Curriculum Knowledge Map 2023-24

Year 10	AUTUMN			
Topic	Ratio and Proportion	Equations and Inequalities	Factors, powers and roots	Graphs 1
Declarative *What should they know? What key facts/concepts/knowledge do we want all students to know?*	• Multiply and divide by powers of ten. • Use percentage multipliers. • Visualise and draw shapes. • Read maps and scales. • Ability to answer problem-solving questions.	• Collect like terms. • Simplify expressions. • Expand brackets. • Factorise expressions. • Draw inequalities on a number line.	• Recall factors, multiples and primes. • Identify types of numbers such as Square numbers and Cube numbers.	• Be able to draw, read and label axes. • Use substitution to correctly plot coordinates. • Read from graphs accurately.
Procedural *What should they be able to do?* *What things should all students be able to do?*	• Understand Proportion in problems. • Use ratio and scales in problems. • Calculate percentage change.	• Solve linear equations. • Solve quadratic equations. • Solve simultaneous equations. • Use iterative processes to approximate solutions. • Solve inequalities.	• Identify Factors and multiples of numbers. • Complete prime factor decomposition. • Identify powers and roots.	• Draw straight-line graphs. • Identify the equation of straight line. • Interpret kinematic graphs.
Disciplinary Literacy *(Tier 3 Vocab)*	Scale factors, compound interest, variable.	Quadratic, factorising, iteration, inequality, region.	Prime factor decomposition, highest common factor, lowest common multiple, irrational numbers, surds.	Linear, quadratic, bisector, intercept, function.
Assessment	1 x Ratio and Proportion assessment	1 x Equations and Inequalities assessment	1 x Factors, Powers, Roots assessment	1 x progress checkpoint

Curriculum Knowledge Map 2023-24

Year 10	SPRING			
Topic	Pythagoras and Trigonometry	Handling Data	Graphs 2	Circles and Constructions
Declarative *What should they know? What key facts/concepts/knowledge do we want all students to know?*	• Substitute into formulae. • Recall formulae. • Able to mathematically reason. • Recognise different parts of shapes. • Understand and use of square numbers. • Use a calculator accurately.	• Pattern recognition. • Recognise trends and relationships. • Able to mathematically reason.	• Read axes. • Draw and label axes. • Substitute into formulae. • Use a calculator accurately. • Able to answer problem-solving questions. • Recall formulae.	• Label the diagram of a circle. • Use of formulas for area and circumference of circles and arcs. • Use of mathematical equipment for Loci and Constructions. • Identify and use circle theorems.
Procedural *What should they be able to do?* *What things should all students be able to do?*	• Use Pythagoras' Theorem. • Use Trigonometric ratios. • Understand Vectors.	• Draw and interpret frequency diagrams. • Work out averages and interpret spread. • Draw and interpret Scatter graphs and correlations. • Draw and interpret time series.	• Know and understand the properties of quadratic functions. • Sketch functions. • Draw and interpret real-life graphs.	• Calculate the circumference of a circle. • Calculate the area of a circle. • Calculate the surface area of 3D shapes such as cones and cylinders. • Calculate arc length and sector area. • Complete constructions. • Understand and draw loci.
Disciplinary Literacy *(Tier 3 Vocab)*	Trigonometric functions, hypotenuse, vectors, sine, cosine	Frequency, quartiles, spread, centrality, box plot, interquartile range, correlation, anomaly, time series	Cubic, reciprocal, exponential, trigonometric functions, gradients, area, circumference, arc, sector, segment, chord, tangent, perpendicular, locus	Area, circumference, arc, sector, segment, chord, tangent, perpendicular, locus
Assessment	1 x Pythagoras and Trigonometry unit assessment	1 x Handling Data assessment	1 x progress checkpoint	1 x Circles and constructions unit assessment

Curriculum Knowledge Map 2023-24

SUCCESSFUL CREATIVE HAPPY

Year 10	SUMMER				
Topic	**Circles and Constructions**	**Formula and Functions**	**Units of proportionality**	**Working with 3D shapes**	**Angles**
Declarative *What should they know? What key facts/concepts/knowledge do we want all students to know?*	• Label of a diagram of a circle. • Use of formulas for area and circumference of circles and arcs. • Use of mathematical equipment for Loci and Constructions. • Identify and use circle theorems.	• Substitute into formulae. • Use standard formulae. • Equations, Identities and Functions.	• Understand proportion and modelling. • Use growth and decay to help you understand the past and make predictions about the future.	• Draw and interpret plans and elevations of 3D shapes. • Find the volume of cuboids and right prisms. • Calculate the surface area and volume of different 3D shapes.	• Use of bearings to specify directions. • Identify congruency and similarity to prove geometric results. • Calculate the properties of polygons including interior and exterior angles.

Procedural
What should they be able to do?
What things should all students be able to do?
	• Calculate circumference of a circle.
	• Calculate area of a circle.
	• Work out the surface area of 3D shapes such as cones, cylinders.
	• Calculate arc length and sector area.
	• Complete constructions.
	• Understand and draw loci.
		• Recall and manipulate formulae.
		• Substitute into formulae.
		• Able to spot patterns.
		• Able to answer problem-solving questions.
		• Recall key formulae.
			• Compound Units.
			• Direct Proportion.
			• Inverse Proportion.
			• Growth and Decay.
				• 3D shapes.
				• Volume of a prism.
				• Volume and surface area.
					• Calculating missing angles:
					  – around a point.
					  – in a straight line.
					  – in a triangle.
					  – in a quadrilateral.
					  – in parallel lines.
					• Coordinates.
					• Congruence.
					• Similarity.
					• Angle sum in polygons.

Disciplinary Literacy *(Tier 3 Vocab)*	Area, circumference, arc, sector, segment, chord, tangent, perpendicular, locus.	Term, expression, equation, identity, formulae, quadratic simultaneous, inequalities, simplifying, scale factors compound interest.	Compound, direct, inverse, rate.	Plan, elevation, net, prism, vertex, edge, face, frustrum.	Acute, obtuse, reflex, interior, exterior, congruence, similarity.
Assessment	1 x Circles and constructions unit assessment.	1 x Progress Test.	1 x Units of proportionality unit assessment.	1 x Working in 3D unit assessment.	2 x progress checkpoint (one non calculator and one calculator).