Curriculum Sequencing Overview – Maths Year 10

Week	1	2	3	4	5	6	7
Big ideas (key concepts)	1a. Accuracy and Estimation			1b. Ratio and Proportion			
Lesson topics sequence	Round to a given degree of accuracy. Estimate answers to calculations.	Understand inequality notation. Show inequalities on a number line. Write whole values that satisfy an inequality.	Write error intervals using inequality signs for rounded and truncated numbers.	Simplify ratios. State unit ratios. Share in a given ratio. Convert between ratios and fractions.	Combine two or more ratios. Solve word problems involving direct and inverse proportion.	Solve recipe problems. Calculate best buys. Solve proportion problems using the unitary method.	Recognise direct and inverse proportion on a graph. Calculate compound interest and depreciation.
Lesson topics sequence (Challenge)			Find the upper and lower bound of calculations involving addition, subtraction, multiplication and division. Use bounds to round to a suitable degree of accuracy for calculations.				Use algebraic equations to solve problems involving direct and inverse proportion.
Key assessments	Accuracy and estimation KA	Accuracy and estimation topic assessment		Ratio and proportion KA	Ratio and proportion topic assessment		

Revision Core	Sparx task Self-quizzing: Accuracy and Estimation 1 – 6	Sparx task Self-quizzing: Accuracy and Estimation 5 – 8	Sparx task Self-quizzing: Accuracy and Estimation 6 - 10	Sparx task Self-quizzing: Ratio and Proportion 1 – 5	Sparx task Self-quizzing: Ratio and Proportion 5 - 9	Sparx task Self-quizzing: Ratio and Proportion 10 - 13	Sparx task Self-quizzing: Ratio and Proportion 5 - 8
Revision Challenge	Sparx task Self-quizzing: Accuracy and Estimation 1 - 6	Sparx task Self-quizzing: Accuracy and Estimation 6 - 10	Sparx task Self-quizzing: Accuracy and calculating with bounds 1 - 4	Sparx task Self-quizzing: Ratio and Proportion 1 – 5	Sparx task Self-quizzing: Ratio and Proportion 5 - 9	Sparx task Self-quizzing: Ratio and Proportion 10 - 13	Sparx task Self-quizzing: Ratio and Proportion 5 - 8

Week	**8**	**9**	**10**	**11**	**12**	**13**	**14**
Big ideas (key concepts)	2a. Perimeter and Area			2b. Graphs			
Lesson topics sequence	Calculate the perimeter of rectilinear shapes. Problem solve with perimeter. Calculate the area of the following • Rectilinear shapes • Parallelograms • Triangles	Calculate the circumference and area of a circle. Problem solve with area. Given the area or circumference, calculate the radius or diameter.	Calculate areas of compound shapes. Calculate arc length. Calculate sector area.	Draw graphs of horizontal and vertical lines y = a and x = a. Recognise and draw simple diagonal graphs y = x and y = -x Draw graphs of y = mx + c	Calculate gradient and y intercept from a graph. Solve 2 linear simultaneous equations graphically Identify parallel lines from their equations.	Find the equation of a line when given - A point and the gradient - Two points Generate and plot graphs of quadratic functions.	Identify lines of symmetry, solutions and turning points of quadratic graphs. Recognise, sketch and interpret cubic and reciprocal functions.

	• Trapeziums						
Lesson topics sequence (Challenge)					Find the equation of parallel and perpendicular lines through a given point.	Recognise, sketch and interpret graphs of exponential and circular functions. Draw circles, with the origin as the centre with the equation $x^2 + y^2 = r^2$	Find the equation of tangents to circles.
Key assessments	Perimeter and area KA	Perimeter and area topic assessment	Year 10 assessment week (mock paper)	Linear graphs KA	Quadratic, cubic and other graphs KA	Graphs topic assessment	
Revision Core	Sparx task Self-quizzing: Perimeter and Area 1 - 8	Sparx task Self-quizzing: Perimeter and area – Circles 1 - 4	Sparx task Self-quizzing: Perimeter and area circles 5 – 11	Sparx task Self-quizzing: Linear Graphs 2-6	Sparx task Self-quizzing: Linear Graphs and co-ordinate geometry 3 - 5	Sparx task Self-quizzing: Quadratic, cubic and other graphs 2 - 5	Sparx task Self-quizzing: Quadratic, cubic and other graphs 8 – 11
Revision Challenge	Sparx task Self-quizzing: Perimeter and Area 1 - 8	Sparx task Self-quizzing: Perimeter and area – Circles 1 - 4	Sparx task Self-quizzing: Perimeter and area circles 5 – 11	Sparx task Self-quizzing: Linear Graphs 2-6	Sparx task Self-quizzing: Linear Graphs and co-ordinate geometry 3 – 6	Sparx task Self-quizzing: Quadratic, cubic and other graphs 2 - 7	Sparx task Self-quizzing: Quadratic, cubic and other graphs 8 - 11

Week	15	16	17	18	19	20
Big ideas (key concepts)	3a. Comparing Data, Averages and Range			3b. Properties of 3D shapes, Surface Area and Volume		
Lesson topics sequence	Recognise types of data. Calculate averages from a discrete set of data. Calculate combined averages and reverse mean questions. Calculate the range from a set of data.	Compare data sets using averages and range. Calculate averages and range from a frequency table, stem and leaf diagram and bar chart. Calculate modal class, estimate of the mean and the median class from a grouped frequency table.	Compare the mean, median mode and range of two distributions using a variety of charts. Recognise the advantages and disadvantages between measures of average.	Identify faces, edges and vertices in 3D shapes. Sketch the net of cubes and prisms. Calculate the surface area of prisms, cylinders, spheres and composite solids.	Convert between measurements for volume and capacity. Calculate the volume of prisms. Solve problems using volume of prisms.	Calculate the volume of cylinders and spheres. Calculate the volume of composite solids.
Lesson topics sequence (Challenge)	Construct and interpret cumulative frequency (CF) diagrams. Construct and interpret CF graphs. Compare the mean and range or median and interquartile range of two distributions.	Produce and interpret box plots and draw conclusions from diagrams. Draw and interpret histograms.	Estimate the mean from a histogram. Estimate the median from a histogram.	Calculate the surface area of a pyramid and cone.	Calculate the volume of pyramids, and cones.	Convert between metric units of area and volume.
Key assessments	Data KA	Comparing data, averages and range topic assessment		Volume and surface area of 3D shapes KA	Properties of 3D shapes, Surface Area and Volume topic assessment	

Week	21	22	23	24	25	26
Big ideas (key concepts)	4a. Plans, Elevations, Scale Drawings and Bearings			4b. Transformations and Congruence		
Lesson topics sequence	Draw the front and side elevations and plan view of 3D shapes. Given the plan and elevation, draw the 3D solid. Construct the following. - Perpendicular bisectors Angle bisectors	Construct loci diagrams, including given distance from a point, line, and equal distance from two points. Find and describe regions satisfying a combination of loci. Use and interpret maps and scale drawings. Make an accurate scale drawing from a diagram.	Use a three-figure bearing to describe direction. Measure and draw bearings. Use accurate drawings to solve bearing problems. Use properties of angles in parallel lines to solve bearing problems.	Rotate, reflect and translate a 2D shape. Describe a reflection, rotation and translation. Understand congruence and that rotations, reflections and translations produce congruent shapes.	Use basic congruence criteria for triangles. Solve problems involving congruence. Construct congruence triangles using a compass and a protractor. Understand and use vector notation.	Represent vectors pictorially. Calculate with vectors, including algebraic terms.
Lesson topics sequence (Challenge)			Solve locus problems using bearings.	Describe the changes and invariance achieved by a combination of rotations, reflections and translations.		Calculate the resultant of two vectors. Solve geometric problems in 2D where vectors are divided into a given ratio. Produce geometric proofs involving vectors.

Key assessments	Construction and bearings KA	Plans, Elevations, Scale Drawings and Bearings topic assessment		Transformations and vectors KA	Transformations and congruence topic assessment	
Revision Core	Sparx Maths Task Self-Quizzing: Plans and Elevations 1 - 6	Sparx Maths Task Self-Quizzing: Construction and Loci 2 – 7	Sparx Maths Task Self-Quizzing: Bearings 1 – 3	Sparx Maths Task Self-Quizzing: Transformations and congruence 1 – 5	Sparx Maths Task Self-Quizzing Transformations and congruence 6-10	Sparx Maths Task Self-Quizzing: Transformations and congruence 11-12
Revision Challenge	Sparx Maths Task Self-Quizzing: Plans and Elevations 1 - 6	Sparx Maths Task Self-Quizzing: Construction and Loci 2 – 7	Sparx Maths Task Self-Quizzing: Bearings 1 – 3	Sparx Maths Task Self-Quizzing: Transformations and congruence 1 – 9	Sparx Maths Task Self-Quizzing Transformations and congruence 10-13	Sparx Maths Task Self-Quizzing: Vectors – Higher only 1 - 9

Week	**27**	**28**	**29**	**30**	**31**	**32**
Big ideas (key concepts)	5a. Compound Measures and Applied Graphs			5b. Transformations and Similarity		
Lesson topics sequence	Convert between units of time. Convert between metric measures of speed.	Understand and use compound measures of speed, density, and pressure. Change distance/time units from meters per second to kilometres per hour.	Draw and interpret straight line graphs for real life situations. Draw distance time graphs. Draw velocity time graphs.	Scale a shape on a grid without a centre. Enlarge a shape given a centre, and a positive, negative, or fractional scale factor. Describe an enlargement.	Use similar shapes to find missing lengths.	

Lesson topics sequence (Challenge)			Use graphs to calculate acceleration, by calculating the area under a graph.		Use similar shapes to find missing areas and volumes. Find scales factors given the area of two shapes.	Describe and transform 2D shapes using combined rotations, reflections, translations or enlargements.
Key assessments	Compound measures KA	Compound measures topic assessment		Transformations and similarity KA		
Revision Core	Sparx Maths Task Self-Quizzing: Compound Measures 1 – 4	Sparx Maths Task Self-Quizzing: Linear Graphs 1 - 6	Sparx Maths Task Self-Quizzing: Compound Measures 1 – 4	Sparx Maths Task Self-Quizzing: Transformations and Similarity	Sparx Maths Task Self-Quizzing:	Sparx Maths Task Self-Quizzing:
Revision Challenge	Sparx Maths Task Self-Quizzing: Compound Measures 1 – 4					

Week	33	34	35	36	37	38	39
Big ideas (key concepts)	6a. Pythagoras and Trigonometry				6b. Compound Measures		
Lesson topics sequence	Find the hypotenuse of a right-angled triangle using Pythagoras. Find a shorter side of a right-angled triangle using Pythagoras. Solve Pythagoras word problems.	Apply Pythagoras to a triangle drawn on a co-ordinate grid. Calculate the length of a line segment given pairs of points.	Find missing lengths and angles using basic trigonometry. Solve multiple trig problems in 2D.	Find angles of elevation and depression. Know exact trig values. Find angles of elevation and depression.	Convert between units of time Convert between units of speed	Understand and use compound measures speed	Understand and use compound measures: density Understand and use compound measures: pressure
Lesson topics sequence (Challenge)	Solve Pythagoras problems in 3D.	Solve trig problems in 3D. Use the sine rule to find missing sides and angles.	Use the cosine rule to find missing sides and angles. Solve multiple advanced trig problems.	Find the area of any triangle using the formula $\frac{1}{2}absinc$.	Convert between units of time Convert between units of speed Understand and use compound measures: density Understand and use compound measures: pressure	Recall the definition of a circle and identify (name) and draw parts of a circle, including sector, tangent, chord, segment Prove and use angle facts relating to circles and their properties:	4. Angles in the same segment are equal; 5. Alternate segment theorem; 6. Opposite angles of a cyclic quadrilateral sum to 180° Find and give reasons for missing angles

							on diagrams using: circle theorems
Key assessments	Pythagoras and trigonometry KA	Pythagoras and trigonometry topic assessment			Mocks		
Revision	Sparx Maths Task Self-Quizzing: Pythagoras 1-5	Sparx Maths Task Self-Quizzing: Trigonometry 1-6	Sparx Maths Task Self-Quizzing: Trigonometry7-11 (Core)	Sparx Maths Task Self-Quizzing: Exact ratios (All) Non RA trigonometry 1-3 (Challenge)	Sparx Maths Task Self-Quizzing: Compound measures 1-4	Sparx Maths Task Self-Quizzing: Compound measures 1-4 (Core) Circle theorems 1-4 (Challenge)	Sparx Maths Task Self-Quizzing: Compound measures 1-4 (Core) Circle theorems 5-7 (Challenge)