Dawood Public School
Course Outline 2017-2018
Math
Class V

Books:

Lu jitan, New Syllabus Primary Mathematics 5 along with practice books 5aand 5b, Singapore; Oxford University Press

Monthly Syllabus for the year 2017-18

MONTHS	TOPICS	DURATION
AUGUST	• WHOLE NUMBERS • FOUR OPERATIONS • ACTIVITY CALENDER • MENTAL MATH	2 Weeks 1 Week 0.5 Week
SEPTEMBER	• FOUR OPERATIONS • ANGLES • ALGEBRA(ADD/SUB) • ACTIVITY CALENDER • MENTAL MATH	2 Weeks 1 Week 1 Week
October	• ALGEBRA (ADDITION AND SUBTRACTION) • AVERAGE • UNKNOWN ANGLES OF A TRIANGLE • AREA OF TRIANGLE • ACTIVITY CALENDER • MENTAL MATH	0.5 Weeks 1.5 Week 1.5 Week 0.5 Week
November	• COMPOSITE FIGURE • RATIO • MENTAL MATH • ACTIVITY CALENDER • REVISION	1 Week 2 Week 1 Week
December	MID TERM EXAMS Activity Calendar	
January	• FRACTIONS • CONSTRUCTION OF A TRIANGLE • ACTIVITY CALENDER • MENTAL MATH	2.5 Weeks 1.5 Weeks
February	• DECIMALS • PERCENTAGE • VOLUME OF CUBE AND CUBOID • ACTIVITY CALENDER	2 Weeks 1 Week 1 Week
March	• ALGEBRA (MULTIPLICATION AND DIVISION)	2 Weeks

	• FOUR SIDED FIGURE • ACTIVITY CALENDER • MENTAL MATH	1 Week 0.5 Week 0.5 Week
April	REVISION ACTIVITY CALENDER MENTAL MATH	3 Weeks 1 Week
May	FINAL TERM EXAMS	2 Weeks

SYLLABUS CONTENT:

August

Topic	**Whole Numbers**		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Numbers beyond 100,000 • Prime Factorization • L.CM • H.C.F	By the end to: • Read and write the • numbers beyond 10000 • Recognize the place value of any digit in a number. • Find prime factors, HCF, LCM of given numbers.	By attaining specific perform following real life tasks: • Assisting their parents while shopping (in big malls as well as in small markets) by reading figures on price tags, by comparing prices • L.C.M and H.C.F are used in situations like: • Kamal has 6 cans of regular soda and 15 cans of diet soda. He wants to create some identical refreshment tables that will operate during the American football game. He also doesn't want to have any sodas left. What is the greatest number of refreshment tables that Kamal can stock? • This afternoon, Sara noticed that the number of the page assigned for homework is divisible by both 12 and 2. What is the smallest possible page number that could have been assigned?	Pg # 2-24 W/B 5A Pg# (1-20)

Attainable Targets:

CHAPTER 1: WHOLE NUMBERS:

- 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
- Rounding 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.

Sample Questions:

1) Guess the code using the hints given below:
a) Sum 4 and 2 and write your answer in the tens place.
b) Divide 21 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 place.
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 9.Write your answer in thousand place.
What is the number?_____
f) Round off your answer to nearest 1000.

2) An unknown number has been rounded off to the nearest thousand and the rounded value is 7000.What is the number.
3) Find HCF and LCM of **48, 72, 108**.Also Find/calculate the **difference** of LCM and HCF**.**
4) Sum the all **PRIME** numbers between 8 and 35.
5) I am thinking of two numbers 14 and another number. The number 14 and my other number have greatest common factor of 14 and their least common multiple is 42.What is the other number I am thinking of?

Additional Resources:

- http://www.math- drills.com/place value worksheets
- http://mathcrush.com/read_n_write_worksheets
- http://www.onlinemathlearning.com/lcm-gcf - word- problem

September

Topic	**Four Operations**		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Multiplication & Division • Word problem • Order of Operation	By the end of the topic students should be able to: • Multiply & divide numbers by 10 and its multiples. • Estimate the sum, difference and product of different values. • Solve expressions involving different operations.	By attaining specific objectives, students will be able to : • Do quick calculations of values including 10 and its multiples • Estimating time, money, weight etc. • Perform daily life tasks which include multiple operations.	Pg 21-59,W/B pg # (30-40)

Attainable Targets:

CHAPTER 2: FOUR OPERATIONS:

- 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
- To solve the story sums (word problems) and determine the unknown value.

Sample Question:

1) Solve a) 256 x 10 b) 13 x 100 c) 126 x 10000 d) 256 x 20 e) 28 x 260

2) There are 4162 walnut trees currently in the park. Park workers will plant 6786 **more** walnut tress today. What will be the actual/exact number of walnut trees in the park when the workers have finished planting? Check if your answer is reasonable or not by estimation.

3) For the Good Cheer food drive, your class collected 3020 cans of food. Each family gets 20 cans of food. How many cartons will you need to pack them?

4) Mr. Lim bought 4 new tyres and a new battery for his car at a total cost of Rs.707.If the cost of the battery was Rs.195, what was the price of each tyre?

5) Solve the following sums.

1) 60 x 2 + 18 ÷6 + (13 – 3) x 5

2) 44 + 10 ÷ 5 – 3 x 2 + 1

Additional Resources:

- www.mathplayground.com/order_of_operation
- www.sheppard software.com/ mathgames/round/mathman_round__addition
- www.math-drills/powersoften

Topic	**Angles**		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Basic Angles (Revision) • Angles On Straight Line • Angles At A Point Vertically • Opposite Angles • Adjacent Angles	By the end students should be able to: • Define, describe and recognize basic angles, angles straight on line, at a point, Adjacent and V/O angles. • Also find unknown angles.	Angles are used by following professionals in their professions: • Engineers and architects use angles for designs, roads, buildings and sporting facilities. etc	Pg 69-75 W/B 5B Pg # 207-219 5B

Attainable Targets:

CHAPTER 9: ANGLES:

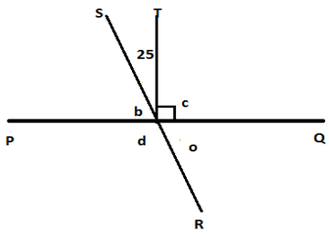
- Define what angles are and how they are form using daily life objects/examples.
- Identifying, describing, naming, and drawing angles (e.g., right, acute, obtuse, and straight).
- Identify the adjacent and vertically opposite angles.

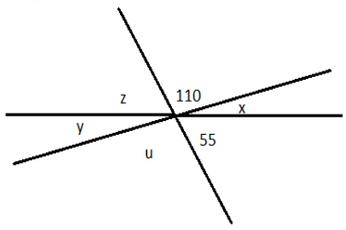
- Determining angles on straight line, at a point, supplementary and complementary angles.
- Find the unknown angle.
- Apply vertical angles property of intersecting lines.

Sample Questions:

Students will identify the angles and calculate the value of the missing angle.

Q. Find out the missing angles:





Additional Resources:

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

October

Topic	**Algebra**		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Addition & Subtraction of algebraic TERMS	By the end of the topic students should be able to: • Add the algebraic terms • Subtract the algebraic terms.	This simple addition and subtraction of algebraic terms will help students in future for following things: • Calculating costs of various things even when some original values are missing. • Finding unknown angles of complex figures. • Driving formulas used at higher level.	Handout and worksheets

Attainable Targets:

ALGEBRA (ADDITION and SUBTRACTION):

- Identify constant, variable and exponents
- Identify equation and expression
- Perform addition and subtraction.

Sample Questions:

1. Simplify:
i) 18a+86b+24a-24c **ii)** q+39r+57q-q **iii)** $4x^2 - 2x + x^2 - 63 + 3x - 36$ **iv) -1**5p +7q – 8p -3q+15
2. Subtract 73pq + 46pq2 -14 **FROM** –pq + 20 pq2 – 47

Topic	**Average**		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Finding Average • Word Problems	By the end of the topic students should be able to: • Find average of numerous values • Solve problem sums include	By attaining specific objectives, students will be able to perform following real life tasks: • Finding average study hours per day. • Calculating their average expense of the week from their pocket money. • Finding average cost of different things they buy, average quantity of things, they use and many more. • Finding average temperature of the month.	Pg# 22-29 166- Pg 166-173 W/B 5B

Attainable Targets:

CHAPTER 7: AVERAGE:

- Interpret the formula
- Calculate the average and manipulate the formula to find out any other unknown with the help of given data.
- Find total amount if average is given.

Sample Questions:

1. Find the average of 156, 81, 30, 127 and
2. Find the average of all numbers between 6 and 34 that are divisible by 5.

3. $\frac{7+6+3+\square}{4} = \frac{24}{4} = \square$

Additional Resources:

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

Topic	**Triangles**		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Sum Of Angles Of A Triangle • Special Triangles • Area Of A Triangle	By the end of the topic students will be able to: • Find the unknown angles of simple as well as special triangles (Isosceles triangle, Right triangle) Angled • Find area of different triangles.	By attaining specific objective students can relate to real life tasks. • Finding area to estimate the required material to cover any triangular surface. • Almost all two dimensional circle) can be made apes (apart from a up of a series of triangles arranged in a certain way. triangle helps in also finding area of a many other to dimensional if required.	Pg # 223-240 W/B 5B Pg # 79-88

Attainable Targets:

CHAPTER 10: and 11: TRIANGLES and AREA OF TRIANGLE:

- Get familiarize with triangles and its types
- Identify triangle according to its sides and its angles
- Find unknown angle of a triangle
- Identify the base and height of a triangle
- Using formula to calculate area of a triangle
- Recognize, use and communicate with one another about triangles and their properties

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)**
2. Calculate the area of triangle given**.(fig b)**

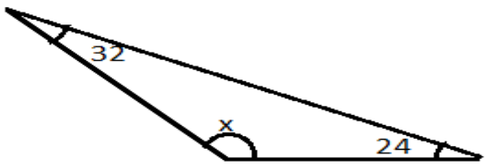


Fig a

Additional Resources:

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

November

Topic	**Area of Composite Figures**		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Area of composite figures such as l, t shape etc.	By the end of the topic students will be able to : • Understand what is a composite figure • How to calculate the area of such figures • What is the use of studying such composite figures	By attaining specific objectives students will be able to perform real life task • Such as area of buildings involving different shape. Etc.	Questions from exercise will be given.

Attainable Targets:

- Define what composite figure is.
- Differentiate between composite figure and other figures.
- Calculate the area of the figure given.

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.

Additional Resources:

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

Topic	**Ratio**		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Ratio • Equivalent ratios • Word problems	By the end of the topic students should be able to: • Compare different • values • Simplifying equivalent ratios • Find unknown ratios	By attaining specific objectives, students will be able to perform following real life tasks: • Assisting their mothers in baking and cooking, dealing with different quantities and ratios of ingredients. • Finding ratio of distance and time while travelling. • Finding ratio of weight and cost of things while shopping.	Pg # 99-111 W/B 5B Pg # 132-145

Attainable Targets:

CHAPTER .4: RATIO:

- 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.

Sample Questions:

1. Complete the ratio table:

a. A necklace is being made using white and black beads, as shown:

b. What's the ratio of white beads to black beads, in its simplest form?

c. Use equivalent ratio to find how many white beads would be needed to go with 24 black beads?

d. How many beads are there altogether?

Additional Resources:

- www.arcademics.com/ **games**/**ratio** -stadium
- mathsnacks.com/**ratio** rumble **game**
- edhelper.com/ratios.htm
- http://www.mathinenglish.com/
- helpingwithmath.com

December
Midterm Exams

January

Topic	**Fraction**		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Addition and subtraction of fractions and mixed numbers • Multiplication of fractions and mixed numbers • Division of a fraction by a whole number and fraction • Word problems	By the end of the topic students should be able to: • Add and subtract improper proper, fractions and mixed numbers as well. • Multiply fractions with fractions and mixed numbers • Divide fractions with fractions and mixed numbers.	By attaining specific objectives, students will be able to perform following real life tasks: • Helping mothers in measuring ingredients while cooking or baking even when quantities are given infractions. • Evaluating any team's performance in a year. (e.g. A team won 4/5 of the matches, when total number of games played was 25) • Comparing prices while shopping (the price of this product is 2/3 of that one)	Pg # 60-92 Pg# 90-118 W/B 5A

Attainable Targets:

CHAPTER 3: FRACTION:

- 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.

Sample Questions:

1. Solve the following fractions.

i) $12\frac{3}{9} + 8\frac{16}{11}$

ii) $15\ \frac{15}{10} \times 6\frac{18}{9}$

iii) $\frac{36}{15} \div 4\frac{4}{8}$

2. The grocery parking lot will hold 1000 vehicles. $\frac{2}{5}$ of the parking space is for the cars. When you went to buy grocery there were 200 cars and some trucks in the parking lot. The parking lot was $\frac{3}{4}$ full. How many trucks were there in the parking lot?

3. Father had 3,500$. He spent $1/10$ on food, $\frac{1}{7}$ of it on his car and he saved the rest. How much money did he save?

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

Topic	**Construction of Triangle**		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Construction of a triangle	By the end of the topic students should be able to: • Construct a triangle using protractor.	Learning how to construct a triangle will help students in future in following fields: • Architecture, engineering, chemistry etc. • In architecture similar triangles are used to represent doors and how far they swing open. It is used in construction to measure out the room and scale size. ... it showed the different ways that similar right triangles are used in everyday life . • If there is a single most important shape is the triangle. In engineering, it unlike a rectangle, a triangle cannot be deformed without changing the length of one of its sides or breaking one of its joints.	Hand Out and worksheets

Attainable Targets:

- 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 and a protractor.

Sample Questions:

1. Construct a triangle given that $\angle a=63^{\circ}$, $\angle b=33^{\circ}$ and AB=9cm
2. Construct a Δ ABC in which AB = AC = 11.6cm BC = 9.5cm

Additional Resources:

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

February

Topic	**Decimals**		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Multiplication and division by a whole number • Multiplication and division by a decimal number • Conversions including decimals • Four decimal operations of numbers	By the end of the topic students should be able to: • Convert fractions into decimals. • Add, subtract, multiply and divide all kinds of decimal numbers. • Convert measurements in different units (includes decimal numbers)	By attaining specific objectives, students will be able to perform following real life tasks: • Summing up grocery bills or bills At Restaurants. • Doing every day calculations including fractional values quickly by changing them into decimals. • Calculating amount left after shopping. • Equally distributing quantities even if the total amount or quantity is not completely divisible.	Pg 149-178 W/B 5B Pg # 117-144

Attainable Targets:

CHAPTER 5: DECIMAL:

- 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.

Sample Questions:

1. Solve the following **a)** 7.9 x 10 **b)** 86.2 x 100 **c)** 267.25 x 1000
2. Sara bought 10 pens and 12 erasers with Rs.12.35 per pen and Rs.8.25 per eraser. If she gives Rs.250.00 to the cashier, how much will the cashier return?
3. Subtract 116.85 and 139.5 estimate the answer to the nearest 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

Topic	**Percentage**		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Percentage • Part and whole • Word problems	By the end of the topic students should be able to: • Express decimal and fraction as percentage and vice versa. • Find out percentage of given fractions. • Find value of percentage. • Solve problem sums including percentage	By attaining specific objectives, students will be able to perform following real life tasks: • Calculating their own tests and exams percentage. • Evaluating different sales discount offers. • Evaluating many daily life • Life problems including percentage.	Pg 1-/8W/B 5B Pg # 152-161

Attainable Targets:

CHAPTER 6 PERCENTAGE:

- 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 the percentage is given
- Solve word problems involving percentage.
- Calculate percentage in real life context.

Sample Questions:

1. Convert into percentage. **a) 35/75 b) 0.68**
2. The price of a car is 15,000$. John got a 20% discount. How much did John have to pay?
3. Calculate 260 % of 50
4. Convert the 156% into fraction in its lowest term.

Additional Resources:

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

Topic	**Volume of Cube And Cuboid**		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Volume of cube and cuboid	By the end of the topic students should be able to: • Differentiate between cube and cuboid. • Calculate the Volume of Cube and cuboid.	By attaining specific objectives, students will be able to perform following real life tasks: • Identify the shape. • Calculating the volume of the shapes.	Pg 179,185191 -195 W/B 5B Pg # 171 - 175

March:

Topic	**Algebraic (Multiplication and Division)**		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Multiplication & Division of algebraic TERMS	By the end of the topic students should be able to: • Multiply the algebraic terms • Divide the algebraic terms.	This simple multiplication and Division of algebraic terms will help students in future for following things: • Calculating costs of various things even when some original values are missing. • Finding unknown angles of complex figures. • Driving formulas used at higher level.	Handout and worksheets

ALGEBRA: MULTIPLICATION and DIVISION:

- The basic rules of multiplication and division.
- Do multiplication and division with or without parentheses.

Sample Questions:

Simplify:

a) $6x \times 3y \times 17y^2$ **b)** $125pq3 \div 5pq$ **c)** $4a^2.\ 6x.\ 8y$ **d)** $-27a^3b \times 5ab^2c$

Additional Resources:

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

Topic	Four Sided Figure		
Subtopic	**Learning Outcomes**	**Practical Need to Attain Specific Objective**	**Book + W/B Pages**
• Identifying four sided figures • Properties of four sided figures • Volume of cube and cuboid.	By the end of the topic students should be able to: • Identify, define and describe numerous four sided figures.	By attaining specific objectives, students will be able to perform following real life tasks: • Identify different four sided figures when ever needed. • Using different properties of quadrilateral while analyzing or calculating quantity required of any material to cover any four sided surface at home.	Pg 101-110 W/B 5B Pg #251-264

Attainable Targets:

CHAPTER 12: 4 – SIDED FIGURES/Volume of cube and cuboids

- Identify the quadrilaterals
- The properties of quadrilaterals
- Find similarities and differences in figures.
- Understand volume and its use.
- Use formula to find out the volume of cube and cuboid.

Sample Questions:

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.
For the volume of cubes and cuboids, figure will be given along with the dimensions. Formulae will be used to find the missing data.

Additional Resources:

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

April

Revision

May

FINAL EXAMS

Assessment and Home Work

Students will be assessed by taking test of each and every chapter. Homework 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
- ∟ 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 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. eg. 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 3y.

- **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
- **Isoceles** - 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 either addition, subtraction, multiplication or division which are 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, divison, 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 themself 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 percents. 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