

Year 8 Mathematics Learning Journey

Number – Can I extend and apply my knowledge of number to working with more than 2 or larger numbers? Area and volume - Am I able to apply my knowledge of 2D shapes to 3D shapes? *(Further development of the curriculum from Year 7, building on number, decimals and measure in the autumn term)*

- Applying mathematical operations to 2 or more numbers, extending work on negative numbers to very large numbers and decimal numbers, calculations with square, square roots, cube, cube roots and brackets, writing complex calculations, using index form and writing a number as a product of its prime factors.
- Derive and use the formula for the area of a triangle, parallelogram & trapezium. Calculate the volume of cubes, cuboids and 3D solids made from cuboids; draw nets and calculate the surface area of 3D shapes; solve problems in everyday contexts involving measures.

Statistics graphs and charts. – Am I able to present and interpret data using diagrams and charts? **Expressions and equations** - Can I extend my knowledge in algebra to problem solving? *(Further development of curriculum from year 7 Autumn term)*

- Presenting and interpreting data with Pie charts, stem and leaf diagrams, line graphs and scatter graphs.
- Calculating the mean from frequency tables.
- Simplifying algebraic powers; write and use expressions and formulae using brackets, division, and powers.
- Write and solve one step and two step equations using function machines and the balancing method.

Start of the Year

Lines and angles – Am I able to use the properties of lines and angles to identify various types of angles and solve geometrical problems showing reasoning? *(Further development of curriculum from Year 7 summer 1)*

- Classify quadrilaterals using their geometric properties.
- Understand the relationship between parallel lines, alternate, corresponding angles and solve problems on this.
- Calculate the sum of exterior and interior angles in a polygon and work out the sizes of interior and exterior angles.
- Solve geometric problems showing reasoning.
- Solve geometric problems on angles by setting up equations.

Real life graphs – Am I able to present and interpret real life situations using graphs?

Decimals and ratio – Can I apply my knowledge of decimals to multiplying large decimal numbers and solving ratio and proportion problems? *(Further development of curriculum from Year 7, building on work done in the Autumn, Spring and Summer terms)*

- Draw use and interpret, conversion graphs, distance time graphs.
- Draw and interpret non-linear graphs.
- Multiply numbers by 0.1 & 0.01, multiply and divide by large numbers and decimals up to 2 decimal places; solve decimal problems; solve 3-part ratio problems; solve ratio and proportion problems involving decimals.

Calculating with fractions – Am I able to apply BODMAS to fractions and can I apply the four operations to mixed numbers? **Straight line graphs** – Am I able to derive and use the equations of straight lines? *(Further development of curriculum from Year 7, building on work done in the Summer term)*

- Identify fractions as being more or less than $\frac{1}{2}$, ordering fractions, apply the four operations to fractions of any size; covert between mixed numbers and improper fractions; apply the four operations to mixed numbers.
- Recognise values that are in direct proportion; work out the gradient of straight-line graphs; write and use $y = mx + c$.

Percentages, decimals and fractions – Am I able to apply various strategies and solve problems. *(Further development of curriculum from Year 7 Spring 1 and year 8 Summer 1)*

- Equivalent fractions and decimals, converting time to decimals, working with recurring decimals, equivalent fractions, decimals & percentages; Proportions involving large numbers and decimals; solving percentage problems in various contexts using the unitary and multiplier method.