"A tree planted by streams of water, which yields its fruit in season" **(Psalm 1:3)**

Wisdom – Hope – Service – Resilience

Curriculum Intent Statement

Department: Mathematics

Intent:

"Part of the versatility of Maths is that once you've got a well-stocked tool kit, you'll be able to tackle the issues that arise from many different scenarios and applications" - Vicky Neale

Our mathematics curriculum covers key concepts such as Number, Algebra, Geometry, Statistics, Proportion, and Probability, focusing on depth of understanding, reasoning, and problem-solving.

Maths Curriculum Intent:

- Foster **wisdom** by shaping students' ability to reason mathematically and appreciate the beauty and power of mathematics.
- Instil **hope** by providing opportunities to develop mathematical fluency and problem-solving abilities for future success.
- Emphasise **service** by ensuring a solid foundation for GCSE study and beyond, preparing students to contribute positively to society.
- Encourage **resilience** through challenging lessons that develop perseverance, curiosity, and a sense of achievement.

Our goal is to empower students to become confident, competent, and articulate mathematicians who appreciate the real-world applications and interconnected nature of mathematics.

Mathematics

$\frac{6}{10} + 0.3$

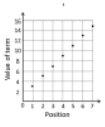
Fractional Thinking
- Addition and subtraction with fractions

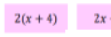
Directed Number
- Four operations with directed number

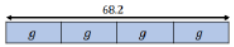
Application of Number
- Solving problems with addition and subtraction
- Multiplication and division
- Fractions and decimals of amounts

Place Value and Proportion
- Place value
- Ordering integers and decimals
- Fraction, decimal and percentage equivalence

Algebraic Thinking
- Sequences
- Understand and use algebraic notation
- Equality and equivalence



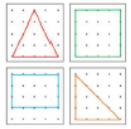




Lines and Angles
- Constructing, measuring and using geometric notation

Reasoning with Number
- Developing number sense
- Sets and probability
- Prime numbers and proof

Reasoning with Geometry
- Deduction
- Rotation and Translation
- Pythagoras' Theorem



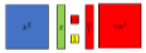
Reasoning with Number
- Numbers
- Using percentages
- Maths and money

Proportional Reasoning
- Ratio and scale
- Multiplicative change
- Multiplying and dividing fractions

Constructing in 2 and 3 Dimensions
- Three dimensional shapes
- Constructions and congruency

Representations
- Working in the cartesian plane
- Representing Data
- Tables and Probability

Reasoning with Algebra
- Straight line graphs
- Forming and solving equations
- Testing conjectures

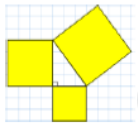


Algebraic Techniques
- Brackets, equations and inequalities
- Sequences
- Indices

Developing Number
- Fractions and percentages
- Standard index form
- Number sense

Developing Geometry
- Angles in parallel lines and polygons
- Area of trapezia and circles
- Line symmetry and reflection

Reasoning with Proportion
- Enlargement and similarity
- Solving ratio and proportion problems
- Rates



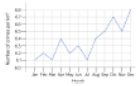
Similarity
- Congruence, similarity and enlargement
- Trigonometry

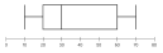
Developing Algebra
- Representing solutions of equations and inequalities
- Simultaneous equations

Geometry
- Angles and bearings
- Working with circles
- Vectors

Proportions and Proportional Change
- Ratio and fractions
- Percentages and interest
- Probability

Reasoning with Data
- The data handling cycle
- Measures of location



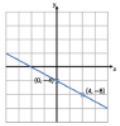


Representations
- Solving problems using graphs, tables and algebra

Reasoning
- Multiplicative
- Geometric
- Algebraic

Algebra
- Expanding and factorising
- Changing the subject
- Functions

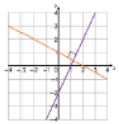
Graphs
- Gradients and lines
- Non-linear graphs
- Using graphs

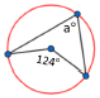


Delving into Data
- Collecting, representing and interpreting data

Using Number
- Non-calculator methods
- Types of number sequences
- Indices and roots

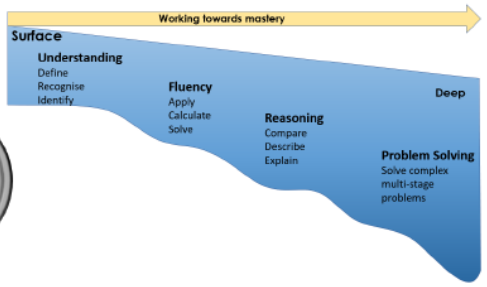
Revision and Communication
- Transforming and constructing
- Listing and describing
- Show that...





Examinations

Further Maths
A Level Maths
Core Maths



Year 7

Term	Unit of Work	Knowledge and Skills	Assessment
1	Algebraic thinking	1. Sequences 2. Algebraic notation and substitution 3. Expressions and equations **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	**Baseline assessment** PLCs End of unit assessments Milestone feedback for every end of unit assessment.
2	Number and Introduction to Statistics	1. Place value, ordering and rounding 2. Four operations 3. Averages and range 4. Rounding and estimation **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment. **End of Autumn assessment**
3	Data and FDP	1. Graphing data 2. Fractions, decimals and percentages **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment.
4	Directed numbers and Geometry	1. Directed number 2. Fractions and percentages of amount 3. Perimeter and area **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment. **End of Spring assessment**
5	Ratio, proportion and	1. Speed, distance and time 2. Properties of number	PLCs End of unit assessments

	properties of number	**See White Rose 'small steps' which link to Learning Intentions & PLCs.*	Milestone feedback for every end of unit assessment.
6	Number and Angles in geometry	1. Add and subtract fractions 2. Angles and polygons **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment. **End of year assessment.**

Enrichment Opportunities: KS3 Year 7-8 Osmington Bay Field Studies residential. Happy Puzzle Day – in school event. UKMT Challenge – set 1 in class competition.

	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	Algebra **Sequences**		Algebra **Algebraic notation and substitution**		Algebra **Expressions and equations**		Number **Place value, ordering and rounding**		Number **Four operations**		Statistics **Averages and range**	Number **Rounding and estimation**
Spring	Statistics **Graphing data**			Number **Fractions, decimals and percentages**			Number **Directed number**		Number **Fractions and percentages of amounts**		Geometry and measures **Perimeter and area**	
Summer	Ratio, proportion and rates of change **Speed, distance and time**			Number **Properties of number**			Number **Add and subtract fractions**			Geometry and measures **Angles and polygons**		

Year 8

Term	Unit of Work	Knowledge and Skills	Assessment
1	Proportional reasoning	1. Ratio and scale 2. Multiplicative change 3. Multiplying and dividing fractions **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment.
2	Representations	1. Working in the Cartesian plane 2. Representing data 3. Tables and probability **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment. **End of Autumn assessment**
3	Algebraic techniques	1. Brackets, equations and inequalities 2. Sequences 3. Indices **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment.
4	Developing number	1. Fractions and percentages 2. Standard index form 3. Number sense **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment. **End of Spring assessment**
5	Developing geometry	1. Angles in parallel lines and polygons 2. Area of trapezia and circles 3. Line symmetry and reflection **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment.
6	Reasoning with data	1. The data handling cycle 2. Measures of location **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment.

			End of year assessment.

Enrichment Opportunities: KS3 Year 7-8 Osmington Bay Field Studies residential. Happy Puzzle Day – in school event. UKMT Challenge – set 1 in class competition and UKMT Team Challenge after school club.

	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	Proportional Reasoning						Representations					
	Ratio and scale		Multiplicative change		Multiplying and dividing fractions		Working in the Cartesian plane			Representing data		Tables & Probability
Spring	Algebraic techniques						Developing Number					
	Brackets, equations and inequalities				Sequences	Indices	Fractions and percentages			Standard index form		Number sense
Summer	Developing Geometry						Reasoning with Data					
	Angles in parallel lines and polygons			Area of trapezia and circles		Line symmetry and reflection	The data handling cycle				Measures of location	

WRM – Year 8 Autumn Term

Autumn Half Term 1 – Proportional Reasoning

Block 1 – Weeks 1 and 2	Block 2 – Weeks 3 and 4	Block 3– Weeks 5 and 6
Ratio and Scale • Understand ratio and its link to multiplication • Use ratio notation • Reduce ratios to simplest form • Solve ratio problems • Calculate the circumference of a circle	**Multiplicative Change** • Use scale factors, linking to ratio, to solve simple direct proportion problems • Convert between currencies, including using graphs • Draw and interpret scale diagrams and maps	**Multiplying and dividing fractions** • Multiply and divide a fraction by an integer • Multiply and divide a fraction by a fraction • Understand and use the reciprocal

Notes/Links/Interleaving	Additional Higher Content
• Revisit area • Revisit equations • Revisit converting improper fractions and mixed numbers • Link to fractions of an amount	• Express any ratio in the form $1:n$ • Explore direct proportion graphs • Multiply and divide mixed numbers • Multiply and divide simple algebraic fractions

Autumn Half Term 2 – Representation

Block 4 – Weeks 7 to 9	Block 5 – Weeks 10 and 11	Block 6– Week 12
Woking in the Cartesian plane • Plot and interpret straight line graphs • Understand ad use the equations of a straight line, including lines parallel to the axes • Make links between direct proportion and straight lines of the form $y = kx$ • Model situations by translating them into expressions, formulae and graphs	**Representing data** • Draw and interpret scatter graphs • Understand correlation • Draw and use lines of best fit • Understand grouped and ungrouped ,discrete and continuous data • Design and use one and two-way tables	**Probability** • List outcomes using sample space diagrams for one and two events • Find probabilities using tables and Venn diagrams

Notes/Links/Interleaving	Additional Higher Content
• Revisit calculation with directed number • Link to solving one and two-step linear equations • Revisiting Venn diagrams and set notation • Links to representing data and using graphs in other areas of the curriculum	• Find the mid-point of a line segment • Explore gradient • Explore non-linear graphs • Use the product rule for counting

WRM – Year 8 Spring Term

Spring Half Term 1 – Algebraic Techniques

Block 1 – Weeks 1 to 4

Brackets, equations and inequalities

- Expand, and factorise into, single brackets
- Form and use expressions, formulae and identities
- Form and solve equations and inequalities with and without brackets
- Distinguish between equations, expressions, formulae and identities

Block 2 – Week 5

Sequences

- Generate sequences using more complex rules, e.g. with brackets and squared terms, both in words and algebraically

Block 3 – Week 6

Indices

- Form expressions using indices
- Understand and use the addition and subtraction rules

Notes/Links/Interleaving

- Revisit the use of directed number
- Solve equations set in the context of earlier contexts – shapes, angles, probability, ratio etc.

Additional Higher Content

- Expand a pair of binomials
- Solve equations and inequalities with unknowns on both sides
- Find the rule for the n^{th} term of a linear sequence
- Explore powers of powers

Spring Half Term 2 – Developing number

Block 4 – Weeks 7 and 8

Fractions and percentages

- Develop understanding of fractions, decimals and percentages
- Evaluate percentage increases and decreases
- Use multipliers to solve percentage problems
- Express one number as a percentage of another

Block 5 – Weeks 9 and 10

Standard index form

- Convert between numbers in ordinary and standard form
- Compare numbers given in standard form
- Calculate with numbers given in standard form, with and without a calculator

Block 6 – Weeks 11 and 12

Number sense

- Develop mental strategies
- Convert between metric measures and units
- Estimation, including rounding to a given number of decimal places
- Use the order of operations

Notes/Links/Interleaving

- Revisit fraction, decimal and percentage equivalence
- Revisit formal methods for calculation, for integers and fractions
- Compare and use ratios in the context of FDP

Additional Higher Content

- Finding the original given any percentage
- Understand and use surd notation
- Understand and use negative and simple fractional indices
- Convert between units of area and volume
- Use error interval notation

WRM – Year 8 Summer Term

Summer Half Term 1 – Developing geometry

Block 1 – Weeks 1 and 2

Angles in parallel lines and polygons

- Review Y7 angles rules
- Understand and use parallel lines and angles
- Revisit geometric notation
- Work out angles in special quadrilaterals
- Find and use the sum of interior and exterior angles of a polygon
- Prove simple geometric facts

Block 2 – Weeks 3 and 4

Area of a trapezia and circles

- Review area of shapes covered in year 7
- Calculate the area of a trapezium
- Calculate the area of a circle, and the area of parts of a circle
- Use significant figures
- Calculate the area of compound shapes

Block 3– Weeks 5 and 6

Line symmetry and reflection

- Recognise line symmetry in polygons and other shapes
- Reflect shapes in horizontal, vertical and diagonal lines

Notes/Links/Interleaving

- Revisit forming and solving equations
- Revisit properties of shapes
- Revisit equations of straight lines

Additional Higher Content

- Perform standard constructions including perpendiculars
- Understand and use the properties of diagonals of quadrilaterals

Summer Half Term 2 – Reasoning with data

Block 4 – Weeks 7 to 10

The data handling cycle

- Understand and use primary and secondary sources of data
- Collect data, including using questionnaires
- Interpret and construct statistical diagrams, including multiple bar charts
- Construct and interpret pie charts
- Compare distributions using charts
- Identify misleading graphs

Block 5 – Weeks 11 and 12

Measures of location and dispersion

- Revisit the median and mean, including finding the total given the mean
- Find the mean of grouped data
- Work out the mode and modal class
- Choose the appropriate average
- Comparing distributions using measures

Notes/Links/Interleaving

- Revisit finding the range
- Use algebraic substitution to form lists for averages and the range
- Links to data collection and representation in other areas of the curriculum

Additional Higher Content

- Find unknown data values given the mean or changes in the mean
- Explore histograms for unequal groups
- Find the median from a table of values

Year 9

Term	Unit of Work	Knowledge and Skills	Assessment
1	Reasoning with algebra	1. Straight line graphs 2. Forming and solving equations 3. Testing conjectures **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment.
2	Constructing in 2 and 3 dimensions	1. Three-dimensional shapes 2. Constructions and congruency **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment. **End of Autumn assessment**
3	Reasoning with number	1. Numbers 2. Using percentages 3. Maths and money **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment.
4	Reasoning with geometry	1. Deduction 2. Rotation and translation 3. Pythagoras' theorem **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment. **End of Spring assessment**
5	Reasoning with proportion	1. Enlargement and similarity 2. Solving ratio and proportion problems 3. Rates **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment.
6	Representation and revision	1. Probability 2. Algebraic representation 3. Revision for EoY assessment to set ready to start GCSE content	PLCs End of unit assessments

		**See White Rose 'small steps' which link to Learning Intentions & PLCs.*	Milestone feedback for every end of unit assessment. **End of year assessment.**

Enrichment Opportunities: STEM – Robotics Workshop in LEGOLAND, UKMT Challenge – in class competition and UKMT Team Challenge after school club.

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

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 • 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

Year 10

Term	Unit of Work	Knowledge and Skills	Assessment
1	Similarity	1. Congruence, similarity and enlargement 2. Trigonometry **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment.
2	Developing algebra	1. Representing solutions of equations and inequalities 2. Simultaneous equations **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment. **End of Autumn assessment**
3	Geometry	1. Angles and bearings 2. Working with circles 3. Vectors **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment.
4	Proportion and proportional change	1. Ratio and fractions 2. Percentages and interest 3. Probability **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment. **End of Autumn assessment**
5	Delving into data	1. Collecting, representing and interpreting data 2. **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment.
6	Using number	1. Non-calculator methods 2. Types of number and sequences 3. Indices and roots	PLCs End of unit assessments

		**See White Rose 'small steps' which link to Learning Intentions & PLCs.*	Milestone feedback for every end of unit assessment. **End of year assessment (Year 10 Mocks – 2 x GCSE papers)**

Enrichment Opportunities: New York: Stem and More school residential, UKMT Challenge – in class competition.

WRM – Year 10 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	**Similarity**						**Developing Algebra**					
	Congruence, similarity and enlargement			Trigonometry			Representing solutions of equations and inequalities			Simultaneous equations		
Spring	**Geometry**						**Proportions and Proportional Change**					
	Angles & bearings		Working with circles		Vectors		Ratios & fractions		Percentages and Interest		Probability	
Summer	**Delving into data**						**Using number**					
	Collecting, representing and interpreting data						Non-calculator methods		Types of number and sequences		Indices and Roots	

WRM – Year 10 Autumn Term

Autumn Half Term 1 – Similarity	
Block 1 – Weeks 1 to 3	**Block 2 – Weeks 4 to 6**
Congruence, similarity and enlargement. • Understand the difference between congruence and similarity • Enlarge a shape about a given point; understand and use similarity • Find missing sides in similar shapes including pairs of similar triangles • Understand and use the conditions for a pair of congruent triangles	**Trigonometry** • Understand trigonometric ratios • Work out missing lengths and angles in right-angled triangles • Know and use the exact values of key angles
Notes/Links/Interleaving • Revisit angle rules, including angles in parallel lines • Revisit equations, especially variants of $ax = b$ • Revisit Pythagoras' theorem	**Additional Higher Content** • Area and volume of similar shapes • Formal proof of congruency of triangles • Enlarge a shape by a negative scale factor • Use trigonometry in 3-D shapes • Derive and use the sine and cosine rules • Use the formula $\frac{1}{2}absinC$ to find the area of non-right angled triangles.

Autumn Half Term 2 – Developing Algebra	
Block 3 – Weeks 7 to 9	**Block 4– Weeks 10 to 12**
Representing solutions of equations and inequalities • Form and solve equations and inequalities in a variety of contexts, including with unknowns on both sides • Represent solutions to inequalities on a number line • Represent solutions to equations graphically	**Simultaneous equations** • Understand the meaning of solution, appreciating that some equations have multiple solutions • Form and solve a pair of linear simultaneous equations graphically • Form and solve a pair of linear simultaneous equations algebraically
Notes/Links/Interleaving • Context for equations to include probability, area, angles, ratio problems etc.	**Additional Higher Content** • Use set notation for solutions • Solve Inequalities in two variable, identifying regions • Solve quadratic equations and inequalities (by factorisation only) • Solve simultaneous equations with one linear and one quadratic

WRM – Year 10 Spring Term

Spring Half Term 1 – Geometry

Block 1 – Weeks 1 and 2	Block 2 – Weeks 3 and 4	Block 3 – Weeks 5 and 6
Angles and bearings • Review KS3 angles rules • Understand and use bearings	**Working with circles** • Review area and circumference • Name parts of a circle and perform related calculations • Find areas and volumes related to circles – cylinder, cone, sphere etc.	**Vectors** • Understand vector notation • Vector arithmetic – addition, subtraction and multiplication by a scalar • Vectors and translations

Notes/Links/Interleaving	Additional Higher Content
• Revisit trigonometry • Revisit area and volumes of other shapes, and compound shapes • Estimation, rounding and significant figures	• Derive, use and prove first four circle theorems (Note: The rest are covered in Y11) • Understand and use the equation of a circle • Construct geometric proofs with vectors

Spring Half Term 2 – Proportions and proportional change

Block 4 – Weeks 7 and 8	Block 5 – Weeks 9 and 10	Block 6 – Weeks 11 and 12
Ratio and fractions • Use ratios, including with mixed units • Fractions in ratios • Fractions from ratios • Combining ratios • Unit pricing ('best buys') • Currency conversions	**Percentages and interest** • Convert fractions, decimals and percentages • Find percentages and percentage changes • Find one number as a percentage of another • Calculate simple and compound interest • Evaluate exponential change e.g. depreciation • Find original values	**Probability** • Review of single event probability – comparing theoretical and experimental • Understand and work with mutually exclusive and independent events • Construct and interpret tree diagrams • Find probabilities from frequency trees, tables and Venn diagrams

Notes/Links/Interleaving	Additional Higher Content
• Revisit formal methods of calculation (also Summer 2) • Revisit fraction arithmetic	• Revise area and volume ratios • Use iterative methods • Calculate and interpret conditional probabilities

WRM – Year 10 Summer Term

Summer Half Term 1 – Delving into data

Block 1 – Weeks 1 to 6

Collecting, representing and interpreting data

- Understand sampling, including the possible limitations
- Construct and interpret tables and line graphs for time series data
- Understand and represent with grouped data
- Understand and identify correlation
- Use lines of best fit, understanding the dangers of extrapolation
- Construct and interpret frequency polygons
- Evaluate measures of location and dispersion
- Use statistical diagrams and measures to compare distributions

Notes/Links/Interleaving

- Use equations e.g. solving problems about the mean
- Use non-calculator methods when appropriate

Additional Higher Content

- Construct and interpret cumulative frequency diagrams, box-plots and histograms
- Understand quartiles; use and interpret the inter-quartile range

Summer Half Term 2 – Using Number

Block 2 – Weeks 7 and 8

Non-calculator methods

- Use four operations with integers (positive and negative), decimals and fractions with and without context (include all areas of previous study)
- Work with exact answers e.g. area and volume
- Evaluate calculations involving percentages

Block 3 – Weeks 9 and 10

Types of number and sequences

- Use factors, multiples, primes and prime factorisation
- Recognise arithmetic and geometric sequences
- Recognise and use other sequences

Block 4– Weeks 11 and 12

Indices and roots

- Work out powers and roots
- Use the rules of indices
- Calculate with numbers in standard index form

Notes/Links/Interleaving

- Convert FDP
- Revisit exact trigonometrical values
- Revisit area and volume formulae (without a calculator)
- Find exact answers in terms of π
- Solve problems involving financial mathematics

Additional Higher Content

- Calculate with surds
- Find the rule for the n^{th} term of a quadratic sequence
- Understand and use fractional indices
- Work with rational and irrational numbers, including recurring decimals
- Work with limits of accuracy, including upper and lower bounds

Year 11

Term	Unit of Work	Knowledge and Skills	Assessment
1	Graphs	1. Gradients & lines 2. Non-linear graphs 3. Using graphs **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment.
2	Algebra	1. Expanding & factorising 2. Change the subject 3. Functions **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	**Mocks – QLAs** PLCs End of unit assessments Milestone feedback for every end of unit assessment.
3	Reasoning	1. Multiplicative 2. Geometric 3. Algebraic **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	PLCs End of unit assessments Milestone feedback for every end of unit assessment.
4	Revision & communication	1. Transforming & constructing 2. Listing & describing 3. Show that … **See White Rose 'small steps' which link to Learning Intentions & PLCs.*	**Mocks – QLAs** PLCs End of unit assessments Milestone feedback for every end of unit assessment.
5	Revision	Using QLAs from Mocks to informing planning and which topics to prioritise for revision.	
6	**Exams**		

Enrichment Opportunities: Further Maths (after school enrichment, GCSE entered course), PGL Revision and Adventurous activity weekend.

WRM – Year 11 – 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	**Graphs**						**Algebra**					
	Gradients & lines		Non-linear graphs		Using graphs		Expanding & Factorising		Changing the subject		Functions	
Spring	**Reasoning**						**Revision and Communication**					
	Multiplicative		Geometric		Algebraic		Transforming & Constructing			Listing & describing	Show that...	
Summer	**Revision**						**Examinations**					

WRM – Year 11 Autumn Term

Autumn Half Term 1 – Graphs

Block 1 – Weeks 1 and 2

Gradients and lines
- Find and use equations of straight lines

Block 2 – Weeks 3 and 4

Non-linear graphs
- Plot and read from quadratic curves
- Understand and find roots
- Plot cubic and reciprocal graphs

Block 3 – Weeks 5 and 6

Using graphs
- Reflect shapes in a given line
- Construct and interpret speed, distance and time graphs
- Construct and interpret real-life graphs

Notes/Links/Interleaving
- Revisit solving equations
- Incorporate proportional reasoning e.g. conversions

Additional Higher Content
- Understand and use exponential graphs
- Understand and use equations of perpendicular lines
- Find the equation of tangent to a curve
- Estimate the area under a curve

Autumn Half Term 2 – Algebra

Block 4 – Weeks 7 and 8

Expanding and factorising
- Expand a single bracket and binomials
- Factorise into a single bracket
- Factorise quadratics of the form $x^2 + bx + c$
- Solve quadratic equations
- Simplify complex algebraic expressions including algebraic fractions

Block 5 – Weeks 9 and 10

Changing the subject
- Review solving linear equations
- Change the subject of a formula, including perimeter, area and volume formulae
- Volume of a pyramid

Block 6 – Weeks 11 and 12

Functions
- Find inputs and outputs
- Show algebraic expressions are equivalent
- Solve problems using the kinematics formulae

Notes/Links/Interleaving
- Revisit directed number arithmetic
- Link to graphs

Additional Higher Content
- Solve quadratic equations by completing the square and using the quadratic formula
- Changing the subject of a formula where the subject appears more than once
- Solving equations by iteration
- Work with composite and inverse functions

WRM – Year 11 Spring Term

Spring Half Term 1 – Reasoning

Block 1 – Weeks 1 and 2	Block 2 – Weeks 3 and 4	Block 3– Weeks 5 and 6
Multiplicative reasoning • Review scale and enlargement • Work with direct and inverse proportion • Calculate with pressure and density • Determine whether a problem requires additive or multiplicative reasoning	**Geometric reasoning** • Review angle facts, focusing on the language of reasons and chains of reasoning • Review Pythagoras' theorem and using trigonometrical ratios	**Algebraic reasoning** • Work with complex indices • Review simplification of complex expressions and finding the n^{th} term rule • Justify e.g. why a number is/isn't in a given sequence

Notes/Links/Interleaving	Additional Higher Content
• Revise non-calculator methods • Revisit other topics as detailed above	• Solve problems involving variation with powers • Construct formal geometric proofs, including the remaining circle theorems • Construct formal algebraic proofs

Spring Half Term 2 – Revision and Communication

Block 4 – Weeks 7 and 8	Block 5 – Weeks 9 and 10	Block 6 – Weeks 11 and 12
Transforming and constructing • Revisit transformations of shapes, linking to types of symmetry • Perform standard constructions using ruler and protractor or ruler and compasses • Solve loci problems	**Listing and describing** • Work with organised lists • Sample spaces and probability • Complete and use Venn diagrams • Work with plans and elevations • Use data to compare distributions	**Show that...** • Illustrate equivalence, numerically and algebraically • Justify answers • Use the language of angles rules • Use the conditions for congruent triangles

Notes/Links/Interleaving	Additional Higher Content
• Throughout	• Product rule for counting • Understand and use trigonometrical graphs • Sketch translations and reflections of the graph of a given function • Formal proof with congruent triangles

WRM – Year 11 Spring Term

Summer Half Term 1 – Revision
Block 1 –Weeks 1 to 6
During this last half-term in the run up to the final examinations, we expect teachers to work with students on past papers and topics that have been identified that need further attention. We will provide some support material to help with key topics including: • Number work, including multi-step problem solving • Forming and solving equations and inequalities • Working with formulae that students are expected to know e.g. area and volume formulae • Probability etc.