Curriculum map

Subject: Mathematics **Year: 8**

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit title	Proportional Reasoning	Representations	Algebraic Techniques	Developing Number	Developing Geometry	Reasoning with Data
Key knowledge	-Ratio and scale -Multiplicative change -Multiplying and dividing fractions	-Working in the cartesian plane -Representing data -Tables and probability	-Brackets, equations and inequalities -Sequences -Indices	-Fractions and percentages -Standard Index Form -Number sense	-Angles in parallel lines and polygons -Area of a trapezia and circles -Line symmetry and reflection	-The data handling cycle -Measures of location and dispersion
Key skills / concepts	-Understand ratio and its link to multiplication. -Circumference of a circle. -Use ratio notation. -Reduce ratios to simplest form. -Solve ratio problems. -Use scale factors, linking to ratio, to solve simple direct proportion problems. -Scale diagrams and maps. -Multiplying and dividing a fraction by both an integer and a fraction. **Challenge-Multiplying and dividing mixed numbers, comparing ratios, area of a circle and ratio in the form 1:n.**	-Plotting and interpreting straight line graphs. -Equations of lines parallel to axes. -Model situations by translating them into expressions, formulae and graphs. -Scatter graphs and correlation. -Designing and using one and two-way tables. -Listing outcomes. -Using sample space diagrams. -Using tables. **Challenge-Finding the equation of a straight line, finding the mid-point of a line segment, drawing quadratic graphs and product rule for counting.** ***Finance: Next steps in your financial journey.***	-Multiplying out single brackets. -Forming and using expressions, formulae and identities. -Forming and solving equations and inequalities with and without brackets. -Using more complex rules e.g. with brackets and squared terms. -Writing expressions with powers. **Challenge-Factorising into a single bracket, expanding binomials, solving equations with unknowns on both sides and finding the rule for the nth term of a linear sequence.** ***Finance: Dealing with financial dilemmas.*** ***The Tenner challenge.***	-Revisit fraction ,decimal and percentage equivalence. -One number as a percentage of another. -Conversion between numbers in ordinary and standard form. -Comparing numbers in standard form. -Developing mental strategies. -Measures and units. -Estimation, including rounding to a given number of decimal places. -Revisit order of operations. **Challenge-Finding the original given the percentage, simple surds, calculating with standard form, negative and simple fractional indices, converting area units and error interval notation.** ***Maths Team Challenge.***	-Review yr 7 angle rules and area of shapes. -Parallel lines and angles. -Revisit geometric notation. -Angles in special quadrilaterals. -Angles in polygons. -Area of a trapezium -Area of a circle and parts of a circle. -Using significant figures. -Area of compound shapes. -Line symmetry in polygons and other shapes. -Reflections of shapes in horizontal, vertical and diagonal lines. **Challenge- Standard constructions including perpendiculars and diagonal properties of quadrilaterals.** ***Junior Maths Challenge.***	-Collecting data. -Interpreting statistical diagrams. -Dual bar charts. -Constructing and interpreting pie charts. -Median and mean revisited, including finding the total. -Mean for grouped data. -The mode. -Choosing the appropriate average. -Revisit finding the range. -Comparing distribution. **Challenge-Mean of grouped data and finding unknown data values given the mean or changes in the mean.** ***Finance: Problem solving and building self-esteem.*** ***Dragon Competition.***
Key assessment	3 end of unit mini assessments.	2 end of unit mini assessments and 1 end of term assessment.	3 end of unit mini assessments.	3 end of unit mini assessments and 1 end of term assessment.	3 end of unit mini assessments.	2 end of unit mini assessments and 1 end of term assessment.
Key learning journey question	Can I think proportionally?	How can we represent data?	What is the link between sequences and algebraic expressions?	Can we describe and represent numbers in different ways?	What is area? What are the properties of 2D shapes?	What is the data handling cycle?