pupils to find the time it takes to complete an event or activity using arbitrary time measures, E.g. number of hand claps it takes to sing a song.	find the time an event or activity takes using arbitrary time measures – hand claps, steps, jumps, etc.
	2.9.2 understand the relationship between the units of time (seconds, minutes, hours, days, weeks, months, etc.)	Relationship between units of time.	Guide pupils to compare times taken to complete two events or activities and tell which takes longer or shorter time. ‘Guess a Minute’ A game where all children are standing and have to sit when they think one minute is up. Teacher times game and the child closest to the minute mark wins. Revise the concept of half and quarter of a whole and relate it to half and quarter of an hour.	How many minutes make a quarter of an hour/half an hour? tell which of two events takes longer or shorter time to complete.
	2.9.3 tell the time by the hour, half-hour and quarter-hour.	Telling the time on the clock	Guide pupils to use a toy clock and tell the time by the hour, half-hour and quarter-hour, E.g. 8 o'clock, half-past 8 o'clock, quarter-past 8 o'clock and quarter to 8 o'clock.	tell the time shown on the toy clock.
	2.9.4 identify events which take an hour, half-hour or quarter-hour to complete.	Measuring the time using the clock	Guide pupils to give examples of events which take an hour, half-hour or quarter-hour to complete. E.g. (i) Mathematics lesson takes an hour. (ii) P.E. lesson takes half-hour. (iii) Morning assembly takes a quarter-hour to complete.	Show a given time on the toy clock. tell how long an event takes to complete.
	2.9.5 identify currency in circulation up to GH¢50.	Money	Guide pupils to identify the coins and currency notes in circulation up to GH¢50 and record them using the symbol GH¢.	tell the values of given coins and currency notes up to GH¢50.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2.9 (CONT'D) MEASUREMENT OF TIME AND MONEY UNIT 2.10 ADDITION (SUM 0 – 999)	The pupil will be able to: 2.9.6 use token coins up to GH¢1 to buy items in a play-shop.	Value of money	Guide pupils to put price tags on items in a play-shop and use token money to buy from the play-shop.	Let pupils: tell the items a coin or a combination of coins can buy, and tell the total amount of items purchased.
	2.10.1 add numbers which sum up to 999.	<p>Value of money</p> <p>Addition of 3-digit numbers</p> <p>Expanded form of a numeral as Hundreds, tens, and ones</p> <p>Adding two 3-digit numbers involving renaming (carrying)</p> <p>The expanded form. The short form</p>	<p>TLMs: counters, number rods, number track. 'Game Boards', 'Shape Sums' 'Word Addition' Flash cards</p> <p>Guide pupils to revise the values of each digit in a 3-digit numeral.</p> <p>Guide pupils to revise the expanded form of a numeral as hundreds, tens, and ones.</p> <p>Guide pupils to use objects grouped in hundreds, tens and ones to illustrate addition of two 3-digit numbers.</p> <p>Guide pupils to use non-proportional structural materials to add two 3-digit numbers. E.g. (i) abacus (ii) colour-coded counters.</p> <p>Add two 3-digit numbers involving renaming (carrying) from ones to tens only; E.g. (i) using the expanded form. (ii) using the short form (i.e. no expansion).</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div> Short form </div> <div style="border: 1px solid black; padding: 2px;"> Expanded form </div> </div> <p> $428 \rightarrow (400 + 20 + 8)$ $+ 263 \rightarrow (200 + 60 + 3)$ $\quad \quad \quad (600 + 80 + 11) \rightarrow (600 + 80 + 10 + 1)$ $691 \leftarrow \quad \quad \quad (600 + 90 + 1)$ </p>	<p>add 2- or 3-digit numbers</p> <p>(i) using the expanded form.</p> <p>(ii) short form.</p> <p>E.g.</p> <p>(i) $27 \rightarrow 20 + 7$ $\begin{array}{r} +12 \\ 27 \\ \hline 39 \end{array} \rightarrow \begin{array}{r} 10 + 2 \\ 20 + 7 \\ \hline 30 + 9 \end{array}$</p> <p>(ii) 72 $\begin{array}{r} +16 \\ 72 \\ \hline 88 \end{array}$</p> <p>(iii) $527 \rightarrow 500 + 20 + 7$ $\begin{array}{r} +216 \\ 527 \\ \hline 743 \end{array} \rightarrow \begin{array}{r} 200 + 10 + 6 \\ 500 + 20 + 7 \\ \hline 700 + 30 + 13 \\ 700 + 30 + 10 + 3 \end{array}$ $743 \leftarrow 700 + 40 + 3$</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2.10 (CONT'D) ADDITION (SUM 0 – 999) UNIT 2.11 SUBTRACTION OF NUMBERS LESS THAN 1000.	<p>The pupil will be able to:</p> 2.11.1 subtract a 2-digit number from a 3-digit number.	<p>Subtraction of 3-digit numbers</p> <p>Vocabulary Comparison, difference, how many more, how many less, minus, take away</p>	<p>Add two 3-digit numbers involving renaming from tens to hundreds only;</p> <ol style="list-style-type: none"> using the expanded form. using the short form. <p>Add two 3-digit numbers involving renaming from ones to tens and from tens to hundreds.</p> <ol style="list-style-type: none"> using the expanded form. using the short form. <p>TLMs: counters, number rods, number track.</p> <p>'Game Boards', 'Shape Sums', 'Word Addition', 'Number Fans'</p> <p>Guide pupils to use proportional structured materials to subtract 2- or 3-digit numbers from a 3-digit number: E.g. multi-base blocks, sticks, or seeds grouped in hundreds, tens and ones – i.e. structured base ten materials</p> <p>Guide pupils to use non-proportional structured materials to subtract 2- or 3-digit numbers: E.g., abacus, colour-coded counters.</p> <p>Use the expanded form to subtract two 3-digit numbers:</p> <div style="display: flex; justify-content: space-around;"> Short form <div style="border: 1px solid black; padding: 2px;">Expanded form</div> </div> $\begin{array}{r} 458 \rightarrow (400 + 50 + 8) \rightarrow (300 + 150 + 8) \\ -263 \rightarrow (200 + 60 + 3) \rightarrow (200 + 60 + 3) \\ \hline 195 \leftarrow (100 + 90 + 5) \end{array}$ <p>Note: Regrouping/borrowing from a number with 0 or 1 in the tens column should not be taught at this level.</p> <p>E.g. 401 813 400 - 245 - 547 - 236</p> <p>Guide pupils to use the short form to subtract two 3-digit numbers.</p>	<p>Let pupils:</p> subtract two or three-digit numbers using expanded form and/or short form. E.g. (i) 27 <u>-12</u> (ii) 578 → 500 + 70 + 8 <u>-234</u> → 200 + 30 + 4 344 ← 300 + 40 + 4

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2.12 MULTIPLICATION	The pupil will be able to: 2.12.1 write a multiplication sentence for groups of two.	Multiplication sentences for array of objects <u>Vocabulary</u> multiply, times, multiplied by, is equal to, times table, groups of, multiplication, product.	<p>TLMs: counters, bundles of sticks, square arrays, cuisenaire rods (red rods), multiplication chart of two.</p> <p>Guide pupils to make groups of two objects and find the total number of objects in each case.</p> <p>Guide pupils to make rectangular arrays and find the number of objects in each case.</p> <p>Guide pupils to write a multiplication sentence to describe an array of objects.</p> <p>E.g. </p> <p>This arrangement means $3 \times 2 = 6$, and reads “three times two equals six”.</p> <p>‘Counting Stick’ Encourage children to count in 2’s, 5’s and 10’s along length of stick.</p> <p>Ask children to arrange a number of objects in as many ways as they are able and write out the multiplication sum that accompanies them.</p>	Let pupils: match multiplication sentences with pictures of array of objects E.g. (i)  $3 \times 2 = 6$ (3 groups of 2) (ii)  Write the multiplication sentence in symbolic form.
	2.12.2 build the multiplication table for 2 up to the product 18.	Two Times Table Skip counting in twos	<p>Guide pupils to make groups of two from 1 group, 2 groups, 3 groups up to 9 groups of two and count to find the number of objects in various groups.</p> <p>Guide pupils to complete a table of number facts for multiplication by 2.</p> <p>skip count in twos, up to 18.</p> <p>Note: Teachers should emphasize the concept of multiplication as continuous addition.</p>	complete multiplication sentences up to product 18. $2 \times 1 = 2$ $2 \times 2 = 2 + 2 = 4$ $2 \times 3 = 4 + 2 = 6$ $2 \times 4 = 6 + 2 = 8$ 

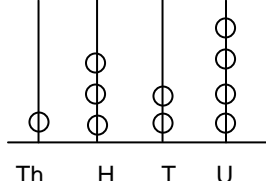
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2.12 (CONT'D) MULTIPLICATION	The pupil will be able to:			Let pupils:
	2.12.3 state the product if the order of factors in a multiplication sentence is changed.	Commutative (order) property of multiplication	<p>Guide pupils to use arrays of objects to show that the order of the factors does not change the product of two numbers. That is,</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="text-align: center;"> <p>• • • • • •</p> <p>3 x 2</p> </div> <div style="margin: 0 10px;"> <p>when rotated becomes</p> <p>or</p> </div> <div style="text-align: center;"> <p>• • • • • •</p> <p>2 x 3</p> </div> </div>	<p>use order property to complete multiplication sentences</p> <p>match multiplication sentences with pictures of array of object.</p>
	2.12.4 state the product of any number and 1 (one).	Multiplication by 1	<p>Guide pupils to use array of one row only to show that the product of any number and one is equal to the number.</p> <p>E.g. </p> <p>5 columns by 1 row is $5 \times 1 = 5$.</p>	find the product of a given number and 1.
	2.12.5 state the product of any number and 0 (zero) is zero.	Multiplication by 0	<p>Guide pupils to make a row of a given number of empty containers to represent a multiplication sentence involving zero.</p> <p>Guide pupils to find the number of objects in a row of a given number of empty containers.</p> <p>E.g. A row of 5 empty containers represent 5×0.</p>	find the product of a given number and zero.
	2.12.6 recite the 2, 5 and 10 times table.	Multiplication table for 2, 5 and 10.	<p>Guide pupils to make multiplication sentences for word problems.</p> <p>'Counting Stick' Encourage children to count in 2's, 5's and 10's along length of stick.</p>	<p>solve word problems using multiplication facts.</p> <p>E.g. A chicken has 2 legs. If Kofi buys 3 chickens, how many legs are there altogether?</p>
	2.12.7 solve simple word problems involving multiplication.	Word problems involving multiplication	<p>Ask children to arrange a number of objects in as many ways as they are able and write out the division sum that accompanies them.</p>	

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2.13 DIVISION	The pupil will be able to:			Let pupils:
	2.13.1 illustrate division as sharing	Division as sharing Vocabulary Share equally, group in sixes, picking in turns, group in sevens, group in eights, group in nines, divide, division, divided by, number sentence.	TLMs: counters, seeds, sticks, objects, unifix cubes Guide pupils to perform activities to represent division as equal sharing. In equal sharing pupils pick in turns until the objects are finished. Guide pupils to form groups of equal size. The items are put into groups of equal quantity.	solve problems involving sharing E.g. $8 \div 2 = 4$
	2.13.2 illustrate division as making equal groups.	Division as grouping	Guide pupils to count the number of equal groups formed. E.g. $12 \div 3$.  There are four groups of three from 12. Therefore, $12 \div 3 = 4$.	solve problems involving grouping.
	2.13.3 convert a division sentence to a multiplication sentence involving a missing factor.	Division as missing factor in multiplication sentence	Revision Revise multiplication facts up to 18 with pupils. Guide pupils to find missing factor in a multiplication sentence to solve division problems. E.g. $3 \times \square = 12$ $\therefore 12 \div 3 = \square$ Guide pupils to identify that the missing factor in the multiplication sentence will be the answer for the division problem.	solve problems involving finding the missing factors. E.g. 5 pupils share 15 items. How many will each pupil get? $15 \div 5 = \square$ How many pupils will share 14 toffees for each to get 7 toffees? $14 \div \square = 7$

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2.13 (CONT'D) DIVISION UNIT 2.14 COLLECTING AND HANDLING DATA	The pupil will be able to:			Let pupils:
	2.13.4 build the basic division facts up to product 18.	Division by 2	<p>Guide pupils to recall the division fact with 2 as a factor.</p> <p>Guide pupils to solve problems involving division by 2 by skip counting backward in twos.</p>	<p>recall facts for division by 2.</p> <p>E.g. $8 \div 2 = 4$ $10 \div 2 = 6$ $12 \div 2 = 6$ $14 \div 2 = 7$</p>
	2.13.5 solve simple problems involving division.	Story problems involving division	Guide pupils to pose word problems involving division and guide pupils to solve them.	<p>solve story problems involving division.</p> <p>E.g. Pupils shared items. How many items will each pupil get?</p>
	2.14.1 collect data by counting different objects with specific attributes or characteristics.	<p>Collecting data by counting</p> <p>Vocabulary Collect, data, sort, list, count, label, organize, information, classify, tally, capacity, length, similar, measuring, criteria, recording</p>	<p>TLMs: Graph book, empty boxes, empty tins, saw dust/sand, water, shoes, etc.</p> <p>Guide pupils to find the number of objects or pupils satisfying a given criteria or description. E.g. Pupils born on each day of the week.</p> <p>The 'Human Graph'. Children use their own bodies to make a 'human' frequency table and graphs.</p>	<p>find the number of pupils/items satisfying a given description.</p>
	2.14.2 collect data by measuring lengths/capacities of similar objects.	Collecting data by measuring	Guide pupils to find the number of pupils or items satisfying a criterion involving measurement.	measure their height and record in metres.
	2.14.3 represent data as simple block graphs.	Simple Block Graphs	Guide pupils to draw boxes to represent data collected/recorded.	draw appropriate boxes to represent data collected or recorded using the days pupils were born.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2.15 SHAPE AND SPACE	The pupil will be able to:			Let pupils:
	2.15.1 identify common plane shapes.	Common Plane Shapes <u>Vocabulary</u> Rectangle, space, plane shapes, triangles, circles, squares, straight sides.	<u>TLMs:</u> cut-out shapes, concrete objects, items in the classroom, Game Boards. Guide pupils to sort cut-out shapes; identify and name common plane shapes. - rectangles, squares, triangles and circles; trace around cut-out shapes; Guide pupils to identify faces of common solids as rectangles, squares, triangles and circles, and draw squares; rectangles; triangles and circles.	name some common plane shapes identify faces that are rectangles and circles.
	2.15.2 identify line segments.	Line Segments.	Guide pupils to associate the idea of straightness with line segments by identifying objects with straight edges in the classroom. Test straightness with a folded sheet of paper, a string, and a straight edged object;	draw plane shapes using line segments.
	2.15.3 identify plane shapes with straight sides.	Sides of plane shapes	Guide pupils to identify rectangles and squares as having four straight sides, Guide pupils to identify a triangle as having three straight sides; Guide pupils to make plane shapes with straight sides on a nail board (geo-board).	identify the number of sides of given plane shapes. draw a triangle, a rectangle, or a square.
	2.15.4 identify plane shapes by their name and the number of sides.	Naming Plane Shapes.	Guide pupils to name and identify plane shapes by their number of sides: squares; rectangles, triangles, and circles. 'Guess My Shape' A child then chooses a shape and their classmates need to ask questions in order to try and work what the shape is. The questions must be ones which can only be answered with a YES or NO	name plane shapes by their number of sides.

PRIMARY 3

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.1 NUMBERS AND NUMERALS 0– 10,000	The pupil will be able to:			Let pupils:
	3.1.1 count objects in thousands.	Thousand as a unit Vocabulary one thousand, one thousand and one, one thousand and two, ten thousand, place value, count on, count back,	TLMs: abacus, bundle of sticks, Dienes base ten materials, place value chart, colour coded counters. Number fans Let pupils use structured base ten materials to illustrate the number of hundreds in a thousand. Let pupils use abacus and colour coded counters to count in (i) hundreds. (ii) thousands.	use colour-coded counters to count in hundreds and thousands.  Th H T U write the numeral represented on the abacus.
	1.1.2 state the place-value of digits in numbers 0 – 9999.	Place value	Guide pupils to recognize place value as the value of a digit in a numeral Introduce place value game or Exchange game	put a digit in a place value chart and find the value.
	1.1.3 break 4-digit numbers into thousands, hundreds, tens and ones, and read and write them.	Numbers up to 10,000	Guide pupils to read and write numbers using digits in a place value chart. Guide pupils to find the missing numbers of a sequence of numbers which are multiples of: (i) ten. (ii) hundred. (iii) thousand. Guide pupils to use non-proportional structured materials to represent the thousands, hundreds, tens and ones in a 4-digit number.	write a numeral for a number in expanded form.
	1.1.4 find missing numerals on the number line.	Numerals on a number line	Guide pupils to find missing numerals on a number line.	find the missing numbers on a number line.

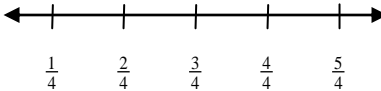
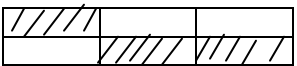
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.1 (CONT'D)	The pupil will be able to:			Let pupils:
NUMBERS AND NUMERALS 0 – 10,000	3.1.5 use the symbol > and < correctly to compare two numbers up to 10,000.	Numerals 0 – 10,000. Comparing numbers 100 – 9999 using the symbols > and <	<p>Guide pupils to write numerals for number names up to 1000.</p> <p>Assist pupils to use the place value chart to compare two numbers.</p> <p>Let pupils compare two numbers written in expanded form (orally).</p> <p>Play Greedy Crocodile game.</p> <p>Let pupils use the symbols >, < or = to compare two numbers E.g. 1. 438 ... 389 2. 3448 ... 3459</p>	<p>write a numeral for a given number name.</p> <p>E.g. one thousand, two hundred and thirty-five = 1235</p> <p>compare two numbers using >, < or =.</p>
UNIT 3.2				
ADDITION AND SUBTRACTION (SUM UP TO 9999)	3.2.1 use the basic addition facts.	Addition and Subtraction	<p>TLMs: multibase block, bundles of sticks, abacus. Number Fans.</p> <p>Revise basic addition and subtraction facts.</p> <p>Write a given sum using different combinations of 1-digit numbers. E.g. (1) $5 + 2 = 7$ (1) $5 - 2 = 3$ (2) $4 + 3 = 7$ (2) $4 - 3 = 1$ (3) $6 + 1 = 7$ (3) $7 - 4 = 3$</p>	<p>write given sums using different combinations of 1-digit numbers</p>
	3.2.2 add numbers up to sums 9,999.	Adding 2, 3 and 4-digit numbers.	<p>Guide pupils to add 2-digit numbers involving renaming. E.g. $49 + 37$.</p> $\begin{array}{r} 49 \\ + 37 \\ \hline 86 \end{array}$ <p>Guide pupils to add 3-digit numbers involving renaming (carrying) from ones to tens and also from tens to hundreds. E.g. $457 + 364$.</p>	<p>add 2-or 3-digit numbers.</p> $\begin{array}{r} 32 + 27 = \\ 465 + 234 = \\ 716 - 214 = \\ 893 - 742 = \end{array}$

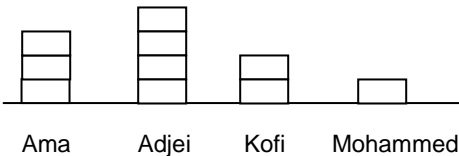
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.2 (CONT'D) ADDITION AND SUBTRACTION (SUM UP TO 9999)	The pupil will be able to:	Expanded and short form.	Guide pupils to add 4-digit numbers using the expanded and short forms. E.g. $4532 + 3246$ <u>Expanded Form</u> $ \begin{array}{r} 4000 + 500 + 30 + 2 \\ 3000 + 200 + 40 + 6 \\ 7000 + 700 + 70 + 8 \\ = 7778 \end{array} $ <u>Short Form</u> $ \begin{array}{r} 4532 \\ + 3246 \\ \hline 7778 \end{array} $	Let pupils: add 4-digit numbers using (a) expanded form. (b) short form.
	3.2.3 subtract numbers (0 – 9,999).	Subtracting from 2- to 4-digit numbers using (1) expanded form. (2) short form	Guide pupils to subtract 2-digit numbers from 3- or 4-digit numbers involving regrouping. E.g. $302 - 45$ $415 - 135 \longrightarrow 400 + 10 + 5$ $ \begin{array}{r} 302 \\ - 45 \\ \hline \end{array} \qquad \begin{array}{r} 415 \\ - 135 \\ \hline \end{array} \longrightarrow \begin{array}{r} 400 + 10 + 5 \\ 100 + 30 + 5 \\ \hline \end{array} $ Guide pupils to subtract 2-, 3- and 4- from 4-digit numbers using the expanded form and short form.	subtract 2- to 4-digit numbers using: (1) expanded form. (2) short form.
	3.2.4 compare two expressions involving addition or subtraction.	Comparing two expressions involving addition or subtraction	Guide pupils to compare two expressions involving addition or subtraction and insert the symbols $<$, $>$ or $=$. E.g. $(16 + 7) > (12 - 6)$. $(34 + 18) = (16 + 36)$.	insert $>$, $<$ or $=$ to compare two expressions involving addition or subtraction.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.2 (CONT'D) ADDITION AND SUBTRACTION (SUM UP TO 9999)	The pupil will be able to: 3.2.5 solve word problems involving addition and subtraction.	Word Problems and Investigations	<p>Guide pupils to pose story problems involving addition and subtraction for pupils to solve.</p> <p>Guide pupils to use the numbers 1, 2, 3, ..., 6 without repetition to make the smallest or largest sum of two 2-digit numbers.</p> <p>E.g. the smallest sum of two 2-digit numbers using the digits 0, 1, 2, 3, 4 is</p> $ \begin{array}{r} \boxed{1} \quad \boxed{0} \\ + \quad \boxed{2} \quad \boxed{3} \\ \hline 3 \quad 3 \end{array} $	<p>Let pupils:</p> <p>solve story problems involving addition and subtraction up to 4-digit numbers.</p> <p>give investigation tasks as home work.</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.3 LENGTH AND AREA	<p>The pupil will be able to:</p> <p>3.3.1 measure distances and lengths(or heights) in metres and centimetres</p> <p>3.3.2 compare surfaces (regions) of plane shapes.</p>	<p>Measuring lengths Introducing a metre stick as a measure</p> <p>Introducing centimetre as one-hundredth of a metre</p> <p>Measuring distances in metres and centimetres</p> <p>Introducing the symbol “m” for metre and “cm” for the centimetre</p> <p>Comparing surfaces</p>	<p>TLMs: Metre sticks, objects, cut-out, tangrams</p> <p>Guide pupils to compare lengths and heights with 1-metre stick.</p> <p>Guide pupils to use the 10-centimetre stick to measure distances or lengths/heights of objects.</p> <p>Guide pupils to find the number of centimeters in a metre. 1m = 100cm</p> <p>‘Square Children’ Ask children to measure the height and width (fingertip to fingertip with arms outstretched) of their colleagues to find which children may be ‘square’ (height and width being the same).</p> <p>Guide pupils to measure distances in metres and centimetres. E.g. the lengths of the chalkboard.</p> <p>Guide pupils to measure heights of pupils in metres and centimetres. Guide pupils to write the symbol “m” for metre and “cm” for the centimetre.</p> <p>Guide pupils to put one shape on top of another and tell which of two surfaces is larger or smaller.</p> <p>Let pupils order 3 or 4 shapes according to the sizes of the surfaces.</p> <p>Measure the area of a number of large objects (desk, chairs, tables etc) using water sachets as a standard unit.</p>	<p>Let pupils:</p> <p>measure and record given lengths, distances or heights in metres and centimetres.</p> <p>identify shapes which have equal surfaces.</p>

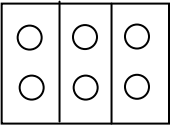
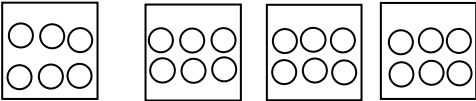
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.4 FRACTIONS	The pupil will be able to: 3.4.1 identify one out of eight equal parts as one-eighth.	One-eighth <u>Vocabulary</u> one-eight, two-quarters, three-quarters, numerator, denominator,	TLMs: strips of papers, FRACTION chart, Cuisenaire rods, FRACTIONS cards, counting objects. Revision: Assist pupils to use practical activities like paper folding and FRACTIONS charts to revise the FRACTIONSs $\frac{1}{2}$ and $\frac{1}{4}$ The Eight Team. Arrange the children into groups of eight and tell them that collectively they are 'one whole' team and let them give themselves a name. Give each team member a membership card on which they can put their own name their team name and draw a logo. However the logo must incorporate the sign for the FRACTIONS 'one eighth'. Explain the FRACTIONSs $\frac{1}{8}$, $\frac{1}{4}$ and $\frac{1}{2}$ in terms of the number of team members. Guide pupils to use paper folding, FRACTIONS charts, Cuisenaire rods etc. to guide pupils to identify one out of eight equal parts as one-eighth. Assist pupils to group countable objects into eight equal parts and identify one part as one-eighth.	Let pupils: find one-eighth out of eight equal parts. find the number of eighths in a given number of wholes.

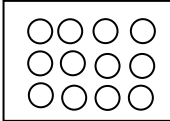
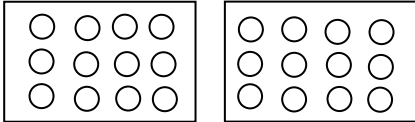
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.4 (CONT'D) FRACTIONS	<p>The pupil will be able to:</p> <p>3.4.3 identify and write symbols for multiples of half, fourth and eighth.</p>	<p>Multiples of half, fourth and eighth</p>	<p>Assist pupils to use paper folding and shading and let pupils identify multiples of half, fourth and eighth and write their symbols</p> <p>E.g. $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$, etc.</p> <p>Guide pupils to locate multiples of half, fourth and eighth on the number line. E.g.</p> 	<p>Let pupils:</p>
	<p>3.4.4 identify and write the FRACTIONSs one-third and one-sixth.</p>	<p>One-third and one-sixth</p>	<p>Guide pupils to use materials to divide a whole into three equal parts, identify one-third and write its symbol. E.g. folding strip of paper into three equal parts.</p> <p>Guide pupils to shade one part to show $\frac{1}{3}$ or divide a group of countable objects into three equal parts and pick one.</p> <p>Guide pupils to divide objects into six equal parts and identify one part as one-sixth and write its symbol.</p>	<p>write the symbol for one shaded part out of a shape divided into three or six parts.</p>  <p>What FRACTIONS is shaded?</p>
	<p>3.4.5 compare two like FRACTIONSs.</p>	<p>Comparing like FRACTIONSs (FRACTIONSs with the same denominator)</p>	<p>Guide pupils to compare FRACTIONSs with the same denominator (not greater than 8), using</p> <ol style="list-style-type: none"> paper folding. Cuisenaire rods the number line FRACTIONS chart. 	<p>compare like FRACTIONSs using the symbol < and > to make a sentence true.</p> <p>E.g. $\frac{5}{8} > \frac{3}{8}$</p>

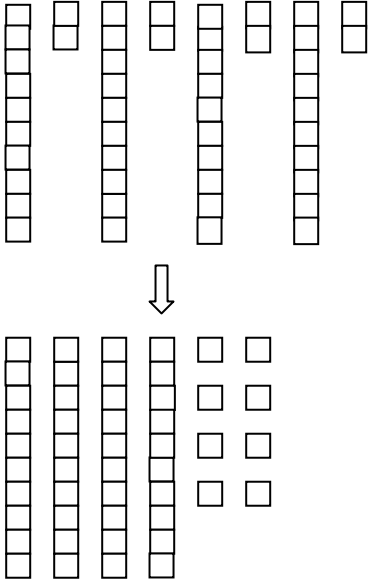
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.5 COLLECTING AND HANDLING DATA	The pupil will be able to: 3.5.1 collect data and record the results.	Collecting and recording data	<p>TLMs: block graph, days of birth, days of the weeks, register, data, represent.</p> <p>The 'Human Graph'. Children use their own bodies to make a 'human' frequency table and graphs.</p> <p>Let pupils collect data in the school environment and perform various activities involving</p> <ul style="list-style-type: none"> (a) counting. (b) measuring. <p>E.g. counting the number of textbooks for each subject, day of the week each pupil was born, number of pupils in each class, measuring heights, capacities of containers.</p> <p>Guide pupils to perform experiments like throwing the die.</p>	Let pupils: record the number of pupils who attend classes for a given period of time. collect data in the school and record the results.
	3.5.2 represent data as simple block graph.	Block graph	<p>Guide pupils to draw squares as block graphs to represent data collected. E.g.</p>  <p style="text-align: center;">Ama Adjei Kofi Mohammed</p> <p>The block graph represents the number of books Ama, Adjei, Kofi and Mohammed have.</p> <p>Assist pupils to do a project involving collecting data and representing as block graph.</p> <p>Encourage pupils to ensure accuracy in recording data.</p>	collect data and represent it as block graph. In groups collect data on the day they were born and represent as a block graph.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION								
UNIT 3.6 ESTIMATING AND MEASURING CAPACITY AND WEIGHT	<p>The pupil will be able to:</p> <p>3.6.1 estimate and measure the capacities of containers in litres.</p>	Capacity	<p>TLMs: Containers of different sizes, 1-litre bottle (Fanta and Coca-Cola bottles, improvised 1 litre container, etc),Water and beam balance</p> <p>Revision: Assist pupils to compare the capacities of containers with a litre.</p> <p>Guide pupils to estimate and verify by measuring the capacities of containers in litres by filling the containers with water from the litre container, to find the number of times the litre container fills that container to the brim.</p> <p>Some of the containers to measure are; paint buckets, mineral water bottles, washing bowls, etc. Use the table below for the recording</p> <table><tr><th>Container</th><th>Estimate</th><th>Measurement</th><th>Difference</th></tr><tr><td></td><td></td><td></td><td></td></tr></table> <p>Measure in kilograms.</p>	Container	Estimate	Measurement	Difference					<p>Let pupils:</p> <
Container	Estimate	Measurement	Difference									

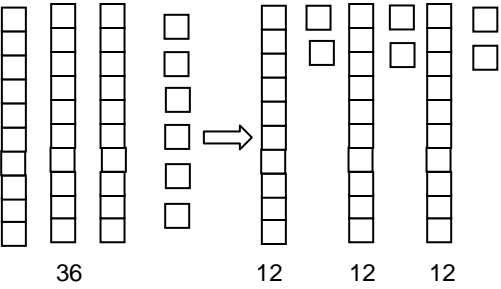
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION								
UNIT 3.6 (CONT'D) ESTIMATING AND MEASURING CAPACITY AND WEIGHT	The pupil will be able to:			Let pupils:								
	3.6.2 estimate and measure the weights of objects.	Estimating and measuring weights	Let pupils estimate weights of objects and measure to verify using beam balance or scale balance. Guide pupils to record their results using the table below. <table><tr><td>Object</td><td>Estimate</td><td>Measurement</td><td>Difference</td></tr><tr><td></td><td></td><td></td><td></td></tr></table>	Object	Estimate	Measurement	Difference					measure the weights of given objects in kilograms and record results using a table.
	Object	Estimate	Measurement	Difference								
3.6.3 compare weights of objects using the symbols < or >.	Comparing weights	Guide pupils to weigh common household items such as vegetables using scale balance Guide pupils to weigh 2 objects and compare pupils by using the symbol < or >.	compare weights of deferent objects using scale balance									
3.6.4 find the total weights of two or three objects.	Finding the total weights of objects	Guide pupils to weigh two or three objects on the scale and find their sum in kilograms	find the total weight of two or three objects.									

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.7 MULTIPLICATION OF NUMBERS	<p>The pupil will be able to:</p> <p>3.7.1 show that the product of three numbers does not change if the factors in the multiplication sentence is regrouped.</p> <p>3.7.2 recite the 2, 3, 4, 5 and 10 times-table.</p>	<p>Regrouping property of multiplication</p>	<p>TLMs: countable objects such as bottle tops, seeds, beads, marbles, etc.</p> <p>Revision: Using countable objects help pupils to revise the commutative (order) property of multiplication involving two factors E.g. $3 \times 5 = 5 \times 3$.</p> <p>Guide pupils to perform practical activities using countable objects like bottle tops to show that the product of three numbers does not change when the factors are regrouped (1-digit factors only).</p> <p>E.g. $4 \times (3 \times 2) = (4 \times 3) \times 2$</p> <p>(i) Make an array of 3 groups of 2 objects giving altogether 6 objects.</p>  <p>(ii) Make an array of 4 by 6 objects.</p>  <p>count to find the result i.e. 24</p> <p>(iii) regroup the factors for pupils to find the results by following the same procedure i.e. $2 \times (3 \times 4)$.</p>	<p>Let pupils:</p> <p>use the order property to complete multiplication sentences.</p> <p>complete multiplication sentences by re-grouping factors.</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.7 (CONT'D) MULTIPLICATION OF NUMBERS	The pupil will be able to:		<p>Guide pupils to make an array of 3 x 4 objects.</p>  = 12 <p>Guide pupils to make an array of 2 groups of 12 objects 2 x (3 x 4)</p>  = 24 <p>$2 \times (3 \times 4) = 24$</p>	Let pupils:
	3.7.3 find the product of three 1-digit numbers up to product of 36.	Multiplying three 1-digit numbers.	<p>Using regrouping in a multiplication sentence, assist pupils to multiply three 1-digit numbers</p> <p>E.g. $3 \times 5 \times 2 = (3 \times 5) \times 2$ or $3 \times (5 \times 2)$ $= 15 \times 2$ $= 3 \times 10$ $= 30$ $= 30$</p> <p>Using regrouping, help pupils to compare two multiplication sentences involving three 1-digit numbers.</p> <p>E.g. $(2 \times 4) \times 3 = 2 \times (4 \times 3)$ $8 \times 3 = 2 \times 12$ $24 = 24$</p>	<p>complete multiplication sentence involving three 1-digit numbers by regrouping the factors. E.g. $3 \times 4 \times 5$</p> <p>multiply three 1-digit numbers.</p> <p>find the number in \square</p> <p>$(3 \times 4) \times 5 = 3 \times (\square \times 5)$</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.7 (CONT'D) MULTIPLICATION OF NUMBERS	<p>The pupil will be able to:</p> <p>3.7.4 find missing factors in multiplication sentences involving three 1-digit numbers.</p> <p>3.7.5 multiply 2-digit numbers by a 1-digit number without renaming/regrouping.</p>	<p>Missing factors in multiplication sentences involving three 1-digit numbers</p> <p>Multiplying a 2-digit number by a 1-digit number</p>	<p>Guide pupils to find missing factors in multiplication sentences involving three 1-digit numbers together with the product.</p> <p>E.g. $4 \times 2 \times \square = 24$</p> <p>Guide pupils to represent 2-digit numbers as groups of tens and ones using base ten materials such as Dienes and bundle of sticks.</p> <p>Use countable objects such as Dienes blocks to illustrate multiplication of 2-digit numbers by 1-digit number. E.g. 4×12 means 4 groups of 12 objects.</p>  <p>4 tens and 8 one = 48 This means $4 \times 12 = 48$</p>	<p>Let pupils:</p> <p>find missing factors in multiplication sentences involving three 1-digit numbers.</p> <p>multiply 2-digit numbers by 1-digit numbers horizontally E.g. 23×3</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.7 (CONT'D) MULTIPLICATION OF NUMBERS	The pupil will be able to:		Guide pupils to multiply vertically E.g. $\begin{array}{r} 12 \\ \times 4 \\ \hline 48 \end{array}$	Let pupils: multiply 2-digit number by 1-digit number vertically. E.g. $\begin{array}{r} 18 \\ \times 4 \\ \hline \end{array}$
	3.7.6 use the symbols =, < and > to compare two multiplication sentences.	Comparing two multiplication sentences	Guide pupils to write two multiplication sentences and insert one of the symbols =, < or > to make them true. E.g. (i) $5 \times 7 \dots 4 \times 10$ $5 \times 7 < 4 \times 10.$ (ii) $4 \times 3 \times 3 \dots 9 \times 3$ $4 \times 3 \times 3 > 9 \times 3.$	use the appropriate symbol (=, < or >) to compare two multiplication sentences.
	3.7.7 solve simple word problems involving multiplication up to three factors.	Word problems involving multiplication	Guide pupils to pose word problems involving multiplication of two 1-digit and three 1-digit factors for pupils to solve.	solve problems involving multiplication of two and three 1-digit numbers.

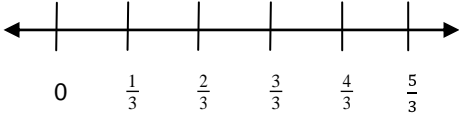
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.8 DIVISION	The pupil will be able to: 3.8.1 build basic division facts up to product 36.	Basic division facts (dividing 2-digit number by a divisor not more than 5	<p>TLMs: multi-base blocks</p> <p>Revision: Lead pupils to solve problems involving division up to the product 18.</p> <p>Guide pupils to use structured base ten materials such as Dienes blocks to illustrate division of 2-digit number by a number not more than 5 E.g. $36 \div 3$.</p>  <p>This means that $36 \div 3 = 12$</p> <p>Let pupils use the basic division facts to divide two digit numbers up to 36 by divisors not more than 5.</p>	Let pupils: divide 2-digit numbers by 1-digit number. divide two digit numbers by divisors up to five. E.g. $24 \div 4 = 6$ $30 \div 5 = 6$ $12 \div 3 = 4$
	3.8.2 find missing factors in division sentences.	Missing factors	<p>Use division facts to find missing factors in division sentences. E.g. $28 \div \square = 7$ $\square \times 7 = 28$ $4 \times 7 = 28$ Therefore $\square = 4$</p>	find missing factors in division sentences.
	3.8.3 show that the result of dividing any number by one (1) is that number.	Dividing by 1	<p>Guide pupils to use activities to discover that any number divided by 1 gives the same number. E.g. $12 \div 1 = 12$</p>	divide 1- or 2-digit numbers by 1.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.8 (CONT'D) DIVISION	<p>The pupil will be able to:</p> <p>3.8.4 use the symbols =, < or > to complete two division sentences.</p> <p>3.8.5 solve simple word problems involving division.</p>	<p>Comparing division sentences</p> <p>Word problems involving division</p>	<p>Guide pupils to compare two division sentences by using the symbols =, < or >.</p> <p>Pose word problems involving division of 2-digit numbers by a divisor not more than 5 for pupils to solve.</p> <p>E.g. Mrs. Mensah bought 24 exercise books for her 3 children when school reopened to be shared equally. How many exercise books did each child get?</p>	<p>Let pupils:</p> <p>use the appropriate symbol =, < or > to compare two division sentences.</p> <p>solve word problems involving division of a 2-digit number by a divisor not more than 5.</p>

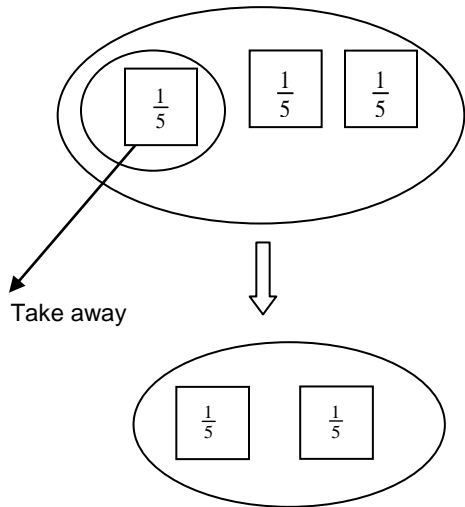
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.9 PLANE SHAPES	<p>The pupil will be able to:</p> <p>3.9.1 draw plane shapes from cut-out and solid shapes.</p> <p>3.9.2 identify corners of rectangles/squares as right-angles.</p>	<p>Drawing Plane Shapes</p> <p>Vocabulary corners, rectangle, plane shapes, angles, line segment, breadth, triangles, draw, solid shapes, properties</p> <p>Corners (angles) of plane shapes</p>	<p>TLMs: Solid objects, Cut-out shapes (circles, triangles and rectangles)</p> <p>Revise the names of plane shapes.</p> <p>Shape pictures. Provide children with a selection of cut out shapes. In each shape the children must write down its name, number of sides, corners and, for the more able, the number of any right angles in the shape. They should then be allowed to make pictures or patterns with the shapes they have.</p> <p>Guide pupils to draw and name plane shapes such as circles, triangles, rectangles from cut-out shapes and objects such as Milo tins, milk tins, toothpaste boxes</p> <p>Help pupils to identify corners of plane shapes as angles using cut-out shapes.</p> <p>Provide the children with cut out 'L' shaped pieces of paper. Explain that the angle of the 'L' is a right angle (90°) and ask them to identify other right angles around the classroom e.g. the corner of the desk, the door or window frames etc. Allow the children to move around the classroom and hold the pieces of paper against the objects to check for themselves. Then allow the children to stick the pieces of paper on the right angles they have found.</p> <p>Help pupils to identify corners (angles) from real objects like the corners of room, blackboard, tables, books, etc.</p> <p>Help pupils to classify plane shapes by type of corners and identify the corners of rectangles/squares as right-angles.</p> <p>Let pupils identify plane shapes with four right-angles as rectangles and squares.</p> <p>Guide pupils to examine plane shapes and find the number of right-angles.</p>	<p>Let pupils:</p> <p>draw given plane shapes and name them.</p> <p>identify and name plane shapes with right-angles.</p> <p>draw right-angles from different position.</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.9 (CONT'D) PLANE SHAPES	<p>The pupil will be able to:</p> <p>3.9.3 identify equal line segments of rectangles.</p> <p>3.9.4 identify line of symmetry of simple shapes.</p> <p>3.9.5 recognise shapes with no lines of symmetry</p>	<p>Equal line segment of rectangles</p> <p>Lines of symmetry</p>	<p>Let pupils name the longer lines as length and the shorter lines as breadth.</p> <p>Let pupils observe rectangles and identify the equal line segments.</p> <p>Let pupils identify line segments of plane shape by folding cut out of various shapes.</p> <p>Lead pupils to fold cut-outs into two equal parts and identify the resulting lines as line of symmetry.</p> <p>Guide pupils to cut-out a scalene triangle and fold to see if there is a line of symmetry.</p>	<p>Let pupils:</p> <p>describe the properties of a rectangle/square.</p> <p>mention objects that have lines of symmetry.</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.10 MEASUREMENT OF TIME AND MONEY	The pupil will be able to:			Let pupils:
	3.10.1 estimate and measure time in minutes.	Estimating and measuring time in minutes <u>Vocabulary</u> Token coins, hours, estimate, measure, minutes, calendar, dates, birth, half past, quarter to, cost, change clock, duration	TLMs: miniature clock or real clock, token notes and coins, calendar. Assist pupils to read time in hours and find the duration between two times. E.g. from 8 o'clock to 10 o'clock is 2 hours. Ask the children to write a time-table for their evening or a weekend activities. They will need to record what they are doing, when and how long. Assist pupils to measure the time in minutes by reading the clock Guide pupils to estimate and verify by measuring time in minutes. E.g. the time a pupil takes to walk to the office, the time a pupil takes to write a sentence, time a pupil takes to read a passage, etc.	calculate the duration between two times in minutes.
	3.10.2 tell time in hours and minutes.	Tell the time in hours and minutes	Let pupils read time in hours, half-hour and quarter hour using the clock. E.g. half past ten, or 11.15, quarter to six, etc. Read the clock by the hour and minutes. E.g. 10.30, 4.20, etc.	show and read given time in hours and minutes on the clock.
	3.10.3 read the calendar and dates.	Reading calendar and dates	Assist pupils to read dates from the calendar. Let pupils tell their dates of birth and mark their birthdays on the calendar. Let pupils find the number of hours in a day, number of days in a week and number of weeks in a month.	tell dates of special days in Ghana. E.g. Independence. express time in a given unit in another unit. E.g. How many days are in two weeks?

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.10 (CONT'D) MEASUREMENT OF TIME AND MONEY	The pupil will be able to: 3.10.4 use currency notes and coins up to GH¢50 in a play shop 3.10.5 find the total cost of two or more items.	Using coins and notes up to GH¢50 Giving and checking change Total cost of two or more items	Let pupils use token notes and coins in a play shop. The total sum of each buying and selling should not be more than GH¢50. Guide pupils to give and check change given. Let pupils find the total cost of two or more items from a corner shop or school canteen.	Let pupils: find the change when the money given is more than the cost of item bought. find the cost of two or more items E.g. Musa bought 2 pencils at the cost of 20p each and 3 exercise books at the cost of 30p each. How much did he pay for the items altogether.
UNIT 3.11 FRACTIONS II	3.11.1 write multiples of FRACTIONSs and locate them on the number line.	Locating multiples of FRACTIONSs on the number line Vocabulary Locate, multiples, denominator, numerator, addition, one-half, one-third, one-sixth, one-eighth, represent, three quarters, subtraction	TLM: strips of paper, Cuisenaire rods, etc. Guide pupils to write multiples of $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{6}$ and $\frac{1}{8}$ Lead pupils to locate multiples of FRACTIONSs ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{6}$ and $\frac{1}{8}$) on the number line. E.g. 	locate multiples of given FRACTIONSs whose denominator is not more than 8 on the number line.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.11 (CONT'D) FRACTIONS II	The pupil will be able to: 3.11.2 add like FRACTIONSs.	Addition of FRACTIONSs with the same denominator (like FRACTIONSs)	<p>Using Cuisenaire rods or paper cutting guide pupils to add FRACTIONSs which have the same denominator.</p> <p>E.g. $\frac{1}{4} + \frac{2}{4}$</p> <p>(i) cut or tear strips of paper into fourths and label them as such.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{4}$</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{4}$</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{4}$</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{4}$</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{4}$</div> </div> <p>(ii) represent $\frac{1}{4} + \frac{2}{4}$ using FRACTIONS paper.</p> <p>i.e. $\frac{1}{4}$ and $\frac{1}{4}$ $\frac{1}{4}$ \Rightarrow $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$</p> <div style="display: flex; align-items: center; justify-content: center; margin-top: 10px;"> <div style="text-align: center; margin-right: 10px;"> $\frac{1}{4}$ + </div> <div style="text-align: center; margin-right: 10px;"> $\frac{2}{4}$ + </div> <div style="text-align: center; margin-right: 10px;">=</div> <div style="text-align: center;"> $\frac{3}{4}$ </div> </div> <p>Help pupils to express their answers verbally in a meaningful way E.g. Ask pupils; the sum of one-quarter and two quarters gives <u>how many quarters</u>? Response: <u>Three quarters</u></p>	<p>Let pupils:</p> <p>add two like FRACTIONSs.</p> <p>E.g.</p> $\frac{2}{5} + \frac{1}{5} = \frac{2+1}{5} = \frac{3}{5}$





UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3.11 (CONT'D) FRACTIONS II	The pupil will be able to: 3.11.3 subtract two like FRACTIONSs.	Subtraction of FRACTIONSs	Assist pupils to use Cuisenaire rods and paper cutting/folding to subtract FRACTIONSs with the same denominator E.g. $\frac{3}{5} - \frac{1}{5}$  i.e. $\frac{3}{5} - \frac{1}{5} = \frac{2}{5}$	Let pupils: subtract two like FRACTIONSs. E.g. $\frac{5}{8} - \frac{3}{8} = \frac{5-3}{8} = \frac{2}{8}$

PRIMARY 4

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4.1 SHAPE AND SPACE I	The pupil will be able to:			Let pupils:
	4.1.1 identify a point, a line and a vertex.	Points, Lines, Vertices	<p>TLMs: cut-out shapes, concrete objects, items in the classroom.</p> <p>Guide pupils to identify a point by using real objects such as the tip of a pen, pencil, stars in the atmosphere in the night.</p> <p>Assist pupils to identify lines from sides (edges) of real objects like tables, books, and cut-out shapes.</p> <p>Assist pupils to make points and join to a vertex.</p> <p>Draw a shape picture and circle all the vertices and intersections with different colour circles.</p>	Points from real life objects.
	4.1.2 identify points of intersection of lines.	Intersection of Lines	Guide pupils to draw intersecting lines and help them to identify the points of intersection. Using real object count the number of vertices of real objects.	mark points of intersection of lines.
		Intersecting Planes	<p>Assist pupils to identify the intersection of plane shapes as edges.</p> <p>Identify the point of intersection of two or more edges of plane shapes as vertices. Using real objects, guide pupils to count the number of vertices of a given real object/solid shape.</p>	
	4.1.3 show that only one line can be drawn through any two given points.	Straight Lines	Guide pupils to mark two points and draw a line through them and find out the number of lines that can be drawn between them.	draw a line joining any two given points.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4.2 NUMBERS AND NUMERALS 0 - 100,000	The pupil will be able to:			Let pupils:
	4.2.1 count objects in ten thousands.	Counting in ten thousands	TLMs: abacus, colour-coded, counters and base ten blocks. Let pupils find the number of thousands in ten thousand. Assist pupils to use non-proportional structured materials to count in thousands and in ten thousands E.g. abacus and colour-coded counters to count in (a) thousands (b) ten thousands.	complete a sequence of numbers in thousands and ten thousands. E.g. 5000, 6000, ..., ..., 9000.
	4.2.2 state the place values of digits in numbers 0 – 100,000.	Place value of 4- or 5-digit numerals	Let pupils find the place value of a digit in a 4- or 5-digit numeral. ‘Place Value Game’ ‘Number Fans’ ‘Partitioning Game’ ‘Counting Stick’ Let pupils read and write a numeral using digits in a place-value chart.	find the value of a digit in a given 4- or 5-digit numeral
	4.2.3 write the multiples of one thousand and ten thousand up to 100,000.	Multiplying thousands and ten thousands up to 100,000	Guide pupils to find multiples of (a) thousand and (b) ten thousand using abacus and colour-coded counters up to 100,000. Let pupils find missing numerals on a number line.	find missing numerals on a number line.
	4.2.4 write numerals for number names up to ten thousand.	Reading and writing numerals for number names up to 10,000	Let pupils write numerals for number names up to ten thousand using number cards, numeral cards, number/numeral chart.	
	4.2.5 compare numbers up to 100,000 using the symbols $>$, $<$, $=$	Comparing two numbers up to 100,000	Let pupils use the place-value chart to compare two numbers. Let pupils compare two numbers written in the expanded form using the symbols $=$, $>$, or $<$.	
		Write number names up to 1000	Let pupils write number names for numerals up to 1000. E.g. 345 is three hundred and forty-five.	write number names for given numerals up to 1000.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4.3 INVESTIGATIONS WITH NUMBERS	<p>The pupil will be able to:</p> <p>4.3.1 use properties of basic operations.</p>	<p>Properties of Operations</p>	<p>TLMs: bottle tops, pebbles, shells, 100 charts etc.</p> <p>Number Fans. Group children into teams of 7. Give the team pieces of paper with numbers on them, the four number operations and an equal to sign. A sum is placed on the chalkboard (e.g. $2 + 3 = 7 - ?$) and one of the groups must come to the front of the class and reproduce the number sentence. Between them they have to decide what the missing number or operation is.</p> <p>Let pupils find missing operations in number sentences E.g. (a) $3 \times 5 = 5 \square 3$ (b) $2 \square (3 \square 5) = (2 \times 3) + (2 + 5)$.</p> <p>Assist pupils to use the commutative property of operations to find a number which completes a number sentence. E.g. $3 + 4 = 4 + \square$ $6 \times \square = 5 \times 6$</p> <p>Guide pupils to determine the property of operation which is used in a number sentence.. E.g. (a) $3 + 4 = 4 + 3$ $4 \times n = 6 \times 4$, n is.....</p> <p>In this example $n = 6$ using the commutative (order) property.</p> <p>(b) let pupils use properties of operations to find out whether a mathematical sentence is true or false.</p> <p>(i) $(4 + 5) \times 2 = (4 \times 2) + (5 \times 2)$ is true. (ii) $(3 \times 2) + 5 = (3 + 5) \times 2$ is false.</p>	<p>Let pupils:</p> <p>complete given number sentences by putting operations into number sentences to make them true.</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION																								
UNIT 4.3 (CONT'D) INVESTIGATIONS WITH NUMBERS	<p>The pupil will be able to:</p> <p>4.3.2 use basic operation to write number sentences.</p> <p>4.3.3 write numbers that can be divided by 2 and those that cannot</p>	<p>Number Combinations</p> <p>Even and Odd Numbers</p>	<p>Guide pupils to use only addition with some given numbers to make a given sum. E.g. different ways of filling a 17 litre bottle with a 2 litre, 5 litre and 8 litre bottles. i.e. $17 = (2 + 2 + 5 + 8)$ litres $17 = (2 + 5 + 5 + 5)$ litres, etc.</p> <p>Assist pupils to use two or more operations with 1-digit numbers to make given sums E.g. $15 = (2 + 3) \times 3$ $15 = 3 \times (7 - 4) + 6$</p> <p>Assist pupils to find combinations of three numbers that will add up to a given sum from the list of numbers 1,2,3,...9 E.g. $8 = 1 + 3 + 4$ $8 = 1 + 2 + 5$ $15 = 4 + 5 + 6$, etc.</p> <p>Guide pupils to use counters such as bottle tops, pebbles or shells to find numbers that can be grouped in twos and those that cannot.</p> <p>1.  2.  no group (not possible) one group (possible)</p> <p>3.   one group and one more (not possible) two groups (possible) etc</p> <p>Sort numbers that can be grouped in twos and name these as even numbers.</p> <p>Sort numbers that cannot be grouped in twos and name them as odd numbers.</p> <p>Let pupils write numbers 1 – 100 in a 10 x 10 grid and shade/colour even numbers and odd numbers differently.</p> <p>List end digits of both even and odd numbers separately.</p> <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td></tr><tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td></tr></table>	1	2	3	4	5	6	11	12	13	14	15	16	21	22	23	24	25	26	31	32	33	34	35	36	<p>Let pupils:</p> <p>write different number sentences for a given number with one or more operations.</p> <p>find even or odd numbers in a list of numbers.</p> <p>write even or odd numbers from numbers 1 to 100.</p>
1	2	3	4	5	6																							
11	12	13	14	15	16																							
21	22	23	24	25	26																							
31	32	33	34	35	36																							

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION																																								
UNIT 4.4 ADDITION AND SUBTRACTION (SUM UP TO 100,000)	The pupil will be able to:			Let pupils:																																								
	4.4.1 add 4 or 5-digit numbers with sums less than 100,000.	Adding 4- or 5-digit numbers up to sum 99,999	<p>TLMs: place value chart, multibase blocks, bundles of sticks, abacus.</p> <p>‘Number Fans’, ‘Game Boards’, ‘Word Subtraction’, ‘Shape Sums’</p> <p>Let pupils revise basic addition and subtraction facts.</p> <p>Let pupils revise addition of 2-, 3- and 4-digit numbers.</p> <p>Assist pupils to use the place value chart to add 4-, and 5-digit numbers. E.g.</p> <table><tr><td>Tth</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td>3</td><td>4</td><td>8</td><td>5</td><td>7</td></tr><tr><td>+ 4</td><td>7</td><td>1</td><td>9</td><td>3</td></tr><tr><td colspan="5"><hr/></td></tr><tr><td>7</td><td>11</td><td>9</td><td>14</td><td>10</td></tr><tr><td colspan="5"><hr/></td></tr><tr><td>8</td><td>2</td><td>0</td><td>5</td><td>0</td></tr><tr><td colspan="5"><hr/></td></tr></table> <p>Guide pupils to add 4-, and 5-digit numbers using the short form.</p>	Tth	Th	H	T	O	3	4	8	5	7	+ 4	7	1	9	3	<hr/>					7	11	9	14	10	<hr/>					8	2	0	5	0	<hr/>					add 5-digit numbers using (a) place value chart (b) short form.
	Tth	Th	H	T	O																																							
	3	4	8	5	7																																							
+ 4	7	1	9	3																																								
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7	11	9	14	10																																								
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4.4.2 subtract 4-digit numbers and 5-digit number	Subtracting 4- or 5-digit numbers	Subtract from 4-digit or 5-digit numbers using (a) place-value chart (b) short form	Subtract from 5-digit numbers using (a) place-value chart (b) short form.																																									
4.4.3 solve word problems involving addition and subtraction.	Word problems involving Addition and Subtraction	Pose a word problem involving addition and subtraction of 4-digit and 5-digit numbers for pupils to solve.	Solve word problems involving subtraction up to 5-digit numbers.																																									

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4.5 MEASUREMENT OF MASS/WEIGHT AND TIME	The pupil will be able to: 4.5.1 measure and record the mass of an object in kilograms and grams.	Mass/Weight Measuring mass to the nearest 100 grams	<p>TLMs: smaller sand/seed bags of masses 500 grams, 200 grams and 100 grams, clock, digital watch/clock.</p> <p>‘Class Shop’. Create a class shop where everyday items can be bought and sold by the pupils themselves. The shop should sell rice, beans flour etc which can be readily weighed before sale. Children can use different types of scales or balances to weigh products.</p> <p>Let pupils compare the 1 kilogram sand/seed bag with the smaller sand/seed bags to determine the number of grams in a kilogram using a simple balance.</p> <p>i.e. $1000\text{ gm} = 1\text{ kg}$</p> <p>Introduce the smaller sand/seed bags of masses 500 grams, 200 grams and 100 grams and assist pupils to measure and record the mass of an object in kilograms and grams (to the nearest 100 grams).</p> <p>Let pupils estimate the mass of an object and verify it by measuring.</p>	Let pupils: find the number of grams in a kilogram and vice versa.
	4.5.2 find the total mass of 2 or 3 objects.	Total mass of 2 or 3 objects in kilograms and grams	<p>Put pupils in groups and let them measure the masses of 2 or 3 objects using a simple balance/beam balance and find the sum. [Encourage pupils to co-operate with each other while working]</p> <p>Let pupils record the masses of objects from the label and add them.</p>	find the mass of a given object in kilograms and grams. add the masses of 2 or 3 objects.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION						
UNIT 4.5 (CONT'D) MEASUREMENT OF MASS/WEIGHT AND TIME	The pupil will be able to:			Let pupils:						
	4.5.3 estimate the time an event takes in minutes.	Estimating and measuring time in minutes	<p>Revision: Help pupils to revise reading the clock by the hour and minute hands.</p> <p>Guide pupils to estimate the duration of an event in minutes and verify by measuring with ordinary or digital clock/watch.</p> <p>Let groups record their result in a table as shown below</p> <table><tr><th>EVENT</th><th>ESTIMATED DURATION</th><th>MEASURED DURATION</th></tr><tr><td></td><td></td><td></td></tr></table> <p>[Encourage pupils to be time conscious and punctual in their activities].</p> <p>Allow members in the group to estimate the duration before timing the event or activity.</p> <p>The activities should include reading a passage, writing a passage, walking to the office and back, running around the school field, etc.</p>	EVENT	ESTIMATED DURATION	MEASURED DURATION				<p>find the duration of an event.</p> <p>find how many minutes it takes to complete an activity.</p>
	EVENT	ESTIMATED DURATION	MEASURED DURATION							
	4.5.4 find the duration between two given times in hours and minutes.	Calculating the duration between two given times	Let pupils find the duration between two given times in hours and minutes. E.g. from 6am to 11.30am	find the duration between two times in hours and minutes.						
4.5.5 relate the various time units to each other.	The relationship between the various time units	Change the time in a given unit to another E.g. how many days are in two weeks?	change the time in one given unit to another							
4.5.6 write the date and time.	Writing date and time	Assist pupils to write the date in different forms. E.g. 02/05/07, 17-05-2007, Monday, 02 April 2007, 2 – Apr – 07 [Writing the time E.g. 9.30 a.m. (i.e. on a 12-hour clock)].	write and record date for given days							

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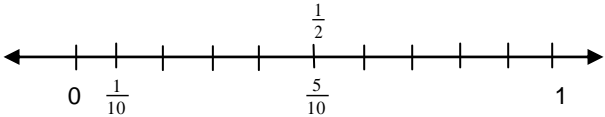
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4.6 (CONT D) FRACTIONSS I	The pupil will be able to:		<p>FRACTIONS chart</p> <p>from the chart one-half is the same as two one-fourths = $\frac{2}{4}$ and four one-eighths = $\frac{4}{8}$</p> <p>Guide pupils to use cut-out shapes, paper folding activities and FRACTIONS chart to find one-third.</p> <p>Let pupils find the name for two equal FRACTIONSs.</p> <p>Guide pupils to use the paper folding, FRACTIONS chart and number line to compare two unit FRACTIONSs and use the symbols > or < to compare them. E.g. $\frac{1}{2} > \frac{1}{3}$, $\frac{1}{4} < \frac{1}{2}$</p> <p>Guide pupils to order 3, 4 or 5 unit FRACTIONSs in ascending or descending order.</p>	<p>Let pupils:</p> <p>find the number of a certain FRACTIONS that can be obtained from a given FRACTIONS.</p> <p>identify equal FRACTIONSs from a given list.</p> <p>compare and order three given unit FRACTIONSs in ascending and descending order</p>
	4.6.2 compare unit FRACTIONSs and order FRACTIONSs in ascending and descending order.	<p>Comparing FRACTIONSs</p> <p>Ordering FRACTIONSs in ascending or descending order</p>		

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4.6 (CONT'D) FRACTIONSS I	The pupil will be able to: 4.6.3 add and subtract FRACTIONSS with different denominators.	Addition and subtraction of FRACTIONSS. Changing FRACTIONSS into similar units.	<p>Revision: Guide pupils to revise the addition and subtraction of two like FRACTIONSS using paper folding, FRACTIONS chart and shading plane shapes.</p> <p>Let pupils add and subtract FRACTIONSS by changing them into similar units (i.e. by first changing them to FRACTIONSS of the same denominator).</p> <p>Let pupils write different names for FRACTIONSS with the same denominator for the FRACTIONSS $\frac{1}{2}$ and $\frac{1}{3}$ i.e. $\frac{1}{2} = \frac{3}{6}$ and $\frac{1}{3} = \frac{2}{6}$</p> <p>So $\frac{1}{2} - \frac{1}{3} = \frac{3}{6} - \frac{2}{6} = \frac{1}{6}$ and $\frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$</p>	Let pupils: add or subtract two given FRACTIONSS with different denominators.
UNIT 4.7 MULTIPLICATION	4.7.1 build multiplication facts up to product 100 and factors up to 10. 4.7.2 recite the times table for 2,3,4,5,6 and 10.	Multiplication facts up to 100	<p>TLMs: bottle tops, paper with array of dots, place value chart.</p> <p>Guide pupils to build multiplication facts up to product 100 using factors up to 10. (i.e. 2, 3, 4, 5, 6, 7, 8, 9 and 10).</p> <p>Guide pupils to make groups of objects/array of dots to build multiplication facts up to 100 (Pupils should do this in smaller groups).</p> <p>Guide pupils to use objects to illustrate multiplication of 3-digit numbers by a 1-digit number.</p>	find the products of two numbers up to 100. complete number sentences which involve multiplication by 2, 3, 4, 5, 6, 7, 8, 9 and 10.

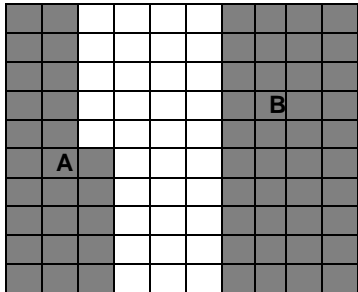
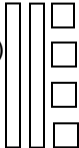
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UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION																								
UNIT 4.7(CONT'D) MULTIPLICATION	The pupil will be able to: 4.7.5 multiply 2- or 3-digit numbers by 2-digit numbers.	Multiplying 2- or 3-digit numbers by 2-digit numbers	Guide pupils to use the distributive property to find the product of 3-digit numbers by a 2-digit number. Find out that multiplication by a 2-digit number requires expanding it and multiplying the tens and ones separately. <div><table><tr><td></td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td>2</td><td>1</td><td>4</td></tr><tr><td></td><td>X</td><td>1</td><td>3</td></tr><tr><td></td><td>6</td><td>4</td><td>2</td></tr><tr><td>2</td><td>1</td><td>4</td><td>0</td></tr><tr><td>2</td><td>7</td><td>8</td><td>2</td></tr></table><p>Expanding and multiplying</p><p>214 x (3 + 10)</p><div><div>↓</div><div>↓</div></div><p>(214 x 3) + (214 x 10) = 642 + 2140 = 2782</p></div>		H	T	O		2	1	4		X	1	3		6	4	2	2	1	4	0	2	7	8	2	Let pupils: find the result of multiplying a 2-, 3-digit number by a 2-digit number using the place value chart or expanded form.
		H	T	O																								
	2	1	4																									
	X	1	3																									
	6	4	2																									
2	1	4	0																									
2	7	8	2																									
4.7.6 solve word problems on multiplication.	Word problems on multiplication	Write multiplication sentences for word problems for pupils to solve. Guide pupils to pose word problems for multiplication sentences and solve.	solve word problems on multiplication.																									

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4.8 DIVISION	<p>The pupil will be able to:</p> <p>4.8.1 Division facts up to product 72.</p>	<p>Building division facts up to 72</p>	<p>TLMs: Tables of multiplication facts. Revise division as writing multiplication sentences with missing factors and/or solving division by finding missing factors in multiplication sentences.</p> <p>use the idea of grouping and multiplication tables to build division facts.</p>	<p>Let pupils:</p> <p>recall facts in dividing numbers less than 72 by 2, 3, 4, 5 and 6 (without remainder).</p>
	<p>4.8.2 divide 2-digit numbers by divisors up to 6 to 10.</p>	<p>Dividing 2-digit numbers by divisors up to 10</p>	<p>Use the idea of repeated subtraction (grouping) of objects to build division facts.</p> <p>Guide pupils to use the idea of repeated subtraction of small multiples of the divisor to work out division problems as follows:</p> $ \begin{array}{r} 84 \\ -24 \longleftarrow 4 \times 6 \\ = 60 \\ -24 \longleftarrow 4 \times 6 \\ = 36 \\ -24 \longleftarrow 4 \times 6 \\ = 12 \\ -12 \longleftarrow 2 \times 6 \\ = 0 \quad 14 \times 6 \end{array} $ <p>In the above, 6 was subtracted (4 + 4 + 4 + 4 + 2) times. So $84 \div 6 = 4 + 4 + 4 + 4 + 2 = 14$</p>	<p>divide 2-digit numbers by 2, 3, 4, 5, 6 and 10.</p>
	<p>4.8.3 identify and recognise that all multiples of 10 are divisible by 10.</p>	<p>Multiples of 10 and numbers divisible by 10</p>	<p>Use groups of ten objects to show division by 10 (repeated subtraction of multiples of ten).</p>	<p>divide 2-digit numbers by 10.</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4.8 (CONT D)	The pupil will be able to:			Let pupils:
DIVISION	4.8.4 use the symbols =, > or < to compare two division sentences.	Comparing division sentences	Guide pupils to compare two division word problem sentences using =, > or < symbols	compare two division sentences using the symbols < or >
	4.8.5 solve simple word problems involving division.	Word problems involving division	Pose word problems involving division of 2-digit numbers by divisors up to 6 and 10.	solve the division in a word problem.
UNIT 4.9				
FRACTIONSS II	4.9.1 find fifths and tenths of whole objects.	Tenths and fifths as numbers on the number line	<p>TLms: FRACTIONS chart, number lines designed in fifths and tenths, base ten blocks.</p> <p>Guide pupils to use Cuisenaire rods, FRACTIONS chart, and Dienes blocks to find fifths and tenths. Help pupils to locate fifths and tenths on a number line. E.g.</p>  <p>Pupils learn decimal names for tenths.</p> <p>E.g. $\frac{2}{10}$ (read as two-tenths).</p>	locate fifths and tenths on the number line and mention their decimal names.

[illegible]

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4.9 (CONT'D) FRACTIONSS II	The pupil will be able to: 4.9.3 relate decimal names to hundredths.	Decimal names for hundredths	<p>Use a hundred square chart and the flat of Dienes blocks to find hundredths and read hundredths as decimal names.</p>  <p>E.g. (a) the portion shaded and marked A indicates 25 hundredths of a whole.</p> $\frac{25}{100} = 0.25$ <p>(read as “twenty-five hundredths” or zero point two five or point two five).</p> <p>(b)  twenty-four hundredths = $\frac{24}{100} = 0.24$</p> <p>(c) 25Gp is 25 out of GH¢1 or 100Gp. i.e. GH¢ $\frac{25}{100}$ = GH¢0.25</p> <p>Assist pupils to write and read hundredths as percent names. E.g. $\frac{25}{100} = 25\%$. This is explained as twenty-five out of hundred.</p> <p>Read as twenty-five percent and written as 25%.</p>	Let pupils: change hundredths to decimal FRACTIONSS`.
	4.9.4 relate percent names to hundredths.	Percentages		write percent name for given hundredths.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4.9 (CONT'D) FRACTIONS II	The pupil will be able to: 4.9.5 change fifths and tenths to percentages.	Changing fifths and tenths to hundredths and to percentages	Guide pupils to change fifths and tenths to percentages by first changing them to hundredths. (i) $\frac{2}{5} = \frac{\square}{100}$ (ii) $\frac{2}{5} = \frac{40}{100}$ (iii) $\frac{40}{100} = 40\%$	Let pupils: change halves, fifths and tenths to hundredths and write their percent names.
UNIT 4.10 MEASUREMENT OF LENGTH AND AREA	4.10.1 measure lengths of line segments in centimetres. 4.10.2 estimate and verify the lengths of given line segments. 4.10.3 add measures of lengths in metres and centimetre.	Measuring Line Segments Estimating and measuring line segments in centimetres Total measures of lengths in metres and centimetres Writing metres and centimeters in decimal form	TLMs: 30 centimetre rulers, tape measures, geoboard. Making Posters Guide pupils to measure lines along edges of real objects with the ruler or tape measure marked in centimetres. Let pupils estimate the lengths of line segments and verify by measuring using rulers and tape measures. Guide pupils to find out the number of cm in a metre using the 30 centimetre rule and the metre rule i.e. 100cm – 1m Guide pupils to measure in centimetres all the sides of a rectangular shape and add them up. Pupils measure the length of a string that fits exactly the distance round a circle or a circular object. Pupils write lengths given in metres and centimetres in decimal notation E.g. 2m 15cm = 2.15m.	measure lengths of objects in centimetres. estimate and measure the lengths of given line segments in cm.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4.10 (CONT'D) MEASUREMENT OF LENGTH AND AREA UNIT 4.11 SHAPE AND SPACE II	The pupil will be able to: 4.10.4 find the number of unit squares that will cover a square/rectangular region.	Area of plane shapes (rectangular and square region)	Pupils use cut-outs or small square tiles to build rectangles and larger squares and find the number of cut-outs or tiles used. Pupils to take a small square of any dimension as a unit square and find the number of unit squares that will cover given rectangles and larger squares.	Let pupils: find number of unit squares that cover given rectangles and squares.
	4.11.1 recognise that an angle is the amount of turning done when a line is moved about a point. 4.11.2 identify right angled triangles.	Angles as amount of turning about a point Right-angled triangles	TLMs: Book, window & door, two strips bolted together, interlocking circles, geoboards. Use interlocking circles, windows, doors, bolted strips of paper for pupils to determine angles which are less than, more than and equal to a right angle E.g. turning interlocking circles, opening a door, turning the arms of a bolted-strip of paper. Guide pupils to identify and make angles which are equal to, more than or less than a right-angle using geoboards and cut-out shapes. Fold along the diagonals of squares and rectangles to make triangles and name them right-angled triangles. Pupils identify angles in objects in everyday life which are less than, more than or equal to a right angle. E.g. (i) opening a door/window/book, etc. (ii) swinging an arm up and down. (iii) the angle made when the direction of a stick is changed by turning it about a point.	identify everyday life objects which have angles more/less than a right angle and equal to a right-angle mark right angles in a given triangle. identify right-angle triangles among different triangles. find the number of right angles in a given turn.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4.11 (CONT'D) SHAPE AND SPACE II UNIT 4.12 COLLECTING AND HANDLING DATA	The pupil will be able to:			Let pupils:
	4.11.3 identify triangles that have two equal sides (isosceles triangles).	Triangles with two equal sides (isosceles triangles)	<p>Put pupils in groups and provide them with different cut-out triangles including isosceles triangles and let pupils find out which triangles fold equally and identify them as triangles with two equal sides – isosceles triangles.</p> <p>Let pupils make triangle with two equal sides using geoboard.</p> <p>Let pupils identify real life situations that are triangles with two equal sides E.g. the ends of some triangular roofing.</p>	<p>(i) identify right-angled triangles from given triangles.</p> <p>(ii) identify triangles with two equal sides from given triangles.</p>
	4.12.1 collect data by measuring objects and record results.	Data collection by measuring	<p>Revision: Guide pupils to count objects and record.</p> <p>Making Graphs. Working in groups the children should be allowed to collect their own information into a frequency table and transfer it to a graph.</p> <p>Guide pupils to carry-out an activity or experiment and record the results. E.g. throwing a dice a given number of times and recording the number of times each face shows up.</p> <p>Guide pupils to measure the mass of pupils and find the number within given measures. E.g. pupils weighing (20 – 24) kg, (25 – 29) kgs, etc.</p> <p>Pupils record the marks obtained in a class exercise marked out of ten and finding the number of pupils who obtained various marks between 0 and 10.</p>	perform an activity and record the data involved.
	4.12.2 represent data using a simple block or picture graph and answer questions on it.	Representing data using block graph and picture graph	<p>Guide pupils to draw and colour squares to represent data as block graphs.</p> <p>Guide pupils to draw and colour objects (i.e. cutting and pasting pictures) to present data.</p> <p>Present a block graph/picture graph and let pupils answer questions on it.</p>	draw block graph or picture graph to represent a given data.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4.13 INVESTIGATIONS WITH NUMBERS	<p>The pupil will be able to:</p> <p>4.13.1 find different numbers from a given list of numbers that will add up to a given sum</p>	<p>Different Numbers with same sum</p>	<p>Guide pupils to select three different numbers at a time from a given list to make the same sum. E.g. from the list of counting numbers up to 9, select any three different numbers whose sum is fifteen as below.</p> $1 + 5 + 9 = 15$ $1 + 6 + 8 = 15$ $4 + 5 + 6 = 15$ <p>Play 'Bizz Buzz'. The teacher explains to the children that they will take it in turns to count from one to a hundred. However the teacher chooses two numbers (e.g. 3 and 5) and when the children reach any multiple of those two numbers they must be substituted with the words 'bizz' for the first (3) or 'buzz' for the other (5). If a number is a multiple of both numbers (e.g. 15) the children should say 'bizz buzz'.</p>	<p>Let pupils:</p> <p>select three numbers from a given list to make a given sum.</p>
	<p>4.13.2 write multiples of numbers up to multiples of 10.</p>	<p>Multiples of numbers up to 10</p>	<p>Guide pupils to write multiples for each of numbers 2, 3, 4, 5, ..., 10. E.g. multiples of 4 are 4, 8, 12, 16, 20, ...</p> <p>Guide pupils to write the multiples of 5 and find the end digits.</p> <p>Guide pupils to write multiples of 10 and find the end digits.</p>	<p>identify numbers that are multiples of 5 or 10 from a given list.</p> <p>identify a number whose multiples are given E.g. 24, 30, 36, ...</p>
	<p>4.13.3 write a relationship using different operations involving only one-digit.</p>	<p>Different operations on a given digit</p>	<p>Guide pupils to write a relationship using only the digit 4 to represent a given number E.g. $3 = (4 + 4 + 4) \div 4$.</p>	<p>use only a given digit and the operations to write a relationship for a given number.</p>
	<p>4.13.4 continue a pattern of numbers.</p>	<p>Number patterns</p>	<p>Lead pupils to recognise and continue the pattern of numbers in a given order.</p>	<p>find the next two or three numbers in a given list.</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4.14 MEASUREMENT OF CAPACITY AND VOLUME	The pupil will be able to: 4.14.1 relate millilitre to litre.	Relationship between a millilitre and litre	<p>Guide pupils to use containers of 500 millilitres, 300 millilitres and 100 millilitres to fill the litre and discover that the total capacity of two containers each of 500 millilitres is the same as 1 litre.</p> <p>Guide pupils to write 1000 millilitres as 1 litre and write 'l' for litre and 'ml' for millilitre.</p> <p>'Capacity vs Volume'.</p> <p>Ask the children to find the capacity of various containers (bowl, bucket, cup) by filling it with water measured in 'pure water sachets' (i.e. 500ml). So the bowl might hold 8 'pure water sachets' worth which would equate to 4 litres (i.e. 8 x 500ml). Explain that if the Capacity is 4 litres (i.e. how 'much' water is in the bucket) then Volume must equal 4000cm³ (i.e. how much 'space' is in the bucket). (See appendix).</p>	Let pupils: use a combination of 500 ml, 300 ml and 100 ml to make up 1 litre.
	4.14.2 estimate and verify the capacities of containers in litres and millilitres.	Estimating the capacities of containers in millilitres	<p>Guide pupils to estimate the capacities of common household containers in millilitres and verify by measurement.</p> <p>Assist pupils to use 500 millilitre containers E.g. (mineral water bottle) to fill a litre container and find out the relationship between millilitre and a litre i.e. 1000 millilitres = 1 litre.</p> <p>Let pupils represent millilitre by 'ml' and a litre by 'l'.</p>	find the capacity of a given container to the nearest 100 ml

PRIMARY 5

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.1 NUMBERS AND NUMERALS UP TO 10,000	The pupil will be able to: 5.1.1 write the number names for numerals up to 10,000.	Number names for numerals up to 10,000	Guide pupils to write number names for numerals up to 10,000. E.g., 7,463 is seven thousand, four hundred and sixty-three. Guide pupils to make Posters.	Let pupils: write the number names for given numerals. E.g. 6459 is..... 9999 is.....
	5.1.2 use the symbols =, < or > to compare numbers up to 1,000,000	Comparing numbers up to 1,000,000	TLM: place value chart set of cutlery Guide pupils to use the place-value chart to compare two numbers up to 1,000,000. Guide pupils to tell which of the two numbers written in the expanded form is greater than or less than the other and to compare and insert the symbol =, < or > between two numbers.	insert the symbol =, < or > to compare two numbers. compare two numbers using the appropriate symbol.
UNIT 5.2 SET OF NUMBERS	5.2.1 describe a group or a collection of distinct objects as a set.	Describing a set Introducing the curly brackets {...}	Guide pupils to make collections of any distinct objects and describe them as sets E.g. "spoon, fork and knife" form a set of cutlery. Let pupils write a sentence or phrase to describe a collection of objects or number E.g. 0, 1, 2, 3, 4 is described as a set of whole numbers less than 5. Let pupils use curly brackets { }, to enclose the set as a list of objects or their description. E.g. {0, 1, 2, 3, 4} or {whole numbers less than 5}.	describe a collection of objects. list the members of a set using curly bracket. write a list of numbers that fit a description.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.2 (CONT'D) (SET OF NUMBERS)	The pupil will be able to:			Let pupils:
	5.2.2 write a set of numbers.	Sets of Numbers	Guide pupils to list numbers in a set E.g. {11, 12, 13, 14, 15}. Assist pupils to describe a collection of numbers E.g. whole numbers between 10 and 16.	list the numbers in a given set. describe a given collection of numbers.
	5.2.3 find factors of numbers	Factors of Numbers up to 50	Guide pupils to find all the counting numbers that divide a counting number. E.g. 1, 2, 3, 4, 6 and 12 are factors of 12 and hence can divide 12.	write the factors of given numbers.
	5.2.4 find the multiples of numbers.	Multiples	Guide pupils to build multiples of 2, 3, 4, 5, 6, 7, 8, 9 and 10. Let pupils continue a list of numbers that are multiples of a given number. E.g. 12, 24, 36, 48 are multiples of 12.	write four or more multiples of a given number
	5.2.5 find prime numbers.	Prime Numbers	Help pupils to use the sieve of Erasthothene to find prime numbers up to 50. E.g. 1 (2) (3) 4 (5) 6 (7) 8 9 10 (11) 12 (13) 14 15 16 (17) 18 (19) 20 Assist pupils to discover that prime number are numbers with only two factors. E.g. 2, 3, 5, 7, 11, 13, ... Find factors of counting numbers from 1 to 50. E.g. 1, 2, 3, 4, 6 and 12 are factors of 12. Write counting numbers as a product of prime numbers. E.g. $24 = 2 \times 2 \times 2 \times 3$. 'Pass It On' Children are given one of a series of cards with a question on one side and an answer on the other. First child asks the question on their card and the rest of the class work out the answer and look to see if that number is written on their card. If it is they should call out the answer and then ask the question written on their card.	elect prime numbers from a given list of numbers. indicate if a given number is a prime number or not. find a counting number using prime numbers.

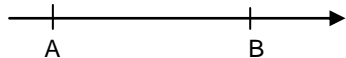
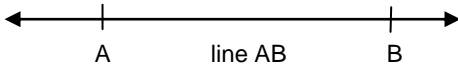
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.2 (CONT'D)	The pupil will be able to:			Let pupils:
SET OF NUMBERS	5.2.6 identify numbers that can be divided by 2, 3, 4, 5 or 6 without actual division .	Testing for factors	<p>Assist pupils to test for numbers that are divisible by 2, 3, 4, 5 or 6.</p> <p>Let pupils find out that a given number is divisible by 2 if the end digit is divisible by 2.</p> <p>If the sum of the digits of a number can be divided by 3 then 3 is a factor of that number,</p> <p>If the two end digits can be divided by 4 then 4 is a factor of that number.</p> <p>If the end digit of a number is 0 or 5 then the number 5 is a factor of that number.</p> <p>If both 2 and 3 are factors of a number then 6 is also a factor of that number.</p>	identify numbers that can be divided by 2, 3, 4, 5 or 6, without performing the division.
UNIT 5.3	5.2.7 write subsets from a given set of numbers.	Subsets of Numbers	<p>Help pupils to list portions of a set to build other sets and describe them as subsets.</p> <p>E.g. {1, 2, 3, 4, 5} is part of the set {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}.</p> <p>Assist pupils to write a description that applies to only part of a set.</p> <p>E.g. {factors of 6} is part of {factors of 12}.</p>	write subsets from a given set of numbers.
COLLECTING AND HANDLING DATA	5.3.1 represent data using block graph.	Block Graph	<p>Guide pupils to represent data collected as block graph.</p> <p>Make Posters.</p>	draw a block graph from a given data.
	5.3.2 represent data using bar graph.	Bar Graph	<p>Guide pupils to draw bar graphs to represent number of objects, people and quantities measured.</p>	draw a bar graph from a given data.

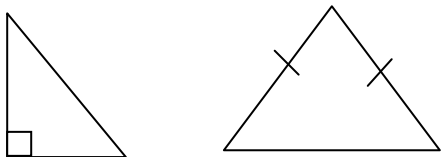
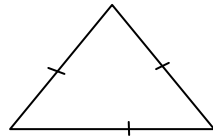
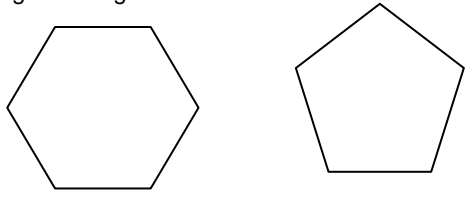
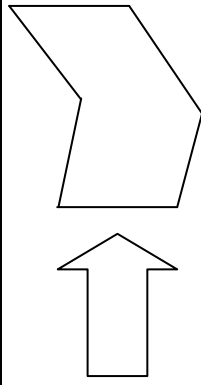
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION																																			
UNIT 5.3 (CONT'D)	The pupil will be able to:			Let pupils:																																			
COLLECTING AND HANDLING DATA	5.3.3 represent data using the stem and leaf plot.	Stem-and-leaf plot	Guide pupils to make a stem-and-leaf plot with numbers to represent numerical data. E.g. 12 23 14 35 29 25 34 31 16 27 25 16 26 25 19 20 21 18 is presented as stem-and leaf plot below <table><tr><td>1</td><td> </td><td>2</td><td>4</td><td>6</td><td>9</td><td>8</td><td></td><td></td><td></td></tr><tr><td>2</td><td> </td><td>3</td><td>9</td><td>5</td><td>7</td><td>6</td><td>5</td><td>0</td><td>1</td></tr><tr><td>3</td><td> </td><td>5</td><td>4</td><td>1</td><td></td><td></td><td></td><td></td><td></td></tr></table> Key: 1 2 means 12.	1		2	4	6	9	8				2		3	9	5	7	6	5	0	1	3		5	4	1						draw a stem-and-leaf plot for given data.					
	1		2	4	6	9	8																																
2		3	9	5	7	6	5	0	1																														
3		5	4	1																																			
	5.3.4 read and write information from graphs.	Reading and Interpreting Graphs	Assist pupils to read graphs and write answers to questions on pupils. E.g. from the stem-and-leaf plot, find how many members are in the 20s?	read and answer questions on the graph.																																			
UNIT 5.4																																							
ADDITION AND SUBTRACTION (SUMS UP TO 999,999)	5.4.1 add numbers with sums more than10,000	Adding 5 and 6-digit numbers	TLMs: abacus, place-value chart. Guide pupils to add 5- and 6-digit numbers using; (i) abacus. (ii) place-value chart. E.g. <table><tr><td></td><td>Hth</td><td>Tth</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td>2</td><td>6</td><td>5</td><td>3</td><td>4</td><td>6</td></tr><tr><td>+</td><td>3</td><td>2</td><td>6</td><td>3</td><td>6</td><td>1</td></tr><tr><td></td><td>5</td><td>8</td><td>11</td><td>6</td><td>10</td><td>7</td></tr><tr><td></td><td>5</td><td>9</td><td>1</td><td>7</td><td>0</td><td>7</td></tr></table>		Hth	Tth	Th	H	T	O		2	6	5	3	4	6	+	3	2	6	3	6	1		5	8	11	6	10	7		5	9	1	7	0	7	add 5 and 6-digit numbers using place-value chart and short form.
		Hth	Tth	Th	H	T	O																																
		2	6	5	3	4	6																																
+	3	2	6	3	6	1																																	
	5	8	11	6	10	7																																	
	5	9	1	7	0	7																																	
	5.4.2 subtract numbers (0 – 999,999).	Subtraction from 4-, 5-, or 6-digit numbers	Help pupils to subtract numbers from 4, 5 or 6-digit numbers using the; (i) abacus. (ii) place-value chart.	subtract from 4, 5 or 6-digit numbers using; (i) place-value chart. (ii) short form.																																			
	5.4.3 solve word problems involving addition and subtraction.	Word problems involving addition and subtraction	Guide pupils to write addition and subtraction sentences for given word problems and solve them.	solve word problems involving addition and subtraction up to 6-digit numbers.																																			

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.5 MEASUREMENT, LENGTH, MASS AND CAPACITY	The pupil will be able to:			Let pupils:
	5.5.1 measure lengths of line segments in centimetres and Millimetres.	Length of line segments	TLMs: Rulers, tape measure, containers, household items, etc.	find lengths of given line segments in cm and mm
	5.5.2 estimate and verify the length of given line segments in centimetres.	Estimating lengths of line segments	Guide pupils to measure line segments with ruler or tape-measure marked in centimetres and millimetres. Assist pupils to estimate lengths of line segments and verify by measuring.	estimate the lengths of line segments.
	5.5.3 write lengths given in m, cm and mm, using decimal notation.	Changing lengths given in metres and centimeters to one unit using decimals	Revision: recall the number of centimeters in a metre and millimetres in a centimeter. find the number of millimeters in a metre and write the relation $10\text{mm} \rightarrow 1\text{cm}$ $100\text{cm} \rightarrow 1\text{m}$ $1000\text{mm} \rightarrow 1\text{m}$ Circuit of Activities. Group children. Place around the classroom a variety of lettered objects which can be measured, weighed or capacity found. Guide pupils to write lengths given in metres and centimeters in decimal notation. E.g. $1\text{m } 24\text{cm} = 1.24\text{m}$ $5\text{cm } 8\text{mm} = 5.8\text{cm}$ $2\text{m } 5\text{cm } 7\text{mm} = 2.057\text{m}$	change lengths from cm to mm and metres and vice versa.
	5.5.4 add and subtract measures of lengths given in m, cm and mm.	The sum of two or more given lengths in m, cm, mm. -difference between two lengths	Guide pupils to add measures of lengths in metres, centimetres and millimetres. Guide pupils to subtract measures of lengths in m, cm and mm.	change given lengths to one unit using decimals.
	5.5.5 find the perimeter of given shapes in m, cm and mm.	Perimeter of plane shapes	Let pupils measure all sides of given shapes in m, cm and mm and add them to find the perimeter.	find the perimeter of given shapes in m, cm, mm.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.5 (CONT'D) MEASUREMENT, LENGTH, MASS AND CAPACITY	The pupil will be able to:			Let pupils:
	5.5.6 measure the capacities of containers in litres and millilitres	Measuring and recording the capacities of containers	Assist pupils to estimate and verify by measuring and recording the capacities of containers in litres and milliliters (to the nearest 100 ml) using containers whose capacities are recorded on their labels E.g. canned drinks.	find the capacities of containers in l and ml (to the nearest 100 ml).
	5.5.7 estimate and verify the capacity of containers in millilitres.	Estimating the capacities of containers in millilitres	Guide pupils to estimate the capacities of containers in millilitres and verify by measurement.	estimate the capacity of a given container in millilitres.
	5.5.8 write capacities given in l and ml using decimal notation.	Changing capacities given in “l” and “ml” to common units using decimal form	Help pupils to write capacities given in litres and millilitres in decimal form. E.g. $1250\text{ml} = 1.25\text{l}$ $660\text{ml} = 0.66\text{l}$ Let pupils express the capacities of containers whose labels are recorded on their labels in litres using decimal notation E.g. mineral water bottles, mineral bottles/containers, bottles/containers for oil, etc.	change given capacities from litres to millilitres using decimal and vice versa.
	5.5.9 find the sum/difference of the capacities of two containers in ml and l.	Find the sum/differences in the capacities of two or more containers	Guide pupils to find the total capacities of two or more containers by adding their measurements. Let pupils make a collection of containers which have capacities on labels and let pupils add the capacities of 2 or 3 of such containers. Guide pupils to find the difference in the capacities of two containers by subtracting.	add and subtract given capacities in “l” and “ml”

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION								
UNIT 5.5 (CONT'D) MEASUREMENT, LENGTH, MASS AND CAPACITY	The pupil will be able to:			Let pupils:								
	5.5.10 estimate, measure and record the mass of an object in “kg” and “g”.	Estimating and measuring the masses of common objects in kilograms	Guide pupils to estimate, measure and record the masses of objects in kilograms and grams (to the nearest 100g) using simple balance or scale. E.g. tuber of yam, a bowl of maize or gari; orange, books, etc. Let pupils record their findings in a tabular form. <table border="1"><thead><tr><th>Object</th><th>Estimate</th><th>Measure</th><th>Difference</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td><td> </td></tr></tbody></table>	Object	Estimate	Measure	Difference					find the mass of a given object in kg and g.
	Object	Estimate	Measure	Difference								
5.5.11 write masses given in “kg” and “g” using decimal notation.	Changing mass given in “kg” and “g” to common units using decimal form	Pupils to write masses given in kilograms and grams in decimal form. E.g. 1kg 250g = 1.25kg.	change given masses to one unit using decimal notation.									
5.5.12 find the sum/difference of masses of two objects.	Finding the sum/difference in the masses of two or more objects	Pupils find the total mass of two or more objects by adding their measurements in “kg” and “g”. Let pupils record the masses of containers whose masses/weights are on their labels and find the sum. Pupils find the difference between two given masses of objects.	add and subtract given masses in “kg” and “g”									

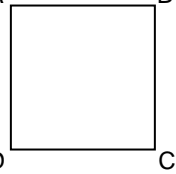
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.6 SHAPE AND SPACE I	The pupil will be able to: 5.6.1 identify and draw rays and lines.	Lines and Rays Finding points of intersection of lines	<p>TLMs: Mathematical set, cut-out shapes, concrete objects, items in the classroom</p> <p>Guide pupils to draw line segments of given lengths and extend them from one end point to form a ray.</p>  <p>Guide pupils to extend a line segment from both ends to form a line.</p>  <p>Let pupils draw two lines and find their point of intersection.</p>	Let pupils: draw line segments of given lengths. find points of intersection of lines.
	5.6.2 state if an angle is greater or less than a right angle.	Angles greater than or less than right-angle	<p>Guide pupils to use cut-out right-angle to determine if an angle is greater or less than a right-angle by fitting angles less than or greater than on right angles.</p>	mark the angles less than a right-angle in the given angles.
	5.6.3 identify isosceles, equilateral and right-angled triangle.	Isosceles, Equilateral and Right-angled triangles	<p>Guide pupils to observe and sort triangles with two equal sides and name these as isosceles triangle.</p> <p>Guide pupils to fold two shapes to make the two equal sides lie on each other and find out if the angles facing the two congruent sides of an isosceles triangle are also congruent.</p> <p>Introduce the idea of (i) congruence (ii) equilateral</p> <p>Provide pupils with various triangular cut-outs. Let pupils fold to determine whether they are isosceles, equilateral or right angled triangles.</p>	classify triangles as isosceles, equilateral and right-angled triangle.

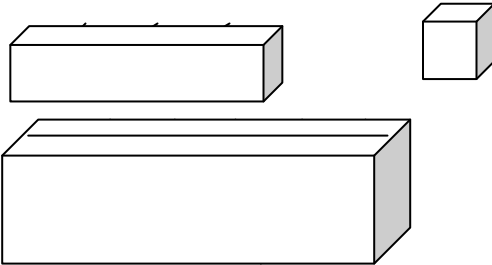
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.6 (CONT'D) SHAPE AND SPACE I	The pupil will be able to:		 <p>Guide pupils to identify isosceles triangles and let them show congruent sides and congruent angles.</p> <p>Make a poster with different named polygons to highlight the meaning of Congruence with respect to both sides and angles.</p> <p>Guide pupils to observe that the three sides and the three angles of an equilateral triangle are congruent.</p> 	Let pupils: mark the angles and sides that are congruent in the given triangles.
	5.6.4 identify congruent line segments and angles in plane shapes.	Congruent sides and angles of plane shapes.	<p>Guide pupils to find congruent sides and angles of other plane shapes.</p> <p>E.g. the following plane shapes have congruent sides and congruent angles.</p> 	mark the congruent sides and angles in the given plane shapes.
	5.6.5 measure the size of an angle using a protractor.	Measurement of angles.	<p>Guide pupils to measure angles using a protractor.</p>	 <p>use protractor to measure given angles.</p>

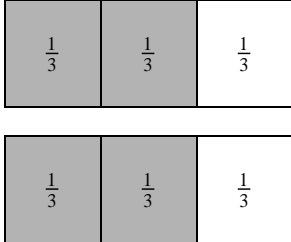
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.7 MULTIPLICATION AND DIVISION	The pupil will be able to: 5.7.1 multiply 4-digit numbers by 1-digit number. 			

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.7 (CONT D) MULTIPLICATION AND DIVISION	The pupil will be able to: 5.7.3 find good estimate for products of two numbers.	Estimating the product of two numbers	Guide pupils to use high and low estimates to find good estimates for product of two numbers. E.g. to multiply 143×16 . high estimate $150 \times 20 = 3000$ low estimate $140 \times 10 = 1400$ good estimate $140 \times 15 = 2100$ Recite multiplication tables from 2 to 10.	Let pupils: find the good estimate for product of two numbers. E.g. 232×24 4574×30
	5.7.4 divide 3-digit numbers by 1-digit numbers.	Division Dividing a 3-digit number by 1-digit number	Assist pupils to divide a 3-digit number by 1-digit number using; (i) objects in bundles of hundreds, tens and ones. (ii) multi-base blocks. (iii) colour-coded counters. Help pupils to divide 3-digit numbers by 1-digit number using the scaffolding method. $\begin{array}{r} 20 + 10 + 10 + 6 = 46 \\ 6 \overline{) 276} \\ \underline{-120} \\ 156 \\ \underline{-60} \\ 96 \\ \underline{-60} \\ 36 \\ \underline{-36} \\ 0 \end{array}$ or $\begin{array}{r} 6 \overline{) 276} \\ \underline{-120} \\ 156 \\ \underline{-60} \\ 96 \\ \underline{-60} \\ 36 \\ \underline{-36} \\ 0 \end{array}$ so $276 \div 6 = 46$	divide 3-digit numbers by 1-digit numbers. estimate the result of dividing a 3-digit number by 2-digit number.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.7 (CONT D) MULTIPLICATION AND DIVISION	<p>The pupil will be able to:</p> <p>5.7.5 round off numbers and find estimates for their quotients.</p> <p>5.7.6 solve word problems involving multiplication and division.</p>	<p>Rounding off numbers and estimating their quotients</p> <p>Word problems involving multiplication and division</p>	<p>Guide pupils to use rounding-off of numbers to the nearest ten or hundred to estimate their quotients.</p> <p>E.g. to find $242 \div 23$, we find $240 \div 20$ and the result is 12</p> <p>Pupils solve and pose word problems using multiplication and division sentences.</p>	<p>Let pupils:</p> <p>solve word problems on multiplication and division</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION																
UNIT 5.8 SHAPE AND SPACE II	The pupil will be able to:			Let pupils:																
	5.8.1 identify plane shapes by the labels of their vertices.	Plane Shapes: Labeling of vertices of plane shapes	TLMs: cut out shapes, real solids/objects Guide pupils to label the vertices of plane shapes with capital letters and read in order. <div><div><div>A</div><div>B</div><div>E.g.</div><div></div><div>D</div><div>C</div><div>Rectangle ABCD,</div></div><div><div>X</div><div>Y</div><div>Z</div><div>Triangle XYZ</div></div></div> Children are given some string and asked to make large (i.e. sides of ½m or 1m in length) 2 and 3-dimensional models of the shapes they have learnt about. With coloured strips of paper they can label the faces, edges and vertices where appropriate.	Name plane shapes using the letters at their vertices.																
	5.8.2 identify faces, edges and vertices of solid shapes.	Solid Shapes Faces, edges and vertices of cube, rectangular block, cone and cylinder Number of faces, edges and vertices of solid shapes	Guide pupils to draw solid shapes and label vertices with letters. Let pupils classify real objects into cubes/cuboids, and cylinders. Help pupils to count and find the number of faces, edges and vertices. Let pupils record their findings in a tabular form as shown below. <table><tr><td>Solid shape</td><td>No. of faces</td><td>No. of edges</td><td>No. of vertices</td></tr><tr><td>Cube</td><td></td><td></td><td></td></tr><tr><td>Cuboid</td><td></td><td></td><td></td></tr><tr><td>Cylinder</td><td></td><td></td><td></td></tr></table>	Solid shape	No. of faces	No. of edges	No. of vertices	Cube				Cuboid				Cylinder				identify and name vertices of solid shapes <
Solid shape	No. of faces	No. of edges	No. of vertices																	
Cube																				
Cuboid																				
Cylinder																				

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION						
UNIT 5.9 AREA AND VOLUME	<p>The pupil will be able to:</p> <p>5.9.1 find the number of centimetre squares that will cover a given rectangular region(area)</p> <p>5.9.2 find the relation between area, length and width of a given rectangle.</p> <p>5.9.3 make cuboids using small cubes.</p>	<p>Areas of plane shapes</p> <p>Finding the number of unit squares in a given rectangular region</p> <p>Volume: Building cuboids using cubes</p>	<p>TLMs: square, rectangular cut outs, geoboards</p> <p>Guide pupils to cut cards of 1cm^2 and use them to cover given rectangular surfaces such as books, tables, match boxes, etc. Let pupils find the number of the squares that cover each surface completely.</p> <p>Guide pupils to form rectangles on geoboard and count the number of squares obtained in each rectangle and record in a tabular form as shown below</p> <table><tr><td>L</td><td>W</td><td>No.of squares</td></tr><tr><td></td><td></td><td></td></tr></table> <p>Guide pupils to compare the area to the product of the length (L) and the width (W) of the rectangle and discover that $L \times W = \text{Area}$. Let pupils use the relation to find the area of rectangular shapes.</p> <p>Guide pupils to build cuboids using cubes.</p> <div></div>	L	W	No.of squares				<p>Let pupils:</p> <p>find the number of unit squares that cover a given rectangular region completely.</p> <p>find the area of a rectangle with given dimensions.</p> <p>build cuboids with a given number of cubes.</p>
L	W	No.of squares								

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.10 (CONT'D) OPERATIONS ON FRACTIONS	The pupil will be able to:			Let pupils:
	5.10.2 multiply a whole number by a FRACTIONS.	Multiplication of a whole number by FRACTIONS	Using strips of paper guide pupils to multiply a whole number by a FRACTIONS E.g. $2 \times \frac{2}{3}$ means two groups of $\frac{2}{3}$ as shown in the diagram below  $= \frac{4}{3}$ <p>Let pupils brainstorm on the results to find the rule for multiplying a whole number by a FRACTIONS i.e. multiplying the whole number by the numerator and maintain the denominator. Demonstrate to the children how the principle of the multiplication of FRACTIONS works in practice.</p> <p>Guide pupils to use objects or FRACTIONS charts or cut-out shapes or the number line to show a FRACTIONS of a given whole number. E.g. $\frac{2}{3} \times 6 = 4$</p> <ul style="list-style-type: none"> - Take 6 wholes <div style="text-align: right;">$\text{Take } \frac{2}{3} \text{ of 6 wholes}$</div> - Note that $\frac{2}{3}$ of 6 wholes is 4 wholes <p>$\frac{2}{3} \times 6 = \frac{2}{3} \text{ of } 6 = \frac{12}{4} = 4$</p>	multiply a given whole number by a given FRACTIONS.
	5.10.3 multiply a FRACTIONS by a whole number	Multiplication of a FRACTIONS by a whole number		use the rule to multiply a FRACTIONS by a whole number.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.10 (CONT'D) OPERATIONS ON FRACTIONS	The pupil will be able to: 5.10.4 divide a whole number by FRACTIONS.	Division of whole number by FRACTIONS	Assist pupils to use strips of paper to divide a whole number by FRACTIONS (a) let pupils interpret the division $2 \div \frac{1}{3}$ as the number of one-thirds in two wholes. (b) Let pupils demonstrate with strips of paper E.g. <div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 5px; margin: 10px 0;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{3}$</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{3}$</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{3}$</div> </div> <div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 5px; margin: 10px 0;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{3}$</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{3}$</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{3}$</div> </div> There are 6 thirds in two wholes. $2 \div \frac{1}{3} = 6$ Let pupils find the rule from the result. Demonstrate to the children how the principle of the division of FRACTIONSs works in practice.	
	5.10.5 divide a FRACTIONS by a counting number.	Division of a FRACTIONS by a counting number	Use cut-out shapes, FRACTIONS charts or the number line to show division of a FRACTIONS by a counting number. For example $\frac{1}{2} \div 3$ <ul style="list-style-type: none"> - get one whole - get half of the whole - divide the half into 3 equal parts - find the FRACTIONS each small part makes of the whole $\frac{1}{2} \div 3$ can be illustrated as below; <div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 5px; margin: 10px 0;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{6}$</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{6}$</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{6}$</div> </div> <div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 5px; margin: 10px 0;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{6}$</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{6}$</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">$\frac{1}{6}$</div> </div>	

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.10 (CONT'D) OPERATIONS ON FRACTIONS	The pupil will be able to:		Putting $\frac{1}{2}$ to three parts or $\frac{1}{3}$ of $\frac{1}{2}$ which is $\frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$ Multiplication as inverse method of division $\frac{1}{2} \div 3 = \frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$	Let pupils: change percentages to simple FRACTIONSs
UNIT 5.11 DECIMAL FRACTIONS AND PERCENTAGES	5.11.1 write decimal names for simple FRACTIONSs. 1.11.2 multiply decimal FRACTIONSs by powers of ten. 5.11.3 change simple FRACTIONSs to percentages.	Decimal FRACTIONSs Changing FRACTIONSs to percentages	Revision: Guide pupils to use the Dienes blocks to express simple FRACTIONSs – tenths, hundredths and write as decimal FRACTIONSs. E.g. Using flat as a whole, 4 cubes is $\frac{4}{100}$ (four hundredths) this is expressed as 0.04. Guide pupils to find hundredth and percent names which are equal to halves, fourths and tenths. Help pupil to change FRACTIONSs to hundredths and relate them to percentages. E.g. $\frac{3}{5} = \frac{3 \times 20}{5 \times 20} = \frac{60}{100} = 60\%$ NB: use FRACTIONSs whose denominator is 100. Divide the class into two teams and number the children from 1 Write on the chalkboard as many decimals, FRACTIONSs and percentages as will fit. Invite a child from each team to come up to the chalkboard (by calling out a number) and give them each a piece of chalk. Tell the children to change one of the three operations to another (e.g. “change one half to a percentage... change ten percent into a decimal...”). The child who finds the corresponding value and underlines it wins a point for his team.	

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.11(CONT'D) DECIMAL FRACTIONS AND PERCENTAGES UNIT 5.12 COLLECTING AND HANDLING DATA II	The pupil will be able to:			Let pupils:
	5.11.4 change percentages to simple FRACTIONSs and simplify.	Changing percentages to simple FRACTIONSs	Guide pupils to change percentages to simple FRACTIONSs by expressing the percentage in hundredth. (i) $40\% = \frac{40}{100} = \frac{4}{10} = \frac{2}{5}$ (ii) $60\% = \frac{60}{100} = \frac{3}{5}$	
	5.12.1 find mode of a set of numbers or objects.	Mode	Lead pupils to collect data and guide them to find the mode, which is, the item that occurs most in collection. E.g. 2,2, 2, 3, 4, 5, 7, 7, 8 has 2 as the mode.	find the mode of a given data.
	5.12.2 find the median of a set of numbers.	Median	Guide pupils to arrange the numbers in a data in ascending or descending order and select the middle number as the median. E.g. 2, 2, 2, 3, 4, 5, 7, 7, 8 has 4 as the median.	find the median of a given set of numbers.
	5.12.3 arrange numbers in the stem-and-leaf form	Stem-and-leaf plot	Lead pupils to arrange the numbers in the leaf part of the stem-and-leaf plot in ascending order. E.g.11,12,16,22,23,23,23,28,32,34,35, 37,37,38.	construct stem and leaf plot for given data.

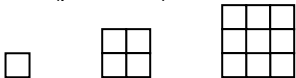
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION																																																
UNIT 5.12 COLLECTING AND HANDLING DATA II	The pupil will be able to: 5.12.4 find the mode and median from the stem-and-leaf plot.	Mode and median from the stem-and-leaf plot	Guide pupils to build a stem-and-leaf plot from given data and to determine the mode and median. <table><tr><td>1</td><td>1</td><td>2</td><td>6</td></tr><tr><td>2</td><td>2</td><td>3</td><td>3</td><td>3</td><td>8</td></tr><tr><td>3</td><td>2</td><td>4</td><td>5</td></tr></table> Select the number that occurs most in the plot as the mode, that is, 23. Select the middle number starting from the first number in the stem-and-leaf plot from the top, as the median, that is, 23.	1	1	2	6	2	2	3	3	3	8	3	2	4	5	Let pupils: find the mode and the median from a given stem-and-leaf plot.																																		
1	1	2	6																																																	
2	2	3	3	3	8																																															
3	2	4	5																																																	
UNIT 5.13 NUMBER PLANE	5.13.1 use row and column numbers to locate positions of objects in a rectangular array.	Positions of objects in rows and columns	Help pupils to locate positions of objects arranged in a rectangular form using the numbers for the rows and columns. <table><tr><td></td><td>4</td><td></td><td></td><td></td><td></td></tr><tr><td>r</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>o</td><td>3</td><td></td><td>A</td><td></td><td></td></tr><tr><td>w</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>2</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>1</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> column E.g. A is in (row 3, column 2) or (3, 2).		4					r						o	3		A			w							2						1							1	2	3	4							locate positions of objects in a rectangular array.
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UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.13 (CONT'D) NUMBER PLANE	<p>The pupil will be able to:</p> <p>5.13.2 draw and label the horizontal and vertical lines of the number plane and locate points on the number plane.</p> <p>5.13.3 locate and describe a point in the number plane by ordered pair.</p>	<p>Points in the number plane</p> <p>Ordered pairs</p>	<p>Guide pupils to draw a horizontal line and vertical line on paper with square grid or graph sheet and label their point of intersection as O (the origin).</p> <p>‘Battleships’. Pair the children and explain to them that they are going to play a game which involves using co-ordinates. (See appendix).</p> <p>Mark and label equal divisions on the horizontal and vertical lines (axes) with numbers.</p> <p>Guide pupils to describe the positions of points on the number plane with reference to their distances away from O on the horizontal and vertical lines (axes) and represent them as ordered pairs.</p> <p>E.g. the ordered pair for A is (3, 5), for B is (6, 4) and C is (1, 3).</p> <div style="text-align: center;"> <p>Number Plane</p> </div>	<p>Let pupils:</p> <p>find the ordered pairs of numbers for points shown on the number plane.</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.14 RATIO	The pupil will be able to: 5.14.1 express two numbers or quantities as ratio	Ratio	<p>Guide pupils to compare two numbers or quantities by finding the number of times one is contained in the other and write as ratio.</p> <p>E.g. twelve is three times as many as four because there are three fours in twelve. i.e. the ratio of 12 to 4 is $12 : 4 = 3 : 1$</p> <p>Guide pupils to gather a variety of small objects and divide them into sets to represent a simple ratio.</p> <p>e.g. 2 marbles and 4 marbles – 2:4 3 pencils and 9 pencils – 3:9</p> <p>Place the sets in different areas of the classroom. Group the children and ask them to visit each set and work out what the ratios are. When complete discuss the answers with the children.</p>	Let pupils: express two numbers as a ratio.
	5.14.2 find and simplify the ratio of two numbers or quantities.	Finding ratio in simplest form	<p>Assist pupils to find the ratio of one number or quantity to another and write this in the simplest form. E.g. Ratio of 12 boys to 8 girls is $12 : 8 = 6 : 4 = 3 : 2$</p>	find the ratio of one number or quantity to another in its simplest form.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.15 INVESTIGATION WITH NUMBERS	<p>The pupil will be able to:</p> <p>5.15.1 use properties of basic operations to find missing numbers.</p>	<p>Properties of Operations</p>	<p>Help pupils to use properties of operations to find missing numbers in number sentences. E.g. $4 \times (3 + 2) = (4 \times \square) + (4 \times 2)$.</p> <p>Let pupils use properties of operations to find out whether a number sentence is true or false. E.g. $(8 - 5) + 2 = 8 - (5 + 2)$. True/False.</p> <p>The sentence is false because $8 - 5 + 2 = 5$ and $8 - (5 + 2) = 1$.</p> <p>'Broken Calculator'. Explain to the children to pretend that they have dropped a calculator and some of the keys are no longer working. For each problem first tell them which keys have broken then get them to arrive at a given answer only using the keys that remain. (See appendix).</p>	<p>Let pupils:</p> <p>complete number sentences.</p> <p>find which number sentences are True/False.</p>
	<p>5.15.2 use two or more of the basic operations with the digits 1, 2, 3,..., 9 to write number sentence for a given sum.</p>	<p>Using different operations with numbers</p>	<p>Guide pupils to use two or more operations with three or four 1-digit numbers to make given sums. E.g. $21 = (1 + 2) \times (3 + 4)$.</p>	<p>use different operations on different numbers to make a given sum.</p>
	<p>5.15.3 write a relationship involving only one-digit number to represent a given number.</p>	<p>Relationship involving only one-digit number to represent a given number</p>	<p>Write a relationship involving different operations on one digit number to represent a given number. E.g. $5 = \{3 + 3\} - \{3 \div 3\}$.</p>	<p>write a relationship involving different operations on one digit number to represent a given number.</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION																																																
UNIT 5.15 (CONT'D) INVESTIGATION WITH NUMBERS	<p>The pupil will be able to:</p> <p>5.15.4 find the possible combinations of four numbers with the same sum in a 4 x 4 square of numbers arranged as in the calendar.</p> <p>5.15.5 find the pattern in triangular numbers up to the 10th number and find the sum.</p>	<p>Patterns in Calendar Numbers</p> <p>Triangular Numbers</p>	<p>Find combinations of four numbers in a 4 x 4 square of numbers in a calendar that give the same sum as sum of numbers in the diagonal. E.g.</p> <p>SUN MON TUE WED THU FRI SAT</p> <table><tr><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td>2</td></tr><tr><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td></td></tr><tr><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td></td></tr><tr><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td></td></tr><tr><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td><td></td></tr></table> <p>Guide pupils to find from the 4 x 4 square other 4 numbers which give the same sum as 4+12+20+28.</p> <p>Assist pupils to arrange objects in triangular shapes and find the number of objects in each. E.g.</p> <table><tr><td><div><div></div><div></div><div></div></div></td><td><div><div></div><div></div><div></div></div></td><td><div><div></div><div></div><div></div></div></td><td><div><div></div><div></div><div></div></div></td></tr><tr><td>1</td><td>3</td><td>6</td><td>10</td></tr></table> <p>Guide pupils to observe the pattern and continue to the 10th triangular number by drawing.</p>							1	2	3	4	5	6	7	8	9		10	11	12	13	14	15	16		17	18	19	20	21	22	23		24	25	26	27	28	29	30		<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	1	3	6	10	<p>Let pupils:</p> <p>find combinations of 4 numbers that add up to numbers in the diagonal.</p> <p>draw the next two terms in a pattern of triangular numbers given any three numbers and find the sum.</p>
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UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.15 (CONT'D) INVESTIGATION WITH NUMBERS	<p>The pupil will be able to:</p> <p>5.15.6 write the relation between a set of pairs of numbers.</p>	<p>Ordered Pairs and Relations</p>	<p>Guide pupils to make triangles or squares of various sizes using sticks (or strokes) and record the pairs of numbers made. E.g. count the number of sticks on one side. Count the number of sticks around the whole square (perimeter).</p> <div style="text-align: center;">  </div> <p>(i) (sticks in one side, sticks in perimeter). i.e (1, 4), (2, 8), (3, 12).</p> <p>(ii) (sticks in one side, unit square in shape). i.e. (1, 1), (2, 4), (3, 9).</p> <p>The rule for (i) is "times four". The rule for (ii) is "times itself". Write other ordered pairs and state their rules. E.g. for (4, 9), (5, 11), (9, 19), ... the rule is a times 2 plus 1.</p>	<p>Let pupils:</p> <p>write the rule for a set of ordered pairs.</p>
	<p>5.15.7 write a set of ordered pairs that obey a given rule (or relation).</p>	<p>Ordered pairs that obey a given rule</p>	<p>Guide pupils to write numbers that complete ordered pairs for a given rule.</p> <p>E.g. given a rule "plus 3", and the first numbers 2, 5, 6 and 10, will yield the following ordered pairs: (2, 5), (5, 8), (6, 9), and (10, 13).</p> <p>Let pupils find the set of ordered pairs for a given rule.</p> <p>E.g.</p> <p>(i) the pairs for the rule "plus 1" are (1, 2), (2, 3), (5, 6), etc.</p> <p>(ii) the pairs for the rule "times 2" plus 1 are (1, 3), (2, 5), (3, 7), etc.</p>	<p>find the rule and complete a set of ordered pairs.</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.16 MEASUREMENT OF TIME	<p>The pupil will be able to:</p> <p>5.16.1 estimate the time of an event in minutes and seconds and verify by measuring.</p>	<p>Measuring the time of an event in minutes and seconds with a clock or a stopwatch</p>	<p>Guide pupils to measure the time of an event in minutes and seconds using the ordinary/digital clock/watch. E.g. time taken to drink half litre of water.</p> <p>'Guess a Minute'. This is a game where all children have to try and predict when a minute is reached. The teacher starts the game with the class standing. When the children think the minute is up they sit. Teacher times the game and the child who sits down closest to the minute mark wins. The game can be adapted for any length of time e.g. 30 seconds, 2 minutes... etc.</p> <p>Ask the children to do a task and the time it takes to do a simple task (e.g. saying a times table, writing out a sentence on the chalk board etc.). The children should make a prediction first, then 'count the seconds in their head' and finally check with the teacher on their stopwatch, clock or watch. The child closest wins.</p>	<p>Let pupils:</p> <p>find the time of an event in minutes and seconds.</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 5.16 (CONT'D) MEASUREMENT OF TIME	<p>The pupil will be able to:</p> <p>5.16.2 determine the number of months, weeks, days, hours and minutes between two events.</p>	<p>Finding the number of months, weeks days, hours and minutes between two events</p>	<p>Guide pupils to estimate the time an event takes in minutes and seconds and verify it by measuring with a clock or stop watch. E.g. walking 100 metres, 400 metres.</p> <ul style="list-style-type: none"> - running a 100 or 400 metre race. - reading a passage. - drawing an object. <p>Assist pupils to find the number of months, weeks, days, hours and minutes between two events. E.g. (a) the number of days between two market days.</p> <p>(b) the number of months or years between celebrations (Christmas, birthdays).</p> <p>Group the class and ask each group to calculate exactly (years, months, days, hours and minutes) how long ago important events in history occurred. e.g.</p> <ol style="list-style-type: none"> i. Ghana's independence. ii. Nelson Mandela's release from prison. iii. First man on the moon. iv. When their teacher was born 	<p>Let pupils:</p> <p>find the duration between two events.</p>

PRIMARY 6

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.1 SETS OF NUMBERS	<p>The pupil will be able to:</p> <p>6.1.1 write sets of multiples of counting numbers up to 10.</p>	<p>Multiples of numbers up to ten</p>	<p>TLMs: countable objects like bottle tops, sticks etc.</p> <p>Let pupils find multiples of counting numbers up to 10. E.g. Multiples of 2 = 2, 4, 6, 8, 10, ... Multiples of 3 = 3, 6, 9, 12, ... Guide pupils to write sets of multiples of numbers – using set notation. E.g. a set of multiples of 2 = {2, 4, 6, 8, 10, ...}.</p> <p>Play 'Bizz Buzz' Game P4. The game can also be adapted to help teach other sets of numbers. Two, three or four numbers can be the 'bizz', 'buzz' even 'bang' words, as can prime, triangular and square numbers.</p> <p>Play 'Pass It On' (P5). This can be adapted so that all the topics in this unit are represented in the questions on the cards.</p>	<p>Let pupils:</p> <p>write set of multiples of given counting numbers up to 10.</p> <p>complete number pattern that are multiples of numbers.</p>
	<p>6.1.2 identify numbers that can be divided by 2, 3, 4, 5, 6, 8, 9 and 10.</p>	<p>Numbers divisible by 2, 3, 4, 5, 6, 8, 9 and 10</p>	<p>Revision: Revise the tests for numbers divisible by 2,3,4,5 and 6</p> <p>Assist pupils to test for numbers divisible by 8, 9 and 10.</p> <p>For 8, if the last three digits is divisible by 8 then 8 is a factor.</p> <p>For 9, if the sum of the digits of the number can be divided by 9, then 9 is a factor of that number.</p> <p>For 10, if the end digit is 0, then 10 is a factor.</p>	<p>test to find if a given numbers can be divided by 4,6,8,9 and 10.</p>

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.1 (CONT'D) SETS OF NUMBERS	The pupil will be able to:			Let pupils:
	6.1.3 find the lowest common multiple of two numbers.	Lowest Common Multiple (L.C.M)	Guide pupils to find the Lowest Common Multiple (L.C.M) of two numbers using sets. (a) List the set of multiples of the two numbers. (b) List the set of common multiples of the two numbers. (c) Select the least among the common multiples. E.g. Find the L.C.M. of 2 and 3. The set of multiples of 2 = {2,4,6,8,10,12,...} The set of multiples of 3 = {3,6,9,12,...} The set of common multiples of 2 and 3 = {6,12,18,...} LCM of 2 and 3 = 6	find the L.C.M. of two numbers.
	6.1.4 list prime numbers up to 100.	Prime numbers up to 100	TLMs: charts/tables. Help pupils to use the sieve of Eratosthenes to list prime numbers up to 100.	list counting numbers up to 100 and indicate if a number is prime or not.
	6.1.5 find factors of numbers up to 100.	Factors of counting numbers up to 100	Guide pupils to find factors of counting numbers up to 100 and complete tables. Write sets of numbers made up of factors of given numbers.	write down factors of given numbers.
	6.1.6 find the H.C.F. of two numbers.	Greatest Common Factor (G.C.F) or Highest Common Factor (HCF)	Guide pupils to find the H.C.F of two numbers. (a) List the set of factors of the two numbers. (b) List the set of common factors of the two numbers. (c) Select the highest among the common factors. E.g. Find the H.C.F. of 8 and 12. Set of factors of 8 = {1,2,4,8} Set of factors of 12 = {1,2,3,4,6,12} Set of common factors of 8 and 12 = {1,2,4} \therefore HCF of 8 and 12 = 4	find the HCF of 2 numbers.

[illegible]

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.2 (CONT'D) OPERATIONS ON FRACTIONS	The pupil will be able to:			Let pupils:
	6.2.5 multiply a FRACTIONS by a FRACTIONS.	Multiplication of a FRACTIONS by a FRACTIONS	Revision: Revise multiplication of a FRACTIONS by a whole number. Guide pupils to use cut-out shapes and FRACTIONS chart to illustrate multiplication of a FRACTIONS by a FRACTIONS. E.g. $\frac{2}{3} \times \frac{1}{2} = \frac{2}{6} = \frac{1}{3}$	find the result of multiplication of two FRACTIONS.
	6.2.6 divide a whole number by a FRACTIONS.	Dividing a whole number by a FRACTIONS	Guide pupils to use cut-out shapes, FRACTIONS chart or number line to show division by a FRACTIONS. E.g. $4 \div \frac{1}{2}$ can be interpreted as how many halves in 4. Therefore, $4 \div \frac{1}{2} = 8$	find the result of dividing a given whole number by a FRACTIONS.
	6.2.7 solve word problems on multiplication and division of FRACTIONS.	Word problems on multiplication and division of FRACTIONS	Guide pupils to solve word problems involving multiplication and division of FRACTIONS. You can use 'Shape Sums' (P2). Where the teacher draws two, three or four large shapes on the chalk-board in each of which are a selection of different FRACTIONS. The children choose one FRACTIONS from each shape, then multiply or divide them and record the sum in their books.	solve word problems involving multiplication and division of FRACTIONS.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.3 NUMBERS AND NUMERALS 0 - 10,000,000	The pupil will be able to:			Let pupils:
	6.3.1 count in millions.	Counting in millions	<p>TLMs: abacus, colour-coded counters and place value chart.</p> <p>Guide pupils to use the abacus and colour-coded counters to count in millions up to 10,000,000.</p>	count and write numbers and numerals in millions.
	6.3.2 state the place value of digits in numerals 0 - 10,000,000.	Place values of digits in 6- or 7-digit numerals	<p>Guide pupils to identify the place value and value of digits in 6- or 7-digit numeral and compare numbers up to 10,000,000 using the symbols $>$, $<$ or $=$.</p> <p>Play 'Place Value Game'. Children are given an empty place value grid up to and including millions. The teacher asks them to make the biggest/smallest number they can with the numbers he/she calls out.</p> <p>Write a 5 digit number on the board using different colour chalks to highlight certain digits. Ask the children to identify the value of the digits highlighted.</p> <p>Match up high value numerals with their equivalent value in words. This can be made into a race, have only a few numbers or as many as the board can hold.</p> <p>An assortment of 4 to 7 digit numbers are written onto the chalk board. Two numbers are chosen and children race to put a $<$ or $>$ sign between the numbers otherwise a number and a sign is put on board and children race to find a bigger or smaller number as appropriate.</p>	<p>(i) find the value of a digit in a numeral.</p> <p>(ii) compare two numbers using the symbols $=$, $<$ or $>$</p>
	6.3.3 write numerals for number names up to ten million.	Writing numerals for number names up to ten million	Guide pupils to write numerals for number names up to ten million.	write numerals for a given number name.
	6.3.4 round off numbers to the nearest ten, hundred and thousand.	Rounding off numbers	Assist pupils to read and round off numbers to the nearest ten, hundred and thousand. E.g. 15279 to the nearest hundred is 15300.	Round off given numbers to the nearest tens hundreds and thousands.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION																																			
UNIT 6.4 ADDITION AND SUBTRACTION (SUMS 0 – 9,999,999)	The pupil will be able to: 6.4.1 add numbers with sums more than100,000.	Adding 6- and 7-digit numbers	<p>TLMs: abacus, colour-coded counters, place-value chart</p> <p>Make a simple abacus with the hundreds, tens and units frame drawn on paper, with chalk on the children’s desks. Use bottle tops to represent the counters. Demonstrate to the children how to use an abacus. Ask the children to solve addition and subtraction problems using an abacus.</p> <p>Number Fans. Children give quick-fire answers, using their number fans, to questions asked by teacher.</p> <p>‘Game boards can be group activities or whole class. Teacher can reproduce a game board on the chalk board and play against the whole class.</p> <p>Guide pupils to add 6-digit and 7-digit numbers, using abacus, colour-coded counters and place-value chart.</p> <p>E.g.</p> <table><tr><th>M</th><th>Hth</th><th>Tth</th><th>Th</th><th>H</th><th>T</th><th>O</th></tr><tr><td>4</td><td>6</td><td>6</td><td>5</td><td>3</td><td>4</td><td>2</td></tr><tr><td>1</td><td>2</td><td>3</td><td>6</td><td>6</td><td>3</td><td>3</td></tr><tr><td>5</td><td>8</td><td>3</td><td>11</td><td>9</td><td>7</td><td>10</td></tr><tr><td>5</td><td>8</td><td>4</td><td>1</td><td>9</td><td>8</td><td>0</td></tr></table> <p>Add 7-digit numbers using the short form.</p>	M	Hth	Tth	Th	H	T	O	4	6	6	5	3	4	2	1	2	3	6	6	3	3	5	8	3	11	9	7	10	5	8	4	1	9	8	0	Let pupils: add 6- and 7-digit numbers using place-value chart and short form.
M	Hth	Tth	Th	H	T	O																																	
4	6	6	5	3	4	2																																	
1	2	3	6	6	3	3																																	
5	8	3	11	9	7	10																																	
5	8	4	1	9	8	0																																	

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.5 DECIMAL FRACTIONSS AND PERCENTAGES	The pupil will be able to:			Let pupils:
	6.5.1 order decimal FRACTIONS.	Writing and ordering decimal FRACTIONSs	<p>TLMs: Dienes blocks, charts, colour-coded counters.</p> <p>Guide pupils to order decimal FRACTIONSs by changing them to FRACTIONSs with the same denominator. E.g. order 0.5, 0.16, 0.25 First change all to hundredths.</p> $0.5 = \frac{50}{100}$ $0.16 = \frac{16}{100}$ $0.25 = \frac{25}{100}$ <p>Hence the ascending order is 0.16, 0.25, 0.5</p> <p>The decimal FRACTIONSs should be up to 2 decimal places only.</p> <p>Assist pupils to change common FRACTIONSs to decimal FRACTIONSs. E.g. $\frac{1}{4} = \frac{1 \times 25}{4 \times 25} = \frac{25}{100} = 0.25$</p> <p>Assist pupils to change decimal FRACTIONSs to common FRACTIONS E.g. change 0.75 to common FRACTIONS $0.75 = \frac{75}{100} = \frac{25 \times 3}{25 \times 4} = \frac{3}{4}$</p>	order given decimal FRACTIONSs.
	6.5.2 change common FRACTIONSs to decimal FRACTIONSs and vice versa.	Changing common FRACTIONSs to decimal FRACTIONSs and vice versa	<p>Assist pupils to change decimal FRACTIONSs to common FRACTIONS E.g. change 0.75 to common FRACTIONS $0.75 = \frac{75}{100} = \frac{25 \times 3}{25 \times 4} = \frac{3}{4}$</p>	convert common FRACTIONSs to decimals and vice versa.
	6.5.3 add and subtract decimal FRACTIONSs up to three decimal places.	Addition and subtraction of decimal FRACTIONSs	<p>Guide students to add and subtract decimal FRACTIONSs using Dienes blocks.</p> <p>E.g. 0.35 $\begin{array}{r} 0.35 \\ +0.28 \\ \hline \end{array}$</p> <p>E.g. (i) $\begin{array}{r} 0.351 \\ + 0.232 \\ \hline 0.583 \end{array}$ (ii) $\begin{array}{r} 0.563 \\ - 0.420 \\ \hline 0.143 \end{array}$</p> <p>Using the flat as a whole 0.35 = 3 longs, 5 cubes. 0.28 is 2 longs and 8 cubes.</p>	add and subtract decimal FRACTIONSs.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
6.5 (CONT'D) DECIMAL FRACTIONS AND PERCENTAGES	The pupil will be able to:			Let pupils:
	6.5.4 multiply a decimal FRACTIONS by 1-digit whole number.	Multiplication of a decimal FRACTIONS by 1-digit number	Multiply decimal FRACTIONSs in tenths, hundredths and thousandths by 1-digit number. E.g. $0.243 \times 2 = 0.486$	multiply a decimal FRACTIONS by 1-digit number
	6.5.5 multiply decimal FRACTIONSs by another (up to 2 decimal places)	Multiplication of 1 and 2 decimal place FRACTIONSs Duse some materials	Guide pupils to multiply one decimal FRACTIONS by another one decimal FRACTIONSs. $0.3 \times 0.2 = 0.06$ Use a 10 x 10 grid to explain Guide pupils to multiply 2 decimal FRACTIONSs by a one decimal FRACTIONS. E.g. $2.1 \times 0.3 = 0.63$ $3.12 \times 0.1 = 0.312$	multiply a one decimal FRACTIONS by another one decimal FRACTIONS. multiply a two decimal FRACTIONS by a one decimal FRACTIONS.
	6.5.6 divide a decimal FRACTIONS by 1-digit whole number.	Division of a decimal FRACTIONS by 1-digit number	Guide pupils to divide a decimal FRACTIONS by 1-digit number. Divide the class into two teams and number the children from 1. Write on the chalkboard as many decimals, FRACTIONSs and percentages as will fit. Invite a child from each team to come up to the chalkboard (by calling out a number) and give them each a piece of chalk. Tell the children to change one of the three operations to another (e.g. "change one half to a percentage... change ten percent into a decimal..."). The first child to find the corresponding value and underlines it wins a point for his team. Group the children and provide each group with 100 bottle tops. Group the tops in a grid of 10 x 10 and explain how they can show FRACTIONSs, decimals and percentages.	dividing a decimal FRACTIONS by 1-digit whole number.

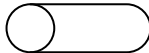
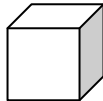
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
6.5.1 (CONT'D) DECIMAL FRACTIONSS AND PERCENTAGES	The pupil will be able to: 6.5.6 order combinations of common FRACTIONSS, decimal FRACTIONS and percentages.	Ordering combinations of common FRACTIONSS, decimal FRACTIONSS and percentages	Guide pupils to recognise and write combinations of common FRACTIONSS, decimal FRACTIONS and percentages in ascending and descending order. E.g. Arrange 0.25, $\frac{3}{5}$ and 40% in order of size starting with the smallest. First express them as hundredths E.g. $0.25 = \frac{25}{100}$, $40\% = \frac{40}{100}$ $\frac{3}{5} = \frac{3 \times 20}{5 \times 20} = \frac{60}{100}$ Hence the ascending order is 0.25, 40%, $\frac{3}{5}$	Let pupils: arrange given combinations of FRACTIONSS and percentages in order of size.
	6.5.7 find a percentage of a given quantity.	Percentage of a quantity of objects	Assist pupils to find the percentage of a quantity of objects. E.g. (i) 20% of 2000 oranges $\frac{20}{100} \times 2000$ $= 400$ oranges (ii) 5% of ₦1000 $\frac{5}{100} \times 1000$ $= ₦50$	find a given percentage of a quantity.

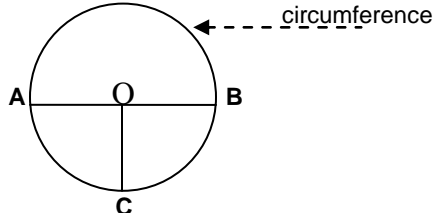
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.6 MEASUREMENTS OF LENGTH, CAPACITY AND MASS	The pupil will be able to: 6.6.1 estimate distance between two points in kilometres.	Estimating distances in kilometres	<p>Develop awareness of the kilometre as a distance covered by going round a 400m track two and a half times, or do activities that will help pupils to see how long it takes to walk a kilometre.</p> <p>Explain to pupils that longer distances are measured in kilometres and that 1000 metres (m) = 1 kilometre (km)</p> <p>Let pupils estimate long distances in km. E.g. distance between two schools/towns, villages.</p>	Let pupils: estimate distances in kilometres.
	6.6.2 change distances in kilometres to metres	Changing distances in kilometres to metres	<p>Guide pupils to change distances from kilometres to metres.</p> <p>See P5. Divide the class into two teams and number the children from 1. Fill the chalkboard a mixture of lengths in mm, cm, m and km. Invite a child from each team to come up to the chalkboard (by calling out a number) and give them each a piece of chalk. Give the children a measurement in one unit and ask them to convert it to another (e.g. "what is 10cm in mm... what is 1,200m in km..."). The first child to find the corresponding value and underlines it wins a point for his team.</p> <p>The teacher may want to leave the answers underlined to reduce the options for those that follow and so increase the difficulty for the more able children.</p> <p>This activity can be adapted to allow the topics of capacity and mass to be taught.</p>	change distances in kilometres to metres and vice versa making use of the decimal notation.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.6 (CONT'D) MEASUREMENTS OF LENGTH, CAPACITY AND MASS	The pupil will be able to:			Let pupils:
	6.6.3 convert distances given in metres to kilometres.	Changing distances in metres to kilometres	Assist pupils to convert lengths in metres to kilometres expressing the result in decimal notation. E.g. $800\text{m} = \frac{800}{1000} = 0.8\text{km}$; $\frac{1500}{1000} = 1.5\text{km}$	change distances in metres to kilometres and vice versa making use of the decimal notation
	6.6.4 add and subtract measures of length in km, m and cm.	Adding and subtracting distances	Help pupils to add and subtract distances in km, m and cm.	finding total length of distances.
	6.6.5 add and subtract capacities of containers in l and ml.	Addition and subtraction of capacities	Review measuring of capacities of containers in litres and millilitres using different containers. Pupils undertake a project by looking for at least twenty containers whose capacities are indicated on their labels and record them. Assist pupils to add and subtract capacities in l and ml containers whose capacities have been indicated on them.	find the capacity of containers in m and ml find the total capacity of two or more containers.
	6.6.6 add and subtract given masses in kilograms and grams.	Addition and subtraction of masses	Let pupils measure the masses of two or three objects and add them up. Help pupils to find the difference between the masses of two different objects.	add and subtract masses of objects.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.6 (CONT'D) MEASUREMENTS OF LENGTH, CAPACITY AND MASS	The pupil will be able to: 6.6.7 solve word problems involving capacity and mass	Word problems involving capacity and mass	Pose word problems involving capacity and mass and let pupils solve them. See 'Class Shop' P4. Create a class shop where everyday items can be bought and sold and which allows the children to measure length, capacity and mass. The shop should sell cloth, rice, beans, water, flour etc. which can be readily measured and weighed before sale. Children can use different types of scales or balances to measure and weigh products. Class can have a single shop with a different group in charge each day or pupils can be grouped and each group sell a couple of different items. Prices are set by teacher to allow FRACTIONSs of weight to be measured. Also children can buy a number of items and total the weight and cost.	Let pupils: solve word problems involving capacities and masses.
UNIT 6.7 RATIO AND PROPORTION	6.7.1 find missing numbers in equal ratios.	Equal ratios	TLM: countable objects. (ii) Guide pupils to find missing numbers in equal ratios. E.g. $2 : 3 = n : 12$ i.e. $\frac{2}{3} = \frac{n}{12}$ $2 \times 4 = n \times 1$ (multiplying both sides by 12) $n = 8$ See P4. Group children into teams of 7. Give the team pieces of paper with numbers on them, symbol for a ratio (:) and an equals sign. A simple ratio equation is placed on the chalkboard (e.g. $2 : 3 = 7 : ?$) and one of the groups must come to the front of the class and reproduce the number sentence with each member of the group representing either a number, one of the four operation signs and the equals sign. Between them they have to decide what the missing number or operation is.	find missing numbers that make the given ratios equal.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.7 (CONT'D) RATIO AND PROPORTION	The pupil will be able to:			Let pupils:
	6.7.3 solve problems on direct proportion using unitary method	Direct Proportion by Unitary Method	Assist pupils to solve problems on direct proportion using unitary method. E.g. Two books cost GH¢10. Find the cost of 5 of the books. Solution: The cost of 2 books = GH¢10 The cost of 1 book = GH¢5 The cost of 5 books = GH¢5 x 5 = GH¢25	solve problems on direct using unitary method.
	6.7.4 use ratio method to solve direct proportion problems.	Direct Proportion by Ratio Method	Guide pupils to solve problems using ratio method. E.g. six oranges cost 30Gp. What is the cost of 15 oranges? Let x Gp be the cost of 15 oranges. Then 30 : x = 6 : 15 $\frac{30}{x} = \frac{6}{15}$ $6x = 30 \times 15$ $x = 5 \times 15$ $= 75$ Therefore, 15 oranges cost 75 GP	solve problems on direct proportion using ratio method.
	6.7.5 share quantities into two in a given ratio	Sharing quantities in a given ratio	Guide pupils to divide quantities of objects into two using ratio. E.g. Esi and Abu share 15 oranges in the ratio 2 : 3. Find their shares. Total number of parts = 5 Esi's share = $\frac{2}{5} \times 15 = 6$ Abu's share = $\frac{3}{5} \times 15 = 9$ ∴ Esi's share is 6 oranges and Abu's is 9 oranges. Put pupils into groups. Each group is given a number of bottle tops to work with and an individual worksheet on which a number of ratio problems are written (e.g. Esi and Abu share 15 oranges in the ratio 2 : 3. Find their shares?). The children have to use the bottle tops to help them solve the problems. When complete each group changes places so that they can attempt a different set of problems.	share quantities of objects in given ratio.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.8 SHAPE AND SPACE	The pupil will be able to: 6.8.1 classify solid shapes according to a given criteria 6.8.2 identify solids whose cross section have the same shape and size.	Classification of solid shapes Prisms.	TLMs: pencils, cuboids, cones, pyramids, match box, milk tin, manila cards. Help pupils to revise the number of faces, vertices and edges of real objects. Assist pupils to classify solid shapes by the number of faces, vertices and edges using real objects. N.B: Let pupils work in groups and encourage pupils to be tolerant with each other. Guide pupils to identify and name solid shapes with uniform cross section as prisms. E.g. <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p style="text-align: center;">cylinder cuboid</p> Demonstrate to the children how to make a simple cube using string threaded through drinking straws. Make the cube in such a way that it can be ‘unfolded’ in such a way that it produces a net of the 3-D shape. Group the children and challenge them to make a variety of two and three dimensional shapes in the same way. At the end of the lesson the groups are encouraged to show their shapes and describe what they have done using the appropriate mathematical terminology (faces, edges and vertices).	Let pupils: state the shape and write the number of faces and edges in tabular form. give examples of real objects that are prisms.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.8 (CONT'D) SHAPE AND SPACE	The pupil will be able to: 6.8.5 draw a circle and name the parts.	Parts of a circle	Let pupils make nets of a cuboid and a cylinder using manila cards and fold to make the solids. Let pupils draw a circle with a convenient radius and label the diameter, radius, centre and circumference.  <p>AB is diameter OC is radius O is centre</p>	Let pupils: draw a circle and show the parts.
UNIT 6.9 COLLECTING AND HANDLING DATA	6.9.1 collect data that involve counting, measuring and accessing information from text.	Collecting Data	Guide pupils to collect data involving counting, measuring and accessing information. E.g. Number of goals recorded in a league table, masses of children at birth in hospitals and clinics. School attendance from register, marks obtained from test and exercises. Group the children and give each group a short section from a well known piece of writing (verse of National Anthem or passage from the bible). Ask each group to calculate the frequency with which each letter appears in the piece they have. Using the numbers collected ask the children to work out the Mean, Mode and Median and to represent their findings in a graph. The teacher could ask each group to choose a different type of graph (block, bar, pictogram etc.) on which to display their findings. At the end of the lesson the children can show and describe their work to the rest of the class.	count and record data accessed from books, magazines, etc.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.9 (CONT'D)	The pupil will be able to:			Let pupils:
COLLECTING AND HANDLING DATA	6.9.2 read and interpret information from data presented in tables.	Reading and interpreting data from tables	Guide pupils to build tables from data, read and interpret it or answer questions on information from tables. E.g. (i) finding number of pupils born on each day. (ii) month with highest rainfall in the year.	read and answer questions on data presented in a table.
	6.9.3 represent data using block graph, bar graph and pictograph and interpret data presented in such graphs.	Block graph, bar graph and pictograph	Guide pupils to draw block graph, bar graph and pictogram to represent number of objects and people.	draw block, bar graphs and pictogram. interpret a given block or bar graph.
	6.9.4 represent data using stem and leaf plot and interpret data presented in such plots.	Stem and leaf plot	Guide pupils to make stem and leaf plot with 3-digit numbers. E.g. 112 123 114 135 134 131 116 127 127 125 120 121 displayed as 11 2 4 6 12 3 7 7 5 0 1 13 1 4 5	draw a stem and leaf plot from a given data. interpret a given stem and leaf plot.
	6.9.5 find the mode and median of a set of data	Mode and Median	Guide pupils to review finding the mode as the most frequent occurring item in data. Revise finding the median as the middle value of a set of data when arranged in ascending or descending order.	find the mode and median of a given data.
	6.9.6 find the mean of a set of data	Mean	Lead pupils to find the mean of data by adding the values and dividing the sum by number of items. E.g. the mean of 3, 2, 3, 4, 6, 8, 9, is $\frac{3+2+3+4+6+8+9}{7} = \frac{35}{7} = 5$	find the mean of given data.

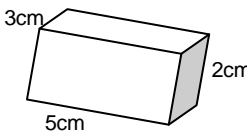
UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION																																										
UNIT 6.10 MULTIPLICATION AND DIVISION	<p>The pupil will be able to:</p> <p>6.10.1 recite multiplication tables for 11 and 12</p> <p>6.10.2 multiply 5 digit numbers by a 1-digit number</p>	Multiplication of 5 digit numbers by a 1-digit number	<p>TLMs: multiplication charts and tables.</p> <p>Revision: Assist pupils to revise multiplication fact up to product 1000.</p> <p>E.g. 9 x 7 = 63</p> <p> ⇒ 3 8</p> <p> <u> x 5 </u></p> <p> _____</p> <p>Guide pupils to multiply a 5-digit number by 1-digit number using colour-coded objects and the place value chart.</p> <p>E.g. 64027 x 7 is shown in the place value chart below.</p> <table><tr><td>M</td><td>Hth</td><td>Tth</td><td>Th</td><td>H</td><td>T</td><td>O</td></tr><tr><td></td><td></td><td>6</td><td>4</td><td>0</td><td>2</td><td>3</td></tr><tr><td></td><td></td><td></td><td></td><td></td><td>x</td><td>7</td></tr><tr><td></td><td></td><td>42</td><td>28</td><td>0</td><td>14</td><td>21</td></tr><tr><td></td><td></td><td>44</td><td>8</td><td>0</td><td>16</td><td>1</td></tr><tr><td></td><td>4</td><td>4</td><td>8</td><td>1</td><td>6</td><td>1</td></tr></table>	M	Hth	Tth	Th	H	T	O			6	4	0	2	3						x	7			42	28	0	14	21			44	8	0	16	1		4	4	8	1	6	1	<p>Let pupils:</p> <p>find products and missing factors in multiplication and division sentences.</p> <p>multiply 5-digit numbers by 1-digit numbers.</p>
M	Hth	Tth	Th	H	T	O																																								
		6	4	0	2	3																																								
					x	7																																								
		42	28	0	14	21																																								
		44	8	0	16	1																																								
	4	4	8	1	6	1																																								

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.10 (CONT'D) MULTIPLICATION AND DIVISION	The pupil will be able to: 6.10.3 multiply a 4-digit number by a 2-digit number	Multiplication of 4-digit number by 2-digit number	<p>use the distributive property to perform multiplication of a 4-digit number by a 2-digit number.</p> <p>E.g. $3457 \times 28 = 3457 \times (20 + 8)$</p> $= (3457 \times 20) + (3457 \times 8)$ $= 69140 + 27656$ $= 96796$	<p>Let pupils:</p> <p>find the product of 4-digit number by a 2-digit number.</p> <p>estimate the products of 4-digit numbers and two digit numbers.</p>
	6.10.4 find high , low and good estimates for products of a 4- digit number and a 2-digit number.	Estimating the product of a 4-digit number and a 2-digit number.	<p>Guide pupils to multiply in the vertical form.</p> $ \begin{array}{r} 3457 \\ \times 28 \\ \hline 27656 \\ 6914 \\ \hline 96796 \end{array} $ <p>Guide pupils to use rounding off numbers to the nearest thousand, hundred and ten to estimate products of 4-digit numbers and 2-digit numbers.</p> <p>E.g. 1756×18</p> <p>High estimate $2000 \times 20 = 4000$</p> <p>Low estimate $1700 \times 15 = 25500$</p> <p>Good estimate $1760 \times 20 = 35200$</p>	

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.10 (CONT'D) MULTIPLICATION AND DIVISION	The pupil will be able to: 6.10.5 divide a 3-digit number by 1-digit number	Division of a 3-digit by a 1-digit number	Revise with pupils division of a 3-digit number by a 1-digit number using the scaffolding method. E.g. $432 \div 3$ $100 + 10 + 10 + 10 + 10 + 4 = 144$ <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: right;"> $\begin{array}{r} 3 \overline{) 432} \\ \underline{-300} \\ 132 \\ \underline{-30} \\ 102 \\ \underline{-30} \\ 72 \\ \underline{-30} \\ 42 \\ \underline{-30} \\ 12 \\ \underline{-12} \\ 0 \end{array}$ </div> <div style="text-align: center;">or</div> <div style="text-align: left;"> $\begin{array}{r l} 3 \overline{) 432} & \\ \underline{-300} & 100 \\ 132 & \\ \underline{-30} & 10 \\ 102 & \\ \underline{-30} & 10 \\ 72 & \\ \underline{-30} & 10 \\ 42 & \\ \underline{-30} & 10 \\ 12 & \\ \underline{-12} & 4 \\ 0 & 144 \end{array}$ </div> </div> so $432 \div 3 = 144$	Let pupils: divide 3-digit numbers by 1-digit number using the scaffolding method
	6.10.6 find estimates for quotients.	Using rounding off numbers to the nearest ten and hundred to estimate their quotients	Guide pupils to use rounding off numbers to the nearest hundred and tens to estimate their quotients. E.g. $1678 \div 14$ $1678 = 1700$ to the nearest hundred $14 = 10$ to the nearest ten The estimate is $1700 \div 10 = 170$	round off number and estimate their quotient.

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.11 (CONT'D) INVESTIGATIONS WITH NUMBERS	The pupil will be able to:		<div>pattern<div><div>1</div><div>1 + 2</div><div>1 + 2 + 3</div><div>1 + 2 + 3 + 4</div></div><div><div>•</div><div>• •</div><div>• • •</div><div>• • • •</div></div><div>triangular number (sum)<div>1</div><div>3</div><div>6</div><div>10</div></div></div> <div>Triangular numbers are 1, 3, 6, 10, ...</div> <div>Help pupils to identify the pattern in square numbers</div> <div>E.g. <div><div>1</div><div>4</div><div>9</div></div><div><div>1</div><div>1+ 3</div><div>1+ 3 + 5 etc.</div></div></div>	Let pupils: complete sequence involving triangular and square numbers.
	6.11.3 write set of ordered pairs that obey a given rule	Ordered pairs	<div>Assist pupils to find the relation/rule for the set of ordered pairs that obey a given rule</div> <div>E.g.<div><div>(i) the rule for the ordered pairs [(1, 0), (2, 2), (3, 4), (4, 6)], is: the first number minus 1 times 2.</div><div>(ii) the rule “ the square of the 1st number” gives the ordered pairs (2, 4) (3, 9) (4, 16) (5, 25)</div></div></div>	Write the pattern for a given square number.
				Write ordered pairs for a given rule

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION																
UNIT 6.12 MEASUREMENTS OF AREA AND VOLUME	The pupil will be able to: 6.12.1 calculate the area of a rectangle with given dimensions	Area of a rectangle	<p>TLMs: unit cubes, unit square cuts, boxes, sugar box. square cut-outs, geoboard</p> <p>Assist pupils to cover given rectangular regions with square cut-outs to determine the number of squares that can cover a given rectangle. Let pupils in groups make rectangles of any dimensions and count the number of squares in each. Let pupils record the results in a table as shown in the example below.</p> <div><div><div>L</div><div></div><div>B</div></div><table><tr><th>L</th><th>B</th><th>No. of square</th><th>L x B</th></tr><tr><td>4</td><td>2</td><td>8</td><td>8</td></tr><tr><td>5</td><td>3</td><td>15</td><td>15</td></tr><tr><td>6</td><td>4</td><td>24</td><td>24</td></tr></table></div> <p>Let pupils determine the relationship between length, breadth and the number of square i.e. $L \times B = \text{Number of squares}$. Area is 15 squares i.e. $5 \times 3 = 15\text{cm}^2$ Assist pupils to use the rule $L \times B$ to calculate the area of a rectangle with given dimensions E.g.</p> <div><div><div>2</div><div></div><div>4</div></div><div>Area = $L \times B$ $4 \times 2 = 8\text{ cm}^2$</div></div> <p>Give every child a piece of paper exactly 16cm long. Ask them to fold it in half, then half again 4 times. When they re-open the piece of paper they will have a short ruler 16cm long. To complete the ruler they will need to mark the creases (remembering to start at edge of the strip) from 0 to 16. They should now use their rulers to measure an assortment of boxes (e.g. cereal, soap, drink cartons etc.) and calculate the areas of their sides (and their volumes).</p>	L	B	No. of square	L x B	4	2	8	8	5	3	15	15	6	4	24	24	Let pupils: find the area of rectangles with given dimensions.
L	B	No. of square	L x B																	
4	2	8	8																	
5	3	15	15																	
6	4	24	24																	

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION																				
UNIT 6.12 (CONT'D) MEASUREMENTS OF AREA AND VOLUME	The pupil will be able to:			Let pupils:																				
	6.12.2 find the volume of cuboids.	Volume of cuboid	<p>Guide pupils to fill a box with 1-cm cubes to determine its volume.</p> <div></div> <table><tr><th>L</th><th>B</th><th>H</th><th>No. of cubes</th><th>L x B x H</th></tr><tr><td>4</td><td>2</td><td>3</td><td>24</td><td>24</td></tr><tr><td>5</td><td>3</td><td>2</td><td>30</td><td>30</td></tr><tr><td>6</td><td>2</td><td>4</td><td>48</td><td>48</td></tr></table> <p>Volume of cuboid, $V = L \times B \times H$ Guide pupils to use the formula $V = L \times B \times H$ to find the volume of cuboids $\text{Volume} = 5 \times 3 \times 2$ $= 30\text{cm}^3$</p>	L	B	H	No. of cubes	L x B x H	4	2	3	24	24	5	3	2	30	30	6	2	4	48	48	calculate volume of cuboids and cubes of given dimensions.
	L	B	H	No. of cubes	L x B x H																			
4	2	3	24	24																				
5	3	2	30	30																				
6	2	4	48	48																				
UNIT 6.13 MEASURENMENT MONEY	6.13.1 solve simple problems involving transactions with money.	Transactions involving money	<p>TLMs: Currency notes and coins</p> <p>solve problems that involve the use of money in everyday life activity E.g. trading in market, post office activity, etc. Let pupil find (i) The sum of the cost of 3 or 4 items. (ii) Changes in the transactions.</p> <p>See 'Class Shop'P4. Create a class shop where everyday items can be bought and sold and which allows the children to measure length, capacity and mass and use money to buy items and receive change.</p>	solve problems involving transaction in money																				
	6.13.2 solve simple problems involving profit and loss.	Profit and Loss	<p>Guide pupils to solve problems involving profit and loss using selling price (S.P.) and cost price (C.P.) Create a corner shop for pupils to buy and sell.</p>	solve problems on profit and loss.																				

UNIT	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 6.14 CHANCE	<p>The pupil will be able to:</p> <p>6.14.1 list all possible outcomes of a situation.</p> <p>6.14.2 identify an event from outcomes of a situation.</p> <p>6.14.3 find the chance of an event.</p>	<p>Possible Outcomes</p> <p>Idea of Event</p> <p>Finding Chance</p>	<p>TLMs: coins, dice</p> <p>Guide pupils to perform experiments and record all the possible outcomes.</p> <p>E.g. Toss a coin or die several times and record the possible outcomes. Possible outcomes of tossing a die are 1, 2, 3, 4, 5, 6.</p> <p>Guide pupils to identify an event as an outcome or a number of outcomes of a situation. E.g. (i) The event "6" will occur if a die is tossed. (ii) The event "2,4 or 6" will occur if a die is tossed</p> <p>Assist pupils to perform an experiment and find the chance of an event occurring. E.g. Pupils use the rule. Chance of an event occurring</p> <p>= $\frac{\text{Number of outcomes giving rise to the event}}{\text{Number of all possible outcomes}}$</p> <p>E.g. To find the chance of an event of an odd number appearing in a toss of a die.</p> <p>The possible outcomes are 1,2,3,4,5,6.</p> <p>The number of possible outcomes is 6.</p> <p>The event consists of 1,3,5.</p> <p>Number of outcomes giving event is 3.</p> <p>The chance of odd number occurring = $\frac{3}{6} = \frac{1}{2}$</p>	<p>Let pupils:</p> <p>list the possible outcomes of a given experiment.</p> <p>find the number of events in an experiment</p> <p>find the chance of events.</p>

Unit topics for the six year primary school mathematics

Unit	Primary 1	Primary 2	Primary 3	Primary 4	Primary 5	Primary 6
1.	Counting Objects	Numbers and Numerals 0 - 100	Numbers and Numerals 0 - 10,000	Shape and Space	Numbers and 0 – 1,000,000	Sets of Numbers
2.	Number and Numerals I	Addition 0 - 18	Addition and Subtraction (Sum up to 9999)	Numbers and Numerals 0 - 100,000	Sets of Numbers	Operations on FRACTIONS
3.	Addition (Up to 9)	Subtraction 0 - 18	Length and Area	Investigation With Numbers I	Collecting and Handling Data	Addition and Subtraction (Sum 0 - 10,000,000)
4.	Number and Numerals II	Numbers and Numerals 0 - 1,000	FRACTIONS I	Addition and Subtraction (Sum up to 100,000)	Addition and Subtraction (Sum up to 1,000,000)	Decimal FRACTIONS and Percentage
5.	Subtraction 0 - 9	Measurement of Length, Capacity and Mass(weight)	Collecting and Representing Data as graph	Measurement of Mass/weight and Time	Measurement of Length, Mass and Capacity	Measurement of Length, Capacity and Mass
6.	Solid Shapes	Addition (Sums 0 - 99)	Estimating and Measuring Capacity and Mass (weight)	FRACTIONS I	Shape and Space I	Ratio and Proportion
7.	Ten and Ones	Subtraction with Numbers less than 100	Multiplication of numbers	Multiplication	Multiplication and Division	Shape and Space
8.	Addition and Subtraction	FRACTIONS	Division	Division	Shape and Space II	Collecting and Handling Data
9.	Measurement of Length, Capacity and Mass	Measurement of Time and Money	Plane Shapes	FRACTIONS II	Area and Volume	Multiplication and Division
10.	Measurement of Time and Money	Addition (Sums 0 - 999)	Measurement of Time and Money	Measurement of Length and Area	Operations on FRACTIONS	Investigation with Numbers
11.	Collecting and Handling Data	Subtraction (Numbers less than 1000)	FRACTIONS II	Shape and Space II	Decimal FRACTIONS and Percentages	Measurement of Area and Volume
12.	Addition and Subtraction of Number (0 - 99)	Multiplication		Collecting and Handling Data	Collecting and Handling Data II	Money
13.		Division		Investigation with Numbers II	Number Plane	Chance
14.		Collecting and Handling Data		Measurement of Capacity and Volume	Ratio	Number Plane
15.		Shape and Space			Investigation with Numbers	
16.					Measurement of Time	

Simple Teaching Learning Materials and Equipment

1. Abacus
2. Cuisenaire rods
3. Multibase ten blocks
4. Dominoes
5. Game board
6. Geoboard
7. Colour-coded counters
8. Graph board
9. Bundles of sticks
10. Playing cards
11. Dice
12. Logi-blocks
13. Unifix blocks
14. Lego
15. Oware
16. Marbles
17. A4 paper
18. Card boards e.g. Manila cards

THE MATHEMATICS PANEL

This syllabus was developed by a selected panel consisting of the following:

- | | | |
|-----------------------------|---|--|
| 1. Prof. Damain Kofi Mereku | - | (Chairman), Associate Professor of Mathematics Education, University of Education, Winneba |
| 2. Mr. Anthony Sarpong | - | (Co-ordinator), Assessment Services Unit, GES Headquarters, CRDD, Accra |
| 3. Mr. Victor G. Obeng | - | Lecturer: Assessment in Mathematics (Distance Education) University of Education, Winneba.
Mathematics Tutor, Pope John SHS and Minor Seminary, Koforidua |
| 4. Mr. Opoku Bawuah | - | Lecturer (Distance Education, UCC), H.O.D. Mathematics & ICT, SDA College of Education, Asokore, Koforidua |
| 5. Mr. J.Y. Muanah | - | Mathematics Tutor New Juabeng Secondary Commercial, Koforidua. and Former Mathematics Tutor
Ghana Senior High School, Koforidua |
| 6. Mr. P. Dela Zumanu | - | Vice Dean of Students, Zenith University College, Accra. |
| 7. Mr. Divine Tetteh Daitey | - | Inspectorate Division, Catholic Education Unit, Koforidua. Former Mathematics Teacher, Presby Women's College of
Education Demonstration JHS, Aburi |
| 8. Mr. Eric Osei –Adofo | - | Mathematics Teacher St. Mary's Basic Anglican School, Kasoa |
| 9. Mr. Ernest Agyapong | - | Mathematics Officer, West Africa Examination Council, Accra |

EXPERT REVIEWERS

Review comments to the syllabus development process were provided by:

- | | | |
|------------------------------|---|---|
| 1. Dr. Micheal Johnson Nabie | - | Ph.D. Lecturer, Mathematics Education Department, University of Education Winneba. |
| 2. Mr. Benjamin Yao Sokpe | - | Lecturer, Department of Science and Mathematics Education, University of Cape Coast |

RESOURCE PERSON

- | | | |
|------------------------|---|-----------------------|
| 1. Dr. Kofi B. Quansah | - | P. O. Box SC245, Tema |
|------------------------|---|-----------------------|

COORDINATORS

- | | | |
|---------------------------------|---|---|
| 1. Dr. Ato-Essuman (Consultant) | - | Kwame Nkrumah University of Science and Technology (KNUST), Kumasi |
| 2. Ms. Victoria Achiaa Osei | - | Dep. Divisional Director, GES-Hqtrs., Curriculum Research and Development Division, CRDD, Accra |

SECRETARIAL STAFF

- | | | |
|-----------------------------|---|---|
| 1. Miss Sandra Sahada Osman | - | Secretary, GES-Hqtrs, Curriculum Research and Development Division, CRDD, Accra |
| 2. Mrs. Cordelia Nyimebaare | - | Secretary, GES-Hqtrs, Curriculum Research and Development Division, CRDD, Accra |
| 3. Mr. Collins O. Agyemang | - | Secretary, Regional Education Office, Accra |
| 4. Mr. Thomas K. Baisie | - | Mimeographer, GES-Hqtrs, Curriculum Research and Development Division, CRDD, Accra. |