Year 9	AUTUMN				
	FDP & Percentages	**Expressions**	**Handling Data**	**Equations**	**Angles in polygons**

Declarative
What should they know?
What key facts/concepts/knowledge do we want all students to know?
	Convert between fractions, decimals and fractions
	
	Work out Percentage Change
	
	Increase/Decrease by a percentage
	
	Use compound Interest formula
	
	Work with reverse percentages
		Simplify Expressions
		
		Simplify Indices
		
		Expand and Factorise
		
		Simplify algebraic fractions
			Use different sampling methods
			
			Organise data
			
			Represent Data
			
			Work with averages and spread
				Solve Linear Equations
				
				Solve quadratics by factorising
				
				Solve inequalities
				
				Solve simultaneous equations
				
				Rearrange formula
					Calculating missing angles:
					    -around a point
					    -in a straight line
					    -in a triangle
					    -in a quadrilateral
					    -in parallel lines
					
					Understand and use coordinates
					
					Understand Congruence
					
					Use similarity facts
					
					Understand and use angle sum in polygons

Procedural *What should they be able to do?* *What things should all students be able to do?*	Use percentage multipliers Use addition, subtraction, multiplication and division Calculate FDP conversions	Use the four operations to perform calculations with fractions. Use mental methods Solve multistep word problems Pattern recognition	Use mental methods Solve multistep word problems Pattern recognition Understand trends and relationships	Use the four operations to perform calculations with integers and fractions. Use mental methods Solve multistep word problems	Use addition, subtraction, multiplication and division Calculate FDP conversions Use mental methods

	Mathematically reason Solve multistep word problems	Mathematically reason	Use mathematical equipment Mathematically reason	Pattern recognition Mathematically reason	Solve multistep word problems
Disciplinary Literacy (Tier 3 Vocab)	Compound interest, reverse percentages, growth and decay.	Simplifying, expressions, 'like' terms, expanding, factorising, Numerator, denominator	Mean, median, mode, range, outlier, anomaly, population, bias	Solve, simplify, factorise, expand.rearranging	Interior, exterior, congruence, similarity
Assessment	1 x FDP & Percentages Assessment	1 x Expressions Assessment	1x Handling Data Assessment	1 x Equations Assessment	1 x Skills check
?					

Year 9	SPRING				
	Angles in polygons	**Linear Graphs**	**Working in 2D**	**Probability**	**Pythagoras and Trig**
Declarative	Calculating missing angles:	Work with coordinates	Measure lengths and angles	Conduct and interpret probability experiments	Use Pythagoras to find missing lengths

What should they know?					
What key facts/concepts/knowledge do we want all students to know?	-around a point -in a straight line -in a triangle -in a quadrilateral -in parallel lines Understand and use coordinates Understand Congruence Understand similarity Use angle sum in polygons to solve problems	Rearrange equations Plot linear graphs Find the gradient Apply y = mx + c Find the equation of a line given two points	Find area of 2D Shapes Use the four transformations: rotation, reflection, translation and enlargement	Work out expected outcomes Work out and use theoretical probability Understand mutually exclusive Events	Problem solve with Pythagoras Use trigonometry to find missing angle Use trigonometry to find a missing side
# Procedural *What should they be able to do?* *What things should all students be able to do?*	Use addition, subtraction, multiplication and division Calculate FDP conversions Mathematically reason Solve multistep word problems	Simplify expressions Substitute into formula Read from axes Draw and label axes Use mathematical equipment	Measure and construct 2D shapes using a range of mathematical equipment Complete and describe single and multiple transformations on a 2D shape	Simplify expressions Use addition, subtraction, multiplication and division Use language in probability Use experiments to calculate relative probabilities and know the limitations. Calculate the probability of single and multiple events.	Calculate the value of an unknown side or angles of a right-angled triangle including in context using Pythagoras' theorem or trigonometry. Substitute into formula Use calculator effectively and accurately Recall and manipulate formulae

		Use addition, subtraction, multiplication and division			
Disciplinary Literacy (Tier 3 Vocab)	Interior, exterior, congruence, similarity	Gradient, intercept, negative, positive, axes, parallel, perpendicular	rotation, reflection, translation, enlargement, scale factors	Event, outcome, bias, fair, theoretical probability, experimental probability, mutually exclusive, relative frequency, exhaustive events, sum, product, trials,	Angles, side, hypotenuse, opposite, adjacent, Sine, Cosine, tangent
Assessment	1 x Angles in Polygons	1 X Linear Graphs Assessment	1 x Working in 2D Assessment	1 x Probability Assessment	1 x Progress test (at some point in half term)

Year 9	Summer				
	Pythagoras and Trig	**Circles**	**Working with 3D Shapes**	**Sequences**	**Combined Events**
Declarative *What should they know?* *What key facts/concepts/knowledge do we want all students to know?*	Use pythagoras to find missing lengths Solve problems with Pythagoras Use trigonometry to find missing angle Use trigonometry to find a missing side	Find the circumference of a circle Find the area of a circle Find the arc length and area of a sector	Name and know the properties of 3D shapes Find the volume of a prism Find the volume and surface area of prisms and spheres	Understand and use sequence rules Work out and use nth term of linear sequences Recognise special sequences Find the nth term of a Quadratic Sequences	Understand and use sets Construct and interpret tree diagrams
Procedural *What should they be able to do?* *What things should all students be able to do?*	To calculate the value of an unknown side or angles of a right-angled triangle including in context using Pythagoras' theorem or trigonometry To substitute into formulae Use a calculator accurately Able to answer problem-solving questions Recall and manipulate formulae	Use mental methods for addition, subtraction, multiplication and division Solve multistep word problems Use mathematical equipment Estimate by rounding Able to mathematically reason	Identify a variety of 3D shapes and their component sides (especially the base). Use mental methods for addition, subtraction, multiplication and division Solve multistep word problems Use mathematical equipment Able to mathematically reason	Able to recognise patterns and form relationships between list of numbers. Use mental methods for addition, subtraction, multiplication and division Solve multistep word problems Use mathematical equipment Able to mathematically reason	Able to manipulate fractions Represent data in various formats Use mental methods for addition, subtraction, multiplication and division Solve multistep word problems Use mathematical equipment Able to mathematically reason

Disciplinary Literacy **(Tier 3 Vocab)**	Angles, side, hypotenuse, opposite, adjacent, Sine, Cosine, tangent	Area, circumference, arc, sector, segment, chord, tangent, radius, diameter	Prism, volume, surface area, formula, substitution, sphere, cone, pyramid, cylinder, base	Term, formula, substitute	Outcome, dependent, independent, conditional.
Assessment	1 X Pythag & Trig Assessment	1 X Circles Assessment	1 X Progress test (at some point)	1 X Sequences Assessment	1 X Combined events Assessment