Sir William Ramsay School

EMPOWERING EVERYONE TO ACHIEVE

Curriculum Map for Maths Year 7

YEAR 7	Autumn 1	Autumn 2
Topics	**Revision of Number Skills** **Analysing & Displaying Data**	**Expressions, Functions & Formulae** **Decimals & Measures**
Substantive Knowledge – The Knowledge Taught By The Teacher	• Students will learn about the different types of averages. • Students will learn about interpreting and plotting graphs. • Students will learn about priority of operations.	• Students will learn about and use algebraic expressions and formulae. • Students will learn about manipulating decimals, prime numbers, Highest Common Factor (HCF), Lowest Common Multiple (LCM), powers, roots and index numbers. • Students will learn about maths symbols i.e. =, ≠, <, > , ≤, ≥.
Disciplinary Knowledge – How The Knowledge Taught Is Applied	• Understanding that inverse operations can verify answers. • Understanding accuracy when rounding numbers. • Understanding how to apply knowledge to solve problems.	• Understanding priority of operations when working out an answer. • Understanding how to apply knowledge to solve problems.
Skills	• Interpret and construct tables, charts and diagrams, including frequency tables, bar charts, pie charts and pictograms for categorical data, vertical line charts for ungrouped discrete numerical data, tables and line graphs for time series data and know their appropriate use.	• Apply the four operations, including formal written methods, to integers, decimals and simple fractions (proper and improper), and mixed numbers – all both positive and negative; understand and use place value (e.g. when working with very large or very small numbers, and when calculating with decimals).
Links To Prior Learning	• Building on basic number and statistics knowledge from KS2. • Be able to apply the four operations in problems for positive integers efficiently in order to calculate the mean, median and mode of a set of data no more than 20 numbers.	• Using number skills to calculate/round with more complex decimals. • Building on shape, space and measure skills learnt at KS2.
Literacy/ Numeracy	• Language of number (i.e. operators) and statistics (i.e. Mean, Median, Mode and range). • Deconstructing a written question into mathematical language.	• Language of algebra (i.e. expression, equation and term) and number (i.e. HCF, LCM and prime number). • Deconstructing a written question into mathematical language.
Cross Curricular	• This links to all subjects that use basic statistics.	• This links to all subjects that use numbers.
Assessment	• Learning checks throughout with low stakes questioning and starters. • Summative assessment at the end of topic.	• Learning checks throughout with low stakes questioning and starters. • Summative assessment at the end of topic

YEAR 7	Spring 1 & 2	Spring 1 & 2
Topics	**Fractions & Percentages** **Probability**	**Ratio & Proportion**
Substantive Knowledge – The Knowledge Taught By The Teacher	• Students will learn about the link between fractions and percentages. • Students will learn about the probability scale and link to percentage and fractions.	• Students will learn about ratio linking it to proportion. • Students will learn about the unitary method.
Disciplinary Knowledge – How The Knowledge Taught Is Applied	• Understand that fractions and percentages are equivalent. • Understanding that probability is between 0 - 1. • Understanding how to apply knowledge to solve problems.	• Understand that ratio and proportion are linked. • Understand ratio like fractions can have equivalents. • Understanding how to apply knowledge to solve problems.
Skills	• Define percentage as `number of parts per hundred; interpret percentages and percentage changes as a fraction or a decimal and interpret these multiplicatively; express one quantity as a percentage of another; compare two quantities using percentages; work with percentages greater than 100%. • Apply ideas of randomness, fairness and equally likely events to calculate expected outcomes of multiple future experiments.	• Use ratio notation, including reduction to simplest form. • Divide a given quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio; apply ratio to real contexts and problems (such as those involving conversion, comparison, scaling, mixing, concentrations).
Links To Prior Learning	• Using fraction skills to understand probability scales and calculating simple probability of independent events.	• Apply skills from previous topics to workout direct proportion and understand concept of ratio. • Be able to divide a given amount in a specific ratio and solve worded problems. • Use fraction and percentage notation to compare simple proportions.
Literacy/ Numeracy	• Language of percentages, fractions and probability. • Deconstructing a written question into mathematical language.	• Language of ratio (i.e. unitary method) and proportion (i.e. best value). • Deconstructing a written question into mathematical language.
Cross Curricular	• This links to all subjects that use number or probability. • This links to finance and calculating percentages.	• This links to all subjects that use proportion such as Food Technology and Sciences.
Assessment	• Learning checks throughout with low stakes questioning and starters. • Summative assessment at the end of topic.	• Learning checks throughout with low stakes questioning and starters. • Summative assessment at the end of topic.

YEAR 7	Summer 1	Summer 2
Topics	**Lines & Angles** **Sequences & Graphs**	**Transformations**
Substantive Knowledge – The Knowledge Taught By The Teacher	• Students will learn about straight lines and link angles to rotation. • Students will learn about sequences being linked by rules. • Students will learn to plot and draw straight lines on four quadrant graphs.	• Students will learn about transformations linking to symmetry, reflection, rotation and enlargement. • Students will learn about congruency.
Disciplinary Knowledge – How The Knowledge Taught Is Applied	• Understand sequences are linked by a term-to-term rule and can be ascending, descending or infinite. • Understand that an angle is a measure or rotation between two-line segments.	• Understand that enlargement is linked to scale factor. • Understand that symmetry has different components such as line symmetry, reflection symmetry and rotational symmetry.
Skills	• Use conventional terms and notation: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries. • Recognise, describe and continue number sequences. • Generate terms of a sequence using a one-step term-to-term rule. • Find missing terms in a sequence.	• Use conventional terms such as rotation, centre of rotation, angle of rotation, direction of rotation, reflection, equation of line of reflection, enlargement, scale factor.
Links To Prior Learning	• Applying number and algebra skills learnt to identify and generate sequences. Using knowledge of four quadrants and algebra to plot straight line graphs.	• This builds on the shape and space work at KS2.
Literacy/ Numeracy	• Language of angles, graphs, lines and sequences. • Deconstructing a written question into mathematical language.	• Language of reflection, rotation and enlargement. • Deconstructing a written question into mathematical language.
Cross Curricular	• This links to all subjects that use sequences, graphs and angles.	• This links to all subjects that use transformations.
Assessment	• Learning checks throughout with low stakes questioning and starters. • Summative assessment at the end of topic.	• Learning checks throughout with low stakes questioning and starters. • Summative assessment at the end of topic.