



Year 9 Maths Medium Term Plan

Autumn Term

Learning Overview	Block 2: Forming and Solving Equations • Use function machines to represent equations. • Understand inverse operations and use them to solve equations. • Solve one-step and two-step equations. • Solve linear equations involving brackets and fractions. • Solve equations with the unknown on both sides. • Set up and solve equations from word problems and geometric contexts. • Use algebra to form expressions and equations from problem situations. • Understand and solve equations involving perimeter, area, and angles.
	Block 1: Straight Line Graphs • Identify and draw horizontal and vertical lines. • Recognise the link between linear sequences and straight-line graphs. • Plot coordinates and draw straight-line graphs from equations in the form $y=mx+cy = mx + cy=mx+c$. • Interpret the gradient and y-intercept in context. • Rearrange equations into the form $y=mx+cy = mx + cy=mx+c$. • Find the equation of a line given the gradient and one point. • Identify parallel lines by comparing gradients. • Solve real-life problems involving straight-line graphs (e.g., conversion graphs, distance-time graphs).
	Block 4: Three Dimensional Shapes • Recognise and name common 3D solids: cubes, cuboids, spheres, cones, cylinders, pyramids, and prisms. • Identify and count faces, edges, and vertices of 3D shapes. • Understand and construct nets of 3D solids. • Visualise 3D shapes from 2D representations and vice versa.

- Calculate surface area of cubes and cuboids.
- Calculate volume of cubes and cuboids using standard units.
- Apply surface area and volume to solve real-life problems.
- Use problem-solving skills to compare and reason about 3D solids.

Key Representations and Skills:

- Use isometric drawings to visualise 3D structures.
- Draw and fold nets to construct physical models.
- Use algebra where appropriate to express volume and surface area formulae.
- Interpret composite solids by splitting them into standard 3D shapes.

Block 13: Ratio and Proportion

- Simplify ratios and divide quantities into a given ratio.
- Use ratios in recipes, maps, and scale drawings.
- Convert between ratios, fractions, and percentages.
- Solve problems involving “best buy” or unit pricing.
- Use direct proportion in graphical and algebraic contexts.
- Solve real-life problems using proportional reasoning.
- Use ratio to describe relationships and scale factors.
- Use bar models and double number lines to reason proportionally.

Block 15: Probability

- Understand the language of probability (impossible, unlikely, even, likely, certain).
- Represent probabilities as fractions, decimals, or percentages.
- Understand and use probability scale from 0 to 1.
- Calculate the probability of single events.
- Identify mutually exclusive and exhaustive outcomes.
- Use frequency trees and Venn diagrams to record and interpret data.
- Calculate the probability of combined events using sample space diagrams.

	Use experimental and theoretical probability to compare outcomes.
Assessment Opportunities	Unit test at the end of each topic block to assess understanding. - Regular low-stakes quizzes and in-class activities to informally assess progress. - Possibly formal end of term assessments, depending on SLT decision.
Textbooks Published Lesson Resources	ISBN number: 978-0-00-840090-3 (Collins White Rose Maths, Key Stage 3, Student Book 3 – Ian Davies and Caroline Hamilton)

Home Learning Resources	Dr Frost – Homework and independent learning
Knowledge organisers	Block 2 – Forming and solving equations Block 1 – Straight line graphs Block 4 – Three dimensional Shapes Block 13 – Ratio and Proportion Block 15 – Probability

Autumn 1

Week Number	Learning Overview / objective (outlined above)	What should pupils know, understand and be able to do by the end of the week?
1	Block 2 - Forming and Solving Equations 2.1 - Forming and solving linear equations 2.2 - Inequalities with negative numbers 2.3 - Unknowns on both sides	Success Criteria: - Understand and solve one-step and two-step linear equations and inequalities (2.1) - Solve equations and inequalities with brackets (2.1) - Solve Inequalities with negative numbers (2.2) - Solve equations and Inequalities with unknowns on both sides (2.3)

2	2.4 - Solving problems with equations and inequalities 2.5 - Rearranging Formulae	Success Criteria: • Solve equations and inequalities in context (2.4) • Substitute into formulae and equation (2.4) • Rearrange formulae One - Step (2.5) • Rearrange formulae Two – Step (2.5) • Rearrange Complex formulae including brackets and squares (2.5)
3	Consolidation and Catching up lessons End-of-block test: Equations	Success Criteria: • Complete assessment based on solving equations • Review misconceptions and strengthen weak areas
4	Block 1 - Straight line graphs 1.1 Plotting and reading graphs 1.2 Gradients and Intercepts	Success Criteria: • Recognise lines parallel to the axes, and also the lines $y = x$ and $y = -x$ (1.1) • Use tables of values (1.1) • Compare gradients (1.2) • Compare intercepts (1.2) • Understand and use $y = mx + c$ (1.2)
5	1.3 Equations of lines 1.4 Further Graphs	Success Criteria: • Write an equation in the form $y = mx + c$ (1.3) • Find the equation of a line from a graph (1.3) • Interpret gradient and intercepts of real – life graphs (1.3) • Explore Perpendicular lines (1.4) • Model real life graphs involving inverse proportions (1.4)
6	Consolidation and Catching up lessons End-of-block test: Straight Line Graphs	Success Criteria: • Complete assessment based on straight line graphs

		Review misconceptions and strengthen weak areas
7	Block 4 - Three Dimensional Shapes 4.1 Into three dimensions 4.2 Nets and other diagrams	Success Criteria: - Known names of 2D and 3D shapes (4.1) - Recognise prisms (including language of edges/vertices) (4.1) - Construct accurate nets of cuboids and other 3-D shapes (4.2) - Sketch and recognize nets of cuboids and other 3-D shapes (4.2) - Explore plans and elevations (4.2)

Autumn 2

Week Number	Learning Overview / objective (outlined above)	What should pupils know, understand and be able to do by the end of the week?
1	4.3 – Surface Area (1) 4.4 – Surface Area (2)	Success Criteria: - Find areas of 2-D shapes (4.3) - Find the surface area of cubes and cuboids (4.3) - Find the surface area of triangular prisms (4.4) - Find the surface area of a cylinder (4.4)
2	4.5 - Volume	Success Criteria: - Find the volume of cubes and cuboids (4.5) - Find the volume of other 3-D shapes – prisms and cylinders (4.5) - Explore volumes of cones, pyramids and spheres (4.5)
3	Consolidation and Catching up lessons End-of-block test: Three Dimensional Shapes	Success Criteria: Complete assessment based on three dimensional shapes

		Review misconceptions and strengthen weak areas
4	Block 13 – Solving Ratio and Proportion Problems 13.1 – Direct proportion review 13.2 - Investigating Inverse Proportion	Success Criteria: - Solve problems with direct proportion (13.1) - Explore direct proportion and conversion graphs (13.1) - Solve problems with inverse proportion (13.2) - Explore graphs of inverse relationships (13.2)
5	13.3 – Ratio revisited 13.4 – Best buys End of block test – Solving Ratio and Proportion	Success Criteria: - Solve ratio problems given the whole or part (13.3) - Solve problems involving ratio and algebra (13.3) - Solve best buy problems (13.4)
6	Block 15 – Probability 15.1 - Probability of one event 15.2 – More than one vent	Success Criteria: - Calculate single event probabilities (15.1) - Understand relative frequency (15.1) - Calculate expected outcomes (15.1) - Calculate with independent events (15.2)
7	15.2 – More than one event 15.3 – Probabilities and tree diagrams End of block test - Probability	Success Criteria: - Use diagrams to work out probabilities (15.2) - Use tree diagrams (15.3) - Use tree diagrams to solve ‘without replacement’ problems (15.3)