DAWOOD PUBLIC SCHOOL
COURSE OUTLINE 2019-20
MATHEMATICS
GRADE V

Books:
Lu Jitan, New Syllabus Primary Mathematics 5 along with practice books 5A and 5B, Singapore; Oxford University Press

Monthly Syllabus for the Year 2019-20

MONTHS	TOPICS	DURATIONS
August	• Revision • Whole numbers Activity Calendar/Mental math	**1 Week** **3 Weeks**
September	• Four operations • Angles Activity Calendar/Mental math	**3 Weeks 1 Week**
October	• Algebra (add & Subtract) • Average • Unknown angles of a triangle Activity Calendar/Mental math	**1.5 Weeks 1 Week** **1.5 Weeks**
November	• 4- sided figures. • Mental math/Activity Calendar Revision	**1 Week**
December	**Midterm exams** **Activity Calendar**	
January	• Ratio • Fractions • Construction of a triangle • Pie Chart Activity Calendar/Mental math	**1 Week** **1 Week** **1.5 Week** **0.5 Week**
February	• Decimals • Percentage • Area of Triangles Activity Calendar	**2 Weeks** **1.5 Weeks** **0.5 Week**
March	• Algebra (multiplication and division) • Introduction and construction of circle • Area of Composite shapes • Volume of cube and cuboid Activity Calendar/Mental Math	**2 Weeks** **0.5 Week 1 Week** **0.5 Week**
April	Revision Activity Calendar/Mental Math	**4 Weeks**
May	**Final Term Exams**	

SYLLABUS CONTENT

AUGUST

1. Whole Numbers
   NSPM Book 5 page # 2-24
   Workbook 5A page # 1-20

   Activity Calendar for the month of August 2019/Mental Math

CONTENT	LEARNING OBJECTIVES
TOPIC: WHOLE NUMBERS **SUBTOPICS:** • NUMBERS BEYOND 10000 • COMPARING AND ORDERING • ROUNDING OFF • PRIME /COMPOSITE NUMBERS • PRIME FACTORIZATION • L.C.M AND H.C.F	**Students should be able to:** • Read and write the numbers beyond 100,000 in words and numerals and identify numbers up to a billion. • Identify/recognize the place value • Compare and arrange the numbers • Round off numbers in terms of tens, hundreds and thousands. • Define, explain and identify Prime and Composite numbers. • Find the L.C.M. and H.C.F.

Whole Numbers:

Words to remember:
Place value, Value, Stands for, Ascending and descending, Round off, Prime/Composite, Prime Factorization, HCF and LCM.

Additional resources:

- http://www.math-drills.com/placevalueworksheets
- http://mathcrush.com/read_n_write_worksheets
- http://www.onlinemathlearning.com /lcm-gcf- word- problems

Sample Question:

(1) Guess the code using the hints given below:
   a) Sum 8 and 1 and write your answer in the tens place.
   b) Divide 28 with days in a week and write your answer in ones place.
   c) Subtract a half dozen by a dozen and write your answer in the ten thousand places.
   d) Add the answers obtained in part a, b, c and subtract 13.Write your answer in hundreds place.
   e) Add the number of hours in a day with the answer at ones place and divide by 4.Write your answer in thousand places. What is the number? _____

(2) A man ran for 5482 m before he took a break. After that, he ran for another 5564 m and stopped to talk with a friend. Finally, he returned home running the last 3923 m. How long was his route that day (in meters)? Round off your answer to nearest thousand.

(3) Find the highest common factor and least common multiple of the following pairs of numbers: 676 and 650
   a) Round off the result of LCM nearest to thousands.
   b) Divide LCM by HCF and write the answer in its simplest form.

(4) Sum the all **PRIME** numbers between 9 and 30.

SEPTEMBER

2. Four Operations

3. Angles
   NSPM Book 5 pg # 69-75
   Workbook 5B pg# 207-219

Activity Calendar for the month of September 2019/Mental Math

CONTENT	LEARNING OBJECTIVES
TOPIC: FOUR OPERATIONS NSPM BOOK 5 **SUBTOPICS:** • MULTIPLICATION & DIVISION • WORD PROBLEM • ORDER OF OPERATION	**Students should be able to:** • Use 10, 100, 1000 and its multiple to perform multiplication and division mentally. • Perform estimation and find out reasonable answers. • Manipulate combined operations using DMAS and BODMAS • Solve the story sums (word problems) and determine the unknown value.
TOPIC: ANGLES **SUBTOPICS:** • BASIC ANGLES(REVISION) • ANGLES ON STRAIGHT LINE • ANGLES AT A POINT • VERTICALLY OPPOSITE ANGLES • ADJACENT ANGLES	**Students should be able to:** • Define what angles are and how they are form using daily life objects/examples. • Identify, describe, name angles (e.g., right, acute, obtuse, straight). • Identify the adjacent and vertically opposite angles. • Determine angles on straight line, at a point, supplementary and complementary angles. • Find the unknown angle using the given figures.

Four Operations:

Words to remember:
Estimate, key words related to story sums.

Additional resources:

- www.mathplayground.com/order_of_operation
- www.sheppardsoftware.com/mathgames/round/mathman_round_addition

Sample Questions:

(1) Solve
   a) 3400 ÷ 100
   b) 43 x 1000
   c) 203000 ÷ 2000
   d) 166 x 700
   e) 281 x 260

(2) There was an oil spill in a coral reef. As a result it cost the oil company a combined total of $8862 in cleanup and repairs. The repair alone costs $5939.Estimate how much money did the cleanup cost.

(3) Charges for renting a holiday chalet are shown below:

Monday to Thursday	**Rs. 950 per day**
Friday, Saturday and Sunday	**Rs. 1200 per day**

Mr. Qasim ended a chalet for 4 successive days and he paid Rs.4300.On which day did Mr. Qasim start to rent the chalet?

(4) Divide me by 4, subtract 3 and then divide by 7. Multiply by 8, and then add 4.Divide by 4 to get 9. Who am I?

(5) Solve the following sums.

a) 16 x 7 x 15 + 11 + 17

b) (244 − 17 + 168 ÷ 8) × 15

Angles:

Words to remember:

Angle, Obtuse, Acute, Right, at a Point, Vertically opposite, Adjacent, Straight.

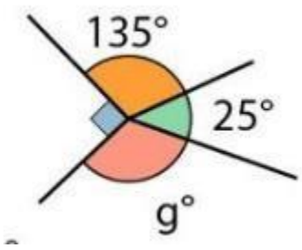
Additional resources:

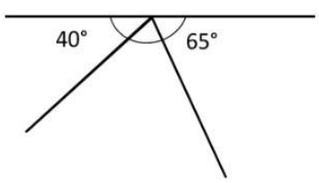
- www.mathis fun.com/angle180
- www.topmarks.com.uk/Flash.aspx?a=activity16
- www.xpmath.com/forums/arcade.php?=play&gameid=10

Sample Questions:

(1) Figures will be given to students to identify the angles and calculate the value of missing angle.

(2) Find out the missing angles.





OCTOBER

4. Algebra (Addition and Subtraction)
   Practice questions from handout

5. Average
   NSPM Book 5 pg # 22-29
   Workbook 5B pg# 166-173

6. Unknown angles of a triangle and Area of Triangle
   NSPM Book 5 pg # 223-240
   Workbook 5B pg# 79-88

Activity Calendar for the month of October2019/Mental Math

CONTENT	LEARNING OBJECTIVES
TOPIC: ALGEBRA **SUBTOPICS:** • ADDITION AND SUBTRACTION	**Students should be able to:** • Identify constant, variable and exponents • Identify equation and expression • Perform addition and subtraction using vertical/horizontal method.
TOPIC: AVERAGE NSPM BOOK 5 **SUBTOPICS:** • FINDING AVERAGE • WORD PROBLEMS	**Students should be able to:** • Interpret the formula • Calculate the average using the given values. • Solve word problems.
TOPIC: UNKNOWN ANGLES OF A TRIANGLE NSPM BOOK 5 **SUBTOPICS:** • SUM OF ANGLES OF TRIANGLE • SPECIAL TRIANGLES	**Students should be able to:** • Get familiarize with triangles and its types • Identify triangle according to its sides and its angles • Find unknown angle of a triangle • Recognize, use and communicate with one another about triangles and their properties
TOPIC: AREA OF TRIANGLE NSPM BOOK 5 **SUBTOPICS:** • FIND AREA OF RIGHT ANGLE TRIANGLE	**Students should be able to:** • Calculate area using the formula • Identify the base and height of a triangle • Calculate missing value when area is given.

Algebra:

Words to remember:
Horizontal and Vertical, Add, Subtract, From.

Additional resources:

- www.mathplayground.com
- www.coolmath-games.com

Sample Questions:

(1) Simplify:
   a) 19k + 28-63k +56k- 18
   b) $49a^2 + 221a + 36 + 91a^2 – 89a + 50$
   c) $-14x^2 - 21x + 7x^2 - 23 + 3x - 48$

(2) **Subtract**

a) $73rt + 39rt^2 - 71s - 21$ **FROM** $-31rt + 65\,rt^2 - 93s + 27$

b) $15a^3 - 12a^2 - 36a + 63$

$91a^3 + 59a^2 - 14a - 17$

_____

Average:

Words to remember:

Average

Additional resources:

- www.mathsisfun.com/data/mean-machine
- www.kidsknowi t.com/interactivee-educational- movies/free- online-movies.php?movie=average
- www.mathblaster.com/teachers/math- problems/math -sums

Sample Questions:

(1) Find the average of 180,123,145,100 and 26.

(2) John sold 138 cakes on Monday, 156 on Tuesday, 200 on Wednesday and 126 less on Thursday as compared to those sold on Tuesday. What is the average numbers of cake John sold in 4 days?

(3) $\frac{18+6+3+\square}{4} \quad \frac{36}{4} = \quad = \square$

(4) Find the average of even numbers between 129 and 141.

Unknown Angles of a Triangle & Area of Triangle:

Words to remember:

Missing angle, Missing value, Unknown angle

Additional resources:

- www.ixl.com/maths/grade5/area-of-triangles
- www.gamesforthinkers.org
- www.helpingwithmath.com

Sample Questions:

For identification of triangles, question will be based in the form of figures or in the form of mental math question or in the form of word problems.

(1) Look at the figure given and determine the size of measuring angle x**? (fig a)**

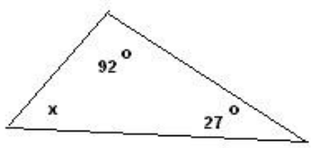


Fig a

NOVEMBER

7. Four sided figures.

Activity calendar for the month of November 2019 / mental math.

CONTENT	LEARNING OBJECTIVES
TOPIC: 4- SIDED FIGURES NSPM BOOK 5 **SUBTOPICS:** • IDENTIFYING FOUR SIDED FIGURE • PROPERTIES OF FOUR SIDED FIGURE	**Students should be able to:** • Identify the quadrilaterals • The properties of quadrilaterals • Find similarities and differences in figures.

Four Sided Figure:

Words to remember:
Quadrilateral, Square, Rhombus, Parallelogram, Trapezium.

Additional resources:

- www.math-play.com
- www.shepardsoftware.com/mathgames/geometry/...Quadshapesshoot
- www.turtlediary.com

Sample Questions:

(1) Question will be given either in figure form or in descriptive form. Students have to identify the figure or find similarities or differences; write the basic properties of the figures.

DECEMBER

MIDYEAR EXAMS. 2019 -20

JANUARY

8. Ratio NSPM Pg# 99-111
   Workbook 5B Pg # 132-145

9. Fraction
   NSPM Pg# 60-92
   Workbook 5A pg# 90-118

10. Construction of Triangle Handout and worksheets

11. Pie chart (handout)

Activity Calendar for the month of January2019/Mental Math

CONTENT	LEARNING OBJECTIVES
TOPIC: RATIO **SUBTOPICS:** • EQUIVALENT RATIO • WORD PROBLEMS	**Students should be able to:** • Find the missing ratio. • Equivalent ratio, missing value in a pair of equivalent ratio. • Convert into simplest form • Solve 2-step word problems. • Find ratio of 2 or 3 given quantities.
TOPIC: FRACTION **SUBTOPICS:** • ADDITION AND SUBTRACTION OF FRACTION • MULTIPLICATION OF FRACTION AND MIXED NUMBER • DIVISION OF FRACTION BY WHOLE NUMBER AND FRACTION • WORD PROBLEMS	**Students should be able to:** • Recognize and work with mixed numbers/improper fractions • Add and Subtract fractions with different denominators. • Multiply proper fractions /mixed numbers with whole numbers • Perform division involving fractions. • To perform all the four operations • Solve word problems.
TOPIC: CONSTRUCTION OF TRIANGLE HANDOUT AND WORKSHEET **SUBTOPICS:** • USING PROTRACTOR AND COMPASS TO DRAW TRIANGLES	**Students should be able to:** • To know what the acronyms SAS, ASA and SSS stand for • To understand the differences between SAS, ASA and SSS • To be able to construct SAS, ASA and SSS triangles using a ruler, compass and a protractor.
TOPIC: PIE CHARTS	**Students should be able to:** • Presenting Data in Pie chart. • Reading and Interpreting Data in Pie Chart**.**

<u>Ratio:</u>

Words to remember:
Ratio, equivalent, missing value

Additional Resources:

- www.arcademics.com/ games/ratio -stadium

- mathsnacks.com/ratios rumble game
- edhelper.com/ratios.htm
- http://www.mathinenglish.com/ helpingwithmath.com

Sample Questions:

(1) Complete the ratio table:

22			**198**
30	**60**	**120**	

(2) There are 65 children in the sixth grade. There are 15 more boys than girls.
   a) How many girls are in the class?
   b) What is the ratio of boys to girls?
   c) If 5 more girls joined the class, what is the ratio of boys to girls now?

Fraction:

Words to remember:
Fraction, proper, improper, mixed number.

Additional resources:

- www.mathplayground.com
- www.math-play.com/math-fractions-games
- www.maths-games.org/fraction-games
- www.funbrain.com
- www.math-play.com/fractions-Jeopardy

Sample Questions:

(1) Solve the following fractions.
   a) $4\frac{1}{6} + 4\frac{5}{8}$
   b) $\frac{\cancel{108}}{34} \div \frac{\cancel{12}}{17}$

(2) The price of the house used to be ¾ of a million dollars, but now it is only $475,000. How many dollars has the price been reduced?

(3) Mrs. Hilt earns Rs.8, 000 a month. Next month she took out one- fourth of what she earns. Her rent for this month is Rs.660, her monthly food bill is Rs.350, and her insurance costs one-eighth of what she makes. How much money does she have left after paying those three bills?

Construction of Triangle

Additional resources:

- www.mangahigh.com/…games/…construction/construct_triangles
- www.mathinary.com/triangle_construction.jsps
- www.onlinemathlearning.com/construct-triangles

Sample Questions:

(1) Construct a triangle given that ∠a=55̊, ∠b=30̊ and AB=8.5cm (2)
Construct a Δ ABC in which AB = AC = 10.6cm BC = 9cm

Pie Chart:

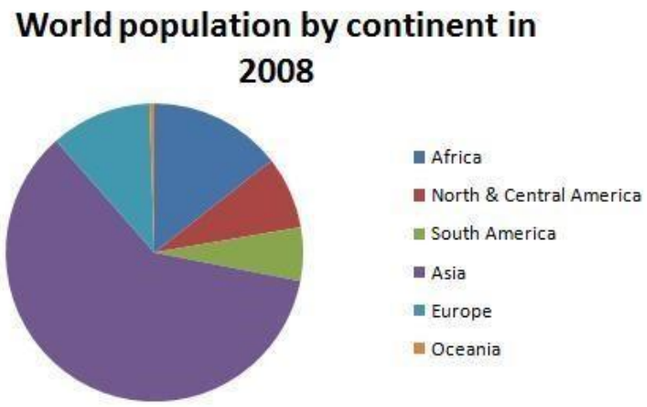
Additional Resources:

- **https://www.math-only-math.com/worksheet-on-pie-chart.html**

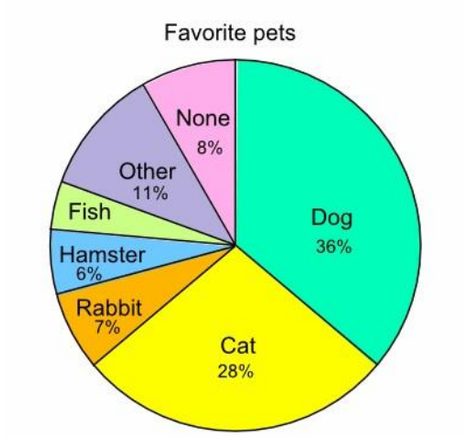
- http://www.mytestbook.com/worksheet.aspx?test_id=234&subject=Math&grade=5
- https://ie.ixl.com/math/class-5/pie-charts

Sample Questions:

(1) In 2008 approximately what percent of the world's population lived in Asia?



(2) Anna did a survey where she asked all the children in her school to name their favorite pet. The results are shown in the pie chart:



If there were 800 children in the school, how many said their favorite pet was Fish?

FEBRUARY

12. Decimal
    NSPM pg # 117-144
    Workbook 5B pg # 149-178

13. Percentage NSPM pg #
    152-161
    Workbook 5B pg # 1-8

14. Area of Triangle. NSPM
    pg # 240- 248
    Workbook 5B pg # 95 -98

Activity Calendar for the month of February2019/Mental Math

CONTENT	LEARNING OBJECTIVES
TOPIC: DECIMAL **SUBTOPICS:** • MULTIPLICATION AND DIVISION BY A WHOLE NUMBER • MULTIPLICATION AND DIVISION BY DECIMAL NUMBER • CONVERSIONS INCLUDING DECIMALS • FOUR OPERATIONS ON DECIMAL	**Students should be able to:** • Read and write numbers in decimal notation. • Place the decimal point at the correct location when any mathematical operation is performed. • Convert measurement from smaller unit to larger unit or vice versa • Rounding off a decimal number to the given place value. • Estimate the answer to a decimal problem • Solve application problems that require decimal four operations.
TOPIC: PERCENTAGE **SUBTOPICS:** • PERCENTAGE • PART AND WHOLE • WORD PROBLEMS	**Students should be able to:** • Describe the meaning of percent. • Represent a number as decimal, fraction and percent. • Write fraction and decimal as percentage and vice versa • Find percentage • Find the value if Percentage is given Solve word problems involving percentage. • Calculate percentage in real life context.
TOPIC: AREA OF TRIANGLES **SUBTOPICS:** AREA OF RIGHT ANGLE TRIANGLE	**Students should be able to:** • Calculate area using the formula • Identify the base and height of a triangle Calculate missing value when area is given.

Decimal:

Words to remember:
Decimal, fraction, conversion, meter, centimeter, kilometer, kilograms, liters, milliliters, whole number.

Additional resources:

- http://in.edugain.com/math/grade-5/decimal-Numbers
- www.mathplay.com/decimal-math-games
- www.free- training- tutorial.com /decimal-games
- www.coolmath.com/prealgebra/02-decimals/decimals-cruncher
- www.mathnook.com/math/skill/decimalgames

Sample Questions:

(1) Solve the following
   a) 2.8 x 10
   b) 17.56 x 100
   c) 343.25 ÷ 1000

(2) A man ran for 54.82 m before he took a break. After that, he ran for another 55.64 m and stopped to talk with a friend. Finally, he returned home running the last 39.23 m. How long was his route that day (in meters)? Round off your answer to nearest one decimal place.

(3) Convert the following:
   a) 74.681 km =_____m
   b) 564.38 ml = _____L
   c) 283 g = _____kg

(4) A girl has Rs.5055.80.A dress cost Rs.705.5 and a pair of shoe cost Rs600.20.If the girl bought 2 dresses and a pair of shoe. How much money does she save?

Percentage

Words to remember:
Percentage, value, part and whole.

Additional resources:

- www.math-play.com
- www.shepardsoftware.com/mathgames/fractions/fractionsto decimals
- www.mathplayground.com/ASBPuppy_chase_decimals
- www.gamesforthinkers.org

Sample Questions:

(1) 1. Convert into percentage. a) 8/25 b) 0.42

(2) My new speakers were Rs.4050 but I also had to pay the 6% tax, what did I pay for my new speakers?

(3) Nina earns a monthly salary of $3700. She spent 35% of it on housing, 20% on food and 30% on other expenses. If she saves the rest, how much money does she save? (4) Find the value : 120% of 50

Area of Triangle:

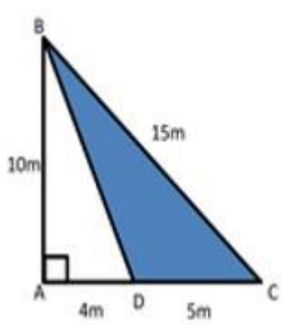
Words to remember:
Missing angle, Missing value, Unknown angle

Additional resources:

- www.ixl.com/maths/grade5/area-of-triangles
- www.gamesforthinkers.org
- www.helpingwithmath.com

Sample Questions:
For identification of triangles, question will be based in the form of figures or in the form of mental math question or in the form of word problems.

(1) find the area of the following shape.



MARCH:

15. Algebra (multiplication and division)
    Questions from handout

16. Introduction and construction of circle
    Questions from exercise will be done

17. Area of composite shapes Questions from handout will be given.

18. Volume of Cube and Cuboids
    NSPM pg # 251-258
    Workbook 5B pg # 101-105

Activity Calendar for the month of March2019/Mental Math

CONTENT	LEARNING OBJECTIVES
TOPIC: ALGEBRA (MULTIPLICATION AND DIVISION) QUESTIONS FROM HANDOUT **SUBTOPICS:** • MULTIPLICATION AND DIVISION OF ALGEBRAIC TERMS	**Students should be able to:** • The basic rules of multiplication and division. • Do multiplication and division with or without parentheses.
TOPIC: INTRODUCTION AND CONSTRUCTION OF CIRCLE **SUBTOPICS:** • INTRODUCTION OF CIRCLE QUESTIONS FROM HANDOUT WHAT IS CIRCLE? • TERMINOLOGIES RELATED TO CIRCLE • CONSTRUCTION OF A CIRCLE USING PROTRACTOR.	**Students should be able to:** • To familiarize the students with Circle and its terminologies. • Enable students to draw/construct circle using the given data/information. • Relate circle with the daily life objects.
TOPIC: COMPOSITE FIGURE **SUBTOPICS:** • AREA OF COMPOSITE FIGURES SUCH AS L ,T SHAPE ETC	**Students should be able to:** • Define what composite figure is. • Differentiate between composite figure and other figures. • Calculate the area of the figure given.
TOPIC: VOLUME OF CUBE AND CUBOIDS **SUBTOPICS:** • FIND THE VOLUME OF CUBE AND CUBOIDS	**Students should be able to:** • Understand volume and its use. • Use formula to find out the volume of cube and cuboids.

Algebra (Multiplication and Division):

Words to remember:
Multiply, divide, product, of.

Additional resources:

- www.ixl.com/math/algebra.../multiplication-and-division
- www.mathplayground.com
- www.coolmath-games.com

Sample questions:

(1) Simplify:

a) $6s \times 14s^3 \times 17s^2$

b) $625ar^3 \div 5ra$

c) $-20a^2.\ 6x.\ 18y$

d) $-268\ j^6\ t^7u^2 \div 4\ j^6\ t\ u^3$

<u>Introduction and Construction of Circle:</u>

Word to remember:

Circle,radius,diameter,quadrant,sector,circumference,center,tangent,secant,chord.

Additional Resources:

- https://www.ixl.com/math/grade-5/radius-diameter-circumference-and-area-of-a-circle
- http://www.mathgoodies.com/lessons/vol2/geometry.html
- http://study.com/academy/lesson/parts-of-a-circle.html

Sample questions:

(1) Define the terminology, diameter, chord, secant, center etc.

(2) Construct a circle with radius 6.5cm and 7cm

(3) _____the point equidistant from the points on the circle.

(4) Construct a circle when diameter is 10cm.

<u>Composite Figure:</u>

Words to remember:

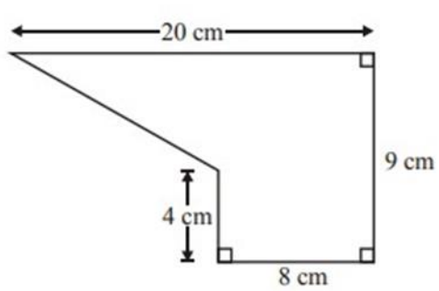
Area, Total area, Composite.

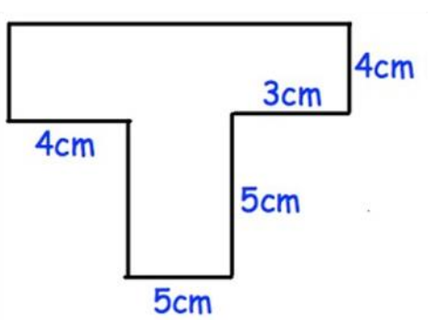
Additional Resources:

- https://www.khanacademy.org/
- https://www.studyladder.com
- www.transum.org/software/SW/Starter_of_the.../Areas_of_Composite_Shape
- www.ck12.org/geometry

Sample Questions:

Question will be given either in figure form. Students have to identify the figures and calculate the area using the formulas or specific method.





Volume of Cube and Cuboids:

Words to remember:
Cube, Cuboids, volume

Additional resources:

- www.math-play.com
- www.shepardsoftware.com/mathgames/geometry/...Quadshapesshoot
- www.turtlediary.com
- www.xpmath.com/forums/arcade.php?do=play&game

Sample Questions:

(1) Question will be given either in figure form or in descriptive form. Students have to identify the figure or find similarities or differences; write the basic properties of the figures.
(2) For the volume of cubes and cuboids, figure will be given along with the dimensions. Formulae will be used to find the missing data.

APRIL

Revision
Activity Calendar for the month of April/Mental Math

FINAL EXAMS

ASSESSMENT AND HOME WORK

Students will be assessed by taking test of each and every chapter. Home Work shall be given on daily basis.

Mathematical Symbols

- + ADDITION
- - SUBTRACTION
- × MULTIPLICATION
- ÷ DIVISION
- < LESS THAN
- > GREATER THAN
- = EQUALS TO
- ≈ APPROXIMATE
- / FRACTION
- : RATIO
- % PERCENTAGE
- *ml* MILLI LITRE
- *l* LITRE
- cm CENTIMETRES
- m METRES
- Kg KILOGRAM
- g GRAMS
- ° DEGREE
- || PARALLEL LINES
- ↔ LINE
- ↑ RAY
- _____ LINE SEGMENT
- ⊥ PERPENDICULAR LINES
- *L* ANGLE
- ▲ TRIANGLE

Important Formulae:

- P = 2(l + b) PERIMETER OF RECTANGLE
- P= 4 × l PERIMRTER OF SQUARE
- P = l +b +h PERIMETER OF TRIANGLE
- A = l× b AREA OF RECTANGLE
- A = L × L AREA OF SQUARE
- A = ½ b × h AREA OF TRIANGLE
- Av. = SUM OF QUANTITIES / NUMBER OF QUANTITIES.
- % = OBTAINED MARKS/ TOTAL MARKS × 100
- SUM OF ANGLES AT A POINT = 360°
- SUM OF ANGLES ON STRAIGHT LINE = 180°
- SUPPLIMENTARY ANGLES = 90°
- COMPLEMANTARY ANGLES = 180°
- SUM OF ANGLES AT A POINT = 360°
- SUM OF ANGLES ON STRAIGHT LINE = 180°
- SUPPLIMENTARY ANGLES = 90°
- COMPLEMANTARY ANGLES = 180°
- SUM OF ANGLES IN QUADRILATERAL = 360°
- SUM OF ANGLES IN A TRIANGLES = 180°

Key Words:

- **ABACUS** = An Abacus is a counting tool used in mathematics for early learners. The Abacus helps provide a concrete understanding of counting, adding, subtracting and dividing. The Abacus contains beads or disks that can be moved up or down or from side to side.

- **ADDEND** = A number which is involved in addition. Numbers being added are considered to be the addends. E.g. 3 + 2 = 4. The three and the two are the addends.

- **ALGEBRA** = A branch of mathematics that substitutes letters for numbers.

- **Coefficient** - A factor of the term. x is the coefficient in the term x(a + b) or 3 is the coefficient in the term 3*y.*

- **Common Factors -** A factor of two or more numbers. A number that will divide exactly into different numbers.

- **Complementary Angles** - The two angles involved when the sum is 90°.

- **Composite Number -** A composite number has at least one other factor aside from its own. A composite number cannot be a prime number.

- **Constant** - A value that doesn't change.

- **Congruent** - Objects and figures that have the same size and shape. The shapes can be turned into one another with a flip, rotation or turn.

- **Denominator** - The denominator is the bottom number of a fraction. (Numerator is the top number) The Denominator is the total number of parts.

- **Degree** - The unit of an angle, angles are measured in degrees shown by the degree symbol: °

- **Diameter** - A chord that passes through the center of a circle. Also the length of a line that cuts the shape in half.

- **Difference** - The difference is what is found when one number is subtracted from another. Finding the difference in a number requires the use of subtraction.

- **Digit** - Digits are making reference to numerals. 176 is a 3 digit number.

- **Dividend** – The number that is being divided. The number found inside the bracket.

- **Divisor** - The number that is doing the dividing. The number found outside of the division bracket.

- **Equilateral** - All sides are equal.

- **Even Number** - A number that can be divided or is divisible by 2.

- **Evaluate** - To calculate the numerical value.

- **Exponent** - The number that gives reference to the repeated multiplication required. The exponent of 3^4 is the 4.

- **Factor** - A number that will divide into another number exactly. (The factors of 10 are 1, 2 and 5).

- **Fraction** - A way of writing numbers that are not whole numbers. The fraction is written like 1/2.

- **Geometry** - The study of lines, angles, shapes and their properties. Geometry is concerned with physical shapes and the dimensions of the objects.

- **Greatest Common Factor** - The largest number common to each set of factors that divides both numbers exactly. E.g., the greatest common factor of 10 and 20 is 10.

- **Improper Fraction** - A fraction whereby the denominator is equal to or greater than the numerator. E.g., 6/4

- **Isosceles** - A polygon having two sides equal in length.

- **Kilometer** - A unit of measure that equals 1000 meters.

- **Like Fractions** - Fractions having the same denominator. *(Numerator is the top, denominator is the bottom)*

- **Line -** A straight infinite path joining an infinite number of points. The path can be infinite in both directions.

- **Line Segment** - A straight path that has a beginning and an end - endpoints.

- **Mixed Numbers** - Mixed numbers refer to whole numbers with fractions or decimals. Example 3 1/2 or 3.5.

- **Monomial -** An algebraic expression consisting of a single term.

- **Multiple -** The multiple of a number is the product of the number and any other whole number. *(2,4,6,8 are multiples of 2)*

- **Multiplication** - Often referred to as 'fast adding'. Multiplication is the repeated addition of the same number 4x3 is the same as saying 3+3+3+3.

- **Numerator** - The top number in a fraction. In 1/2, 1 is the numerator and 2 is the denominator. The numerator is the portion of the denominator.

- **Odd Number -** A whole number that is not divisible by 2.

- **Operation -** Refers to addition, subtraction, multiplication or division which is called the four operations in mathematics or arithmetic.

- **Order of Operations** - A set of rules used to solve mathematical problems. BEDMAS is often the acronym used to remember the order of operations. BODMAS stands for '*brackets, Of, division, multiplication, addition and subtraction.*

- **Parallelogram** - A quadrilateral that has both sets of opposite sides that are parallel.

- **Percent -** A ratio or fraction in which the second term on denominator is always 100.

- **Perimeter** - The total distance around the outside of a polygon. The total distance around is obtained by adding together the units of measure from each side.

- **Perpendicular -** When two lines or line segments intersect and form right angles.

- **Prime Numbers -** Prime numbers are integers that are greater than 1 and are only divisible by themselves and 1.

- **Product -** The sum obtained when any two or more numbers are multiplied together.

- **Proper Fraction -** A fraction where the denominator is greater than the numerator.

- **Protractor -** A semi-circle device used for measuring angles. The edge is subdivided into degrees.

- **Quotient -** The solution to a division problem.

- **Ratio -** The relation between to quantities. Ratios can be expressed in words, fractions, decimals or percent. E.g., the ratio given when a team wins 4 out of 6 games can be said a 4:6 or four out of six or 4/6.

- **Ray -** A straight line with one endpoint. The line extends infinitely.

- **Rectangle -** A parallelogram which has four right angles.

- **Remainder -** The number that is left over when the number cannot be divided evenly into the number.

- **Rhombus -** A parallelogram with four equal sides, sides are all the same length.

- **Subtraction -** The operation of finding the difference between two numbers or quantities. A process of 'taking away'.

- **Supplementary Angles -** Two angles are supplementary if their sum totals 180°.

- **Trapezoid -** A quadrilateral with exactly two parallel sides.

- **Triangle -** Three sided polygon.

- **Variable -** When a letter is used to represent a number or number in equations and or expressions. E.g., in 3x + y, both y and x are the variables.

- **Vertex-** A point of intersection where two (or more) rays meet, often called the corner. Wherever sides or edges meet on polygons or shapes. The point of a cone, the corners of cubes or squares.

- **Whole Number -** A whole number doesn't contain a fraction. A whole number is a positive integer which has 1 or more units and can be positive or negative.

Resource List

Books:

- *Dr Fong Ho Kheong, Chelvi Ramakrishnan, Gan Kee Soon(2nd edition), My Pals are her Book 1a and 1b,Singapore; Marshall Cavendish Education
- *Lawler, Dr Graham (4th Edition) , Understanding Maths Book 1,2
- *Winnie Tan and S. T. Rajah,* Progressive Mathematics Book 1,2, Oxford University press;
- *P.N. Singh, A. K. Roy, and S. Dudeja (Second edition), New* Count Down Mathematics Book 1,2, Oxford University Press;
- SPMG Mathematics Book 1,2