WRM – Year 9 Scheme of Learning

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	**Reasoning with Algebra**						**Constructing in 2 and 3 Dimensions**					
	Straight line graphs		Forming and solving equations		Testing conjectures		Three-dimensional shapes			Constructions and congruency		
Spring	**Reasoning with Number**						**Reasoning with Geometry**					
	Numbers		Using percentages		Maths and money		Deduction		Rotation and translation		Pythagoras' Theorem	
Summer	**Reasoning with Proportion**						**Representations and Revision**					
	Enlargement and similarity		Solving ratio & proportion problems		Rates		Probability		Algebraic representation	Revision		

WRM – Year 9 Autumn Term

Autumn Half Term 1 – Reasoning with Algebra

Block 1 – Weeks 1 and 2	Block 2 – Weeks 3 and 4	Block 3– Weeks 5 and 6
Straight line graphs • Interpret straight line graphs • Find and use the equation of a straight line • Reduce equations to the form $y = mx + c$ • Compare to linear sequences and fining the rule for the nth term	**Forming and solving equations and inequalities** • Revisit and extend to equations and inequalities with unknowns on both side using all previous contexts: angles, probability, area etc. • Change the subject of a formula	**Testing conjectures** • Test conjectures in a wide range of context e.g. ➢ Sums and products of odd and even numbers ➢ Is a given number in a sequence? ➢ Is this shape…? ➢ Are these lines parallel? ➢ What would happen if…?

Notes/Links/Interleaving	Additional Higher Content
• Link equations of graphs to solving equations • Revisit key topics through equations • Review use of brackets • Review geometric properties and rules	• Solve a pair of simultaneous equations using graphical methods • Change the subject of a complex formula • Explore the gradients of perpendicular lines

Autumn Half Term 2 – Constructing in 2 and 3 Dimensions

Block 4 – Weeks 7 to 9	Block 5 – Weeks 10 to 12
Three dimensional shapes • Understand the language of faces, edges and vertices • Know the names of common prisms and non-prisms • Identify 2-D shapes within 3-D shapes • Work out the volume and surface area of cuboids and cylinders • Work out the volume of any prism • Work out missing lengths given area and/or volume	**Constructions and congruency** • Construct 3-D shapes from nets, and construct the net of a given 3-D shape • Construct and use scale drawings • Construct perpendiculars and bisectors • Understand congruency • Exploring congruency via construction

Notes/Links/Interleaving	Additional Higher Content
• Revisit estimation • Revisit rounding to nearest integer, decimal places, significant figures • Revisit unit conversions, including area and volume units	• Explore volume of cones, spheres and complex shapes • Work out he surface area of any prism • Explore the locus of a path

WRM – Year 9 Spring Term

Spring Half Term 1 – Reasoning with number

Block 1 – Weeks 1 and 2	Block 2 – Weeks 3 and 4	Block 3– Weeks 5 and 6

Numbers
• Revisit types of number – extend to include rational and real numbers
• Revisit fraction arithmetic
• Extend knowledge of HCF and LCM
• Revisit standard form
	Using percentages
	• Revisit percentage increase and decrease
	• Use percentages over 100%
	• Find percentage changes
	• Use multipliers in a variety of contexts
	• Solve "reverse percentage" problems
		Mathematics and money
		• Explore financial mathematics including:
		  • Bills and bank statements
		  • Interest
		  • Unit pricing (best buys)

Notes/Links/Interleaving	Additional Higher Content
• Add and subtract fractions (lowest common denominator) • Working out fractions of amounts • FDP equivalence • Ratio	• Work with repeated percentage change

Spring Half Term 2 – Reasoning with geometry

Block 4 – Weeks 7 and 8	Block 5 – Weeks 9 and 10	Block 6– Weeks 11 and 12
Deduction • Revisit angles rules, including within special quadrilaterals • Find angles using algebraic methods • Use chains of reasoning to evaluate angles	**Rotation and translation** • Identify the order of rotational symmetry of a shape • Find the result of rotating a shapes • Translate points and shapes by a given vector • Understand variance and invariance in the context of transformations	**Pythagoras' theorem** • Identify the hypotenuse of a right-angled triangle • Determine whether a triangle is right-angled • Calculate missing sides in right-angled triangles

Notes/Links/Interleaving	Additional Higher Content
• Revisit fractions and directed number in the context of rotation • Compare and contrast rotational symmetry with line symmetry • Identify 2-D and 3-D shapes • Link constructions and geometric reasoning	• Develop more complex geometrical proofs • Find the result of a series of transformations • Explore proofs of Pythagoras' theorem • Use Pythagoras' theorem in 3-D shapes

White Rose Maths

WRM – Year 9 Summer Term

Summer Half Term 1 – Reasoning with proportion		
Block 1 – Weeks 1 and 2	**Block 2 – Weeks 3 and 4**	**Block 3– Weeks 5 and 6**
Enlargement and similarity • Enlarge shapes by a positive scale factor, including from a given point • Calculate the lengths of missing sides in similar shapes	**Solving ratio and proportion problems** • Direct proportion problems and graphs • Conversion graphs • Solve ratio problems given the whole or a part • Simple inverse proportion • Unit pricing problems ('best buys')	**Rates** • Work with speed, distance, time • Solve problems involving density • Work with compound units
Notes/Links/Interleaving • Links to ratio notation • Revisit circumference • Revisit $y = mx$ • Revisit unit pricing		**Additional Higher Content** • Enlarge shapes by a negative scale factor • Similar triangles – exploring ratios in right-angled triangles • Inverse proportion graphs • Converting compound measures

Summer Half Term 2 – Representations		
Block 4 – Weeks 1 and 2	**Block 5 – Weeks 3**	**Block 6– Weeks 4 to 6**
Probability • Relative frequency • Expected number of outcomes • Independent events	**Algebraic representation** • Drawing and reading from quadratics • Interpreting other graphs e.g. reciprocal, piece-wise • Representing inequalities	**Revision** • Teachers to chose topics bases on assessment throughout the Key Stage
Notes/Links/Interleaving • Revisit frequency trees, tables and Venn diagrams • Inequalities		**Additional Higher Content** • Tree diagrams • Graphical solution of simultaneous equations