Mathematics @ KS3

Mathematics is broken into four main strands: number, algebra, geometry and data. Throughout the year learners will revisit topics, to develop and build on prior knowledge. All tests are cumulative and include the work covered over the whole year.
Exact curriculum timings might change due to school trips, calendar dates and other off-timetable days.

Domains and Concepts:
The subject content is organised by topic: number, algebra, shape and space, and probability and statistics. The content is not presented in a teaching order
Number: Number
Algebra: Algebra and graphs, Coordinate geometry
Shape and Space: Geometry, Mensuration, Trigonometry, Vectors and transformations
Probability and Statistics: Probability, Statistics

Assessment Objectives:
AO1 Demonstrate knowledge and understanding of mathematical techniques
AO2 Reason, interpret and communicate mathematically when solving problems

Assessment in mathematics will be ongoing and based on the Assessment Objectives.

Application of 5Cs in Mathematics:
Mathematics provides a rich context for teaching and cultivating values such as **community, compassion, creativity, confidence, and challenge**. In a maths classroom, students can engage in collaborative problem-solving activities, fostering a sense of **community** as they work together, share ideas, and learn from one another. The exploration of mathematical concepts and real-world applications encourages students to develop **compassion** by understanding how maths can be used to address societal issues and make a positive impact. Mathematics also nurtures creativity by encouraging students to think critically, explore different problem-solving strategies, and discover innovative solutions. As students tackle **challenging** mathematical problems, they develop **confidence** in their abilities to analyse, reason, and persevere. The inherent nature of mathematics, with its logical structures and puzzles, presents a continuous **challenge** that pushes students to think deeply, expand their skills, and embrace new mathematical frontiers. Through the study of mathematics, students not only gain mathematical knowledge but also acquire valuable life skills and attitudes that contribute to their personal growth and success.

Support and Opportunities:
 Maths Challenge Club
 In-School Maths Competitions
 UKMT Maths Challenges
 FOBISIA Competitions (and Trips)

Recommended Sites:
 Dr Frost Maths
 MyIMaths
 NRich
 UKMT

	Year 7	Year 8	Year 9
Term 1			
Topic and Content	**Topic 1:** Number (7N1, 7N2, 7N3, 7N4) **Topic 2:** Geometry (7G1)	**Topic 1:** Number (8N1, 8N2, 8N3, 8N4, 8N5)	**Topic 1:** Number (9N1, 9N2, 9N3, 9N4, 9N5)
Skills	**Number:** mental arithmetic, BIDMAS, working with negative numbers and decimals and rounding numbers. **Geometry**: Knowing key terms for defining angles; working with angle rules and bearings.	**Number:** factors, multiples and primes; using negative numbers; rounding; converting between fractions, decimals and percentages, finding; using percentages of amounts	**Number:** factors, multiples, decimals, rounding, indices and standard form. Converting between fractions, decimals and percentages and calculating with all four operations using fractions.
Assessments	Tests Home Learning tasks (MyiMaths).	Tests Home Learning tasks (MyiMaths).	Tests Home Learning tasks (MyiMaths).
Term 2			
Topic and Content	**Topic 1:** Algebra (7A3, 7A4, 7A5) **Topic 2**: Number (7N5, 7N6, 7N7, 7N8)	**Topic 1:** Algebra (8A1, 8A2) **Topic 2:** Geometry (8G1, 8G2, 8G4) **Topic 3:** Number (8N6, 8N7)	**Topic 1:** Algebra (9A1, 9A2) **Topic 2:** Geometry (9G6) **Topic 3:** Algebra (9A3, 9A4) **Topic 4:** Number (9N6, 9N8)
Skills	**Algebra:** simplifying algebra, including with arithmetic; substituting values into expressions; solving linear equations **Number:** using factors and multiples; converting between fractions, decimals and percentages; understanding ratio and proportion; operations with fractions, converting between mixed numbers and fractions	**Algebra:** manipulating expressions,; substituting values into expressions; **Geometry:** simple angle rules; parallel line angle rules; angles in polygons; drawing and measuring bearings **Number:** using ratios; using proportions; proportional reasoning; finding and using speed	**Algebra:** simplifying, rearranging, factorising **Geometry:** angle rules; parallel line rules; angles in polygons; measuring bearings **Algebra:** expanding algebraic brackets as well as calculating with algebraic fractions. **Number:** direct and inverse proportion, working with percentages, speed and density
Methods of Assessment	Tests, Egyptian Fractions Project, Home Learning tasks (MyiMaths).	Tests, t-Totals Project, Home Learning tasks (MyiMaths).	Tests, Home Learning tasks (MyiMaths).
	Year 7	**Year 8**	**Year 9**

	Term 3a		
Topic and Content	**Topic 1:** Geometry (7G2, 7G3, 7G4, 7G5) **Topic 2:** Algebra (7A1)	**Topic 1:** Number (8N8) **Topic 2:** Algebra (8A3, 8A4, 8A5)	**Topic 1:** Geometry (9G3, 9G4) **Topic 2:** Algebra (9A5) **Topic 3:** Number (9N7)
Skills	**Geometry**: using and converting between units of measurement, compound measures (like speed); finding area and perimeter of 2D shapes, symmetry and properties of shape **Algebra**: generating and describing sequences	**Number:** operations with fractions **Algebra:** solving linear equations, using and finding the nth term of linear sequences, plotting and/or sketching linear graphs, equations of straight lines	**Geometry:** calculations with right-angle triangles - Pythagoras' Theorem, trigonometry **Algebra:** solving simultaneous equations, **Number:** speed, density and other compound measures
Methods of Assessment	Tests, Home Learning (MyiMaths, Education Perfect).	Tests, Home Learning (MyiMaths, Education Perfect).	Tests, Home Learning (MyiMaths, Education Perfect).
	Term 3b		
Topic and Content	**Topic 1:** Data (7D1, 7D2) **Topic 2:** Geometry (7G5)	**Topic 1:** Data (8D2, 8D3) **Topic 1:** Geometry (8G5)	**Topic 1:** Data (9D1, 9D2) **Topic 2:** Geometry (9G7)
Skills	**Data**: processing (finding averages and range); presenting (constructing graphs and charts) **Geometry**: properties of shape, rotational and line symmetry, transformations (translation, reflection, rotation and enlargement)	**Data**: processing (finding averages and range from tables); presenting (constructing graphs and charts) **Geometry:** area and perimeter of 2D shapes	**Data:** finding averages and range from a table, constructing charts and graphs. Analysing sets of data and drawing conclusions. **Geometry:** transformations (translation, reflection, rotation and enlargement)
Methods of Assessment	Tests, Sports Day Statistics Project Home Learning (MyiMaths, Education Perfect).	Tests, Sports Day Statistics Project Home Learning (MyiMaths, Education Perfect).	Tests, Sports Day Statistics Project Home Learning (MyiMaths, Education Perfect).

	Year 7	Year 8	Year 9

	Term 4		
Topic and Content	**Topic 1:** Data (7D3) **Topic 2:** Geometry (7G7, 7G8) **Topic 3**: Algebra (7A6)	**Topic 1:** Data (8D1, 8D4) **Topic 3:** Geometry (8G6, 8G8)	**Topic 1:** Geometry (9G2, 9G5) **Topic 2:** Algebra (9A7, 9A8) **Topic 3:** Data (9D3)
Skills	**Data:** probability of simple single events, theoretical probabilities **Geometry:** properties of 3D shapes; volumes and surface areas and nets **Algebra:** plotting coordinates and graphs, understanding straight-lines	**Data:** calculating with theoretical and experimental probability, drawing and using sample spaces **Geometry:** volumes and surface areas of 3D shapes; rotational and line symmetry, transformations (translation, reflection, rotation and enlargement)	**Geometry:** finding the area and perimeter of 2D shapes, including sectors and arcs. volume and surface area of 3D shapes **Algebra:** equations of straight lines, linear and non-linear graphs **Data:** probability of single and relatives events, tree diagrams, venn diagrams
Methods of Assessment	Tests and/or End of Year Exams Home Learning (MyiMaths, Education Perfect) Project	Tests and/or End of Year Exams Home Learning (MyiMaths, Education Perfect) Project	Tests and/or End of Year Exams Home Learning (MyiMaths, Education Perfect) Project