	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**					
	Enlargement and similarity		Solving ratio and proportion problems			Rates	Solving problems using graphs, tables and algebra					

WRM – Year 9 Autumn Term

Autumn Half Term 1 – Reasoning with Algebra

Block 1 – Weeks 1 and 2

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 n^{th} term

Block 2 – Weeks 3 and 4

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

Block 3– Weeks 5 and 6

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

- Link equations of graphs to solving equations
- Revisit key topics through equations
- Review use of brackets
- Review geometric properties and rules

Additional Higher Content

- 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

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

Block 5 – Weeks 10 to 12

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

- Revisit estimation
- Revisit rounding to nearest integer, decimal places, significant figures
- Revisit unit conversions, including area and volume units

Additional Higher Content

- 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

Numbers
- Revisit types of number – extend to include rational and real numbers
- Revisit fraction arithmetic
- Extend knowledge of HCF and LCM
- Revisit standard form

Block 2 – Weeks 3 and 4

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

Block 3– Weeks 5 and 6

Mathematics and money
- Explore financial mathematics including:
  - Bills and bank statements
  - Interest
  - Unit pricing (best buys)

Notes/Links/Interleaving
- Add and subtract fractions (lowest common denominator)
- Working out fractions of amounts
- FDP equivalence
- Ratio

Additional Higher Content
- Work with repeated percentage change

Spring Half Term 2 – Reasoning with geometry

Block 4 – Weeks 7 and 8

Deduction
- Revisit angles rules, including within special quadrilaterals
- Find angles using algebraic methods
- Use chains of reasoning to evaluate angles

Block 5 – Weeks 9 and 10

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

Block 6– Weeks 11 and 12

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
- 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

Additional Higher Content
- 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

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	Additional Higher Content
• Links to ratio notation • Revisit circumference • Revisit $y = mx$ • Revisit unit pricing	• 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 7 to 12

Solving problems using graphs, tables and algebra. Include:

- Revisit data measures, charts and graphs including bivariate data; criticise misleading graphs
- Revisit alternative representations of sequences – including finding algebraic rules
- Revisit frequency trees and other representations e.g. tables
- Revisit conversion between standard form and ordinary form, and representing numbers as products of primes
- Expand a pair of binomials
- Create and interpret tables and timetables; solve problems involving speed distance and time
- Solve inequalities on number lines, including error intervals
- Represent word problems in a variety of forms (graphs, tables, expressions…)
- Interpret graphs of any form (exponential, piece-wise, reading from quadratics, speed/time)
- Compare theoretical and experimental probabilities; probability of two or more events

Notes/Links/Interleaving	Additional Higher Content
• Throughout – see above	• Tree diagrams