AREA OF STUDY: MATHEMATICS

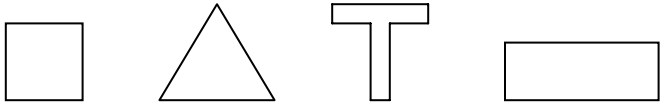
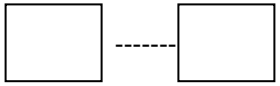
STANDARD V

UNIT/THEME: Two Dimensional Shapes

AREA OF STUDY OUTCOMES
Pupils should:
M2 (B) Plot the position and movement of two-dimensional shapes.

CROSS-CURRICULAR OUTCOMES

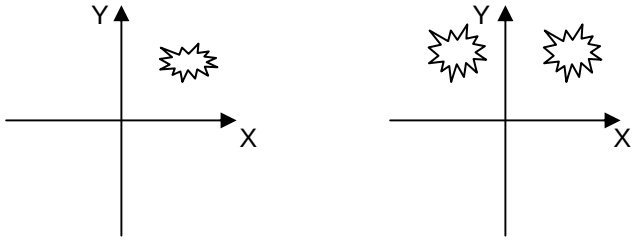
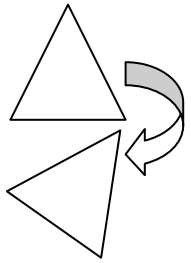
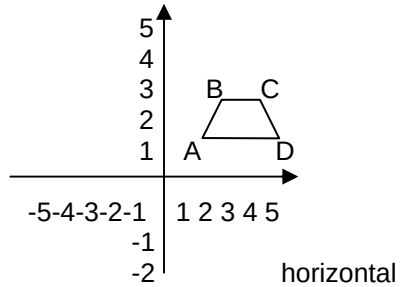
CP1.B. Examine information related to the problems.
SP2.H. Accept major decisions

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A rigid transformation is a movement that doesn't change the size or shape of a figure. Three kinds of transformation are sliding, flipping and turning. **Skills** Trace Demonstrate Identify draft Plot Differentiate Examine Judge Apply Verify Explore	Provide children with cut out shapes of 2-d figures and a mirror. Children manipulate objects.  Describe movements made. Classify as flips, turns, and slides. Make mirror images. Place cut-out shapes on onion skin or tracing paper. Outline shapes Flip vertically or horizontally. Outline shapes in its new position. Fold along the line of symmetry. Children identify images as a reflection.	Present flashcards with figures that show movement. Ex:  b)  _ _ _ _ _ _ _ _ _ _ _ _ _ _ 

AREA OF STUDY: MATHEMATICS

STANDARD V

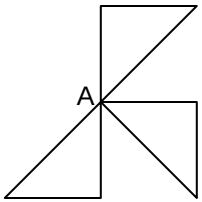
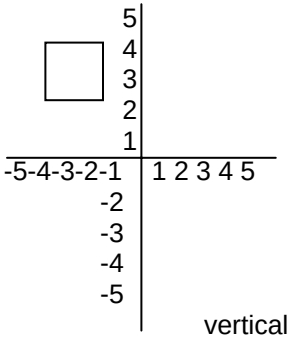
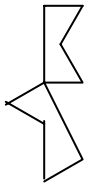
UNIT/THEME: Two Dimensional Shapes

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
<u>Attitudes</u> Willingness to: Interact Participate Respect opinion of others Cooperate A reflection is the flipping of a figure across a straight line. The new figure is a mirror image of the original. A graph can be used to show reflection. A reflection on the y-axis will produce a figure in which the y axis becomes the line of symmetry. A reflection on the x-axis will produce a figure in which the x-axis will become the line of symmetry.	Groupwork: Make a grid on shop paper Put a little bit of water paint in the center of the first quadrant.  Fold the paper on the y-axis and press. Discussion: "Reflected image." Construct grid on tracing paper. Copy $\triangle$ABC where A = (-4,2) B = (-1,1) C = (-3,4). Fold paper along the vertical axis so that $\triangle$ABC is on the outside. Trace the $\triangle$ on the other side of the paper. Observe and list co-ordinates of both triangles. Formulate rule for vertical reflection. i.e. (x,y) $\longrightarrow$ (-x,y) Repeat for horizontal reflection. RULE: (x,y) $\longrightarrow$ (x,-y) ▪ Practice reflections with other shapes.	c)  Children identify movements as slides, flips or turns. Create other images using shapes given. Make more reflections using x and y axis. Reflect images horizontally or vertically on a grid. List co-ordinates of reflection 

AREA OF STUDY: MATHEMATICS

STANDARD V

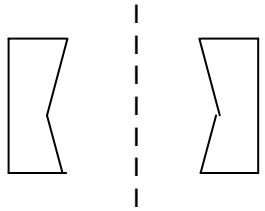
UNIT/THEME: Two Dimensional Shapes

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A rotation is the clockwise or anti-clockwise movement of a figure around a point. Both the position and location of the figure change.	Place a triangle shape on a sheet of paper. Pin one corner with a tack. Turn and trace movements made.  A –tack Note the movement as a rotation. Practice rotations using different shapes.	 vertical Choose the rotated images from set provided. a)  b) 

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT/THEME: Two Dimensional Shapes

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
		c) 

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT/THEME: Two Dimensional Shapes

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
ST2 achieve a deeper understanding of the revolution of the earth,moon and other celestal bodies in the universe. EA1 – e explore and experiment with styles and methods and techniques that have been used to create artistic representations. SL4A – interpret simple forms, notes messages and follow instructions and directions. EL2a Respond sentively and appropriately to auditory and visual stimuli.	Exploring Mathematics bk. 7 & 8 – Scott, Foreman and Company. Math Advantage – Take Another Look – Harcourt Brace & Company, Mathematics – Silver Burdett Ginn Math Advantage (Teacher's Edition) Volume I

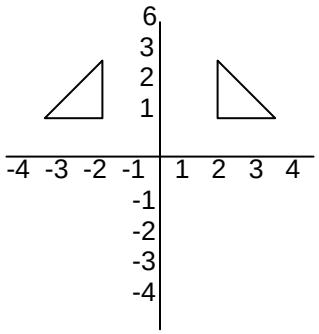
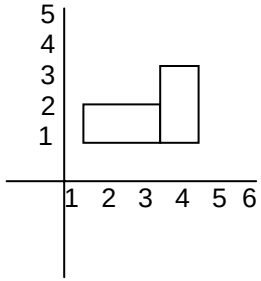
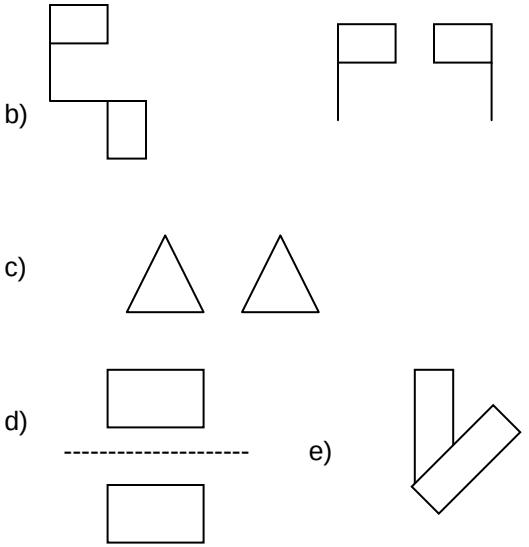
AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT/THEME: Two Dimensional Shapes

AREA OF STUDY OUTCOMES
Pupils should:
M2B) Plot the position and movement of two-dimensional shapes.

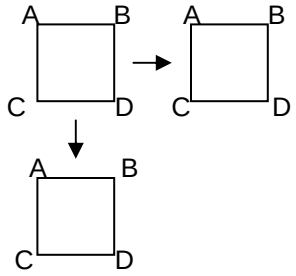
CROSS-CURRICULAR OUTCOMES
CP1 (B) Examine information related to problem.
SP2 (A) Take part in group activities.
SP2 (F) Help group to achieve its goals.
CP1(C) Suggest ways of dealing with the problem.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Recommended Time: 2-3 wks Subtopic: Translation The three types of transformation are reflection rotation and translation. Reflection is the mirror image of a figure. Rotation is the turning of shape or figure in different position.	Use shapes t review reflection and rotation Put children in groups to rotate shapes at different angles and to flip over to create images. Use grid on graph paper to show reflection and rotation   	Indicate whether these transformations are reflection or rotations. Use flashcards. 

AREA OF STUDY: MATHEMATICS

STANDARD V

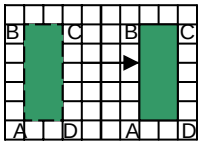
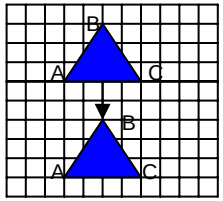
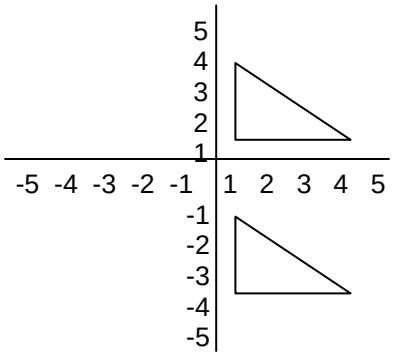
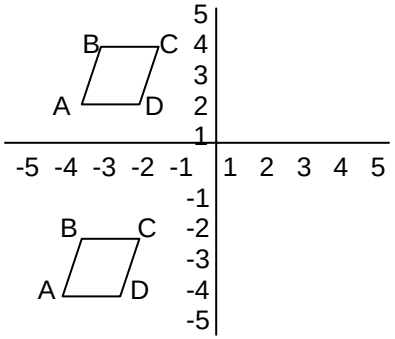
UNIT/THEME: Two Dimensional Shapes

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Tanslation is the sliding of figures or shapes from one position to another. Only the location of the figure changes. We often slide objects or shapes from one position to another.	Brainstorm situations where sliding is used to move objects. e.g. Sliding a sofa set or a cupboard Have students slide different objects horizontally or verically across desk on floor, or chalkboard.  Children will observe that only position changes when object slide from one portion to another.	Read the problem and solve I) Rashawn and two classmates each moved one of these letters. Louis did not flip or slide his letter. Meg did not use reflection to move her letter. Which letter did each move and what transformation did each use. 

AREA OF STUDY: MATHEMATICS

STANDARD V

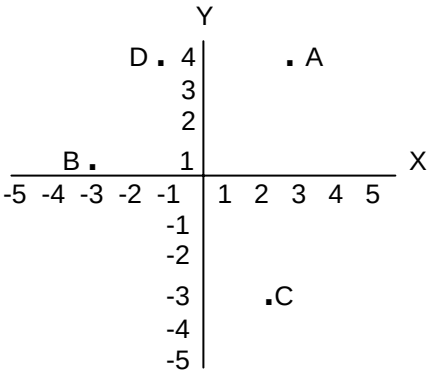
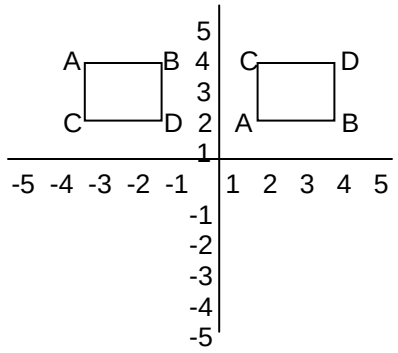
UNIT/THEME: Two – Dimensional Shapes

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Translation of shapes on a grid using units and coordinates. **<u>Skills</u>** Trace Demonstrate Identify Plot Differentiate Examine Explore Verify Draft Translate **<u>Attitudes</u>** Share Interact Participate Interest Cooperate Respect for opinion of others	Children will note that when objects figures or shape slide from one position to another it is called translation. Children will be placed in groups to translate shapes on shop pater and graph paper. Trace shape in original position slide shape right/left or up/down trace translated position.   	Use worksheet Let children discriminate/differentiate which represents a translation.  

AREA OF STUDY: MATHEMATICS

STANDARD V

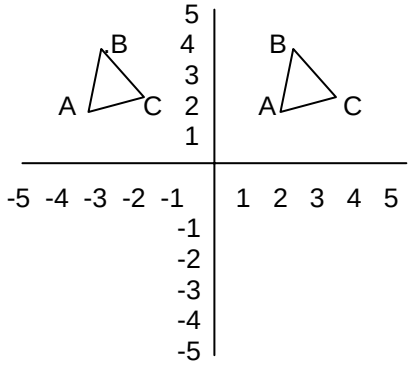
UNIT/THEME: Two – Dimensional Shapes

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
	Put children in groups. Have tem draw grid. Translate point A to the left 5 units. What are its new coordinates? (-2,4) Translate B down 3 units and to the right 2 units. What are the new coordinates?  Point C is translated to point D. How far andin which direction has point C moved? 3units to the left and 7 units up. Translate given shapes on grid. List the coordinates for the translation at different point. e.g.	 Draw translations for given shapes. Give coordinates for missing point. Present group work to class.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT/THEME: Two – Dimensional Shapes

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
	The vertices of ΩABC are A (-4,2) B(-3,4) C (-2,2) this triangle is translated. The new coordinates for point A are (2,2) B (3,4). What are the new coordinates for point C? (4,2) 	

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT/THEME: Two – Dimensional Shapes

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
EL3.B Produce written work that demonstrates effective English usage and grammar. EL3.D Produce written work for self-fulfullment and aesthetic satisfaction. SS2.A the relationship between the location of Belize and its climate and weather conditions.	Mathematics Today Teacher's Edition 19 Harcourt Brace Jovanovich Middle Grade Math Teacher's Edition Chapin, Susan H Illingworth, Mark Silver Burdett Ginn 1998 Mathematics – Daily Review 4 Math Advantage Take Another Look Teacher's Edition Reteaching Author Brace Harcourt Graph paper Markers Cut – out shapes Pencils Flash cards, ruler Thumb tacks Tracing paper Onion skin

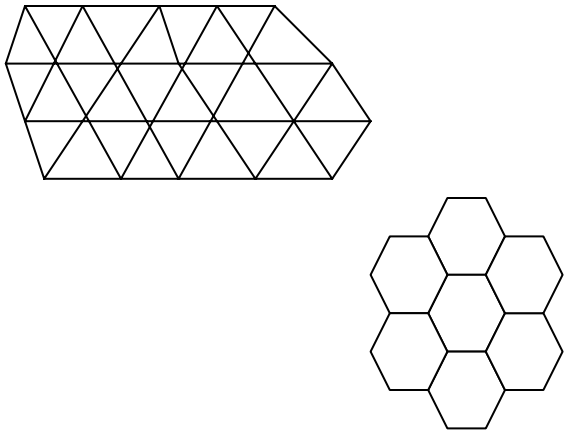
AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT/THEME: Patterns Using Shapes

AREA OF STUDY OUTCOMES
Pupils should:
M2C) Fit shapes together to form patterns

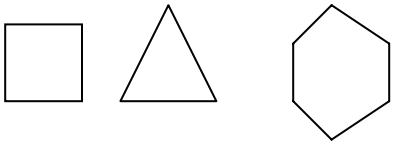
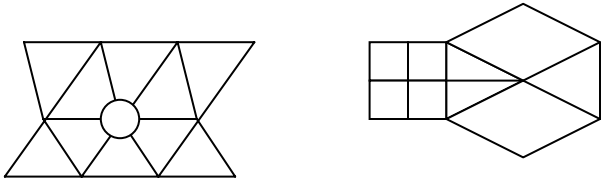
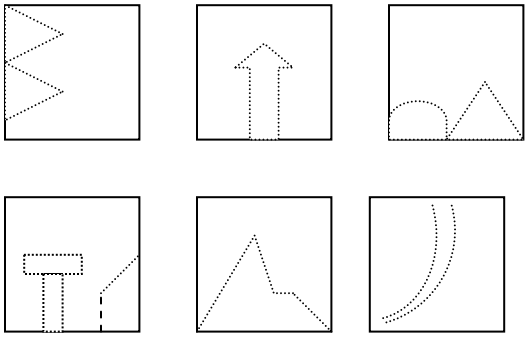
CROSS-CURRICULAR OUTCOMES
CP1.6 Examine information related to the problem.
SP2.a Take part in group activities.
SP2.f Help group to achieve its goal.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Duration:2 weeks Tesselation is a repeating arrangement of shapes that cover a plane with no gaps or overlaps. Figures must be joined edge to edge.	Put children in groups to observe concrete objects and patterns to identify properties.  Brainstorm for properties.	Tell whether each shape forms a tesselation. Write yes or no. 

AREA OF STUDY: MATHEMATICS

STANDARD V

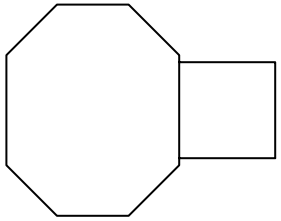
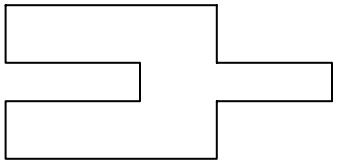
UNIT/THEME: Patterns Using Shapes

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Triangles, squares and hexagons are used to make tessellations.	Give each group a shape. Trace each shape and try to repeat tracing to form a tessellation.  Trace the polygon several times – cut out tracing, then fit pieces together. Use two equilateral triangles to form a diamond. Jdrwa tessellation using diamonds and half diamonds. Form patterns of tessellation using a combination of two shapes. 	Question sheet: Do these shapes form tessellations? How do you know? Cut out and form patterns. 

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT/THEME: Patterns Using Shapes

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Skills Identify Construct Sketch Draw Organize Arrange Explore Discover Create Analze **Attitudes** Cooperation Share Participate Respect for othe's opinion Interest		Problem Solving example: For a tabletop design. Shawn uses octagons and squares. Will his design tessellate a plane?  Erika is making a design from the shape below. She wants the design to tessellate . Can she use this shape?  (Make model to solve)

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT/THEME: Patterns Using Shapes

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
EL2.a Respond sensitively and appropriately to auditory and visual stimuli. WT1.c Construct a simple device to meet a need / solve a problem Ea1.e Explore and experiment with styles, methods and techniques that have been used to create artistic representations.	Math Advantage Teacher's Edition – Harcourt & Brace. Math Advantage – Take Another Look – Harcourt & Brace. Math Advantage – On my own – Harcourt & Brace Exploring Mathematics Teacher's Edition bk. 7 & 8 Cutouts

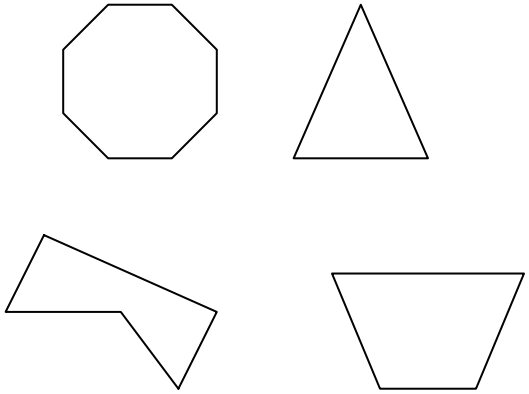
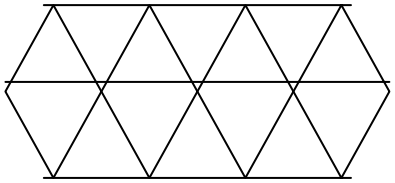
AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT/THEME: Patterns Using Shapes

AREA OF STUDY OUTCOMES
Pupils should:
M2C Fit shapes together to form patterns

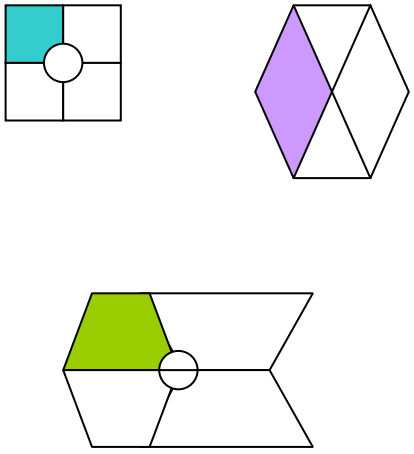
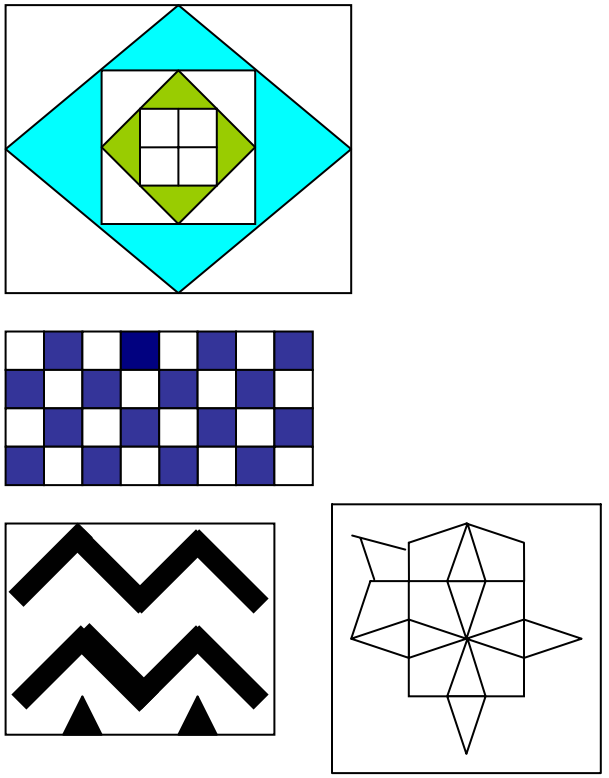
CROSS-CURRICULAR OUTCOMES
CP1.6 Examine information related to the problem.
SP2a. Take part in group activities.
SP2f Help group to achieve its goal.
SP2g Help to create consensus.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Duration: 1-2 weeks Tessellation is a repeating arrangement of shapes that cover a pane with no gaps or overlaps.	reteach basic patterns using shapes. 	Draw a design that makes a tessellation. Use one of the shapes or a different shape. Make at least three rows in your design. 

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT/THEME: Patterns Using Shapes

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
All parallelograms can be ghe centre of a tessellation as each contains 360^0. This centre point of the tessellation is called the circles vertex. A tessellation can contain three or more shapes. Skills Identify Construct Sketch Draw Organize Arrange Create Discover Explore Analyze Attitudes Cooperation Share Participate Interest Respect for other's opinion	Chilren use the shape of a parallelogram to begin a tessellation . Colour these beginning shapes and identify a main vertex. Find sum of the measure of angles that form the vertex.  Draw tessellations using more than two shapes. Cut out shapes – Fit together to form tessellations using three or more shapes. Construct puzzles. Make paper quilt.	Identify which tessellation has a circled vertex. State yes or no. Make tile patterns. 

AREA OF STUDY: MATHEMATICS

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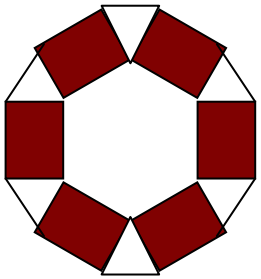
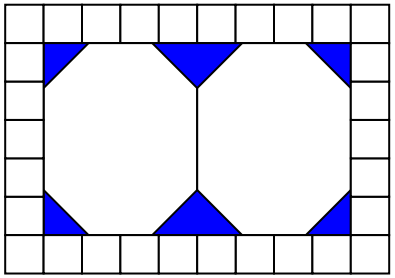
UNIT/THEME: Patterns Using Shapes

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
	  Collect and display concrete objects showing tessellations with three or more shapes.	Use concrete objects to make tile work showing tessellation. Create portfolios.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT/THEME: Patterns Using Shapes

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
EL2a. Respond sensitively and appropriately to auditory and visual stimuli. WT1.c Construct a simple device to meet a need/solve a problem. EA1.e Explore and experiment with styles, methods and techniques that have been used tocreate artistic representations.	Math Advantage Teacher's Edition – Harcourt & Brace. Math Games & Activities – Claudia Zaslavsky. Exploring Mathematics Teacher's Edition bk. 7 & 8. Cut outs

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT/THEME: Money

AREA OF STUDY OUTCOMES
Pupils should:
M3b-Use and convert money based on its relative value and its use in financial transaction.

CROSS-CURRICULAR OUTCOMES

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Money used indifferent countries have different values. Eg. U.S - $ Pound sterling – £ BZE - $ Peso Quetzal Limperas Colon Yen Profit or loss represents the difference between the total cost and the selling price of goods.	Teacher invites personel from Central Bank to update students on foreign currencies and their value. Children construct posters showing currencies and rates of exchange. Children will use rates of xchange to convert froeign currencies to Belizean dollars value and use the Belizean dollar value to respective foreign currency up to a thousand dollars. Set up practical situations where children are grouped to practice using local and foreign currencies. Field trips to Mexico (Chetumal) Guatemala (Melchor). Problem solving using foreign currency. Set up a store in classroom and have children buy and sell in the class	Ability to convert and use foreign currencies accurately. Use a checklist to monitor: participation accuracy Observation of children buying and selling and monitor group participation Check children's accounts based on business transactions. Calculation of profit or loss. Participation and group interaction. Calculation of discount.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT/THEME: Money

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Discounts in when an article is sold below the marked or list price.	Place children in groups and have each group buy goods and make goods to sell to each other eg. oranges, cupcakes Have children record daily transactions Allow children to calculate gain or loss based on buying and selling prices. Problem solving involving cost price, selling price, profit and loss. Visit a clearance sale (eg. M & M's boutique, Mikado, Publics) and record marked price and selling price then use them to calculate discount. Use class store and set up a clearance sale. Calculatiing discounts when buying at clearance sale in classroom. Problem solving involving discount.	

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: SETS

AREA OF STUDY OUTCOMES
Pupils should:
M5b. Apply the concept of "Sets" to the practical situation.

CROSS-CURRICULAR OUTCOMES
SP.1C 1) Take action based on principled choice

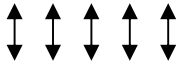
CP1B 2) Examine information related to the problem/ issue.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A set is a well defined collection of objects. An empty set has no elements. It is also called a null set. A set can be named using specific symbols. Members from a finite set comes to an end. (can be counted) Note that dots at the end of a set of elements means (never ending) Members from an infinite set does not come to an end. (cannot be counted) The Cardinal number is the number of elements in a set.	Games usng objects like fruits, seeds, items in the classroom to depict sets. Ex. { , , △ , □ } elecit from children the definition of sets. Compare two sets; one with elements and one without. State give name and symbols for empty set. Ex. { } or ⊥ Use a capital letter of the alphabet to name a set. Enclose sets in braces Separate elements by use of commas. Ex. A = {dogs, cats, cows} Consider B = {a, e, I, o, u} and C = {1, 2, 3, …} Explain which set is finite or infinite. Elicit more examples from children. Use classroom situations to ask questions Ex. The set of children that wear glasses.	Given word phrases of sets children list sets using appropriate symbols. Eg. The set of days of the week beginning with the letter T. {Tuesday,Thursday} Given a set, children write phrases eg. {blue, green, red} a set of colours. Collect two empty bottles, cups or cans, fill one with kool aid. State observations Identify which shows the empty sets. Arrange various groups of elements on the blackboard. Children label which group is a correct set, eg. A = {x, y, 3} B = (1, 2, 3}

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: SETS

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Sets containing the same elements but not necessarily in the same order is called equal set. Two sets that can be placed in one to one correspondence are called equivalent sets.	Use flash cards with different elements in them. "The race game" Flash cards quickly and let pupils give cardinal number Ex.  Etc. Give symbols for cardinal number. Ex. A = {a, b, c, d} N = {A} = 4 Each child group items from the class into different sets not necessarily in the same order. Ex. B = { , , , } C = { , , , } Compare and contrast the elements of sets. Discuss that equal sets are sets that have the same number of elements but not necessarily in the same order. Group children , distribute various items in envelopes. Arrange items into sets to show one to one correspondence. Children observe and note that they have the same cardinal number. Ex. A = { a, e, i, o, u }  B = {1, 2, 3, 4, 5 } Therefore A~B.	Write finite or infinite for given statements. eg. 1) The set of all even numbers. 2) The set of children in the classroom. Oral interviews for finite and infinite sets. eg. 1) The number of stars in the universe The number of teachers in the school The number of grains of sand on the sea shore. The number of buses that travel to Chetumal. Given the sets L = { 8, 10, 12, 14 } M = { 5, 7, 9, 11 } N = { 8, 10, 12 } O = {10, 8, 14, 12 } Express which sets are equal, and which are equivalent.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: SETS

<table>
<tr><th>CONTENT ORGANIZED INTO MANAGEABLE SETS</th><th>SUGGESTED TEACHING/LEARNING STRATEGIES</th><th>SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT</th></tr>
<tr><td rowspan="2">A subset is a part of a set.
If every member of one set is also a member of a second set then the first set is a subset of the second set.</td><td>Children will brainstorm what is an equivalent set from the above activity.
Consider Set A = { 1, 2, 3 } and B = {1, 2, 3, 4, 5 }
Are the members of Set A in set B
Observe that elements of one set are included in the other set.
Formulate a definition for subsets.
Introduce the symbol for Subsets, Ex. A⊆B.
Identify as many subsets of other given sets.
Note that for sets with many elements another method is done using the powers of 2.
Ex</td><td>Demonstrate the continuation of the pattern of subsets shown on chart.</td></tr>
<tr><td>
<table>
<tr><th>No. of elements</th><th>Powers of 2</th><th>No.of Subsets</th></tr>
<tr><td>2</td><td>2^2</td><td>2x2 = 4</td></tr>
<tr><td>3</td><td>2^3</td><td>2x2x2 = 8</td></tr>
</table>
</td><td>
<table>
<tr><th>No. of Elements</th><th>No. of subsets</th></tr>
<tr><td>4</td><td>___</td></tr>
<tr><td>5</td><td>___</td></tr>
<tr><td>6</td><td>___</td></tr>
</table>
</td></tr>
</table>

CONTENT ORGANIZED INTO	SUGGESTED TEACHING/LEARNING	SUGGESTED STRATEGIES/ACTIVITIES FOR

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: SETS

MANAGEABLE SETS	STRATEGIES	ASSESSMENT
The empty set is a subset of every set. Each set is a subset of itself. Symbols are used to indicate sets.	List all the symbols we have dealt with Ex. subset =, empty set { } , ⊥ , is equivalent to ~ etc.	Match Column A with B. A | B ⊥ | / ⊥ | ~ | = / | ~ etc.

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: SETS

SL1A – Interpret and respond appropriately to messages conveyed through visual images. EL1D – Apply functioned reading skills and interpretation. EL2A – Respond sensitively and appropriately to auditory and visual stimuli. M4.a. Make and apply reasonable approximations by observing and/ or using factual data.	Active Mathematics Macmillanm, Prepared by E.A. Guiterrez and other educators. Today's Mathematics 6th edition James W. Heddens William R. Speer Refresher Mathematics – Stein Materials :- Use waste material like cans, pints, cups etc. - cards - fruits - school utencils

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: SETS

AREA OF STUDY OUTCOMES
Pupils should:
M5b. Apply the concepts of "Sets" to the practical situation

CROSS-CURRICULAR OUTCOMES
SP1C 1) Take actions based on principled choice

CP1B 2) Examine information related to the problem/ issue.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Recommended Time: 4 weeks A subset is a part of a set. If every member of one set is also a member of a second set then the first set is a subset of the second set. The empty set is a subset of every set. Each set is a subset of itself.	Consider Set C = {1, 2, 3} and B = {1, 2, 3, 4, 5} Are the members of Set A in Set B? Observe that elements of one set are included in the other set. Recall the definition for subsets. Review the symbol for subsets eg. A ⊂ B. Identify as many subsets of other given sets. Write subsets using symbols.	List the subsets of Set A = {1, 2} Demonstrate the continuation of the pattern of subsets shown on chart. Number of elements — No. of subsets Ex. 2 — 4 3 — 8 4 — __ 5 — __ 6 — __ 7 — __ 8 — __ etc.

AREA OF STUDY: MATHEMATICS

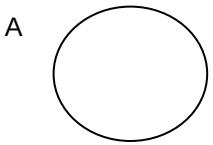
STANDARD V

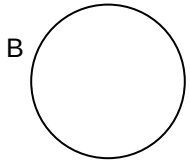
UNIT: SETS

<table>
<tr><th>CONTENT ORGANIZED INTO MANAGEABLE SETS</th><th>SUGGESTED TEACHING/LEARNING STRATEGIES</th><th>SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT</th></tr>
<tr>
<td>The set of all the elements we wish to consider in a particular problem is called a Universal set.
The universal set is commonly represented by the capital U
Venn diagrams consists of loops representing certain sets.
The union and intersection of sets can be shown in a Venn Diagram
The union of sets consists of all members in both A and B.</td>
<td>Recall that for sets with many elements the method we use is the powers of 2.

<table>
<tr><th>No. of elements</th><th>Powers of 2</th><th>No. of subsets</th></tr>
<tr><td>eg. 2</td><td>2^2</td><td>2x2 = 4</td></tr>
<tr><td>3</td><td>2^3</td><td>2x2x2 = 8</td></tr>
</table>

Given U = {1, 2, 3, 4}
Identify whether each of the following statements is true or false.
{1, 2, 3} = U ------
⊥ = U ------

Observe A = {1, 2, 3, 4}
 

and B = {2, 3, 4, 5, 6}
 
</td>
<td>Write true or false
Given Set A = {9, 3, 2, 0, 5}
Set B = {1, 2, 3}
Set C = {3}

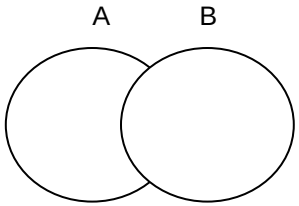
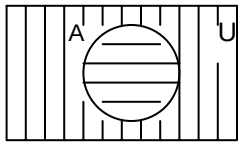
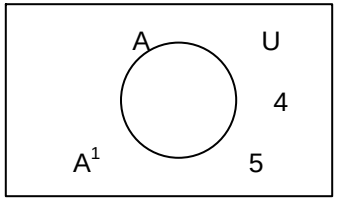
B = A ------
C = A ------
A = D ------

Read statements orally and give answers.
Use set notation to show the union and intersection of sets.
Use a Venn Diagram to show the intersection of all the vowels in the word O,N,I,O,N and T,O,M,A,T,O.</td>
</tr>
</table>

AREA OF STUDY: MATHEMATICS

STANDARD V

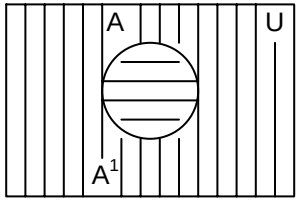
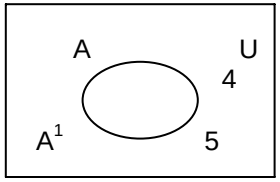
UNIT: SETS

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
The symbol for Union of set is U the joining of two or more sets is called union. The intersection of sets is the set whose numbeers are common to both sets. The symbol for intersection is □. Symbols are used to indicate sets. The coomplement of a set stands for what is not in a given set.	* Note that commas are not used within Venn Diagrams. Overlap the two Venn diagrams.  Note that members arenot repeated. Observe that all members in A and B are {1,2,3,4,5,6} Explain that the joining of sets is called union. Eg. A U B = {1,2,3,4,5,6} Identify the members in the intersection Introduce the symbol for intersection Write in set notation A □ B = {2,3,4} List all the symbols we have dealt with Eg. subset = empty set ⊥ union U etc. Study Venn diagram below 	Write each answer in set notation. Eg. {3,6,9,12} □ {1,2,3,4,5,6} {4,2,6,8} U {1,3,5,7} Match Column A with Column B. A | B Universal | = Intersection | U Empty | □ Subset | U Union | ⊥ Given the Venn Diagram below 

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: SETS

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
The complement for Set A will be represented as A^1. **Skills** consider observe recall review identify write explain introduce list collect arrange shade **Attitudes** awareness sharing responsibility imitating co-operating	Explain that: The horizontal shading stands for Set A. The vertical shading stand for U. This section is not included in Set A and is known as the complement of set A. The complement for Set A is represented by A^1. Note that A^1 stands for what is not in Set A.  	Given the Venn digram below  List the following sets U = ---------- A = ---------- A^1 = ---------- Taking U = {1,2,3,4,5} A = {2,3} and B = {1,2,3] find A^1 = ---------- B^1 = ---------- A □ B^1 = ---------- Define the following a union a subset universal set, etc.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: SETS

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
SL1.a – interpret and respond appropriately to messages conveyed through visual images. EL1.d – applly functional reading skills and interpretation EL2.a – respond sensitively and appropriately to auditory and visual stimuli M4.a – make and apply reasonable approxiamtioons by observing and/or using factual data. Wt1.a – identify a simple problem/need	References New Progress in Mathematics – Rose Anita Grade 7 Mc Donnell New Progress in Math – Rose Anita Grade 8 Mc Donnell Exploring Math 8 – Scott Foresman Company Active Math – E.A. Gutierrez and other educators **Materials** Charts, student workbooks, crayons, markers

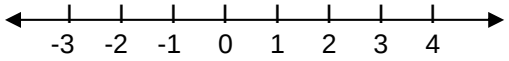
AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Prime and Composite Numbers

AREA OF STUDY OUTCOMES
Pupils should:
M1d. Learn properties of Prime and Composite numbers.

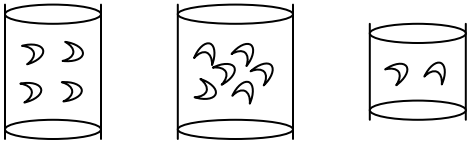
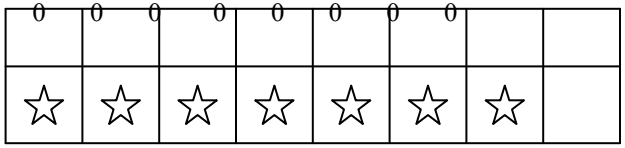
CROSS-CURRICULAR OUTCOMES
SP1a) Recognize the value associated with choices.
CP1b) Examine information related to the problem/ issue.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
The set ofwhole numbers begin with zero. The set of natural or counting bumbers begin with the number 1. The types of whole numbers are: even, odd, prime and composite. Even numbers aere whole numbers that are divisible by two.	Approximate time required = 1 week Note that zero is included as a whole number but is not a counting number Observe whole numbers on a number line  * All whole numbers are positive integers Identify the natural numbers Review that even numbers can be divided by two without a remainder	Draw a number line showing the positive and negative integers. Circle the even numbers 32 19 156 375 50 106

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Prime and Composite Numbers

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
An odd number is any whole number that cannot be divided evenly by 2. * Note An even number plus an even number equals an even number An odd number plus an odd number equals an even number. A prime number is any whole number that is divisible by itself and one The prime numbers can be found by using a factor tree The prime factorization of a number is a way of showing a number as product of prime numbers. The method of the Seive of Erotosthemes may be used to find prime numbers less than a given number. One is not a prime number or a composite number.	Observe some given even numbers eg. 4,8,352,96 etc. Divide to show that they have no remainders List other even numbers Recall that odd numbers are numbers that cannot be divided by 2 without a remainder Divide 9,27,243 by 2 List other odd numbers. Notice that 7 is a prime number because it has only two factors, itself and 1 eg. 7 = 1,7 Recall that the number 7 is also an odd number. List more prime numbers Explain that numbers can be factored until only prime numbers remain. Ex: 36 4 x 9 2 x 2 x 3 x 3 Write repeated primes in exponential form. Ex. 36 = 2x2x3x3 $= 2^2 \times 3^2$	Group beads, beans or seeds into even numbers eg.  Circle the whole numbers that are odd 14, 27, 50, 89, 81, 102, 56, 21, 1603, 65 Double your Strategy Game: Form and label odd and even  7+7 = 14 even 8+7 = 15 odd

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Prime and Composite Numbers

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A composite number is any counting numer other than 1 which can be expressed as a product of two smaller counting number. **<u>Skills</u>** Observe Shade Apply Explain Draw Collect Demonstrate Arrange Compare Determine Attitudes Participation Awareness Co-operation Sharing	Present the method of Eratosthemes. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 65 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80	Circle the prime numbers 84 f) 77 11 g) 104 29 h) 67 83 i) 31 49 j) 99 Use a factor tree to find the prime factorization of each number. Ex) 1) 45 2) 84 3) 70 Tell whether each number is prime or composite. 1) 13 ----- 3) 21 ----- 2) 31 ----- 4) 19 ----- Play the game “Pyramid Power”. Shade the boxes that contains the prime numbers. 1 56 117 42 29 75 57 13 87 143 24 119 15 39 98 67 103 63 45 37

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Prime and Composite Numbers

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
	Notice that two products multiplied forms a composite number. Ex 8 = 4x2 Can you list the set of composite numbers greater than 21 and less than 40? * Note that one cannot be used as a composite number.	Give oral answers to problem solving application. Ex. Can a prime number have composite number as factor? Explain. Play the P or C game. Place the alphabet P beside the prime numbers and C besides Composite number. 1) 31 ----- 3) 14 ----- 5) 9 ----- 2) 16 ----- 4) 29 ----- 6) 30 ----- etc. Give oral answers to problem solving application. 1) Can a composite number have prime numbers as factors? Explain.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Prime and Composite Numbers

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
SL1a. interpret and respond appropriately to messages conveyed through visual images. EL1d. apply functional readign skills and interpretations.	The Mathematic Test Contemporary bk. Inc. Math Advantage Vol. 1 by Harcourt Brace Active Math (McMillan Series by E.A. Guiterrez New Progress in Mathematics by Rose Anita McDonnell <u>Materials</u> Beans Cans Beads Seeds Number line

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Whole Numbers

AREA OF STUDY OUTCOMES
Pupils should:
M1.a – Place Value in numbers up to ten digits.
M1.b – The consecutive sequence and position of numbers 1 – 9,999,999,999
M1.c – Quantity in numbers 0 – 9,999,999,999.

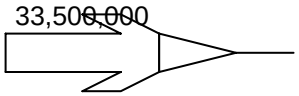
CROSS-CURRICULAR OUTCOMES
C.P.1b – Examine information related to the problem/issue.
S.P.2a – Take part in group activities.
S.P.2e – Lead and follow where appropriate.
S.P.2f – Help the group to achieve its goals.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A number can be read, written or expressed in different ways. Figures Words Standard form Expanded form Scientific form	Place Value Game Scramble Digits - Pupils will arrange given work cards in correct order of value. - Will write them in digits followed by writing them in expanded form. Eg: Work Card 4 tens 7 millions 8 ones 5 ten thousands 2 hundred thousands 1 hundred 9 thousands	Use jig-saw puzzles to recognize numbers and words. 43,920,122 → forty three million, nine hundred twenty thousand, one hundred twenty two. In pairs children will make numbers using given number flashcards from zero to nine. Have childeren challenge each other to read and write numbers made.

AREA OF STUDY: MATHEMATICS

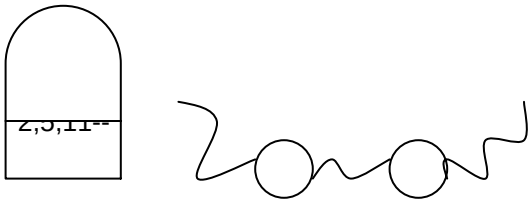
STANDARD V

UNIT: Whole Numbers

<table>
<tr><th>CONTENT ORGANIZED INTO MANAGEABLE SETS</th><th>SUGGESTED TEACHING/LEARNING STRATEGIES</th><th>SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT</th></tr>
<tr>
<td>A sequence is a list of whole numbers written in order. Each whole number in the sequence is called a term.</td>
<td>
Answer Sheet
<table>
<tr><th>Correct order</th><th>figures</th><th>Expanded Notation</th></tr>
<tr><td>7 millions</td><td>7,000,000</td><td>7,000,000+200,000+</td></tr>
<tr><td>2 hundred thousand</td><td>200,000</td><td></td></tr>
<tr><td>5 ten thousands</td><td>50,000</td><td>50,000+ 9,000+100+</td></tr>
<tr><td>9 thousands</td><td>9,000</td><td>40 + 8</td></tr>
<tr><td>1 hundred</td><td>100</td><td>Standard form</td></tr>
<tr><td>4 tens</td><td>40</td><td></td></tr>
<tr><td>8 ones</td><td>8</td><td>7,259,148</td></tr>
</table>
Flashcards games using words and figures.
Identify and write the value of the digits according to its position.
Writing numbers from standard to scientific notation.
Eg. Present children with a real life problem.


Children will sail airplanes across the class. Whovever gets an airplane will write the speed inscientific notation. They will write their name on their airplane and give to teacher for assessment. (N.B. This activity can be reversed)
</td>
<td>
Each child will get a blown up balloon having a number written in either expanded or standard form. cHildren will pair off to match their appropriate expanded form with standard form.

“Mathlete” Game.
Children will each get a worksheet with numbers in standard form. They will then write each in scientific form. The person who finishes first with the most correct answer wins.

Ability to play a bingo gaqme having numbers written in the five forms.
Divide class into two groups. Distribute number chains to one group while the other group gets numbers to complete chains.
Have children wearing number chains find the numbers to complete their chains.

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</table>

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Whole Numbers

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Finding the pattern in a list of numbers can be used to complete the terms in a sequence. Whole numbers can be rounded to a certain place. A number line can be used to compare numbers. Numbers can be compare by comparing digits place by place, from left to right, until a difference between the digits in one particular place is found. Three possible relationships exist when comparing numbers: a>b a<c a=d	Place numbers in pattern on board. Pupils identify patterns to complete sequence. Group activity using sequencing cards. Make pattern puzzles. Have pupils create their own sequence pattern and exchange with fellow students. Explain rule for rounding numbers. Use number line to round numbers. Have pupils circle the numbers that round to a given number then draw a rectangle around numbers that rounds to another given number. Eg: circle the numbers that round to 6,000,000. Draw a ~~rectangle~~ around the numbers that round to ~~5,000,000~~. 6,736,200 ~~5,925,000~~ 5,100,000 ~~5,800,000~~ 2,300,000 6,990,000 Use tables to round amounts. Use flashcards and have pupils round to a specified place. Group activity using flashcards.	Answering riddles with rounded numbers. Distribute copies of riddles to each group. Students will take turns reading the riddles aloud. When students read the riddkles, they should fill in the blanks with numbers. The rest of the students in the group solve the riddle. eg: when rounded to the nearest million, I round to -------. What is the greatest number I could be? Pupils will read from table having various places and their respective distances. Children will compare the distances.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Whole Numbers

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Skills Compare/Contrast Identify Recognize Demonstrate Count Write Order **Attitudes** Cooperate Share Respect Tolerate Independence Interest	Use number lines to compare numbers. Line up given numbers to show comparison. eg: 34,728,261 4,421,326 Compare numbers using the three signs.	Pupils will get in pairs. Each child receive a flashcard on which they will write a 7-9 digit number. Each pair will then compare their numbers to class using the inequality signs. Pupils will rotate numbers to compare answers.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Whole Numbers

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
SL4.a: interpret messages and follow instructions and directions. SL1a: interpret and respond appropriately to messages converyed through visual images. EL2a: respond sensitively and appropriately to auditory and visual stimuli. EL4b: use speech (English) effectively and appropriately in a variety of situations.	New Progress in Mathematics Rose Anita McDonnell. Heath Mathematics Connections Volume 1 Level 4. Exploring Math Grade 7 & 8 Active Math (Second Edition) E.A. Gutierrez <u>Materials:</u> Flashcards Work cards Jig-saw puzzles Balloons Bristol boards Number chains Riddles

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Prime and Composite

AREA OF STUDY OUTCOMES
Pupils should:
M1d. Learn properties of Prime and Composite numbers

CROSS-CURRICULAR OUTCOMES
SP1a) Recognize the value associated with choices.
CP1b) Examine information related to the problem/issue.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A prime number is a whole number other than 0 and 1 which is divisible only by itself and by 1 and by no other whole number. A composite number is a whole number other than 0 and 1 which is not a prime number but can be expressed as a product of two or more smaller whole number	Use the method of the Seive of Eratosthemes to find prime numbers.	Write true or false 1 is a factor of every whole number ------. 2 is a prime number ------. The number 6 has exactly 3 factors ------. The number 25 has exactly 3 factors -----. The number 4 has exactly 2 factors ------. 3 is a composite number ------. 0 is a prime number ------.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Prime and Composite

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Skills Observe Shade Apply Explain Draw Collect Demonstrate Arrange Compare Determine **Attitudes** Participation Awareness Co –operation Sharing	Use the above chart. Cross out 1 – It has only one Circle 2 – Start there and cross out every second No. Circle 3 – Start there and cross out every third number. Count those already crossed out.etc. Do up to 7. The numbers left are the prime numbers.	Tell whether each number is prime or composite. 1) 36 ------ 2) 19 ------ 3) 72 ------ 4) 90 ------ etc.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Apply Algebraic Expressions

AREA OF STUDY OUTCOMES
Pupils should:
M3.C Apply algebraic expressions to solve problems.

CROSS-CURRICULAR OUTCOMES
CP.1c Suggest ways of dealing with the problem/issue
SP.1b Choose between alternatives based on values.
SP.3a Assess their needs/interests.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Recommended Time: 4 weeks. Algebraic expression is a basic skill in mathematics using variables to translate verbal phrases into mathematical expressions. (The skill is needed for problem solving) Variable – a letter used in a mathematical statement to represent a number. In these expressions x is the variable. eg. X+14 2X 2X+3 $\frac{X^2}{4}$ An algebraic expression uses one or more variables and the operation symbols, like +,-,x or ɜ eg. 8 more than a number = X+8	Compute and evaluate numerical and algebraic expressions. When evaluating algebraic expressions it is important to remember to follow the order of operations. Evaluate $3^2+2x5-4=3^2+2x5-4$ There are no parenthesis: 9+2x5-4 → (clear exponents) $3^2=3x3=9$ 9+10-4 → (multiply 2x5=10) 19-4= → add 9+10=19 subtract 19-4=15 Evaluate the algebvraic expression C+4x3, when C=13 Step1. Replace the variable with the value given for it. C+4x3 ↓ 13+4x3	Group activity Design and play a game. Discuss and share game. Bingo Game & Tic-Tac-Toe Apply example for mastery, enrichment, reinforcement and evaluation. Apply problem solving strategies to solve and find value of variable. Workbooks Name and identify coefficients in each term. Simplify and compute.

AREA OF STUDY: MATHEMATICS

STANDARD V

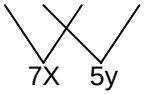
UNIT: Apply Algebraic Expressions

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
It is common practice to omit the multiplication sign eg: 15 more than 2 times a number = 2xn+15 or 2n+15 5 times his savings divided evenly among 3 people 5X ∋ 3 or $\frac{5X}{3}$ A coefficient is constant (does not change) as opposed to a variable. eg. 2axy 2ax is the coefficient of y 2a is the coefficient of xy 2 is the coefficient of axy. In the term *3X*, 3 is known as the numerical coefficient , whereas in the term *bx*, b is known as the literal (letter) coefficient.	Step 2. Follow the order of operation 13+4x3 No parenthesis 13+4x3 No exponents 13+12 Add 13 and 12 4x3=12 Multiply So C+4x3=25, for C = 13 Write a mathematical sentence. Solve and check. One third of a number is 33. What is the number? $\frac{11}{3}$ = 33; n = 99 Observe that in algebra the product of 3 factors is written in various forms Eg. a b c is written a x b x c or a.b.c or abc, the last one abc being the most usual. Identify that coefficient can be numerical or literal Eg. 3X 3 is the numerical coefficient BX b is the literal coefficient Write down the coefficient of X and say whether it is numerical or literal. *7X* *2X* *dX* *cX* *bX* *8X* Similiar terms (like) are terms in an expression which differ in their numerical coefficient only. In the expression 2X+5X the terms 2X+5X are similiar. Their terms can be expressed in a simple term eg. 2X+5X = 7X	Review the definition of like and unlike terms and exponents Pre-test. Write definitions for terms used. Group activity and co operation in writing descriptions and examples of monomials etc. eg. a binomial that has no like terms and in which three variable are each degree 5; Evaluate $a^2 - b^2$ when a = 6 and b = 2; a = 4 and b = 3; a = 10 and b= 7. Evaluate (a+b) (a-b) using the values given above.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Apply Algebraic Expressions

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Monomial – A numerical (constant) a variable or a product of a numerical and one or more variables. e.g. 6, X,4a, b^3, - $3X^2y$ Polynomial – A monomial or the sum or difference of two or more monomials. eg. ($-3X^2+8X$), ($a^3+a^2b+ab^2+b^3$) Binomial – A polynomial that is the sum or difference of two monomials. eg. (6+X), ($4a+b^3$), (b^3-3X^2y) Trinomial – A polynomial that is the sum or difference of three numbers eg. (X^2+2X+3) ($a^2-5ab^2+b^4$)	An expression such as 2X+3y+5X+2y is made up of like and unllike terms. This expression can be simplified by adding the like term eg. 2X+3y=5X+2y = 7X+5y  Addition of like & unlike terms. Review prefixes <u>mono</u> – <u>bi</u> – <u>poly</u> – and <u>tri.</u> Draw square and label a side with a monomial eg.(3X) Find the area by squaring the side. (A= $9X^2$ Group Work: Make similiar problems of their own and solve. <u>Technology Link</u> Design and construct a game.	Children construct their own definitions and examples and record these in their math journals. Explain.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Apply Algebraic Expressions

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Skills Evaluate Simplify Compute Substitute Discuss Design Share Apply Solve Define **Attitudes** Cooperation Sharing Participation Show understanding Express interest		

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Apply Algebraic Expressions

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
	New Progress in Math Grades 7 & 8 – Sadlier Math Advantage Volume 2 (Harcourt Brace) Active Math (McMillian)

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Measure, Estimate and Compute

AREA OF STUDY OUTCOMES
Pupils should:
M3A. Measure, estimate and compute distance, weight, time, capacity and temperature and apply to practical situations.
M4A. Make and apply reasonable approximations by observing and /or using factual data based on meaningful references.

CROSS-CURRICULAR OUTCOMES
CP1A Recognize an issue or a problem.
SP1b Choose between alternatives based on values.
SP2a. Take part in group activities.
SP2b. Express their opinions and feelings in a socially accepted way.
SP3b. Assess progress in relation to achievement of goals and adjust goals or strategies as necessary.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Recommended Time – 10 weeks Customary units of length are inch, foot, yard & mile 1 foot (ft) = 12 inches 1 yard = 36 inches 1 mile = 1760 yards Customary units of capacity are cup, pint, quart & gallon. Smaller units are teaspoon & tablespoon 2 cups = 1 pint 2 pints = 1 quart 4 quarts = 1 gallon 3 teaspoon = 1 tablespoon Customary unit of weight are ounces, pound and ton ounces = 1 pound 2240 pounds = 1 ton	Pupils discuss units of measurement used for each of the following: their height (in or ft) their weight of their pets (oz or lb) the distance from their home to school (yards or miles) a carton of milk/juice (pt, qt, gal) Group work – discuss a sense of size with respect to the various units and their relation to one another. Discuss times when they have changed from one unit to another. eg. feet to yards ounces to pounds minutes to seconds, etc. Practice computing customary units, using the four operations Social Studies Link Weight of gold is measured in troy units. A troy ounce is heavier than the customary ounce. There are 12 troy ouces in a troy pound. Therefore, a troy pound is not as heavy as the customary pound.	Recall and memorize all conversion factors and units names. Group presentations. Practice conversion skills in customary units of measure. Restate Math concepts to real life situations. Application of problem solving strategies to solve word problems.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Measure, Estimate and Compute

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Customary unit of time are seconds, minutes, hours, day 60 seconds = 1 minute 60 minutes = 1 hour 24 hours = 1 day To convert customary units of length from larger to smaller multiply and vice versa. Computing with customary measures using the four operations. eg. 5 tons 3 lbs X8 Distance, time, weight and capacity can be estimated and measured using non- standard measurement. <, >, = are mathematical symbols that express an inequality. d – 6 < says, "A" number, decreased by 6 is less than 16.	Have children do research to solve this problem. What are 3 troy ounces of gold worth if 3 pound weight are worth $3. <u>Physical Education Link</u> Pupils work in groups to discuss, estimate and measure distances for games. <u>Social Studies Link</u> How standard measurements were invented. (research) Children definition/ explanation for the terms equations & inequality. Let d = 8 Equation → d + 7 = 15 → 8 + 7 = 15 Since 15 = 15 this is a true statement. Inequality:- → d – 4 > 5 → 8 – 4 > 5 But 4 > 5, so this is a false statement and an inequality. Write >, <, = to make the statement true. 5 x 6 > 5 + 6 = <u>1200</u> 10 100	Relate Math concept to real life problems. Recall and identify the meaning of symbols >,<,= Oral drill. Collection of various objects to convert. eg. tablespoon & medicine cup.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Measure, Estimate and Compute

<table>
<tr><th>CONTENT ORGANIZED INTO MANAGEABLE SETS</th><th>SUGGESTED TEACHING/LEARNING STRATEGIES</th><th>SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT</th></tr>
<tr>
<td>
<u>Metric</u>
The standard unit of length in the meter.

Metric units of length are related to each other in the same way as place value positions within the decimal of numeration are related.

<table>
<tr><th>Kilometer</th><th>hectometer</th><th>decameter</th></tr>
<tr><td>1km=1000m
eg. 1km is about the length of 11 football field</td><td>1km=100m</td><td>1dam=1m</td></tr>
</table>

<table>
<tr><th>meter</th><th>deci</th><th>conti</th></tr>
<tr><td>1m
On most doors the distance between the floor and the knob is about 1 meter</td><td>1 deci
0.1m</td><td>1cm =0.01m
The width of a piece of chalk is about 1cm.</td></tr>
</table>

milli
1mi = 0.0001m
</td>
<td>
Convert from smaller to larger units of measure, divide.

Convert from larger to smaller units of measure, multiply.

Group work – use customary and metric to measure volume of various objects.

Help children visualize equavalences in the metric system.

KILO
HECTO
DEKA
METER/GRAM/LITER
DECI
CENTI
MILLI

Children interpret chart to help in problem solving.

<table>
<tr><th>DATE</th><th>a.m.</th><th>^{0}C</th><th>p.m.</th><th>^{0}C</th></tr>
<tr><td>Feb 27
Feb 28</td><td>10:05
10:06</td><td>-5
-2</td><td>2:03
1:59</td><td>-3
0</td></tr>
</table>
</td>
<td>
Collection of a variety of items to be measured.

List findings.

Computation of metric measure using the four operations.

Cooperative learning through group work and discussion.
</td>
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</table>

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Measure, Estimate and Compute

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Converting from one unit to another is done by multiplying or dividing by powers of ten. Eg. 70 cm = ------- mm. km = ------ m. Converting form smaller units of measure to larger, divide. Converting from larger units of measure to smaller, multiply. Computing with metric measures using the four operations. Eg. 5 cm 11 mm 15 cm 12 mm 33 cm 25 mm Review how to change one unit of measure to the other. Multiples of the unit are obtained by adding prefixes to the name of the unit. Eg. milli (thousandths) = $\frac{1}{1000}$ = 0.001 centi (hundredths) = $\frac{1}{100}$ = 0.01 deci (tenths) = $\frac{1}{10}$ = 0.1	Eg. Drew kept track of weather conditions. Above is a part of his chart recording the temperature. How manu minutes elapsed between the first and second readings or February 27? Language Arts Link Meaning of prefixes. (research)	

AREA OF STUDY: MATHEMATICS

STANDARD V

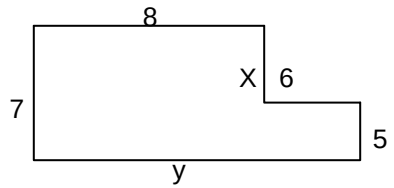
UNIT: Measure, Estimate and Compute

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
deca (tens) = 10 hecto (hundreds) = 100 kilo (thousands) = 1000 <u>Time</u> Maps can be used for telling time. The twenty four hour clock can be used to tell time in the p.m. eg.1:00 = 1300 hrs. The whole earth is divided into 24 time zones. Within each zone, the time is the same. Eg. Chetumal is one hour ahead of Belize. From time zone to time zone it is one hour earlier as you travel west and one hour later as you travel east. So, subtract one hour for each time zone as you move from east to west & vice versa. Schedules and tables can be interpreted and calculated using different time zones.	Combine the strategies of interpreting schedules and tables with the guess and test strategy in order to solve word problems. problem vary in difficulty. Some require students simply to apply a simply skill strategy to solve a problem. Others lay special emphasis on the interpretation of information presented in visual form eg. schedules and tables. Others are multi – step or non-routine in nature. These exercises the imagination so needed to develop the reasoning ability of the students. Discuss and recall what perimeter is and its relevance to real life situation. Draw picture of (fence, garden) to show these situations. Group activity – discuss various polygons and find the perimeter using both methods. Discuss real – world objects that have perimeters eg. fence, picture frame, blackboard. Find the missing dimension when many other dimension are given.	Questioning technique. Discuss and recall facts and apply their understanding of the metric system in solving problems. Apply formula to solve relevant problems. Draw polygons and apply formula to solve the perimeter of each. Work sheets provided. Practical work using rulers, tape measures, yard stick and paper to find perimeter.

AREA OF STUDY: MATHEMATICS

STANDARD V

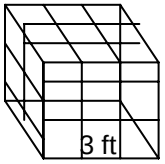
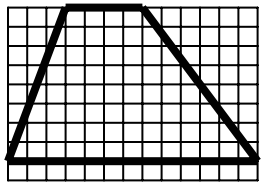
UNIT: Measure, Estimate and Compute

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Eg. Where the perimeter of a square is known but the value of a side is unkown the formula P = 4S solved for S, can be used (S = p/4) thus if P = 24, S = p/4 = 24/4, S = 6 <u>Area</u> Area of a region is the number of square units it contains. Use formulas to find the area of polygons. Area of a polygon is actually the size of the region enclosed by the boundaries of the polygon. It can be defined by the number of square units that will fit into the region. Area of the rectangle is the product of its length and width (Basic Formula). To find the area of a rectangle, multiply the number of units of length times the number of units of width. eg. Area = length x width or A = lw.	 Find the missing lengths and the perimeter. X = 2 Y = 14 P = 42 Find the missing dimension when the perimeter and one side is the known, use the formula. P = 70 cm L = 21 cm W = N $P = 2(l + w)$ $70 = 2(21 + w)$ $W = \frac{P}{2} - L$ $W = \frac{70}{2} - 21$ W = 14 cm Estimate and measure area of blackboard, floor, wall, desk. Use graph paper to show numbers of square units inside a given figure.	Solve word problems using formula and diagrams. Direct students to measure classroom items eg. blackboard, desk etc. to the nearest inch, foot etc. Practice finding area of irregular shape objects. Draw a diagram/make a chart. Write a formula. As children complete the talk, observe and record results on the Performance Sheet.

AREA OF STUDY: MATHEMATICS

STANDARD V

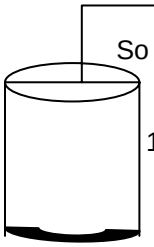
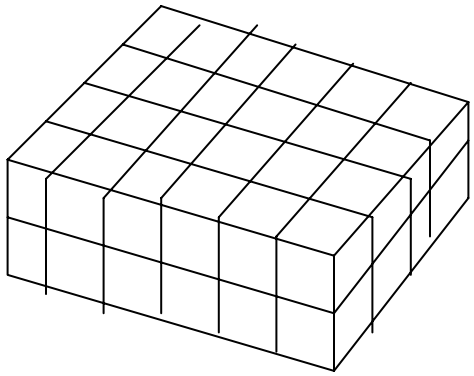
UNIT: Measure, Estimate and Compute

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
To find the volume of a cube use the edge (e) to find the area of the base (edges are congruent)  multiply the area (e^2) by the height (e). This is the same as cubing e. Eg. $e^2 \times e = (e \times e) \times = e^3$ $V = e^3$ To find the volume of a cylinder find the area (B) of the (circular) base. (Use the formula for area of a circle) A of B=;r^2 multiply this area (B) by the prism's height (H) the product is the volume.	 Count the amount of square units inside the figure. (2 half square = 1 whole square) Measure blackboard and other articles in classroom. Record Measurements. Discuss the results. Use the formula to find answers. Eg. Brad's toy box is 36 ins long and 18 ins wide. How many square inches of tiles will be needed to cover the top of the box? <u>Art Link</u> Create geometric design or graph paper. Review exponential notation squares, square roots and irrational numbers. Display a box or similiar container. Discussion of volume. Students count the number of cubic units in a figure. The volume of any prism is the measure of the region enclosed by its faces and bases.	Review . Identify cubes from among other figures measure different sizes of container then record and share information. Compute information. Exercises using formula to find volume of cube.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Measure, Estimate and Compute

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
 d = 8 in So r = 4 in V =Bh 10in B= ;r^2 B=;(4^2) B=;16 B=50.24ins^2 V = Bh V = 50.24 x 10in V = 502.4 in^3	Art Link Design/Construct jewelry box, for jewelry crafts, collectables etc.  The formula for the volume of a cube = e^3. Guess the volume of the classroom in cubic meters. Measure classroom and compute the exact volume. Collect various cylinder (milk cans, toilet paper rolls) Discuss the cylinder. Draw and cut out patterns an dmake models of cylinders working in small groups. When might you use a cylindrical container rather than a rectangular container?	Challenge students to solve. A conical pile of sand contains 1084 cubic meters. If the height of the pile is 18 m, what is its diameter (d = 20m) 15,000 cubic meters of dirt were removed from a rectangular hole 50m by 30m. How deep was the hole? (10m)

CONTENT ORGANIZED INTO	SUGGESTED TEACHING/LEARNING	SUGGESTED STRATEGIES/ACTIVITIES FOR

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Measure, Estimate and Compute

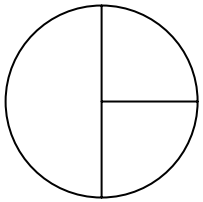
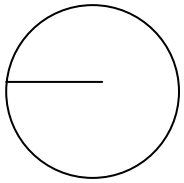
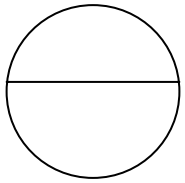
MANAGEABLE SETS	STRATEGIES	ASSESSMENT
The volume of a container can be pressured by theamount of material it can hold. The formula for the volume of a cylinder is V = ;r^2h V of cone = one third the volume of a cylinder having the same base an height. <u>Circumference</u> Circumference of circle: the distance around it. The symbol ; (pi) stands for the ratio of any circular circumference to its diameter ; = c/d The approximate value of ; is expressed as the decimal 3.14 or as the fraction 22/7. The find circumference of a circle: if the diameter is given multiply the diameter by ; C = ;d if the radius is given multiply the two radii by ; C = ;d	Discussion about the different items that are packaged in cylindrical containers. Practical work using the cube to fill cylindrical containers. Group work – Use models to show that a cone must be filled with water three times in order to fill a cylinder. Construct circles with different diameters. Group activity – Estimate the distance around the circumference of their circle. Measure the ratio of the circumference of any circle to its diameter using objects in classroom. Use data to find the ratio of circumference or pi/;, which is c/d = ; Elecit formula for finding the circumference. C = ;d or C = ;r^2 or C = 2;r If the diameter is 6 cm. C = ;d C = 3.14 x 6 C = ;6 C = 18.84 cm	Think and discuss relatiionship between the formula for finding the volume of a rectangular prism and the formula for finding the volume of a cylinder. Problem solving. Teacher made tests. Problem solving Portfolio: to the nearest whole number, find the circumference of a circle with a radius of 5.75 in. Math Journal – compare the meaning of perimeter and the meaning of circumference. Compare the formula they know for finding the perimeter of a polygon and the circumference of a circle.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Measure, Estimate and Compute

A <u>radius</u> is any segment connecting the center to a point on the circle.  A diameter is any segment that passes through the center and has both endpoints on the circle. The diameter is twice the length of the radius. The formula for the circumference of a circle is C = ;d or C = 2;r <u>Area of Circle</u> Find the area of a circle by multiplying ; (pi) by the square of the radius. The formula for the area of a circle is A = ; x r^2	If the radius is 21 m C = 2;r C =2;21 C = 2 x 22/7 x 21 C = 132 m <u>Social Studies Link</u> Circles on earth's surface. Students work with a partner to investigate circles on the earth's surface. Have them find: what are great circles what is the arctic circle what is the measure of the equator what kind of circle is a meridian where do meridians intersect.  A  B Use 22/7 for ; A = ;r^2 A = 22/7 x 14/1 x 14/1 = A = 616 mm^2 Use 3.14 for ; A = ;r^2 A = 3.14 x 6 x 6 A = 113 mm^2	Record Reinforcement – Teacher's tests. Enrichment Group work: construct circles and cut into pie shaped segments. Arrange them to form parallelogram and discuss. Observe that the base of the parallelogram is half the circumference of a circle from which it is formed and the height of the parallelograms is equal to the radius of the radius of the circle. Develop the formula for findings the area of a circle. A = b x h A = ½ c x r A = ½ (2;r) x r A = ;r^2 Problem solving . Practical Work:- find the area of objects in and around the classroom.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Measure, Estimate and Compute

Scale Drawing – an accurate picture of something but different in size. Scale – the ratio of th epictured measure t the actual measure. A map is a scale drawing used for different purposes. eg. Road map, political map. Scale ratio = Scale measure / Actual measure Temperature Celsius and Fahrenheit scales are used to measure temperature. The symbol for Celsius is "C" The symbol for Fahrenheit is "F" The symbol for degrees is " ^{0} " On the Celsius scale, there are 100 unites/degree between the temperature at which water freezes (0^o) and the temperature at which water boils (100^o) On the Fahrenheit scale there are 180 unites/degrees between the temperature at which water freezes (32^o) at the temperature at which water boils (212^o) .	Estimate and measure to find the dimensions of the classroom. Select a scale and make a scale drawing of the room. Finding Actual measurement. If the scale measure of the house floor plan was 1 cm = 3 m, what would be the metric scale measure of each of these? A picture window 2.4m wide 1 cm / 3 m = w cm wide / 2.4m wide = 1/3 = w/2.4 → = 2.4 → w = 0.8 cm Use given scale to solve problems. Social Studies Link/Art Identify distance and size between places in Belize Draw map to scale and construct one map of Belize Display and discuss different kind of thermometers.	Group activity. Observe; cooperate; participate and share. Make a floor plan an draw to scale. Test participation through observation and ability to recognize similarities and difference on the two scale. Check list on thermomter constructed. Eg. neatness accuracy creativity .

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Measure, Estimate and Compute

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
The metre measurement of temperature is expressed in degrees Celsius. (^{o}C) The ratio of degrees Celsius to degree Fahrenheit is 5:9, 5/9 To change a Fahrenheit reading, subtract 32^{0} from the Fahrenheit reading and then multiply by 5/9. This is expressed by this formula. Eg. If the temperature in Rita's house reaches 25^{0}C, the air conditioner comes on. The temperature is 77^{0}F. Is the air conditioner on? C = 5/9 x (F – 32) C = 5/9 x (77 – 32) C = 5/9 x 45 = 25^{0}C C = 25^{0}C	Compare their similarites and differences. <u>Alike</u> They are both based on the same reference point. The boiling point of water (100^{0}C) (212^{0}F) The freezing point of Water (0^{0}C) (32^{0}F) The freezing point of Water (0^{0}C)(32^{0}F) <u>Different</u> The <u>Celsius scale</u> divides the difference between references points into 100 units called degrees Celsius (0^{0}C) The Fahrenheit scale divides the difference into 180 units called degrees Fahrenheit (0^{0}F) <u>Group Work</u> Construct Celsius and Fahrenheit thermometer. Display children's work. Oral quiz. Which is the most reasonable temperature eg. hot oven. a. 100^{0}C b. 90^{0}C c. 200^{0}C d. 1000^{0}C The temperature inside a closed car on a hot day. a. 70^{0}F b. 80^{0}F c. 105^{0}F	Collect information on temperature. Compare Celsius temperature for different parts of the country and the world. Convert from one scale to the other. Problem solving examples (teacher & students made) Construct graphs and insert daily temperature readings. Reading temperature on graphs as a daily routine.

CONTENT ORGANIZED INTO	SUGGESTED TEACHING/LEARNING	SUGGESTED STRATEGIES/ACTIVITIES FOR

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Measure, Estimate and Compute

MANAGEABLE SETS	STRATEGIES	ASSESSMENT
To change from degrees Celsius to degrees Fahrenheit. F (9/5 x C) + 32 Eg. Write the temperature in Belmopan in degrees Fahrenheit. Temperature in Belmopan is 30^0C. F = (9/5 x 30) + 32 F = 9/5 x 30 = 54 + 32 F = 86^0F **<u>Skills</u>** Recall Memorize Compute Presentations Discuss Research Estimate Measure Convert Define Explain Write Interpret Invertigate Visualize Apply Solve	Read and discuss the temperature at which water boils and freezes and body temperature in ^{0}C and ^{0}F. Talk about how and why the reading differ from each other. Conversion of temperatures from ^{0}F to ^{0}C and vice versa. (Use formula) <u>Social Studies Link</u> Research on the origin of Celsius and Fahrenheit themometers. <u>Technology Link</u> Design and construct simple thermometers	Collect information on temperature . Compare Celsius temperature for different parts of the country and the world> Convert from one scale to the other. Problem solving examples (teacher & students made) Construct graphs and insert daily temperature readings. Reading temperature on graphs as a daily routine.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Measure, Estimate and Compute

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Count Record Observe Draw Make models Judge Attitudes Cooperation Participate Show understanding Interact Express interest Enjoyment Value Share		

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Measure, Estimate and Compute

ST4a – organization and characteristics of the earth's spheres. ST5a – how particle theory relate to change in different materials and substances. SS2a – the relationship between the location of Belize and its climate and weather conditions, EA1b – identify and produce rhythmic patterns syncopation. EA1e – explore and experiment with style, methods and techniques that have been used to create artistic representations. WT1b – design a device to meet a need/solve a problem. WT1c – construct a simple device to meet a need/solve a problem. WT1d – test a simple device to see if if meets a need/solve a problem. EL1d – apply functiona reading skills (including comprehension skills) in the selection, reading and interpretation of texts. EA1e – explore and experiment with styles, methods and techniques that have been used to create artistic representation. WT4d – activate the plan. (This unit can be used for reinforcement in Std VI with more challenging teaching and assessment strategies)	Math Advantage Vol 1 and 2 – Harcourt Brace New Progress in Mathematics 7 & 8 – Sadlier Oxford Mathematics Series (New Edition) Active Math – McMillian Caribbean

AREA OF STUDY OUTCOMES

Pupils should:

M2D The relationship between angles in different two-dimensional shapes.

3

\M

CROSS-CURRICULAR OUTCOMES

SP2.a Take part in group activities.

CP1.b. Examine information related to the problem/issue.

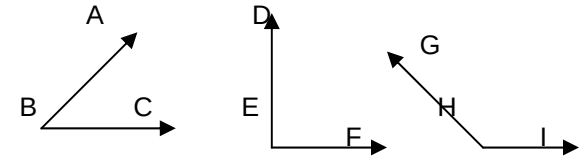
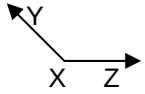
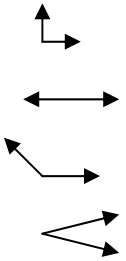
SP1b. Choose between alternatives based on values.

CP1b. Suggest ways of dealing with problem.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Relationship Between Angles

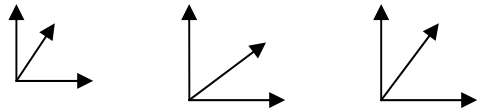
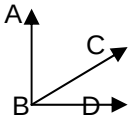
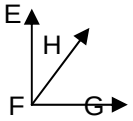
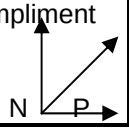
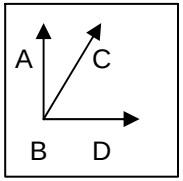
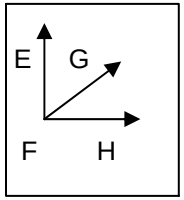
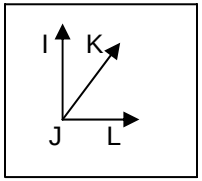
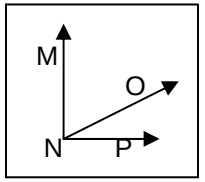
CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Recommended Time – 4 weeks An angle is the union of two rays that have a common end point called a vertex. Each angle is given a name. Angles are measured in units called degrees. A protractor is used to measure the degrees of an angle.	Place children in groups. Let each group construct various angles. Find names for angles. Read angles names orally. Measure different angles using a protractor.  Eg. ABC reads “Angle ABC.”  Review right angle, obtuse, acute, straight angles.	Ask students to explain the following. how to use a protractor to measure an angle each : right, obtuse, straight, acute One name for an angle is ~~YXZ~~. Describe what the three letters represent.  Match each angle with its name. A B Acute Right Straight Obtuse 

CONTENT ORGANIZED INTO	SUGGESTED TEACHING/LEARNING	SUGGESTED STRATEGIES/ACTIVITIES FOR

AREA OF STUDY: MATHEMATICS

STANDARD V

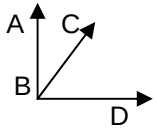
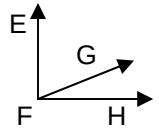
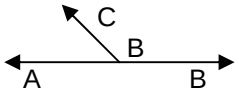
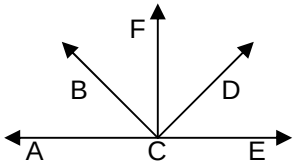
UNIT: Relationship Between Angles

MANAGEABLE SETS	STRATEGIES	ASSESSMENT
Two angles are complementary when the sum of their degree measure is 90^0 Two complementary angles make a right angle. Each angle is called the complement of the other.	Place children for group activities. Let them construct various right angles. Show them flashcards having complementary angles. Ask them to identify any commom characteristics they know or see eg. they see a right angle they see two angles within the right angle the two angles will add up to 90^0.  Allow children to give names for the two complimentary angles they see. I  II  Eg. ∠ ABC ∠ EFH ∠ CBD ∠ HFG Let children draw line within their right angles to form complimentary angles. Let them name complimentary angles. Remember that each angle is called the compliment of the other.eg. M O ↑MNO is a compliment of ↑ ONP 	Construct angles with the following degrees and rave in portfolio. a) 75^0 b) 150^0 c) 90^0 d) 180^0 e) 40^0 Pair Assessment: Let each pair question each other using flashcards with complimentary angles; listing and naming complimentary angles measure and write the compliment of given angles.     What is the compliment of ∠ ABC? If ∠EFG measures 65^0 what is ∠GFH.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Relationship Between Angles

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Supplementary angles are two angles whose sum is 180^0. Two suppementary angles form a straight line.	Use a protractor to measure both angles.  $\angle$ ABC = 15^0 $\angle$ CBD = 75^0 SUM = 90^0 Since the sum of complimentary angles is 90^0 then what is $\angle$ EFG if $\angle$ GFH is 25^0?  Place children in pairs to brainstorm all characteristics of the angles displayed on flashcards. Eg. a) identify straight line. b) name the two angle seen.  c) a straight line measures 180^0. ″ the sum of the two angles measure 180^0.	Problem solving. Using the diagram answer the following:  1. The compliment of ↑ ACB. 2. The supplement of ↑ ACD. 3. ------- Compliment ↑ FCD. 4. ------- is the supplement of ↑ BCE. 5. If ↑ FCD is 60^0 then ↑ DCE is -------. 6. If ↑ BCE = 140^0 then ↑ACB = -------.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Relationship Between Angles

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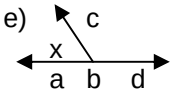
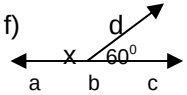
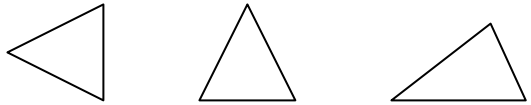
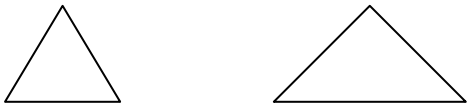
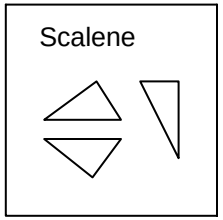
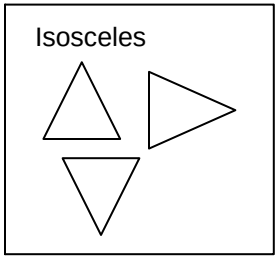
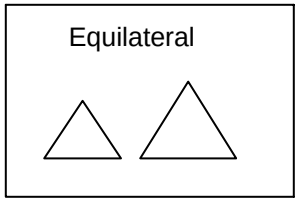
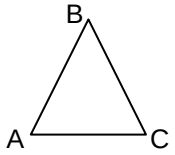
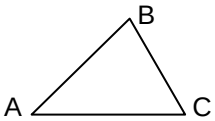
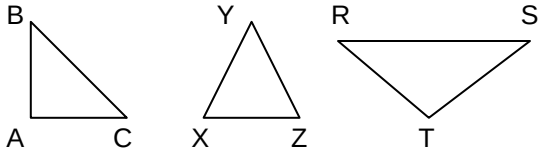
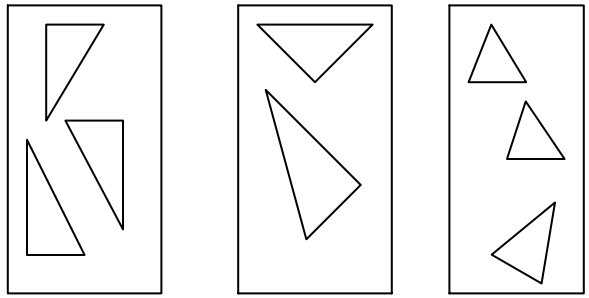
A triangle contains three sides and three angles. Some triangles are classified according to the length of their sides. These are scalene isosceles equilateral In a scalene triangle each side is a different length. Equilateral triangles have 3 equal sided and 3 equal angles. Isosceles triangles have two equal sides, and two equal angles.	Find the supplements of each of the following angles using a protractor. a) 440 c) 390 e)  b) 1170 d)390 f)  Allow children to explore triangular shape. Let them compare the three triangle shapes and tell how they are same or different.  A B C Children will comstruct several scalene triangle using given measurements. Eg. 5cm by 6 cm 7 cm.  	Group Activity Sort out the cards ion the basis of their sides into 3 groups. Label each group scalene, isosceles and equilateral.   

AREA OF STUDY: MATHEMATICS

STANDARD V

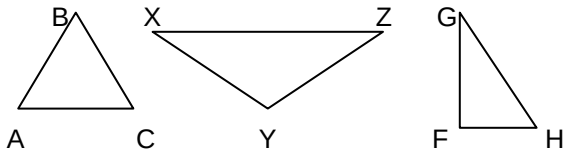
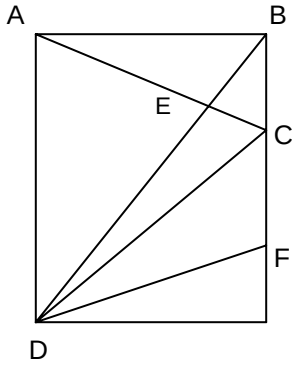
UNIT: Relationship Between Angles

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Some triangles are classified according to the measure of their angles. These are: Right Triangle Acute Triangle Obtuse Triangle	Allow children to pick out all equilateral triangle from set given. Measure sides and angles.  ↑ A = ↑B = ↑C AB = BC = AC Contruct several isosceles triangles. Find and name the equal sides.  Which sideds are equal? AB = AC ↑C = ↑B Distribute triangular shapes to groups. Children will identify these angles and give each a name. Eg. a) right angle b) acute angle c) obtuse angle  	Sort out by corners Right Obtuse Acute  Present to class. Game: TRIANGLE SORT OUT. Set children in 3 groups of 5. Give each group a set of triangular shapes and packet with named either right, acute or obtuse. Each group must go around, find and collect all the triangular shapes assigned on their packets. The group that finishes first wins.

AREA OF STUDY: MATHEMATICS

STANDARD V

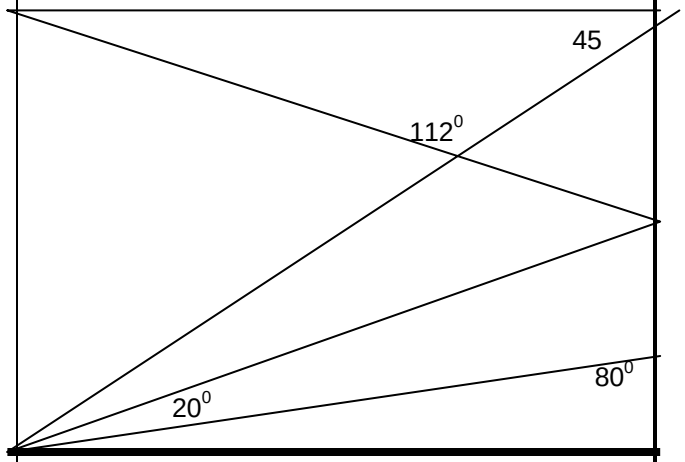
UNIT: Relationship Between Angles

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
The sum of the angles of a triangle is equal to 180^0. If you know the measures of two angles of a triangle you can find the measure of the other angle.	↑ A is a right angle ↑X, ↑Y, ↑Z is an acute angle ↑T is an obtuse angle. Allow children to consruct several triangle and use a protractor to measure the three angles. Let one child report what they found out about all triangles.  A + B + C = 180 Y + X + Z F + G + H 60 + 60 + 60 = 180 100 + 30 +50 = 180^0 90 + 45 + 45 = 180^0 Notice that the sum of the angles is 180^0. Children will add the two given measure of angles and subtract from sum to find the other angle, using an equation.	λλ Identify the types of triangles found in this diagram:  Pair activity sheet. Write each missing measure on the figure, use what you know of complimentary and supplementary angles and the sum of the angles of triangle.

AREA OF STUDY: MATHEMATICS

STANDARD V

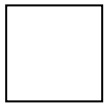
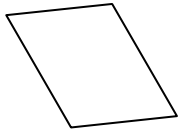
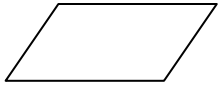
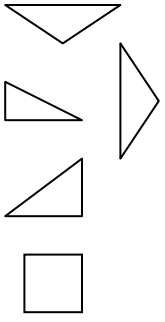
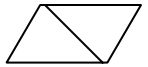
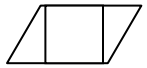
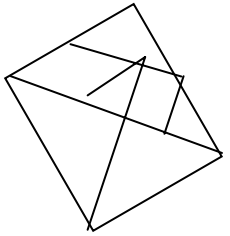
UNIT: Relationship Between Angles

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A quadrilateral is angy four – sided firgure. Some quadrilaterals are: parallelogram rectangle rhombus square trapezium A quadrilateral can be split into two triangles. The sum of its angles is 360^0.	B A C $A=90^0$ $B=45^0$ $= X + 90 + = 180^0$ $X + 135 = 180$ $X + 135 – 135 = 180 – 135$ $X = 45^0$ $X + 135 + 15 = 180^0$ $X + 150 = 180$ $X + 150 –150 = 180 – 150$ $X = 30^0$ Find the measure of the other angle for triangle on worksheet. Display several quadrilateral to students. Let them identify the common ones and guve their names. Give the names of the others.	

AREA OF STUDY: MATHEMATICS

STANDARD V

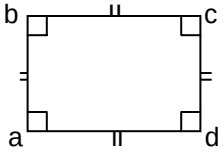
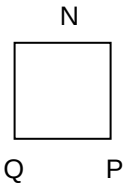
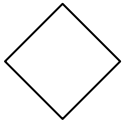
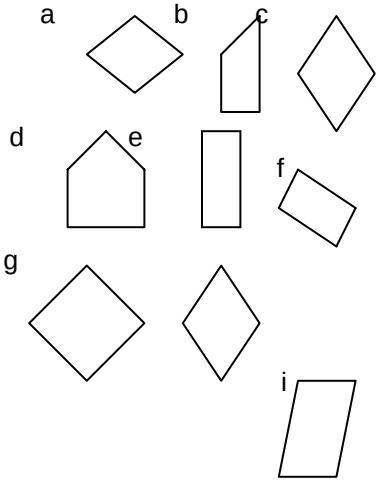
UNIT: Relationship Between Angles

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Characteristics of Quadrilaterals The parallelogram	 Rectangle  Square  Parallelogram  Rhombus  Trapezium Observe each quadrilateral. Write down main characteristics.  Parallelogram – Opposite sides are parallel List the two pairs of parallel lines, A rectangle, a rhombus and a square is also a parallelogram, since they have the same characteristics.	Work together You can use tangram pieces to form quadrilaterals. Two ways of forming a parallelogram are shown at the right. Work with a partner. Record all possible ways you can use tangram pieces to form a parallelogram, rectangle, rhombus, square and trapezoid. Organize your results in a table. Compare your results with other groups.  Eg.λ  Eg. λλ  Eg. λλλ 

AREA OF STUDY: MATHEMATICS

STANDARD V

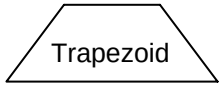
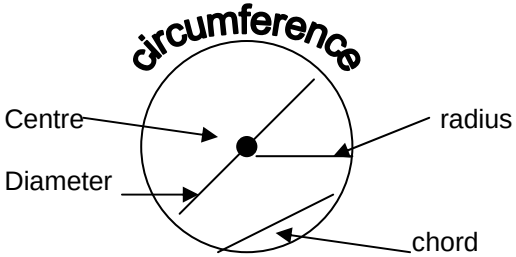
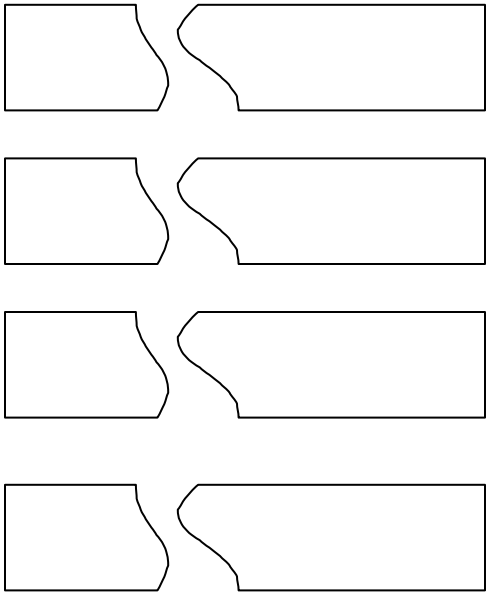
UNIT: Relationship Between Angles

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
The rectangle is a parallelogram with four right angles. The square is a parallelogram with four right angles and four congruent sides. A rhombus is a parallelogram with four congruent sides.	Children will identify and label the following on the rectangle. Two pairs of parallel ine. Four right angles. Eg.  ab is parallel to cd ad is parallel to bc ↑ A, ↑ B, ↑ C, ↑ D are all right angles. Use a square to identify the following: Two pairs of parallel sides Four right angles Four congruent sides  Measure the sides of the given rhombus to prove that sides are congruent. Explain why it is called a parallelogram. 	List the letters of all the polygons that have each name. Quadrilateral Parallelogram Rhombus a, g,h Rectangle a, e, g Square a, g Trapezoid 

AREA OF STUDY: MATHEMATICS

STANDARD V

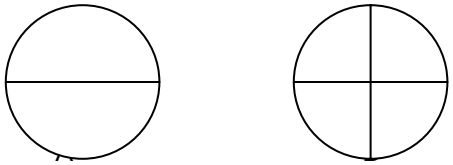
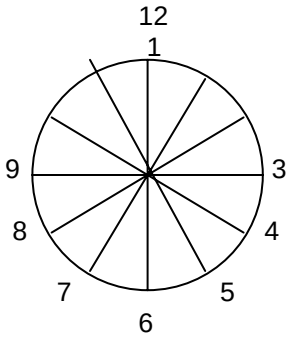
UNIT: Relationship Between Angles

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A trapezoid is a quadrilateral with exactly one pair of opposite sides parallel. A circle is a closed path or curve in a plane with each end the same distance from a point inside called the centre. You name a circle by its centre. The parts of a circle are: the radius diameter chord	Display a trapezoid and pupils will identify the characteristics. Will also compare it with other parallelograms. Will look around in environment to identify this shape. Eg. a window  exactly one pair of opposite side parallel. Reteach the parts of a circle using circular shapes and let children label the parts of a circle. 	Definition strip activity. Group children by pairs. Match definition strips. 

AREA OF STUDY: MATHEMATICS

STANDARD V

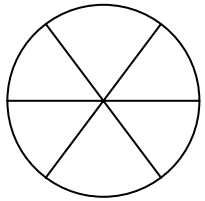
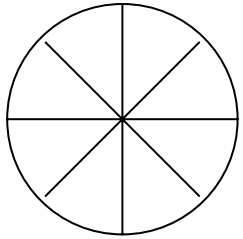
UNIT: Relationship Between Angles

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A circle contains 360^0. If a circle is divided into a number of angles, the sum of the angles must add to 360^0. <u>Skills</u> Identify Define Analyze Compare Contrast Solve Label Record Explain Relate Sketch Describe Attitudes Participate Interact Appreciate Enjoyment Respect other's opinion Share	Match terms with meaning. A B Diameter ----- distance around a circle. Radius ----- a line segment that has both chord end points on the centre. c) chord ----- a straight line from the centre to the circumference. d) circumference ----- a straight line passing through the centre touching the circumference at both ends. Identify the diameter as a straight line and elicit from children how many degrees are in a straight line.  Identify how many right angles can be seen in the circle. Each right angle = 90^0 4 right angles = 4 x 90 = 360^0	Problem solving. Use the clock to find the answer:  What is the size of the angle between 1 and 2. The size of the angle between 2 and 5. The size of the angle between 6 and 12 How many degrees does the hour hand of the clock pass between 7o'clock and 11 o'clock?

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Relationship Between Angles

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
	Notice that there are 6 equal angles $\therefore \frac{360}{6} = 60^0$ Each angle will measure 60^0  Notice that there are 8 equal angles $\therefore \frac{360}{8} = 45^0$ Each angle will measure 45^0 	

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Relationship Between Angles

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
EA1e - explore andexperiment with styles methods and techniques that have been used to create artistic representations. WT1c - construct a simple device to see if it meets a need/solves a problem. M3c - apply algebraic expressions to solve problems EL1d - apply functional reading skills (including comprehension skills) in the selection, reading, and interpretation of texts.	Teaching Elementary School Math Heath Mathematics Connections Teacher's Edition Middle Grades Math tools for Success Mathematics A topical approach Refresher Mathematics Stein New Common Entrance Mathematics Walter Phillip Tangram puzzles Cut – out shapes Geometry set Protractor Geostrips Ruler

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Whole Numbers

AREA OF STUDY OUTCOMES
Pupils should:
M1.a – Place value in numbers up to ten digits
M1.b – The consecutive sequence and position of numbers 1 – 9,999,999,999
M1.c – Quantity in numbers 0 – 9,999,999,999

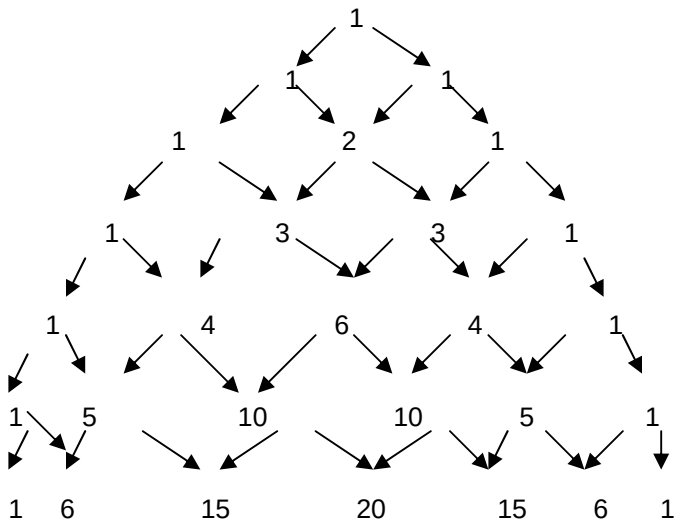
CROSS-CURRICULAR OUTCOMES
C.P.1b – Examine information related to the problem/issue
S.P.2a – Take part in group activities.
S.P. 2e – Lead and follow where appropriate.
S.P. 2f – Help the group to achieve its goals.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A number can be read, written or expressed in different ways: standard form (figures) words expanded form scientific form A sequence is a list of whole numbers written in order. Each whole number in the sequence is called a term.	Suggested activities can be used for Std VI using ten digit numbers. Eg: place value games Jig-saw puzzles Use of number line Work cards N.B. Suggested activities can be used for Std VI. using ten digit numbers Use of number line. Identify and explain patterns. Exercises on Fibonacci sequence: Eg. a) 1 , 1 , 2 , 3 , 5 , 8 , 13 , 21 , 34 , 55 etc.	Suggested strategies/activities for assessment can be used for Std VI using ten digit numbers. Quiz Speed tests Interviews Portfolio assessment N.B. Suggested strategies/activities for assessment can be used for Std VI using ten digit numbers. Creating sequence patterns.

AREA OF STUDY: MATHEMATICS

STANDARD V

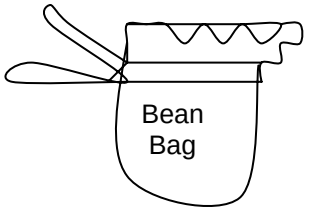
UNIT: Whole Numbers

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Whole numbers can be rounded to a certain place.	b) 3 , 7 , 10 , 17 , 27 , 44 , 71 , 115 , 186 etc. Exercises on Pascal's Triangle 	

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Whole Numbers

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Numbers can be compared by comparing digits place by place, from left to right until a difference between the digits in one particular place is found.	N.B. Suggest activities from Std V can be used in Std VI. Math Talk!! Children state real life situations in which numbers have been estimated and yet remain meaningful. Eg. population of towns A family's grocery list etc. Children compare estimations and actual answers. Children estimate sums and differences using Front End Method. +214 → 1100 +100 = 1200 Other suggested estimation methods include: Clustering and using compatible numbers. Suggested activities from Std V can be used in Std VI using ten digit numbers. Table readings: Children will read table having distances, populations, salaries and make comparisons in complete sentences.	Math Log: Students write short paragraphs outlining the estimation skills learned. Game: Round We Go! Students in teams form circles. The first player in each team tosses a bean bag to the player right and name a number. The catcher round the number to the nearest ten and then tosses the bag to the right naming another number. Play continue in this way until the bag completes the circle and all players sit down. The first team seated win.  Have children explain concepts learned. Pupils create games in groups to show understanding of concept learnt.

AREA OF STUDY: MATHEMATICS

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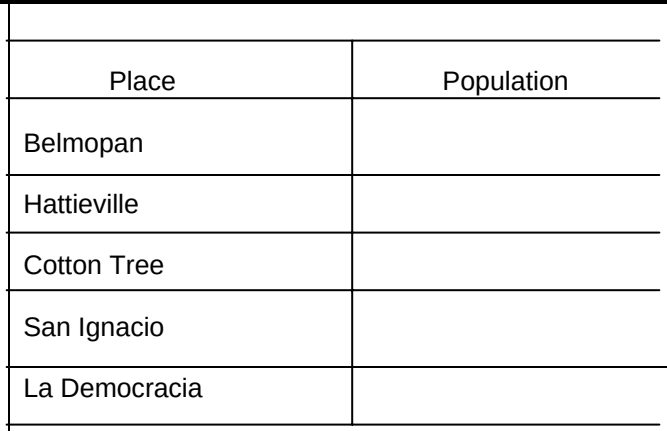
UNIT: Whole Numbers

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
In maths we use the operation of addition, subtraction, multiplication and division. Operations have certain characteristics or properties. The commutative property of addition states that when we add one number to a second number we get the same sum as when we add the second number to the first. The commutative property of multiplication states that when we multiply one number by a second number we get the same product as when we multiply the second number by the first number. The associative property of addition permits us to group or associate the first and second number and add their sum to the first number.	 Place / Population Belmopan Hattieville Cotton Tree San Ignacio La Democracia N.B. Population subject to change. Explain that 5 + 6 = 6 + 5 Explain that 5 x 6 = 6 x 5 Explain (5+6) + 4 or 5 + (6+4) Explain the multiplication 5 x (6 x 4) = (5 x 6) x 4 Note that grouping is done in the associative property.	Pupils do math journals on whole numbers by writing their understanding and giving examples on the different topics. Orally define what is the commutative property of addition. Using flash cards, orally for pupils to continue the variables. Ex. A + B = ----------. Show the commutative property of these numbers. 0 x 5 = ---------- 2 x 5 = ---------- 6 x 5 = ---------- Which property is being used in the following. Match Col. A with B. A: A) Commutative P of Ad. B) Commutative P of X C) Associative P of + D) Associative P of X B: a) 8 x 6 x 5 b) 7 + 5 = 5 + 7 c) 8 + 6 = 6 + 8 d) 5 x 6 = 6 x 5

AREA OF STUDY: MATHEMATICS

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UNIT: Whole Numbers

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
The distributive property of multiplication over addition and subtraction states that when we multiply one number by the sum or difference of the second and a third number we get the same result as when we add or subtract the product of the first and second numbers to the product of the first and third. When we subtract, multiply, divide or add a set of numbers (eg. whole numbers) and get as our answers a number of the same set we say that the set is closed under that operation. This property is called "CLOSURE". A number which when added to a given number, does not change the given number is called the additive identity. Therefore O is the additive identity. A number which when multiplied by a given number, does not change the given the number is called the multiplicative identity. Therefore, is the multiplicative identity.	Use the distributive property in computation such as 2 x 23 Eg. 2 x 23 = 2 x (20 + 3) = 2 x 20 + 2 x 3 = 40 + 6 = 46 eg. 4 x (7-3) = (4 x 7) – (4 x 3) 4 x (4) = 28 – 12 16 = 16 Divide a number by itself the quotient is 1. Ex. 8 ∋ 8 = 1 Raise 1 to any power the answer is 1. Eg 1^5 = 1 x1 x1 x1 x1 = 1 Subtract zero from any number is the number. Ex. 6 – 0 = 6 but the subtract a number from itself we get zero. Eg. 6 – 6 = 0	Complete to show how to use the Distributive Property to find each product. a) 8 x 14 = 8 x (□ + 4) = (8 x □) + 8 x □) = □ + □ = □ etc. b) Use the distributive property to make an easier problem. (one is done) 4 x 33 (4 x 30) + (4 x 3) 6 x 25 7 x 24 In each case identify the law illustrated. Closure, Commutative, Additive Identity, Associative, Multiplicative Identity, Distributive Property.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Whole Numbers

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Skills Read Arrange Speak Write Create Explain Identify **Attitudes** Co-operate Share Respect Tolerate Enjoy Understand		5 + 3 = 3 + 5 --------- (6 x7) x 4 = 6 x (7 x 4) ---------- 9 x (3 + 5) = (9 x 3) + (9 x 5) ---------- 8 x 7 = 7 x 8 ---------- 9 + 5 = 5 + 9 ---------- (2 x 8) x 5 = 2 x (8 x 5) ---------- 7 x (5 + 4) = (7 x 5) + (7 x 4) --------- 7 x 5 = 35 6 – 6 = 0 $1^6 = 1$

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Whole Numbers

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
SL4.a Interpret messages and follow instructions and directions SL3.c Demonstrate the ability to write for specific purpose EL3.b Produce written work that demonstrates effective English usage and grammar. EL4.b Use speech for self fulfillment. M1.e The base of other number systems.	Heath Mathematics Connections Volume 1 Level 4 Math Advantage Teacher's Edition Volume One New Progress in Mathematic Rose Anita McDonnell <u>Materials</u> Bristol boards Work cards Work sheets Booklets Bean bag Props

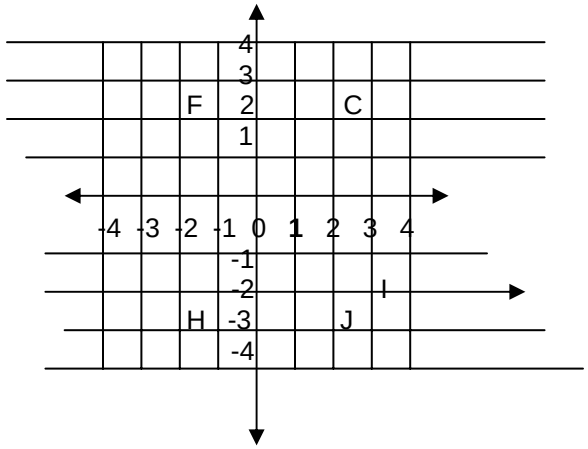
AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT:

AREA OF STUDY OUTCOMES
Pupils should:
M4b. - Predict the likely occurrence of an event through logical reasoning, based on trends.
M5a – Collect, analyze and interpret data and predict probable outcomes.

CROSS-CURRICULAR OUTCOMES
CP1c Suggest ways of dealing with the problem/issue.
SP2a Take part in group activities.
SP3b Assess progresses in relation to achievement of goals and adjusts goals or strategies as necessary.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Recommended Time 3 – 4 weeks Statistics is a systematic collection, organization, and interpretation of sets of data. A graph is a method used to picture in a clear, interesting and meaningful way.		Identify the letter using the following order pair. Eg. (2, 2) = C (-2, 2) ------ (2, -3) ------ (-2, -3) ----- note that you start reading your co-ordinates from the x axis.

AREA OF STUDY: MATHEMATICS

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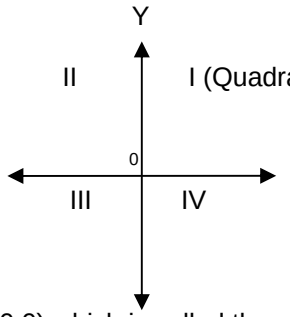
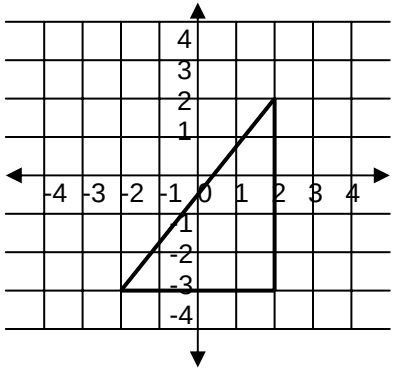
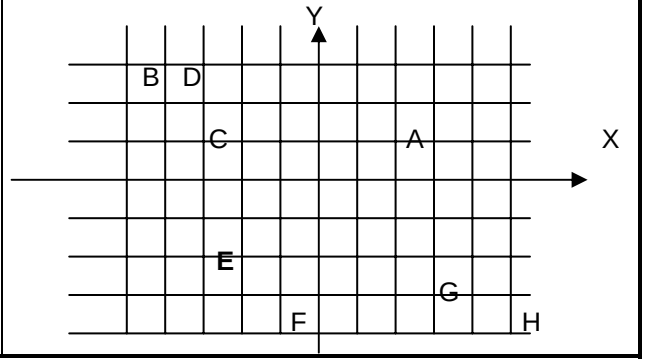
UNIT:

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Use graph when plotting co-ordinates A horizontal and a vertical number line can be placed together to form a pair of cordinate axes. The horizontal line is called the x axis. The vertical number line is called the y-axis. The coordinate plane is divided into 4 quadrants. The x and y-values are called co-ordinates of the point.	Observe the graph presented. Identify the x-axis and the y-axis Explain that (0,0) is called the origin Explain that the x-value is the distance right or left of the origin and the y-value is the distance above or below the origin. Discuss the term ordered pair Find the ordered pair for point B Remind children that the first number in the ordered pair always gives the x-value Discuss how the ordered pair (+4, +2), (+2, +4) are different Graph points C, J , H as illustrated on the chart and discuss each ordered pair. Demonstrate the four quadrants. Explain that the x-axis and y-axis divide the plane in four spaces. X O Y, Y O X^1, X^1 O Y, Y^1 O X. Eg.  Show point (0,0) which is called the origin.	Plot using the co-ordinates (2,2), (2, -3) (-2, -3) and form a figure.  for home assignment Give the ordered pair for each point on the graph. 

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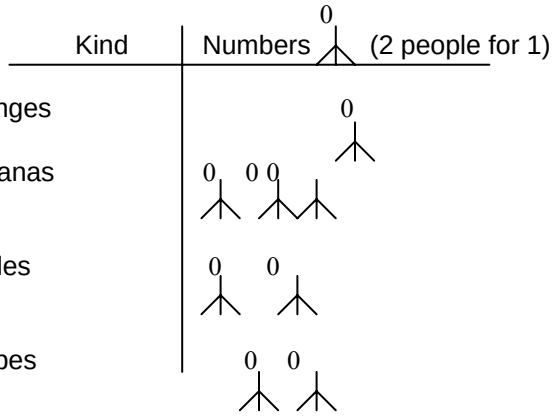
UNIT:

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Pictographs are graphs that are very effective visual tools for showing data. A stem and leaf graph is such to interpret simple data. Stem and leaf plot is used to organize data when you want to see each item on the data.	Explain then in II x is negative Y is positive. In I both x and y are positive, III x and y are negative IV positive and negative. Collect data from children about the types of fruits they like. Kind | Number Orange 2 Banana 5 Apples 3 Grapes 4 Illustrate how the data is placed on a pictograph 	1) A (-) 2) B (-) 3) C -----. which points are in Quadrant I? Which points are in Quadrant IV? Collect data about their class (such as the monrths in which students have birthdays) and make a pictograph from the data. Using the chart answer these questions What score is shown by the second stem and its fourth leaf -------- How many children scored 84? ---------- What was the highest score? ---------- etc.

AREA OF STUDY: MATHEMATICS

STANDARD V

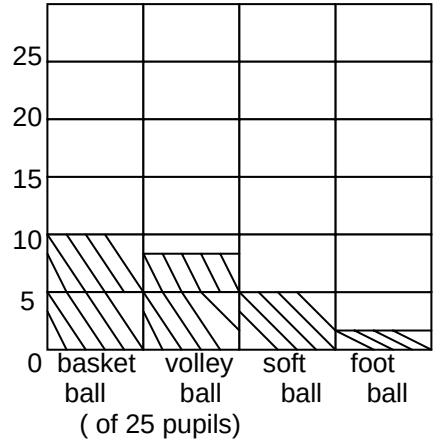
UNIT:

<table>
<tr><th>CONTENT ORGANIZED INTO MANAGEABLE SETS</th><th>SUGGESTED TEACHING/LEARNING STRATEGIES</th><th>SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT</th></tr>
<tr>
<td>A bar graph is used to compare amounts.
Remember the scale should always start at 0.</td>
<td>Scores of an English Test

<table>
<tr><th>Stem</th><th>Leaves</th></tr>
<tr><td>6</td><td>2 4 5</td></tr>
<tr><td>7</td><td>0 1 1 3 8</td></tr>
<tr><td>8</td><td>1 4 4 6 9 9</td></tr>
<tr><td>9</td><td>2 5 6 7 7 8</td></tr>
</table>

Observe the graph above
Explain that it shows the English test scores of children
Note that data is grouped by tens digits.
The data is organized from least to greatest
We use tens digits as stems and ones digits as leaves
Discuss the chart
3 children scored in 60’s

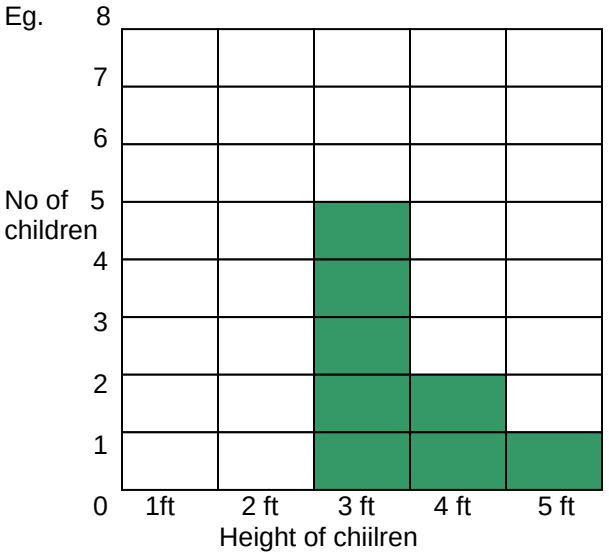
eg. 1 child scored 62
1 child scored 64
1 child scored 65 etc</td>
<td>Interview and record data on a bar chart.
Eg on the types of books used in a class.

Explain the following bar graph by answering questions.
FAVORITE SPORTS
 
</td>
</tr>
</table>

AREA OF STUDY: MATHEMATICS

STANDARD V

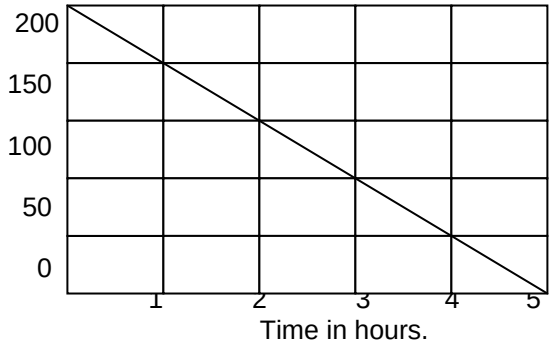
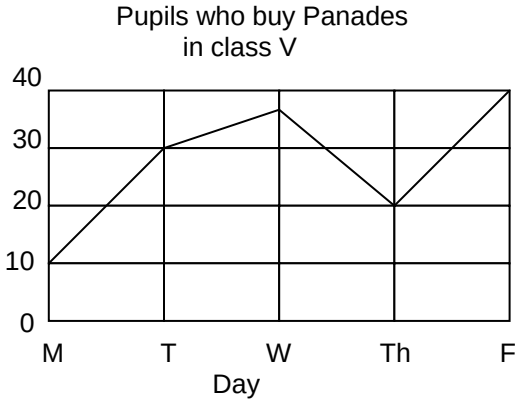
UNIT:

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
	Collect heights of children in your class. Make data chart. Eg 5children – 3 ft 2 children – 4 ft 1 child – 5 ft demonstrate how this data could be placed on a bar chart. Eg.  	How many pupils play football? How many enjoyed playing football? Which sport do the pupils like the most? How many pupils are in the class?

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT:

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A line graph shows how an amount changes over time.	Observe, study and discuss the following line graph.  How far did the bus travel in 2 hours? How long did it take to go 200 km? How far did the bus travel in 3 hours?	Use the line graph to answer the following questions.  on which day did the pupils buy the most panades. How many panades did they buy on Thursday,etc. John's mother made a cake for the family. She shared half of it among the children. She gave a quarter to her husband and what was left to her neighbors. Show this on a graph and label it.
A circle graph is a common way of showing how to represent a whole or 100% of something.	Demonstrate on the board the steps for making a circle graph. Have a volunteer divide the circle into 4 parts. Discuss equivalents for a whole pie – 100% ½ of the pie – 50% ¼ of pie – 25%	Bring a cake, pie, orange to the class to show the different parts that makes a whole.

AREA OF STUDY: MATHEMATICS

STANDARD V

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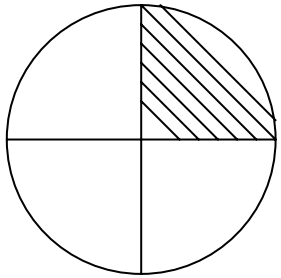
<tr>
<td>A frequency table shows the number of times each piece of data occur.
A tally table is a table that has categories that allow you to record each piece of data as it occurs.</td>
<td>


Have a volunteer label and shade the part that represents 25% etc.

Make a tally of the children in the class with their primary colour that they prefer:
Children choose a preference between blue, red and yellow.
Children stand as each color is called. Teacher tallies on chart.
<table>
<tr><th>Favorite Primary Color</th><th>Tally</th><th>Frequency</th></tr>
<tr><td>Blue</td><td>~~IIII~~ IIII</td><td>9</td></tr>
<tr><td>Red</td><td>~~IIII~~ ~~IIII~~</td><td>10</td></tr>
<tr><td>Yellow</td><td>I</td><td>1</td></tr>
</table>
</td>
<td>Collect data to take a survey of the classmates about favorite pets.
Ask each student
“ Of the following pets, which is your favorite?”
Make a table like the one below to record each student’s choice with one tally mark.
<table>
<tr><th colspan="3">Favorite Pet</th></tr>
<tr><th>Pet</th><th>Tally</th><th>Total</th></tr>
<tr><td>Dog</td><td>III</td><td>3</td></tr>
<tr><td>Cat</td><td>~~IIII~~ I</td><td>6</td></tr>
<tr><td>Rabbit</td><td></td><td></td></tr>
<tr><td>Parrot</td><td></td><td></td></tr>
<tr><td>Turtle</td><td></td><td></td></tr>
</table>
</td>
</tr>
</table>

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT:

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Skills Draw Observe Discuss Graapph Plot Illustrate Divide Tally Choose Collect Survey Analyze Interpret Predict Compare Label Specify Record Demonstrate Arrange Identify Conclude	What does tally mark, or 1, represent? How is the frequency in the third column determined? How many students are in the class? Describe two ways you can find this number: Discuss:	Work with a partner to take a class survey. Choose one of the following topics. After you pick your topic use the question and answer choices to survey as many classmates as you can. Use a tally mark to record everyone's choice. which place wouldyou most like to visit? The zoo Altun Ha Caye Caulker Gale Point Which class colors would you choose? Red and Black Silver and Black Green and Gold Red and blue Which instrument would you like to be able to play? Piano Drums Violin Guitar

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT:

<table>
<tr><th>CONTENT ORGANIZED INTO MANAGEABLE SETS</th><th>SUGGESTED TEACHING/LEARNING STRATEGIES</th><th>SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT</th></tr>
<tr><td><u>Attitudes</u>

Understand
Participate
Reponsibility
Leadership
Independence
Co-operation</td><td></td><td>Which animal would you most like to own?
Dog
Horse
Cat
Bird

Use the data from your survey to complete the table. Write a title for your table. Then write a heading for the first column.

<table>
<tr><td colspan="3">Title:</td></tr>
<tr><td></td><td>Tally</td><td>Total</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td></tr>
</table>

Write a question about your data. Have a classmate use the table to answer the question.
Place in your portfolio.</td></tr>
</table>

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT:

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
EL1.a Use context clues and cues effectively to communicate when reading orally EL2.a Respond sensitively and appropriately to auditory and visual stimuli. EL3.c Demonstrate the ability to write for a full range of purposes. EA1.e Explore and experiment with styles, methods and techniques that have been used to create artistic representations. SL4.a Interpret simple forms, notes, messages, and follow instructions and directions. WT1.a Identify a simple problem and need	**References** New Progress Math – Rose Anita McDonnell Certificate Math – A.Greer & C.E. Layne Refresher Math – Stein Active Math – E.A. Gutierrez & other educators Math Advantage – Harcourt Brace Middle Grade Math – Prentice Hall Course I Heath Mathematics Connections – Teacher's Edition Level 4 **Materials** Graph paper Flash cards Charts Crayons and markers

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT:

AREA OF STUDY OUTCOMES
Pupils should:
M1a – Place value of decimal numbers up to nine digits.
M1b - The consecutive sequence and position of decimal numbers up to nine digits.
M1c – Quantity in decimal numbers up to nine digits.

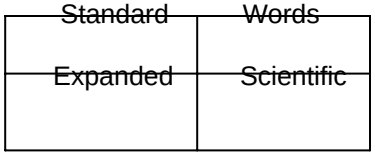
CROSS-CURRICULAR OUTCOMES
SP2. F – Help the group to achieve its goals.
CP1.b – Examine information related to the problem or issue.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A decimal number can be read, written or expressed in different ways: words figures scientific expanded	Give children digits on cut-outs with a blank place value chart. Have children fill in the places eg. Tens/ Ones/ Tenths/ Hundredths/ Thousandths Children will place digits on place value chart to indicate or show number read. Have children read the values of digits. Volunteers will give decimal numbers while class write in words. Give children words on rabbits and figures on tail. Children will pin number tail on the rabbit that corresponds with. This can be reversed.	Have children complete table: Standard Form / Words / Expanded / Scientific _____ / _____ / _____ / _____ Matching decimal numbers Expanded / Scientific _____ / _____ _____ / _____

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT:

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
2) A sequence is a list of decimal numbers written in order. Each decimal number in the sequence is called a term.	Pupils will do practical exercises of writing decimal numbers in expanded and scientific forms. b)Decimal Map: Pupils will each get a card divided into quarters.  They will write a decimal number in standard form and complete the card. Children will challenge each other.	3) Journal entries on their understanding of expanded and scientific notation on decimal numbers. 2) Creating sequencing games. Teacher assess presentation of games.
3) Decimal numbers can be compared by comparing digits place by place. - Adding zeros to the right of the decimal does not change its value but does help to make comparison easier.	2. Have children write numbers vertically aligning on the decimal points. Write any necessary zones. Compare value of digits. - Arrange the numbers in the specified order ie ascending → descending and vice versa: 2.12302 Since .12302 is less 2.12305 than .12303 which 2.12303 is less than .12305 then: 2.12302 < 2.12303 < 2.12305 (least to greatest)	3) Interview students on the comparison of decimal numbers. Teacher records and analyze as pupils explain.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT:

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
4. Decimals are rounded just as whole numbers. - To round decimal numbers, look at the value of the number in the place value one place lower than the place value to be rounded. If that number is greater or equal to five add one to the place value to be rounded. If that number is less than five that number is changed to zero and then dropped. **Skills** Read Match Identify Arrange Explain **Attitudes** Cooperate Share Respect Tolerate Understand Enjoy	- Play a game: Leader calls out a decimal number such as 0.9362417 Each player must give either a smaller or bigger one depending on what the leader calls out. - Use of number line to round to nearest whole number. - Identify place value to be rounded: eg: Round 2.406314 to the nearest thousandths 2.406314 3 is less than 5 so round down. Etc - Round money to the nearest dollar. - Using cents as decimal numbers: 2 shillings & 2 dimes = 35 cents = .35 2 nickles 4 pennies = 14 cents = .14 Approximate time: (2 weeks)	Observation checklist Teacher formulates his/her own problem solving activity using decimals: Eg. Menu Maps(distances) etc. Teacher also construct criterion statements for problem. - will use statements to assess pupils. Understanding of decimals.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT:

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
SL4.a Interpret messages and follow instructions and directions. EL3.c Demonstrate the ability to write for a specific purpose. EL3.b Produce written work that demonstrate effective English usage and grammar. EL4.b Use speech for self fulfillment.	New Progress in Mathematics Rose Anita Mc Donnell Heath Mathematics Connections Volume 2 Level 4 Exploring Math Grade 7 & 8 Materials: flashcards place value chart bristol boards decimal work cards sequencing games coins

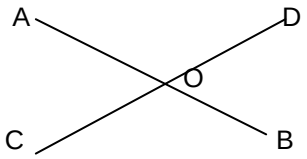
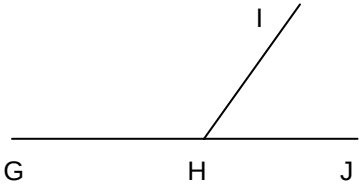
AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: 3D Figures

AREA OF STUDY OUTCOMES
Pupils should:
M2D The relationship between angles in different two-dimensional shape.

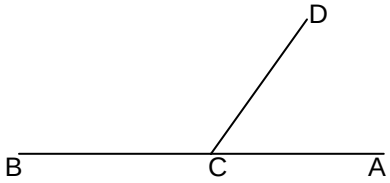
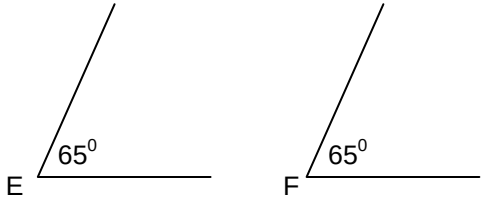
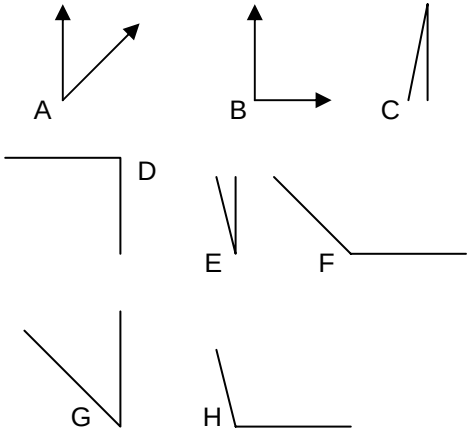
CROSS-CURRICULAR OUTCOMES
CP1B – Examine information related to problem
CP1C – Suggest ways of dealing with the problem.
SP2A – Take part in group activity.
SP2F – Help the group to achieve its goal.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Recommended time – 2 weeks When two lines intersect, they will form four angles. The two angles opposite each other are said to be vertically opposite. Vertically opposite angles are equal. <u>Adjacent angles</u> When a straight line stands on another straight line, two adjacent angles are formed. The sum of two adjacent angles on a straight line is 180^0.	Examine two sets of vertically opposite angles. Name the 4 angles Which pair is equal  Construct two straight lines cut at point O. a) Measure A O C and D O B What do you notice? b) Measure B O C and A O D. What do you notice? Present several flashcard to groups, with adjacent angles. Let them identify and name the straight lines they see.	Understanding concepts.  Do the angles above represent adjacent angles supplementary angles both. If I H J is 70^0 then G H I is ——.

AREA OF STUDY: MATHEMATICS

STANDARD V

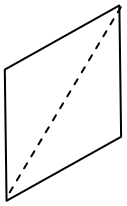
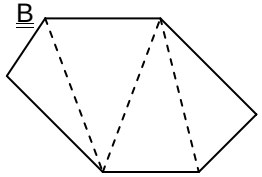
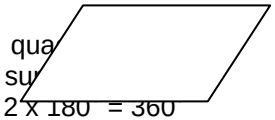
UNIT: 3D Figures

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
2. Congruent angles have the same measure and same length or same shape and same size. The symbol for congruent is ≅.	Let them measure A C D and B C D and find the sum. Compare results with other groups.  A C D + B C D = 180^0 Each group of children will measure angles to find which are congruent.  ↑E is congruent to ↑F ↑E ≅ ↑F Draw 3 pairs of congruent angles. Teacher will measure to check for congruency. Review sides and angles of polygons.	Discriminating between angles. Find 3 pairs of congruent angles.  ↑A ≅ ↑G ↑B ≅ ↑D ↑C ≅ ↑E

AREA OF STUDY: MATHEMATICS

STANDARD V

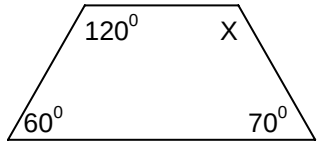
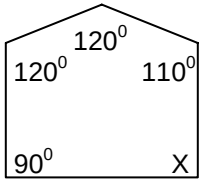
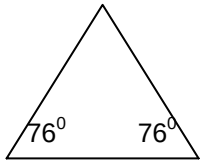
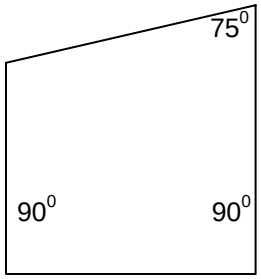
UNIT: 3D Figures

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
3. To find the sum of angles in a polygon use the formula. $S = n \times 180^0$ Where s = sum of angles and n = number of triangles OR $s = t \times 180^0$ Where t = number of triangles. 4. To find the missing angle: $x = s - n$ where x = missing angle s = sum of angles in polygon n = sum of given angles.	1. Let children divide polygons of different sides into triangles. A  B  2. Count the number of triangles present in diagrams. A = 2 B = 4 3. Children use their P.K. of number of degrees in a triangle to work in groups and formulate the formula for number of degrees in a polygon. 4. Children use their P.K. of sides in a figure to calculate sum of angles, using teacher's guidance.	Make a book entitles "Polygons and Their Angles." Draw and label polygons of 3, 4, 5, 6, 7, 8, 9 and 10 sides. Divide each polygon into triangles, using broken lines. Calculate the sum of the angles in each polygon. Display work. View and critique accurateness. Listen to explanations and justifications of answers. Name each polygon. Use a formula to find the sum of the angles. 1. ex. a) qua b) su 2 x 180 = 360 OR $(4-2) \times 180^0$ $2 \times 180^0 = 360^0$ 

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: 3D Figures

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Skills Identify Define Analyse Compare Contrast Solve Label Record Explain Sketch Relate Describe **Attitudes** Participate Interact Appreciate Enjoyment Respect other's opinion share	- Give children the following problem to use their P.K. to solve.  - Assess children's procedures. - Compare results and make conclusions of method used.	Find the degree measure of x in each polygon.   

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: 3D Figures

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
SL4.a: interpret simple forms, notes, messages, and follow instructions and directions. M4.a make and apply reasonable approximations by observing and/or using factual data based on meaningful references. EA1.h explore and experiment with styles, methods and techniques that have been used to create artistic representations.	New Common Entrance Mathematics, Second Edition Walter Phillips Mathematics for Caribbean Schools Book I Longman Caribbean Althea A Foster Addison – Wesley Mathematics

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Decimals

AREA OF STUDY OUTCOMES
Pupils should:
M2a Draw and construct three dimensional objects

CROSS-CURRICULAR OUTCOMES
SP2F Help the group to achieve its goals

SP2G Help to create consensus.

<table>
<tr><th>CONTENT ORGANIZED INTO MANAGEABLE SETS</th><th>SUGGESTED TEACHING/LEARNING STRATEGIES</th><th>SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT</th></tr>
<tr>
<td>Duration – 2 weeks

A 3D figure is also called a solid figure. It takes up space and has three dimensions namely; length, width and height.
All solids have faces. A face may be flat (plane) or curved.
Most solids also have edges. An edge is a line where two faces meet. Edges may be curved or straight.
A vertex is a point or corner where edges meet.
A prism is a solid figure that has a pair of parallel faces.</td>
<td>Children should:
Draw rectangle on paper
Identify and name number of dimensions
Fold paper into cylinder matching edges of the rectangle.
Identify and name number of dimensions.
Research definitions of terms – face, edge, vertex
Group discussion of definition
Record

Complete the following table:
(Make observations of manipulatives).
<table>
<tr><th>Shapes</th><th># of Vertices</th><th># of Edges</th><th># of Faces</th></tr>
<tr><td>Ex:Cube
Cuboid
Rectangular Prism
Hexagonal Pyramid</td><td></td><td></td><td></td></tr>
</table>
</td>
<td>Free reponse journal entry based on three dimensional objects.
Share journal with peers,

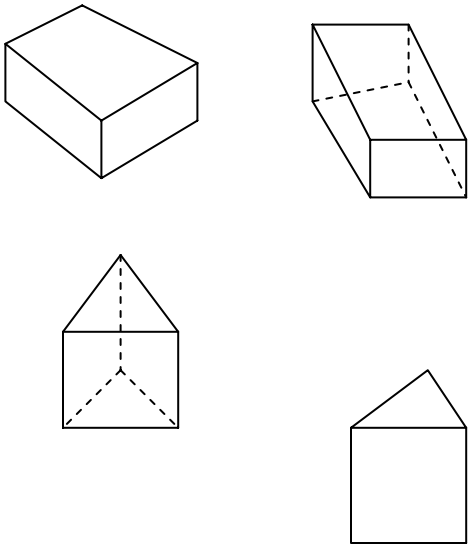
Guided questions:
Identify solids in the class.
How many faces do they have?
How many edges do they have.

Models or objects representing prisms and pyramids.
Examine models
Discuss similarities and differences
Suggest that children begin collecting 3D objects to build a class sculpture.
Hold intermediate discussion as sculpture progresses.
Make reflective journal entries.
Label figures.</td>
</tr>
</table>

AREA OF STUDY: MATHEMATICS

STANDARD V

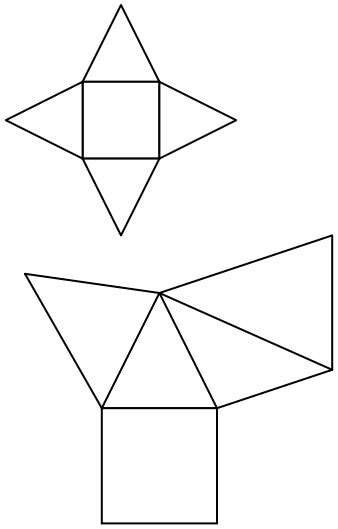
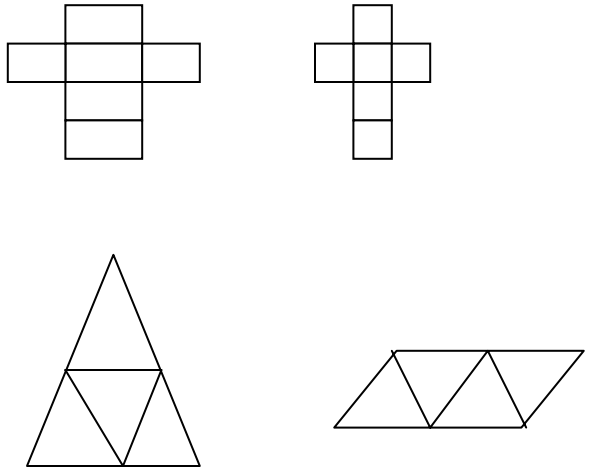
UNIT: Decimals

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A pyramid is a 3D figure that has a polygon for the base and triangular sides that meet at a point called the vertex. The number of faces, edges and vertices of the solids differ. Sketches can be made of 3D objects. Prisms and pyramids can be constructed using nets. **<u>Skills</u>** Identify Label Classify Compare Contrast Sketch Define Demonstrate Construct Examine Explain Visualize Experiment	Children observe and make skectches of three dimensional figures. 	Observe - displayed work. participation level co-operation

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Decimals

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
<u>Attitudes</u> Willingness to Participate Experiment Share Cooperate Respect opinion of others Be industrious	Use objects to make nets. Eg. matchbox trays, chalkbox. Cut edges and flatten shapes to make open nets. Compare nets Sketch nets ofr solids eg. triangular prism, square base pyramid  Experiment with nets to construct solids.	Problem Solving: Name figures that could be formed from each net.  Question and analyse how well children can explain.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Decimals

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
WT1a. Design a device to meet a need/solve a problem WT1c. Construct a simple device to meet a need/solve a problem. EA1e. Explore and experiment with styles, methods and techniques that have been used to create artistic representations.	The World book of Math Power bk1- World Book Inc. Middle Grade Math Tools for Success – Prentice Hall Exploring Mathematics bk 7& 8 Mathematics for Caribbean Schools bk1 Common Entrance Mathematics – Stanley Thornes Ltd. Objects from environment Models of 3D objects.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Decimals

AREA OF STUDY OUTCOMES
Pupils should:
M2a Draw and construct three dimensional objects.

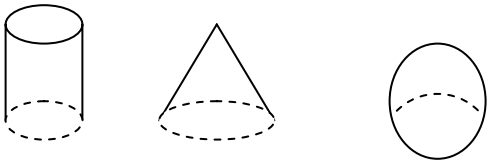
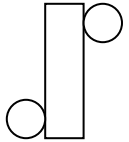
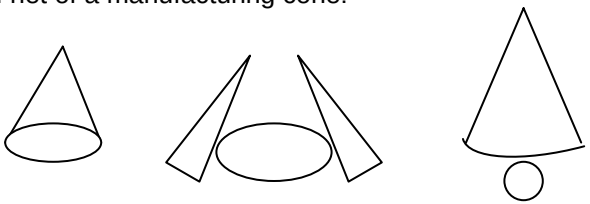
CROSS-CURRICULAR OUTCOMES
SP2F Help the group to achieve its goal.
SP2G Help to create consensus.
CP1.c Suggest ways of dealing with problem/issue.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Recommended Time: 2 weeks A 3D figure takes up space and has 3 dimensions. Three three dimensional figures are cones, cylinders and spheres. A cone is a 3D figure that has a closed curve for a base and a surface that comes to a point or vertex. A sphere is the space version of a circle. It considt of a set of points all at a fixed distance from a given point. Any plane cut through the center of a sphere will give two identical parts and the cut forms a circle. Half a sphere is called a hemisphere.	Display models of cones, cylinders and spheres. Observe Identify and name models. Discuss properties – faces, edges, vertices. Complete the table: Figure | Base | Name of Figure  _____	Vocabulary: Match each three dimensional figure with its description. sphere cone cylinder The set of all points in space that are an equal distance from a given point. A figure formed by two congruent circular regions joined by a curved face. Manipulatives/Group Work Have children work in group of 2-3 to create a model in the shape of a cylinder, sphere or cone. Name each solid 1. 2. 3.  _____ _____ _____

AREA OF STUDY: MATHEMATICS

STANDARD V

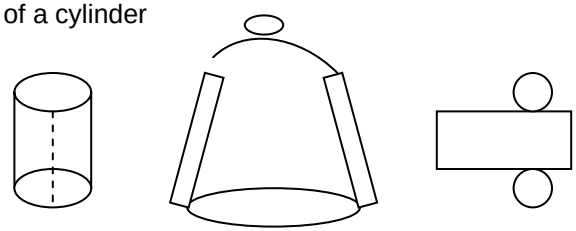
UNIT: Decimals

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
4. A cylinder has two plane faces and one curved face.	Write as many names of everyday objects that resemble cones, spheres and cylinders. Draw and cut bases and faces, taping them together to make 3D objects.	Observe displayed work Participation level Cooperation.
Sketches can be made of 3D objects.	Children observe and make sketches of 3D objects. 	Name figures that can be formed from each net.  Design a unique 3D figure, using either a cone or a cylinder. Name it and think of a use for the design.
Cones and cylinders can be constructed using nets. A net of a solid is the plane shape obtained when a solid is cut along its edges then flattened out.	Use models to make nets. Cut edges and flatten shapes. Compare nets. Sketch nets for solids Experiment with nets to construct solids. Discuss the use of these geometrical solids Ex. net of a manufacturing cone: 	Collect 3D objects. Connect objects. Connect objects with wine or glue to create a geometric sculpture.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Decimals

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Skills Identify Compare Draw Construct Define List Sketch Explain Examine Visualize Attitudes Willingness to Participate Experiment Share Cooperate Respect opinion of others Be industrious	Net of a cylinder 	Design a unique 3D figure, using either a cone or a cylinder. Name it and think of a use for the design. Collect 3D objects. Connect objects with wine or glue to create a geometric sculpture.

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Decimals

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
WT1a – design a device to meet a need/solve a problem. WT1c – construct a simple device to meet a need/solve a probem. EA1e – explore and experiment with styles, methods and techniques that have been used to create artistic representations. EL1d – apply functional reading skills in the selection, reading and interpretation of data. EL1b – demonstrate fluency through appropriately applying word identification strategies.	Exploring Mathematics – Scott Foresman & Co. Common Entrance Mathematics – Stanley Thornes Ltd Mathematics for Caribbean Schools bk1 Longman Caribbean Certificate Mathematics A Revision Course for the Caribbean A Green & CE Layne (3 Edition) Bristol board, drawing paper, models

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Decimals

AREA OF STUDY OUTCOMES
Pupils should:
M1.a – Place value in numbers up to ten digits.
M1.b – The consecutive sequence and position of numbers 1 – 9,999,999,999.
M1.c – Quantity in numbers 0 – 9,999,999,999.
M1.e Learn base of other number systems

CROSS-CURRICULAR OUTCOMES
SP2.F – Help the group to achieve its goals.
CP1.b – Examine information related to the problem/issue.
SP1.c - Take action based on principled choice
SP2.a – Take part in group activities
SP1.a – Recognize the values associated with choices.
SP1.b – Choose between alternatives based on values

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
1. A decimal number can be read, written or expressed in different ways, Words Figures Scientific Expanded	Suggested strategies from Std V can be used in Std VI using ten digit numbers. Others: Use graph sheets to show decimal numbers.  2. Writing decimal numbers in expamded scientific and standard forms.	Suggested strategies from Std V can be used in Std VI using ten digit numbers. Others: Reading and recording measuring devices. Rearranging decimal digits. Eg: 1 2 3 4 The number nearest to 1 — 1.234 2. The number nearest to 50 — 43.21

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Decimals

<table>
<tr><th>CONTENT ORGANIZED INTO MANAGEABLE SETS</th><th>SUGGESTED TEACHING/LEARNING STRATEGIES</th><th>SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT</th></tr>
<tr>
<td>A sequence is a list of decimal numbers written in order. Each decimal number in the sequence is called a term.

Decimal numbers can be compared by comparing digitd place by place.

Decimals are rounded just as whole numbers.</td>
<td>Suggested strategies from Std V. can be used in Std VI.

Group activity:

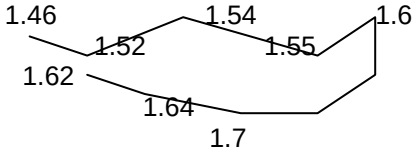
Each member writes down any decimal number (between 0 and 1) and draws a model for the number. They'll sequence their numbers.

Use number line to compare decimals.
Use inequality signs to compare decimals.

4. Suggested strategies from Std V can be used in Std. VI using ten digit numbers.

Rounding decimals using the front end method:
Use of number line
Rounding decimal number distances.
Round money to the nearest cents and dollars.</td>
<td>2. Complete chart

<table>
<tr><th>Substance</th><th>Density</th><th>Expanded Form</th><th>Scientific Form</th></tr>
<tr><td>Water</td><td>1.00</td><td></td><td></td></tr>
<tr><td>Zinc</td><td>7.14</td><td></td><td></td></tr>
<tr><td>Calcium</td><td>1.54</td><td></td><td></td></tr>
<tr><td>Hydrogen</td><td>0.07099</td><td></td><td></td></tr>
</table>

Maze ⟶ sequencing decimal numbers in ascending or descending order.
Eg:
 

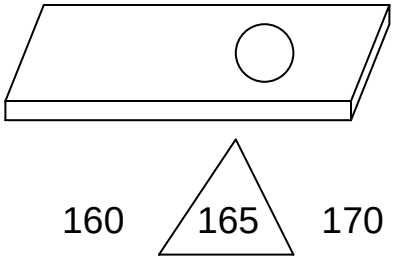
Journal:

Pupils will compare decimals using the populations of two towns.</td>
</tr>
</table>

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Decimals

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Skills Read Arrange Construct Write Explain Draw Compare **Attitudes** Cooperate Share Respect Tolerate Understand Enjoy		Writing journal: Explain giving illustrations the rule for rounding decimals. Portfolio assessment on decimals. Rounding numbers using balance beam: Eg  167 = 170

AREA OF STUDY: MATHEMATICS

STANDARD V

UNIT: Decimals

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
SL4.a: Interpret messages and follow instructions and directions. ELc: Demonstrate the ability to write for a specific purpose. EL3b: Produce written work that demonstrates effective English usage and grammar. EL4b: Use speech for self fulfillment.	Mathematics Volume 1 Silver Burdett Ginn. New Progress in Mathematics Rose Anita McDonnell Heath Mathematics Connections Volume 2 Level 4 Materials: Graph sheets Measuring devices Work cards Number cards Maze Balance beams

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Data Handling

AREA OF STUDY OUTCOMES
Pupils should:
M1.e Learn base of other number systems

CROSS-CURRICULAR OUTCOMES
SP1.c – Take action based on principled choice
SP2.a – Take part in group activities.
SP1.a – Recognize the values associated with choice.
SP1.b – Choose between alternatives based on values.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Place Value to Billions Place value – the value of a digit depending on its position or place in a standard numeral. Eg. 843, the 4 is in the tens place and means 4 tens or 40 Our system ofnaming numbers is based on ten. Place value is used to express whole numbers and decimals. Eg.324 and 3124 Each place has a value ten times the value of the place at its right. To read a standard numeral Start at the left.	**Group Activities** Bring and share newspaper on magazine articles containing large numbers & decimals used in science and other areas. Design and construct place value chart from numbers in the articles. PLACE VALUE 0 0 5 3 1 ← 0.0531 1 6 2 3 0 5 1 . ← 1,623,051	Math Journal Write a rule explaining if interchanging the digits within each number changes the value of each Other exercises for independent work.

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Data Handling

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Read the digits within a period; then say the name of that period. Continue in the same way reading each group of digits; then name the period. Two distinct concepts involved Naming the place and telling the value of the digit in that place. The place and value of the place do not change from numeral to numeral. Thus, the tens place is the second place to the left of the decimal point and its value is ten in every numeral. Name the period: Eg: 8, 961 238 thousands 649 736 145 ones Practical work involving real life situations The word "and" is not used in reading whole numbers.	Apply procedure for reading standard numerals and decimals. Problems dealing with money in regard to buying and selling.	

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Data Handling

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Place value chart is extended to include numerals for numbers less than 1. Such numbers are called decimals. To read standard numerals for a decimal: Read the whole number part first (if there is one) Read the decimal point as and Read the decimal point as you would a whole number ending with the name of place of the last digit. Expanding notation using Exponents Expanded notation can be written in several ways. Eg. the multiplicative property is used Eg. 785 = (7 x100) + (8 x 10) + 5	Group activities: Game cards – one set write numbers in factored form Other set write the exponential form for these numbers. Match cards. Elicit and discuss with class, pairs of numbers whose product is 100, 1000 etc. Practice and discussion on assigned exercises.	Checklist assessment on group acitivity e.g. Participation Accuracy Cooperation Journal entry acitivity: Imagine you are going to present a monetary gift to your school which has 20 figures. Show what this figure looks like in expanded form.

AREA OF STUDY: Mathematics

STANDARD VI

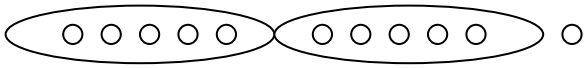
UNIT/THEME: Data Handling

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Exponential notation can be used Eg. 4692 = (4 x 10 x 10 x10) + (6 x 10 x 10) + (9 x 10) + 2 $4 \times 10^3 + 6 \times 10^2 + 9 \times 10^1 + 2$ Exponent – a number that tells how many times a number, called the base, is used as a factor. Exponents are used to express numbers that are products of the same factor. $10^{3 - \text{exponent}}$ base 10 used 3 times $10 \times 10 \times 10 = 1000$ Any number, to the first power is that number; $10^1 = 10$ Any number, except zero, to the zero power is 1 : $10^0 = 1$	Encourage students to look for patterns to help them find rules that will aid them in computation. <u>Art Link</u> Make sets of cards for Matching Game.	Checklist on rules and game created. E.g. Creativity Accuracy Listening skills Sharing

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Data Handling

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Base – is the number used as a factor Factor – one or two or more numbers that are multiplied to form a product. Exponential notation is a shortcut for writing a number in which a single expression is used as a factor several times. Bases: In our number system we use ten digits (or numerals) 0,1,2,3,4,5,6,7,8,9 to write all our numbers. Our system is therefore called a base ten number system. Besides base ten there are other number bases. Each number base uses a different number of numerals. Eg. base five used 0,1,2,3,4	Recall procedures for expanding base ten numerals Eg. 2,567 = (2 x 1000) + (5 x 100) + (6 x 10) + (7 x 1) (2 x 10^3) + (5 x 10^2) + (6 x 10^1) + (7 x 10^0) involve children in a trial and error activity expanding numerals in base 2,3,5 or 8 eg. 2334 = (2 x125) + (3 x 25) + (3 x 5) + (4 x1) = (2 x 5^3) + (3 x 5^2) + (4 x 5^1) + (4 x 5^0) Group objects to represent numbers in base 5 Eg.  $11 = 21_5$ Repeat the process for other bases. Use the idea of expansion to convert any numerals of any base to base 10. Eg. Convert 13_5 to base 10 13_5 (1 x 5) + (3 x1) 5 + 3 = 8_{10}	Construction of place value chart for each base 2,3,5,8. Involvement in practical activities. Teacher made test.

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Data Handling

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
	Use repeated dvision to convert base 10 numeral to other based. Eg. Convert 8 to base 5 $8 \overline{)\ \ }$ 1 + 3 The number is read off as 13_5	

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Data Handling

AREA OF STUDY OUTCOMES
Pupils should:
M4b – Predict the likely occurrence of an event through logical reasoning, based on trends.
M5a – Collect, analyze and interpret data and predict probable outcomes.

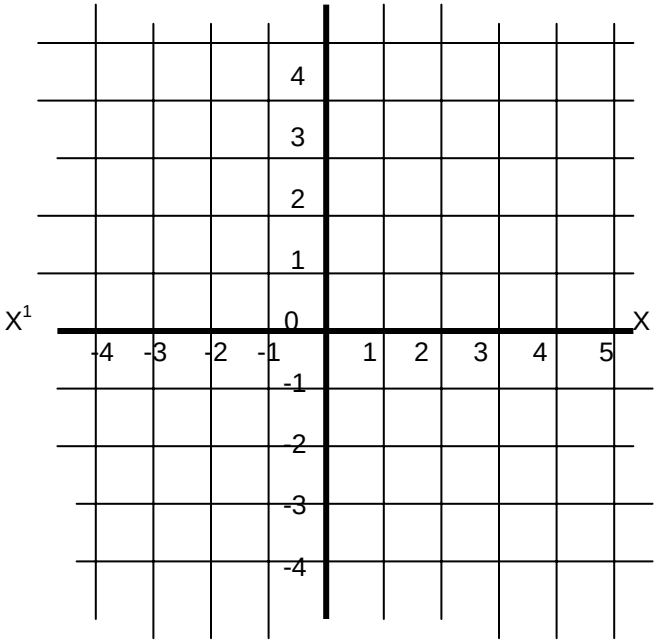
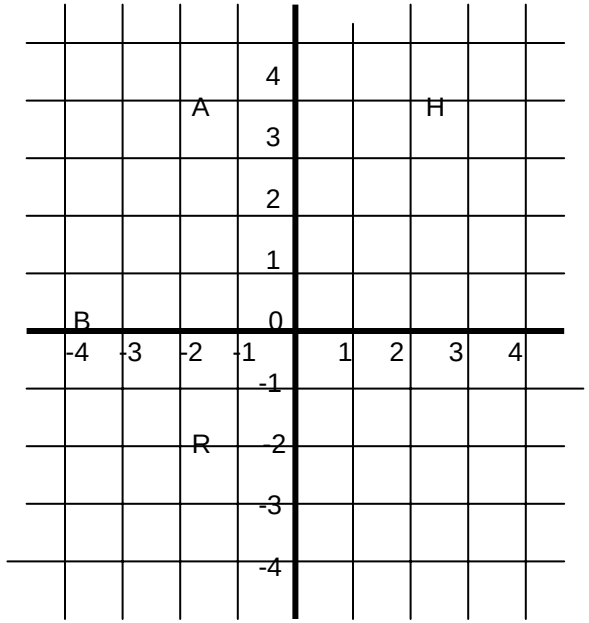
CROSS-CURRICULAR OUTCOMES
CP1.c Suggest ways of dealing with the problem/issue.
SP2.a – Take part in group activities.
SP3.b – Assess progress in relation to achievement of goals and adjust goals or strategies as necessary.

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Statistics is a systematic collection, organizaton and interpretation of a set of data. Data can be collected by many means including looking in books or encyclopedias or by making a survey. Data is facts and information. Data can be displayed on graphs and frequency tables. A graph is a method used to picture data in a clear, interesting and meaningful way.	Brainstorm in groups what children recall about Data. Eg. recording information using graphs tallying different graphs Distribute typing sheets Demonstrate what they recall about a graph assigned to them.(drawing) Present and share what each group drew. Discuss concepts of graphs to show co-ordinates. Review x and y axis and also quadrants. Identify co-ordinate points Plot some examples of co-ordinates.	Label the quadrants on the graph below Plot the following co-ordinates (0,2), (2,3) etc. Name the point located by the ordered pair. (+2),-1) etc.

AREA OF STUDY: Mathematics

STANDARD VI

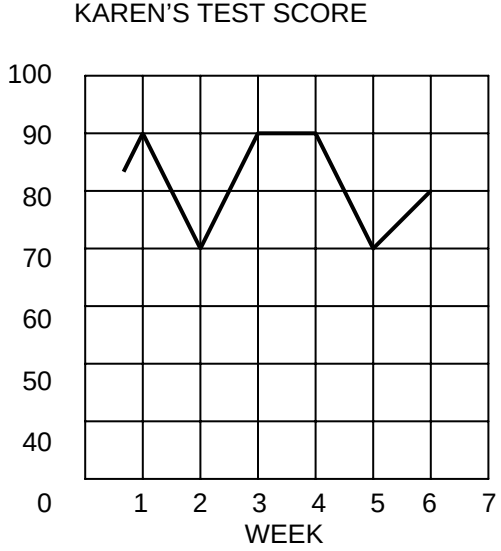
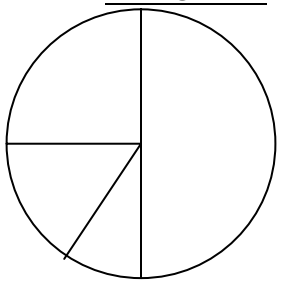
UNIT/THEME: Data Handling

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
	 Plot the points (+3,=4), (-3,+4) (-3,-2), (+3,-2)	 Use your graph paper to plot coordinates.

AREA OF STUDY: Mathematics

STANDARD VI

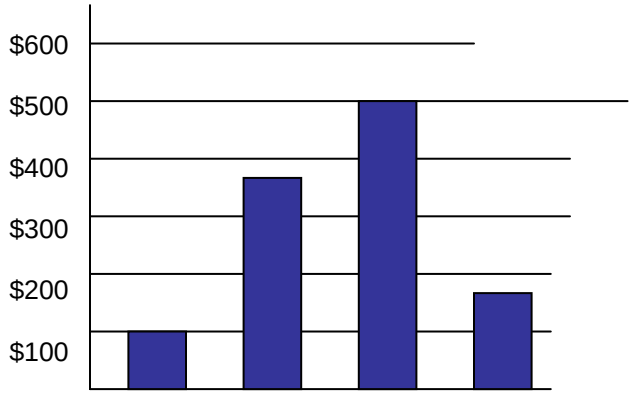
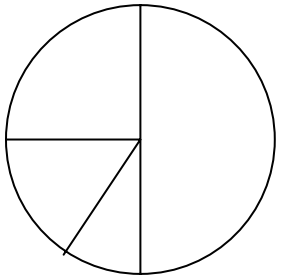
UNIT/THEME: Data Handling

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Bar graphs are used to show comparison. Circle graph are usd to show the parts related to a whole Line graphs are used to show change over time. Pictograph are very effective visual tools for showing data. Stem and leaf graph are used to organize data.	Name and discuss these graphs below.  LINE GRAPH  CIRCLE GRAPH	Make a bar graph showing the types of books the students favored. The chart shows the types of books preferred by students in Mr. Smiths' class. Books / No of Students Mystery 10 Science Fiction 7 Comedy 3 History 4 Be sure to : title of graph label the horizontal and vertical axes. accurately graph the data.

AREA OF STUDY: Mathematics

STANDARD VI

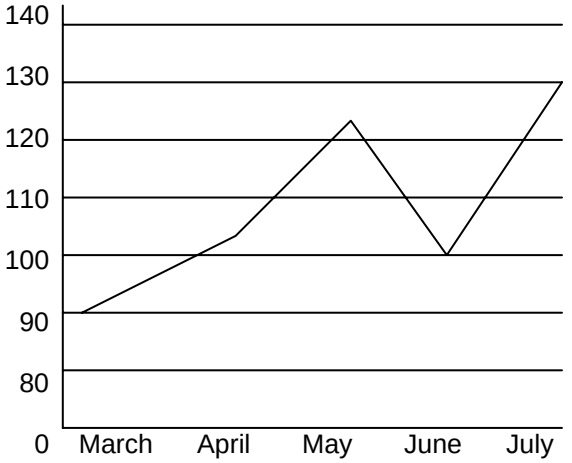
UNIT/THEME: Data Handling

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
	Blue fish Caught in Dangriga III SATURDAY SUNDAY MONDAY TUESDAY (1 fish represent 10) PICTOGRAPH IV Income from Fund Raising  BAR GRAPH	Look at the circle graph below.  What fruit is least likely to be brought in the cafeteria? What fruit is most likely to be bought in the cafeteria?

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Data Handling

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A circle graph shwo parts of a whole. You can use decimal or fraction to divide the circle. To make a circle graph you need to find the number of degrees represented by each part. Since there are 360^0 in a circle, multiply the fraction or decimal for each part by 360^0.	V Stem | Leaf 188 0237 138 03568 12 STEM AND LEAF GRAPH Develop an equivalent chart with pupils. Fraction | decimal | percent ¼ | .25 | 25% ½ | .50 | 50% ¾ | .75 | 75% etc Provide practise in finding percent of 360^0. Eg. 75% of 360 $\frac{\cancel{75}^{3}}{\cancel{100}_{4}} \times \frac{\cancel{360}^{90}}{1} = 270^0$	Use the information in the table to complete the line graph. Then use the graph to answer the questions. Visitors to the Belize Zoo March | April | May | June | July 90 | 110 | 125 | 100 | 130  eg. 1) The table gives data for 6 months. How many months are shown on your completed line graph --------.

AREA OF STUDY: Mathematics

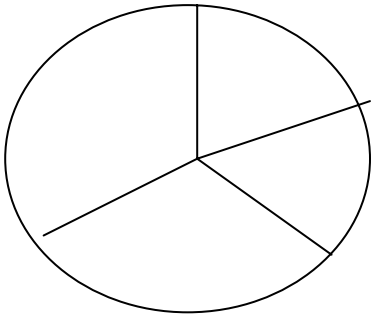
STANDARD VI

UNIT/THEME: Data Handling

<table>
<tr><th>CONTENT ORGANIZED INTO MANAGEABLE SETS</th><th>SUGGESTED TEACHING/LEARNING STRATEGIES</th><th>SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT</th></tr>
<tr>
<td>A frequency distribution table shows the number of times each piece of data occurs.

A cumulative frequency is the total frequency of all scores up to and including the score given.</td>
<td>Complete the following table below; then draw a circle graph for each.

<table>
<tr><th>Fruit</th><th>Percent</th><th>Degrees</th></tr>
<tr><td>Apples</td><td>35%</td><td>126^0</td></tr>
<tr><td>Peaches</td><td>30%</td><td>108^0</td></tr>
<tr><td>Oranges</td><td>20%</td><td>72^0</td></tr>
<tr><td>Pears</td><td>15%</td><td>54^0</td></tr>
<tr><td></td><td>100%</td><td>360^0</td></tr>
</table>
Use a protractor to determine or divide the pie chart into degrees.

  </td>
<td>Make up a table and a circle graph for each of the following .
In a recent election for class president 35% of the students voted for Arturo, 25% for Pedro, 30% for Anita and 10% for Carlos.
On a form there are 20 horses, 40 cows, 30 hogs and 30 sheep.

Answer the following questions using the table previously discussed.

How many pupils scored 80%?
What is the frequency of the score 90?
How many pupils scored 80 or less?
What is cumulative frequency of 100? etc.

Display results on wall along with chart.</td>
</tr>
</table>

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Data Handling

<table>
<tr><th>CONTENT ORGANIZED INTO MANAGEABLE SETS</th><th>SUGGESTED TEACHING/LEARNING STRATEGIES</th><th>SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT</th></tr>
<tr><td></td><td>Brainstorm in groups what they can recall about the frequency distribution table.
Discuss the parts of a distribution table.

<u>Pupils test scores.</u>

<table>
<tr><th>Score</th><th>Tally</th><th>Frequency</th></tr>
<tr><td>60
70
80
90
100</td><td>II
II
III
IIII
I</td><td>2
2
3
4
1</td></tr>
<tr><td>Total</td><td></td><td>12</td></tr>
</table>

Explain cumulative frequency.
Discuss the definition of the term average.
Explain how to calculate the means of a set of data using the frequency table.ex</td><td></td></tr>
</table>

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Data Handling

<table>
<tr><th>CONTENT ORGANIZED INTO MANAGEABLE SETS</th><th>SUGGESTED TEACHING/LEARNING STRATEGIES</th><th>SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT</th></tr>
<tr>
<td>The mean or average is the sum of a group of number divided by the number of addends.

Averages can be calculated from a frequency distribution table.

The median is the middle number in a group of numbers arranged in numerical order.
When there are two middle numbers the median in the mean of the two middle numbers.</td>
<td>Scores in a Science Test
<table>
<tr><th>Scores</th><th>Tally</th><th>Frequency</th><th>Score Frequency</th></tr>
<tr><td>100</td><td>I</td><td>1</td><td>100</td></tr>
<tr><td>90</td><td>II</td><td>2</td><td>180</td></tr>
<tr><td>80</td><td>IIII</td><td>4</td><td>320</td></tr>
<tr><td>70</td><td>~~IIII~~ I</td><td>6</td><td>420</td></tr>
<tr><td>60</td><td>IIII</td><td>4</td><td>240</td></tr>
<tr><td>50</td><td>I</td><td>1</td><td>50</td></tr>
<tr><td>Total</td><td></td><td>12</td><td>960</td></tr>
</table>
Thus . Means = $\frac{\text{sum of scores}}{\text{Number of elements in set}}$
= $\frac{960}{12} = 80$

Note that when dealing with a lot iof scores, a frequency table is used.
Distribute a set of cards with numbers to children.
Arrange cards in order from least to greatest
Find the Central number.
Discuss that, that is the median.</td>
<td>Find the mean of each of the following using the formula discussed.
Eg. a) 18, 23, 19, 19, 21
Sum of Scores
No. of elements

$\frac{18 + 23 + 19 + 19 + 21}{5} = \frac{\cancel{100}}{\cancel{5}} = 20$

{11, 5, 16, 20, 3}
{127, 135, 118, 120, 125, 124, 126}

The Median Game
Place cards arranged at random on the chalk board.

13 10 12 11 10

A volunteer student arranges cards in order from smallest to largest.

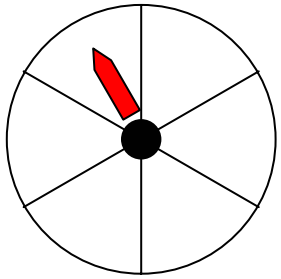
10 10 11 12 13

Student now remove cards simultaneously from each end until only the middle one or two are left.
If one remains that is the median.
If two remains calculate to find the median.</td>
</tr>
</table>

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Data Handling

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
The mode of a group of numbers is the number that occurs most often. There may be one mode, more than one mode, or no mode at all. Probability can help you predict what the result of an experiment might be. Skills Draw Collect Analyze Interpret Predict Explain Compare Label Specify Conclude Record Demonstrate Arrange Identify Survey	Note that if there are two Central numbers, add it and find the means. Eg. a) Consider this series of scores: 13, 14, 17, 19, 25 The median is 17 b) 20, 30, 35, 40 $\frac{30+35}{2} = \frac{65}{} = 32\frac{1}{2}$ The median is 32½ Have children look up the meaning of mode in their dictionaries. Write and discuss the definition on the chalkboard. Present a set of data for Steve's math score on a chart. Eg. { 60,60,70,80,80,90} There are two modes 60 and 80. Brainstorm in groups what probability is. Show what you recall about probability. Label the sides of a number cube with numbers 1, 2, 3, 4, 5 and 6. Eg. Use cube. How many outcomes are possible? Name each outcome. Ans. 6 outcomes; 1, 2, 3, 4, 5, 6. b) Are al of the outcomes on a number cube equally likely? Tell why or why not.	The following is a set of mathematics test scores made by 20 pupils. 75, 70, 80, 85, 85, 85, 55 60, 60, 75, 95, 50, 65, 55 75, 80, 65, 75, 55, 90 Find the median of the set of scores. Find the mode of the set of scores. Find the mean of the set of scores. II Conduct a survey to find the weight of pupils in class VI. Arrange the data Analyse data to find means, mode and median of survey. Enter in Journals. Use materials to make a spin wheel in groups. Eg. 

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Data Handling

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Observe Calculate Discuss Graph Plot Illustrate Divide Tally Choose Attitudes Understand Participate Responsibility Leadership Independence Co-operation	Ans. Yes each appears on only one equal side of the cube.	How many favorable outcomes are there for How many possible outcomes are there? Name them.

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Data Handling

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
EL2.a – Respond sensitively and appropriately to auditory and visual stimuli. EL1.a – Use content clues and cues effectively to communicate when reading orally. SL4.a – Interpret simple forms, notes messages, and follow instructions and direction. EL 3.c – Demonstrate the ability to punctuate and capitalize written work. WT1.a – Identify a simple problem/need. EA1.e – Explore and experiment with style, methods and techniques that have been used to create artistic representations.	New Progress Maths – Rose Anita Mc Donnell Certificate Maths – A Greer & C.E. Layne Refresher Maths – Stein Active Maths – E.A. Guiterrez and other educators. Math Advantage – Harcourt Brace Middle Grade Maths – Prentice Hall Course I Heath Mathematics Connections Teacher's Edition Level 4 Exploring Maths – Scott, Foresman & Company <u>Materials</u> Graph paper Flash cards Charts Crayons Markers

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Data Handling

AREA OF STUDY OUTCOMES
Pupils should:
M3b Use and convert money based on its relative value and its use in financial transaction.

CROSS-CURRICULAR OUTCOMES
CP1.b Examine information related to the problem/issue.
SP1.b Choose between alternatives based on value.
SP2.a Take part in group activities.
SP2.e Lead and follow where appropriate.
SP2.f Help the group to achieve its goals

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
The value of currencies fluctuate depending on economic situations. Profit or loss is determined by the selling price. In a profit situation, the selling price equals the sum of the cost and the gain. In a loss situation, the selling price equals the cost minus the gain. When the selling price is reduced there is a discount.	Make a collection of kinds of foreign currencies (notes, coins) Research on and make a chart showing the various currencies and their present value. Use the rate of exchange to convert foreign currencies to Belize currency of any amount and vice versa. Field trip to Mexico (Chetumal) or Guatemala (Melchor) Problem solving dealing with the conversion of money. Eg. Mom has $150 Bz to buy curtain material in Chetumal. the material cost 60,000 pesos. How much Bz. dollars does she have after she buys her material? Interview business people. Make a record of types of goods sold cost price and selling price profit or loss discount	Use checklist to evaluate pupils' collection of money, appearance, organization effort etc. Complete a table of foreign exchanges in group. Presentation anfd explanation of table. Oral group reports on field trip. Interpretation and analysis of data collected. Presentation and critique of problems. Ability to calculate accurately: profit, loss, selling price, cost price or discount.

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Money

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
The gain or loss percent is the percentage of the cost that the merchant gains or loses when he sells the article. The rate of discount is the percent taken off the selling price. Interest is the money paid for the use of money borrowed or the money earned for money that is saved. Principal is the amount borrowed or saved. Rate is a percent charged or offered by the bank. Time is the length of time the money is borrowed or is in the bank.	Let children formulate their own problems. Complex problem solving involving profit and loss. Eg. Mr. Young sold his boat which cost $3500 at a loss of $150. How much was it sold for? Revision of formulas Using data collected from previous interviews calculate the profit, loss and discount percent. Complex problem solving involving profit, loss and discount percent. Eg. A refrigerator was marked down in price from $2490.50 to $1990.60 during a sale. What was the rate of discount? Name and explain the terms which relate to simple interest. Write a rule to find simple interest, rate, time, principal and amount. Allow children to conduct a survey on the interest rates offered or charged at the local banks and credit unions. Compare and contrast the different rates. Problem solving finding simple interest, rate, time, principal and amount using the formulae. Eg. Mr. Flores bought a car for $2790. He paid 1/3 of the cost and borrowed the rest. He paid 10% simple interest on his loan. How much interest did he pay on the loan in one year?	Application of formulas to calculate profit, loss and discount percent. Explanation using appropriate language. Accuracy of the rule. Eg. How do you find simple interest. Accuracy of the collection, recording and organization of data. Application of formula to calculate simple interest, rate, time, principal and amount. Participation, clarity, accuracy of terms. Journal entry: formulas transaction explanations problem encountered

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Money

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<tr>
<td>Commission (C) is the amount of money paid ta an agent for selling goods or services.
Rate of commission (R) is the percent of the total amount of goods or services sold that is earned by the agent.
Total sales (TS) is the total amount of goods or services sold.
C = TS x R
R = C/TS
TS = C/R

Taxation
A tax is a compulsory payment made by citizens to their government . Some types of tax collected in Belize are:
income tax
land tax
sales tax
business tax
property tax
custom duties
social security</td>
<td>Through brainstorming activity elicit from children the meaning of commission and relative terms.
(rate/total sales)

Role Play
Set up a business firm and let children act out roles of manager and agents. This can be done in groups.
Let them formulate rules to find commission rate and total sales.
Calculate the total sales made.
Decide on the rate of commission.
Calculate to find the commission.

Problem solving involving commission, rate of commission and total sales
Eg. Mr Collins received $1560 to buy merchandise. He deducted $65 for his commission. What was the rate of commission.

Group projects and presentation .
Organize groups and have each research on a type of tax.
i,e a) definition
b) reason tax is collected
c) who pays taxes
d) departments responsible for collecting
e) derivation of tax/ valuation/ rates</td>
<td>Complete a table by inserting the missing term.
Eg.
<table>
<tr><th>Total Sales</th><th>Rate of Commission</th><th>Commission</th></tr>
<tr><td>$610</td><td>30%</td><td>?</td></tr>
<tr><td>?</td><td>6%</td><td>$396</td></tr>
<tr><td>$50</td><td>?</td><td>$6.25</td></tr>
<tr><td>?</td><td>4%</td><td>$36.80</td></tr>
<tr><td>$7000</td><td>?</td><td>$525</td></tr>
</table>
Checklist to evaluate presentation, neatness, organization, relevance, oral expression, appropriate language, etc.

Develop questions and conduct interviews.
Record field experiences

Accuracy of computational skills.</td>
</tr>
</table>

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Money

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Budgeting is a plan to spend money wisely. Institutions such as the family and school develop budgets. The government also develops a yearly budget to show how it operates financially. Budget terms often used are income, expenditure, allocation, deficit, surplus assets.	Have students investigate the sales tax in their community. Try to obtain a sales tax table used by merchants to compute tax and discuss its use. Have students cut out pictures of items from newspaper of catalogues. Have them compute the sales tax on these items using their local rates. Fill out income tax forms with assistance from income tax personnel. Problem solving to calculate taxes. Eg. A home is assessed at $15,800 and the tax is $711. What is the tax rate? Have students construct personal budget showing how their allowance is allocated. Discuss fixed expenses as opposed to varied expenses. Discuss how their budgets might be adjusted to use their money wisely. Brainstorming activity to familiarize students with budgeting terms. Have students research through interviews how government (local/central) operates financially. Construct a circle graph to show income allocations.	Ability to follow instructions. Accuracy of computational skills. Construction of budget and thrift in allocation of funds. Development of questions constructing interviews . Recording data. Construction and accuracy of graph. Reporting their field experiences. Oral expression.

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Money

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Billing is a note of charges for services rendered. Some bills are: - Electricity - water - telephone - cable - grocery Ratio Ratio is the comparison of two numbers or quantities by division. 9. Proportion A proportion is a mathematical sentence which states that two rates are equal. A proportion can be direct, indirect or positive. In an indirect or inverse proportion one quantity is decreased as the other is increased.	Plan a trip to National Assembly to observe and listen to the reading of the budget speech or have them listen to it on national radio and make presentations of particular areas. Revision Listing of public services rendered in their community. Examine old bills. Discuss the different features on the bill eg. account number, service address, billing date, due date,meter reading, consumption etc. Have groups of students read different metres in their own homes. Then use the local rates (obtain them from local utility company) to create a fictitious bill for a week/month of service. Problem solving involving calculation of utility bills and grocery bills. Write problems which require the use of ratio to solve. Eg. On a test with 50 questions, there were 15 fraction problems to the total number of problems on the test? Present proportions. Have students identify the means and extremes in each. Cross multiply to prove that the proportion is true. Team competition to prove whether given ordered pairs are proportions.	Oral interpretation and explanation of features. Use of appropriate language. Name and describe. Collect and analyse. Recording, observing, reading and writing skills accuracy of computation of bills group reports. Ability to calculate means and extremes. Participation

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Money

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
	Present scenarios to bring out the concept of indirect proportion. Eg. Form 2 groups; one with 5 pupils and one with 2 pupils. Give eac group 10 biscuits. Have each group eat the biscuit and record the time. Discuss why one group finished before the other. Form a proportion from the scenario and solve. $\frac{\text{Pupils}}{\text{Pupils}} = \frac{\text{time}}{\text{time}}$ $\frac{5 \text{ pupils}}{2 \text{ pupils}} = \frac{2 \text{ mins}}{x}$ $\frac{\text{large}}{\text{small}} = \frac{\text{large}}{\text{small}}$ $\frac{5 \text{ pupils}}{2 \text{ pupils}} = \frac{x}{2 \text{ mins}}$ $\frac{5 \times 2}{2x} = \frac{10}{2x}$ $x = 5$ mins Problem solving with indirect proportion.	Teacher made test to evaluate pupils' application of method to solve indirect proportion problems.

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UNIT/THEME: Money

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Partitive Proportion or proportion by parts is used to solve problems describing a total amoount being distributed into unequal parts.	Present scenario t bring out the concept of partitive proportion. Eg. Do the actual sharing of 60 marbles among 3 boys in the ratio 1:2:3 Through questioning develop a method for solving a problem using partitive proportion. 1 part + 2 parts + 3 parts = 6 parts 1/6 + 2/6 + 3/6 = 60 1/6 of 60 = 10 2/6 of 60 = 20 3/6 of 60 = 30/60 problem solving involving partitive proportion.	Teacher made test to evaluate pupils' application of method to solve partitive proportion problems.

AREA OF STUDY: Mathematics

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UNIT/THEME: Money

LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
M5a Collect, analyse and interpret data and predict probable outcomes. SL4.a Interpret simple forms notes, messages and follow instructions and directions. EL1.a Use context clues and cues effectively to communicate when reading orally. SL4.b Demonstrate the ability to read using correct punctuation, intonation and stress. EL4.b Use speed (English) effectively and appropriately in a variety of situations (for a variety of functional tasks) H1.b The effects of diet on health. M4.a Make and apply reasonable approximation by observing and/or using factual data base on meaningful references.	Exploring Mathematics Teacher edition Bk 7 & 8 New Progress in Arithmetic Math Power Carlong Revision Guide for Junior Math. Active Mathematics Barons Progress in Arithmetic New Common Entrance Mathematics

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Money

AREA OF STUDY OUTCOMES
Pupils should:
M1F Apply the concept of rational and irrational numbers to real life situations.

CROSS-CURRICULAR OUTCOMES

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
A rational number is any number which can be written in the form a/b where b is not equal to zero. Integers, fractions and decimals are all rational numbers. Every terminating or repeating decimal is a rational number. e.g. 0.5 = ½ and 0.3 = 1/3 Rational numbers can be shown on a number line. Rational numbers can be compared by using a = b a > b a < b	Activity: Have the students study each number named below and then match it with the same number in the box at the right. ½ 0.01 1/10 -2.25 1/100 0.5 -2¼ 0.1 2 4/5 -8/3 -2 2/3 2.8 -2 1/3 6 2/3 5 5/3 -7/3	Portfolio – begin a portfolio Ability to identify/recognize rational numbers. Group Activites Worksheets Eg. ½ = _____ decimal 0.5 = _____ fraction checklist for grouping: e.g participation task is completed. Children construct and label numberline using Rational numbers. Cooperate in construction/building of number lines Remember to insert portfolion entry.

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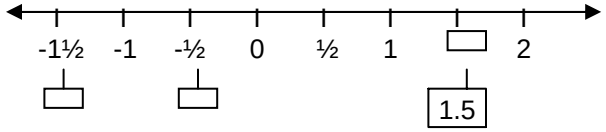
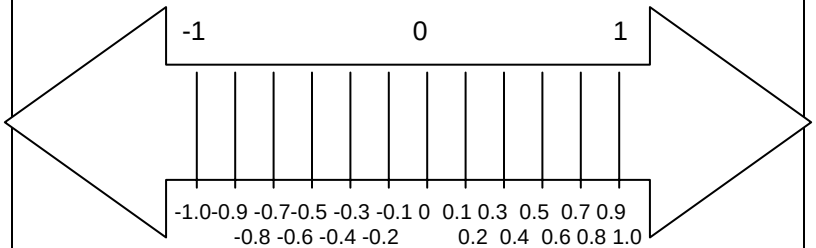
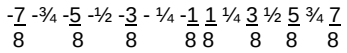
CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
	Fill in the empty boxes with the appropriate rational number to complete the number line.  Game: Let's Be Rational    Materials: Poster 3-2 (on previous page), 23 plain cards for each pair of students. Directions: Give each pair of students 23 plain cards	Two to four students can play a guessing game with fractions. The first player should think of a fraction less than 1 with a denominator no greater than 12, and write this fraction on a piece of paper. The other player then take turns guessing what the fraction is. If any guess is incorrect, the first player should only state that the guess is 'too' much or 'not enough'. All players may use pencil and paper for calculations. The player who guesses correctly takes the place of the first player, and the game continues. Observation checklist: Eg. cooperation Participation Listening skills Leadership (show) From Start to End, shade a path that always leads to a greaterm number.

AREA OF STUDY: Mathematics

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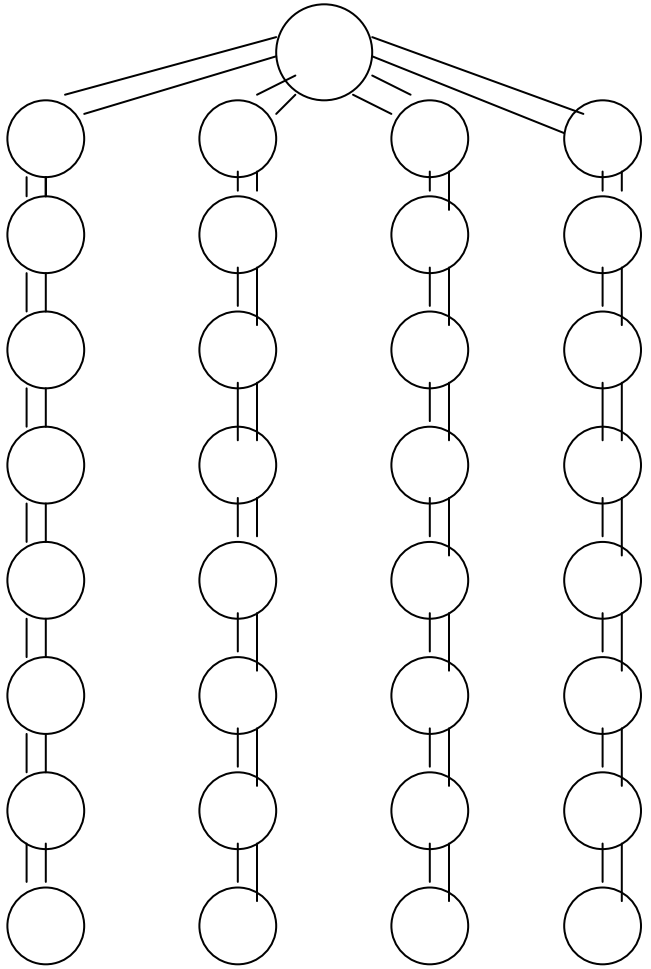
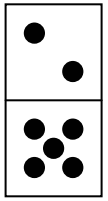
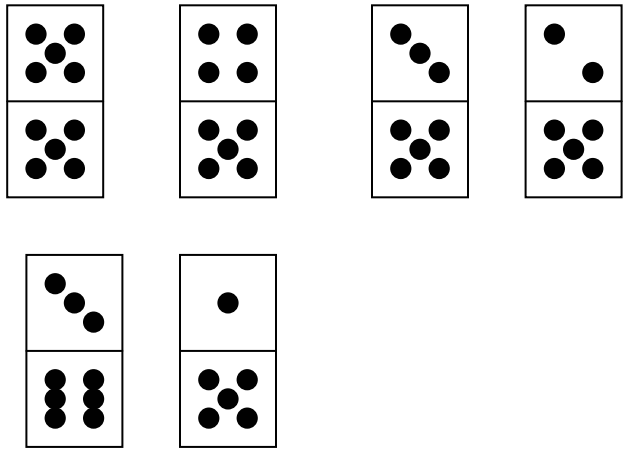
UNIT/THEME: Money

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
5. Like real numbers rational numbers can be sequenced or written in ascending or descending order.	and have them copy the rational numbers shown on the poster onto the cards. Have them shuffle the card and deal half the cards to each partner, discarding the extra card. Rules: Make sure the students understand the rules: Simultaneously, each player reveals the top card of his or her stack. The player with the card of the larger value takes both cards (refer to poster number line if necesssary). The player who takes the greater number of the cards wins. Children can create problems and share them with a partner. Peer Teaching Activity: Game Materials: 20 index cards marked with different numbers (integerss, fractions or decimals). *only one set of numbers can be used at a time e.g. all integers, all decimals etc. Stack the cads, face down, between two students. Each student selects a card and compares the two numbers. The student with the greater number keeps both cards. After all the cards have been selected, the student with the most cards attempts to sequence all 20 cards. If he/she is unsuccessful, the other player attempts the same. The player who sequences all cards in ascending or descending order first wins the game.	

AREA OF STUDY: Mathematics

STANDARD VI

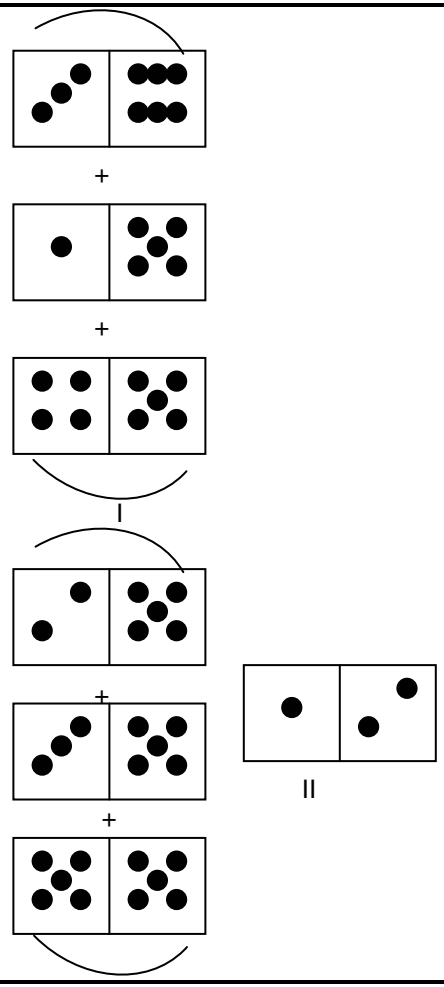
UNIT/THEME: Money

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
6. To order fractions with unlike denominators, find the L.C.M. When adding and subtracting fractions with unlike denominators it is very convenient to find the L.C.M. of denominators.	Activity Sheets: e.g. Write the fractions in order from least to greatest. ½ , 3/8, 2/5 order: 3/8, 2/5, ½ 15 16 40 Give one problem on the board and walk around classroom to observe how children are solving the problem. Teacher may need to use other methods for slower children. e.g 3/5 + ½ → (Equivalent Fractions) change to similiar denominators 3/5 (x) ½ x (5) 6/10 + 5/10 = 11/1/ = 1 1/10 Add across and down: 1 ½ | 3 ¾ | 5 ¼ 1 5/8 | 2 3/8 | When necessary re-arrange numbers to subtract.	In small groups, each child will write a fraction on a sheet of paper. Children will order fractions in any method of their choice ascending or descending. Use dominoes. Each dominoe represents a fraction e.g.  Activity Use these dominoes to make true sentences. 

AREA OF STUDY: Mathematics

STANDARD VI

UNIT/THEME: Money

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
		Portfolio entry e.g 

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UNIT/THEME: Money

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
When multiplying fractions, cancel where necessary then multiplying the numerators and denominators. When dividing fractions, we keep the fist fraction and multiply it by the reciprocal of hte second. Remember cancvelling should be done before multiplication if necessary.	Multiply across and down. X 5/12 | 4/5 | 2/5 | 5/8 | | | Activity can be more challenging by using mixed numbers. Workcards with problems e.g. (a) 2 7/9 ə 1 5/6 5 1 5 5/6 ə 2 1/3 = ~~35~~ x ~~3~~ = 5 = 2 /2 ~~6~~ ~~7~~ 2 1 Children write steps for solving problem. Children can create acronym or use visual clues (signs)	Tip: Have students write the answer. Eg. When Pam soled a problem, she wrote the equation 1/12 – ¾ = ? Ask students to explain why the equation is wrong. Ans. ¾ is greater than 1/12 Sharing fruits: realia 1 ½ apples for 3 people = 3/2 x 3/1 = 9/2 = 4 ½ apples. Portfolio Entry Observation checklist: Eg. steps are followed: mixed numbers are converted to improper fraction cancellations are done second number is inverted Explain method of solfing problems. Divide across and down. 7/16 | 7/10 | 1/6 | 2/7 | | |

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CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
In working with complex fractions, the rules shoudl be adhered to in order to solve them correctly. B rackets first O f – solved secondly M ultiplication and D ivision next A ddition followed by S ubtraction	Rules for solving complex fractions: Solve section with bracket first Secondly solve section that contain the word 'of' Solve multiplication and division section next Lastly solve addition and subtraction section. Children can use the acronym BOMDAS or BODMAS e.g $\frac{(3\frac{3}{4} - \frac{1}{2}) + (\frac{1}{3} + \frac{3}{8})}{3\frac{3}{4} \times 12/15 \div 1\frac{4}{5}}$ Step 1 $3\frac{3}{4} - \frac{1}{2}$ $3\frac{3-2}{4} = 3\frac{1}{4}$ Step 2 2. $\frac{1}{3} + \frac{3}{8}$ $\frac{8+9}{24} = \frac{17}{24}$ Step 3 3. $3\frac{1}{4} + 17/24$ $3\frac{6+17}{24} = 3\frac{23}{24}$ Step 4 4. $3\frac{3}{4} \times 12/15 = \frac{\cancel{15}}{\cancel{4}}{}^{1} \times \frac{\cancel{12}}{\cancel{15}}{}_{1} = 3$ Step 5 $3 \div 1\frac{4}{5} = 3/1 \div 9/5 = \frac{\cancel{3}}{1} \times \frac{5}{\cancel{9}}{}_{3} = 5/3$	Journals, Booklets Describe and explain method of solving problem. Observation checklist e.g. 1. Steps are being completed/rules are followed. 2. Children are confident in solving problem

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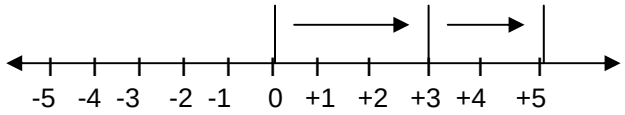
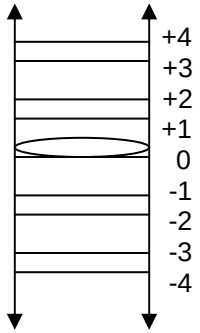
When adding integers with like signs, the same sign is kept in the answer. When adding integers with unlike signs the sum will take the sign of the integer with the greater value or (magnitude) hence: +2,-5 therefore the answer would be a negative number as 5 has the greater value. When subtracting integers, the additive inverse method can be used. This method is effective for subtracting like and unlike signs. In multiplication when the signs are the same, the result is always positive. When multiplying integers with unlike signs, the result is always negative.	Step 6 3 23/24 ɔ 5/3 = ~~95~~ x ~~3~~ = 19/8 = 2 3/8 ~~24~~ ~~5~~ 8 1 Ans: 2 3/8 observation using the number line $^{+}3 + {}^{+}2 = {}^{+}5$  Use colored counters or cuisenaire rods. Different colors represent positive & negative : Use to add integers. Use number line Learning number ladder. Integer Ladder  	Colored Counters or cuisenaire rods can also be used to assess. Bean Bag Toss Teacher throws bean bag, student who catches it will solve to give a problem. Use thermometer as example for integers with positive and negative values. Worksheets Observation checklist: Eg. children are following Portfolio entry Mnemonic or jingle competition based on rules (children's creativity)

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When dividing integers with like signs, the result is always positive. When dividing integers with unlike signs, the result is always negative In the addition of decimals, the decimal points are always aligned.	Eg. ¯2 - ¯3 reverse problem -3 + __ = -2 Begin with the second term. Eg. Rule: (+) x (+) = (+) +3 x +3 = +9 (-) x (-) = (+) -3 x –3 = +9 Pair and solve : children create problems and ask partners to solve. Eg. Rule (-) x (+) = (-) -3x +3 = -3 eg. Rule: (+) ɜ (+) =(+) (-) ɜ (-) = (-) (-)ɜ (+) = (-) Children create jingle or rhyme to remember rules.(mnemonics) Eg. .23 .458 69.51	Mnemonics Worksheets Observation checklist Family Budget reports shoplist Journal of children's expenses per day. Portfolio Entry

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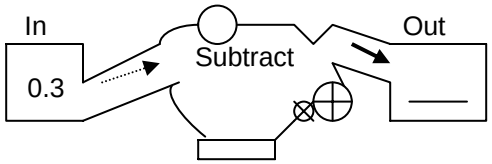
In the subtraction of decimals, the decimals are always aligned. When decimals are multiplied, the decimal in the product is placed according to the number of factors that follow the decimal point. This is placed in the answer counting from the right to the left.	<u>Income and Expenditure Reports</u> School Profits Per Week	The decimal pyramid Write decimal from the box in the circles. The sum of each side showed equal 20.5.

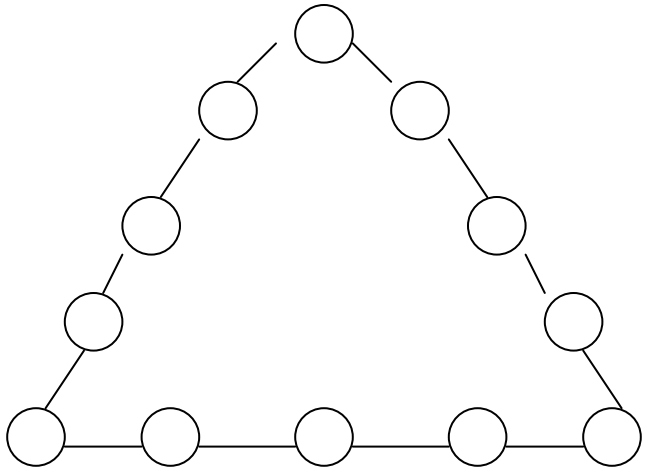
Expenses	Mon	Tues	Wednes	Thurs	Fri	Total
Meatpies	$33.25	$50	$23.75	$20	$62.25	?
Ideals	$6.25	$5.23	$0.75	$10	$1.75	?
Chips	$7.00	$5.80	$10.50	$9.85	$11.00	?
					Total for Week	?

Subtraction Machine



e.g. 2.05 → 2 decimal places
x 0.31 → 2 decimal places
205
worked as whole numbers
000
0.6355 → decimal placed now included

1.73		
	3	
5.45		
1.6		4.75



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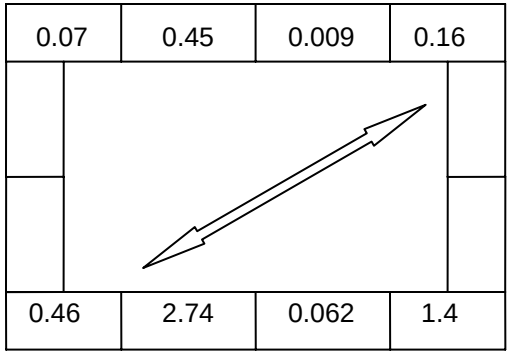
CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
21. When dividing decimals, make the divisor a whole number. The same number of places moved in the divisor should be the same number of places moved in the dividend. Add zero when necessary.	Game: Multi – Spin  Have a volunteer spin the arrow and call out the product of the two numbers indicated. The first student to give the correct answer earns one point and becomes the next caller.	Worksheets/Journal Entries Portfolio entries A Product Trick 3.75 12 1.5 18 0.375 0.125 0.4 0.05 0.6 0.0125 0.25 0.8 0.1 1.2 0.025 1.25 4 0.5 6 0.125 0.01 0.032 0.004 0.048 0.001 Follow these steps Ring any number in figure1 Cross out all other numbers in the same row and column as the ringed numbers. Repeat step 2 and 3 until you have ringed five numbers and crossed out all other numbers. Find the product of the five ringed numbers.

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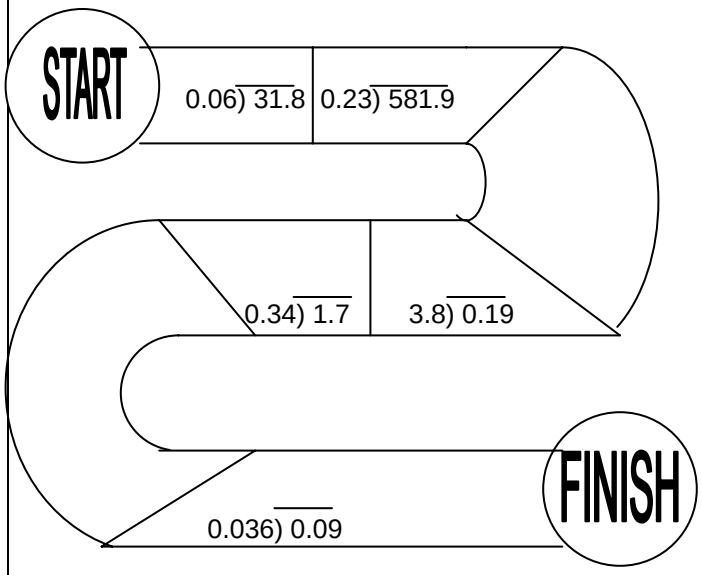
CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
22. A decimal is another way to name a fraction or a mixed number. Whole number places are to the left of the decimal point. Decimal places are to the right. Decimals can be shown on a place value chart. When changing a fraction to a decimal, divide the numerator by the denominator. When changing a decimal to a percent move the decimal place two places to the right.	Divi –Snake Materials : a piece of tagboard, marked as shown, stopwatch  Have students time themselves individually to see who can go from START to FINISH most quickly.	Portfolio Entry Observation checklist Report Technology – use calculator to show different place value and map on number line. Teacher gives number line with some numbers missing and children will insert missing digits using a calculator. Portfolio Entry Fraction / Decimal / Percent ¼ / / / 0.5 / / / 57.5% / 0.375 / 7/20 / /

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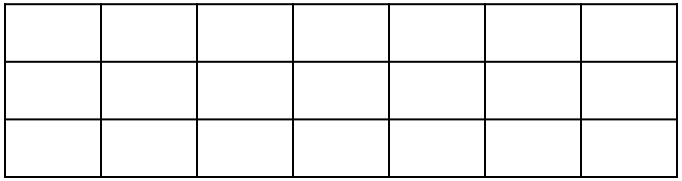
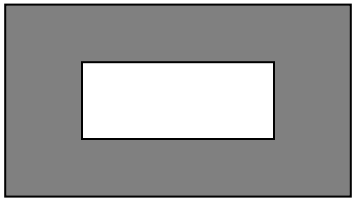
To change from a percent to a decimal move two places from the right to left. Make the decimals to a fraction and cancel when necessary. Repeating decimals are decimals that repeat endlessly in a quotient. A bar over the last digit is used to indicate repitition. Rational numbers can be used in problems featuring real life situations.	Activity : The Pizza Hut is having a contest. Brandon can get a bargain pizza if he finds the row where all three numbers are equivalent. Which row should Brandon pick? A ¼ 0.25 2/5 B 1/5 0.20 2/10 C 2/4 0.50 6/10 D 8/10 0.40 4/5 0.2 5 Eg. ¼ 4) 1.0 2 0 ans: 0.25 Eg. 0.25 = 25% Eg. 80% = .8 . 0 . = 0.8 Eg.0.8 = $\frac{8}{10}^{4} = \frac{4}{5}$ Worksheets: 50% of MAKE is = MA 37½% of MATERIALS = MAT Eg. 17/3 = $5.\overline{6}$ 5.66 3)17. 0 0 15 2 0 1 8 2 0 1 8 2	Portfolio Entry Observation Checklist Fractions and Repeating Decimal Pictures In the diagram below, the decimal for each fraction has exactly one digit that repeats. If the repeating digit is even, shade the square for that fraction. If the repeating digit is odd, do not shade the square for that fraction. When you have finished, the shaded squares should form another name for 1.   

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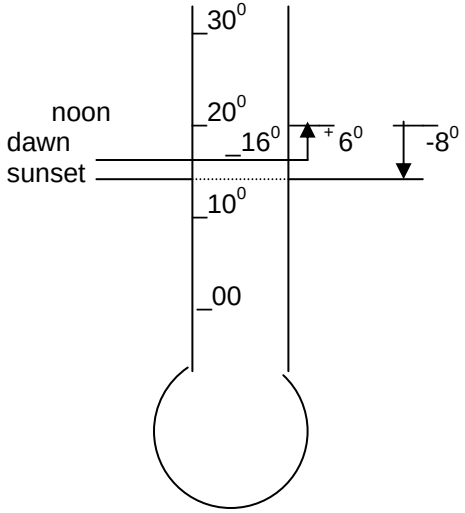
	Worksheets Children create examples and share with a partner. Carrie used 1 1/8 yd of a 2 5/16 yd. length of material to make a backpack. How much materials left? Children can bring in recipes of their own. Eg. The temperature at dawn was 16^0C. By noon it had risen 6^0C. It fell 8^0 from noon until sunset. What was the temperature at sunset?  	Brownies for all Vanilla Brownies cups sugar tbsp baking powder ¼ cup melted butter 4 eggs, beaten 2 cups milk 4 cups flour 1 tbsp vanilla Combine the sugar and eggs in one bowl and beat. Combine the flour and baking powder in another bowl. Alternate adding some of the dry mixture and some of the milk to the sugar mixture. Stir after each addition. Add the butter and the vanilla. Spoon the mixture into muffin papers. Bake at 400^0F for about 20 mins. Suppose you need muffins for 30 people. How would you change the recipe to feed everyone? To find out how to change the recipe to make exactly 30 muffins, divide 30 by 24. Convert the answer to a fraction (30 ɔ 24 = 1 ¼) Multiply each of the ingredients by the number from Step 2, and rewrite the recipe. Be sure to write that it now makes 30 muffins.

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To find perfect squares, the root is multiplied by itself. The square root of a number is one of its two equal factors. To find the square root of smaller numbers, the factor method is very effective. However, to find the square root of larger number (5digits+), the pair and divide method can be used.	Eg. Jamaal, Rosa and Stacey collected a total of 95.73 pounds of garbage from the beach side. What was the average amount collected by each person? Root — Perfect Squares 1 x 1 = 1 2 x 2 = 4 3 x 3 = 9 4 x 4 = 16 5 x 5 = 25 6 x 6 = 36 7 x 7 = 49 8 x 8 = 64 9 x 9 = 81 10 x 10 = 100 Factor method 484 Step 1 484 = 2 x2 x 2 = 2 x 2 x 121 = 2 x 2 x 11 x 11 Step 2 = (2 x 11) x (2 x 11) = 22 x 22 Step 3 = 22^2 Therefore, $\sqrt{484} = 22$ Worksheets Cooperative Learning	Portfolio Entry Cooperative group work Reports Children can create a table of Perfect Squares for easy referece. Portfolio Entry Journal/Portfolio entry Visual organizers to show steps. Observation checklist to ensure that children are completing and applying steps. Portfolio Entries Observation Checklist

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CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
	Factor Method $\sqrt{484}$ 2 | 484 2 | 242 — 2 x 11 = 22 11 | 121 11 | 11 1 Large Numbers 4 Step Method Step 1 Mark off the number in periods of 2 beginning from units place and going toward the left. The left hand period may contain either one or two digits; the other periods must contain 2. $\sqrt{29'\ 16}$ Step2 Find the number which when squared is nearest to, but not more than, the first period to the left. In this case it is 5 because 5 x5 = 25 5 | 29'16 25 | 416	

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
	Step 3 Double the root already found (2 x 5) and use it as a trial divisor, leaving room for another figure to be inserted to the right of 10. The whole divisor will be one hundred something. Divide 41 by 10 = 4 5 29'16 25 IC 416 Step 4 There are three things to do with this 4 Place it above 6 as the second figure of the root. Place it to the right of 10 making 104 the real divisor. Multiply 104 by 4 104 x 4 = 416 Write 416 under 416 and subtract To check multiply 54 by 54 4 29' 16 25 416 x4 416 - - - Problem Solving: A contains 256 square . What is the legnthof its side? What is the perimeter.	

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LINKAGES/CONNECTIONS	RECOMMENDED RESOURCES: TEACHER/STUDENT
	Exploring Mathematics BK 7 & 8 Math Advantage Heath Mathematics Vol 1 & 2 Active Mathematics Progress Grade 7 & 8 New & Old Editions Mathematics Today Math Advantage Home/School Connection Today's Mathematics

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AREA OF STUDY OUTCOMES
Pupils should:
M1F Apply the concept of rational and irrational numbers to real life situation

CROSS-CURRICULAR OUTCOMES

CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Rational numbers can be compared by using a = b a > b a < b Like real numbers rational numbers can be sequenced or written in ascending or descending order. To order fractions with unlike denominators, find the L.C.M. When adding and subtracting fractions with unlike denominators it is very convenient to find the L.C.M. of denominators	Children recall rational numbers: eg. Integers Decimals Fractions Game: Let's Be Rational Worksheets e.g. ¼ < 1/8 Games: Children can create games using sequencing of numbers. Worksheets: 3/5, 5/8, 2/3 $\frac{72, 75, 80}{120}$ Greatest to least: 80, 75, 72 2/3, 5/8, 3/5	Describe and explain features of Rational Numbers (Report). Math Logs Refer to games in Std 5. Math Logs Games Log Entry Children can create worksheets on their own. Dominoe Game

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When multiplying fractions, cancel where necessary then multiplying the numerators and denominators. When dividing fractions, we keep the fist fraction and multiply it by the reciprocal of hte second. Remember cancelling should be done before multiplication if necessary. In working with complex fractions, the rules should be adhered to in order to solve them correctly. BOMDAS, BODMAS – Acronyms When adding integers with like signs, the same sign is kept in the answer	Two Methods: L.C.M. Equivalent Fractions Magic boxes. Magic Squares Relia – sharing fruits Refer to Std 5. Workcards with problems: Acronyms Rhymes Have children follow the rules for solving complex fractions. Refers to rules Std 6. Use of the number lines. Use colored counters or cuisenaire rods Number ladder.	Math Log. Observation checklist: Steps are being followed. Cancellations are done. Math Log. Observation checklist Children are confident in solving problems. Steps are being followed. Bean Bag Toss. Thermometer.

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When adding integers with unlike signs the sum will take the sign of the integer with the greater value or (magnitude) hence: +2,-5 therefore the answer would be a negative number as 5 has the greater value.	Number line Number ladder	Colored Counters.
When subtracting integers, the additive inverse method can be used. This method is effective for subtracting like and unlike signs.	E.g. -2 - - 3 reverse problems -3 + ___ = -2	Observation Checklist
In multiplication when the signs are the same, the result is always positive.	Rule: (+) x (+) = (+) (-) x (-) = (+)	Observation checklist Math Log
When multiplying integers with unlike signs, the result is always negative.	Pairing /Cooperative Learning Rule: (-) x (+) – (-)	Mnemonics Refer to Std 5 Unit of Work
When dividing integers with unlike signs, the result is always negative.	(-) ɜ (+) = (-)	

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When dividing integers with like signs, the result is always positive. In the addition of decimals, the decimal points are always aligned. In the subtraction of decimals, the decimals are always aligned. When decimals are multiplied, the decimal in the product is placed according to the number of factors that follow the decimal point. This is placed in the answer counting from the right to the left. When dividing decimals, make the divisor a whole number. The same number of places moved in the divisor should be the same number of places moved in the dividend. Add zero when necessary.	(+) ∋ (+) = (+) (-) ∋ (-) = (-) E.g. .23 .458 69.51 Have children create reports and expenditure statements. Refer to Std 5 Subtraction machine Refer to Std 5 unit of work: Games: Multi Span Game: Divi Snake Refer to Std 5 Unit of Work	Family Budgets Reports Shoplists Journals Refer to Std 5 The decimal pyramid. Math Log Observation checklist

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CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
19. A decimal is another way to name a fraction or a mixed number. Whole number places are to the left of the decimal point. Decimal places are to the right. Decimals can be shown on a place value chart. 20. When changing a fraction to a decimal, divide the numerator by the denominator. When changing a decimal to a percent move the decimal place two places to the right. 21. To change from a percent to a decimal move two places from the right to left. Make the decimals to a fraction and cancel when necessary.	Activity: Refer to Std V Unit of Work 0.25 E.g. ¼ 4⟌1.00 Ans. 0.25 E.g. 0.2 . 5 . = 25% E.g. 80% = . 8 . 0 . = 0.8 E.g. 0.8 = $\frac{8^{4}}{10_{5}} = \frac{4}{5}$ Worksheets: 1) 50% of MAKE = MA	Technology Refer to Std. 5 unit of work Portfolio Entry Portfolio Entry Observation Checklist

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CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Repeating decimals are decimals that repeat endlessly in a quotient. A bar over the last digit is used to indicate repitition.	E.g. $\frac{17}{3} = 5.\overline{6}$ 5 . . 6 6 3) 17. 0 0 15 2 0 1 8 2 0 1 8 2	Fractions and Repeating Decimals Pictures Refer to Std V unit of work.
Rational numbers can be used in problems featuring real life situations.	Worksheets Children can create examples and share with partner. Children can bring in recipes of their own. Eg. The temperature at dawn was 16^0C. By noon it had risen 6^0C. It fell 8^0 from noon until sunset. What was the temperature at sunset?	Brownies for all Refer to Std V unit of work. Portfolio entry Reports Co-operative group work
To find perfect squares, the root is multiplied by itself.		Children can create a table of Perfect Squares for easy reference.
The square root of a number is one of its two equal factors. To find the square root of smaller numbers, the factor method is very effective. However, to find the square root of larger number (5digits+), the pair and divide method can be used.	Root → Perfect Square 1 x 1 = 1 2 x 2 = 4 3 x 3 = 9 4 x 4 = 16 5 x 5 = 25 6 x 6 = 36 factor Method refer to Std V unit of work Worksheets Co-operative Learning Large Number Method Refer to Std V unit of work	Portfolio Entry Journal/Portfolio entry Visual organizers to show steps Observation checklist to ensure that children are completing and applying steps.

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CONTENT ORGANIZED INTO MANAGEABLE SETS	SUGGESTED TEACHING/LEARNING STRATEGIES	SUGGESTED STRATEGIES/ACTIVITIES FOR ASSESSMENT
Skills Interpret Manipulate Observing Discussing Comparing Identifying Estimating Explain Distinguish Ordering Computing Solving Organizing Reading Writing Analyze Apply Recognize Examine Matching		

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Attitudes Co-operation Sense of Achievement Tolerance Understand the importance of using the mathematical rules Appreciation and respect for one another's ideas Awareness		