

Mathematics

Students throughout key stage 3 and 4 follow the national curriculum for mathematics. The curriculum is split into the following strands: number, algebra, statistics, probability, ratio and proportion, geometry and measure.

It is an expectation that all students come equipped to their maths lessons; this includes pencil and ruler for neatly drawing diagrams and graphs as well as a calculator.

Year 7 and 8

The scheme of learning is split into developing, core and extended in years 7 and 8. This is to ensure the needs of all learners are met and that there is sufficient stretch and challenge.

Year 7 Developing					
Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
1 Analysing and displaying 1.1 Tables and pictograms 1.2 Bar charts 1.3 Grouped data 1.4 Mode and modal class 1.5 Range and median 1.6 Mean	3 Expressions, functions and 3.1 Using functions 3.2 Function machines 3.3 Simplify expressions 3.4 Writing expressions 3.5 STEM: Using formulae 3.6 Writing formulae	5 Factors and multiples 5.1 Number rules and 5.2 Multiples 5.3 Multiplication 5.4 Division 5.5 Solving problems 5.6 Factors and primes multiples	7 Angles and lines 7.1 Right angles and lines 7.2 Measuring angles 1 7.3 Measuring angles 2 7.4 Drawing and estimating 7.5 Putting angles together	8 Measuring and shapes 8.1 Shapes 8.2 Symmetry in shapes 8.3 More symmetry 8.4 Regular polygons 8.5 Perimeter 8.6 Area	10 Transformations 10.1 Reflection 10.2 Translation 10.3 Rotation 10.4 STEM: Congruency
2 Calculating 2.1 Adding 2.2 Subtracting 2.3 Multiplying 2.4 Dividing 2.5 Multiplying and dividing by 10, 100 and 1000 2.6 Using the four operations 2.7 Positive and negative numbers	4 Graphs 4.1 Real-life graphs 4.2 Coordinates 4.3 Graphs of functions 4.4 STEM: Scientific graphs	6 Decimals and measures 6.1 Estimates and measures 6.2 Decimal numbers 6.3 Metric units 6.4 Adding and subtracting decimals 6.5 Rounding 6.6 Multiplying and dividing decimals 6.7 STEM: Calculating with	9 Fractions, decimals and 9.1 Comparing fractions 9.2 Equivalent fractions 9.3 Calculating with fractions 9.4 Adding and subtracting 9.5 Introducing percentages 9.6 STEM: Finding percentages		
	Assessment		Assessment		Assessment

Year 8 Developing

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
1 Number properties and calculations 1.1 Adding and subtracting with larger numbers 1.2 More calculations 1.3 Negative numbers 1.4 STEM: Writing ratios 1.5 Using ratios to solve problems 1.6 Multiplicative reasoning	3 Statistics 3.1 Data collection sheets 3.2 Interpreting bar charts 3.3 Drawing bar charts 3.4 STEM: Pie charts	5 Decimal calculations 5.1 Adding and subtracting decimals 5.2 Multiplying decimals 5.3 Ordering and rounding decimals 5.4 STEM: Problem-solving with decimals	7 Number properties 7.1 Squares, cubes and roots 7.2 Calculating with brackets and indices 7.3 LCM and HCF 7.4 Prime factor decomposition	8 Sequences 8.1 Generating sequences 8.2 Extending sequences 8.3 Special sequences 8.4 Position-to-term rules 8.5 Finding the nth term	10 Probability 10.1 The language of probability 10.2 Outcomes 10.3 Probability calculations 10.4 Experimental probability 10.5 STEM: Comparing probabilities
2 Shapes and measures in 3D 2.1 3D solids 2.2 Nets of 3D solids 2.3 Surface area 2.4 Volume 2.5 Working with measures	4 Expressions and equations 4.1 Simplifying expressions 4.2 Functions 4.3 Solving equations 4.4 Using brackets	6 Angles 6.1 Measuring and drawing angles 6.2 Vertically opposite angles 6.3 Angles in triangles 6.4 Drawing triangles accurately 6.5 Designing nets	9 Fractions and percentages 9.1 Comparing fractions 9.2 Fractions of amounts 9.3 Adding and subtracting fractions 9.4 Fractions and percentages 9.5 Calculating percentages 9.6 STEM: Percentages and proportion		
Assessment	Assessment		Assessment		Assessment

Year 7 Core

<u>Term 1</u>	<u>Term 2</u>	<u>Term 3</u>	<u>Term 4</u>	<u>Term 5</u>	<u>Term 6</u>
1 Analysing and displaying data 1.1 Mode, median and range 1.2 Displaying data 1.3 Grouping data 1.4 Averages and comparing data 1.5 Line graphs and more bar charts 1.6 Spreadsheets	3 Expressions, functions and formulae 3.1 Functions 3.2 Simplifying expressions 1 3.3 Simplifying expressions 2 3.4 Writing expressions 3.5 STEM: Substituting into formulae 3.6 Writing formulae	5 Fractions 5.1 Comparing fractions 5.2 Simplifying fractions 5.3 Working with fractions 5.4 Fractions and decimals 5.5 Understanding percentages 5.6 Percentages of amounts	7 Ratio and proportion 7.1 Direct proportion 7.2 Writing ratios 7.3 Using ratios 7.4 Scales and measures 7.5 Proportions and fractions 7.6 Proportions and percentages	8 Lines and angles 8.1 Lines, angles and triangles 8.2 Estimating, measuring and drawing angles 8.3 Drawing triangles accurately 8.4 STEM: Calculating angles 8.5 Angles in a triangle 8.6 Quadrilaterals	10 Transformations 10.1 Congruency and enlargements 10.2 Symmetry 10.3 Reflection 10.4 Rotation 10.5 Translations and combined transformations
2 Number skills 2.1 Mental maths 2.2 Addition and subtraction 2.3 Multiplication 2.4 Division 2.5 STEM: Time and money 2.6 Negative numbers 2.7 Factors, multiples and primes 2.8 Square and triangle numbers	4 Decimals and measures 4.1 Decimals and rounding 4.2 Length, mass and capacity 4.3 Scales and coordinates 4.4 Working with decimals mentally 4.5 Working with decimals 4.6 Perimeter 4.7 Area 4.8 STEM: More units	6 Probability 6.1 The language of probability 6.2 Calculating probability 6.3 More probability calculations 6.4 Experimental probability 6.5 STEM: Expected outcomes		9 Sequences and graphs 9.1 Sequences 9.2 Pattern sequences 9.3 Coordinates 9.4 Extending sequences 9.5 Straight-line graphs 9.6 Position-to-term rules	
	Assessment		Assessment		Assessment

Year 8 Core

<u>Term 1</u>	<u>Term 2</u>	<u>Term 3</u>	<u>Term 4</u>	<u>Term 5</u>	<u>Term 6</u>
1 Number 1.1 Calculations 1.2 Calculating with negative integers 1.3 Powers and roots 1.4 Powers, roots and brackets 1.5 Multiples and factors	4 Expressions and equations 4.1 Algebraic powers 4.2 Expressions and brackets 4.3 Factorising expressions 4.4 One-step equations 4.5 Two-step equations 4.6 The balancing method	6 Decimals and ratio 6.1 Ordering decimals and rounding 6.2 Place-value calculations 6.3 Calculations with decimals 6.4 Ratio and proportion with decimals 6.5 STEM: Using ratios	8 Calculating with fractions 8.1 Adding and subtracting fractions 8.2 Multiplying fractions 8.3 Fractions, decimals and reciprocals 8.4 Dividing fractions 8.5 Calculating with mixed numbers	9 Straight-line graphs 9.1 Direct proportion on graphs 9.2 Gradients 9.3 Equations of straight lines 9.4 STEM: Direct proportion problems 10 Percentages, decimals and fractions 10.1 Fractions and decimals 10.2 Equivalent proportions 10.3 Writing percentages 10.4 Percentages of amounts 10.5 STEM: Solving problems	3 Statistics, graphs and charts 3.1 Pie charts 3.2 Using tables 3.3 Stem and leaf diagrams 3.4 Comparing data 3.5 Scatter graphs 3.6 STEM: Misleading graphs
2 Area and volume 2.1 Area of a triangle 2.2 Area of a parallelogram and trapezium 2.3 Volume of cubes and cuboids 2.4 3D shapes 2.5 Surface area of cubes and cuboids 2.6 Problems and measures	5 Real-life graphs 5.1 Conversion graphs 5.2 Distance-time graphs 5.3 Line graphs 5.4 Complex line graphs 5.5 STEM: Graphs of functions 5.6 More real-life graphs	7 Lines and angles 7.1 Quadrilaterals 7.2 Alternate angles and proof 7.3 Geometrical problems 7.4 Exterior and interior angles 7.5 Solving geometric problems	Assessment	Assessment	Assessment

Year 7 Extended

<u>Term 1</u>	<u>Term 2</u>	<u>Term 3</u>	<u>Term 4</u>	<u>Term 5</u>	<u>Term 6</u>
1 Analysing and displaying data 1.1 Two-way tables and bar charts 1.2 Averages and range 1.3 Grouped data 1.4 More graphs 1.5 Pie charts 1.6 STEM: Scatter graphs and correlation	3 Equations, functions and formulae 3.1 Simplifying algebraic expressions 3.2 Writing algebraic expressions 3.3 STEM: Using formulae 3.4 Writing formulae 3.5 Brackets and powers 3.6 Factorising expressions	5 Angles and shapes 5.1 Angles and parallel lines 5.2 Triangles 5.3 Quadrilaterals 5.4 Polygons	7 Equations 7.1 Solving one-step equations 7.2 Solving two-step equations 7.3 More complex equations 7.4 Trial and improvement	8 Multiplicative reasoning 8.1 STEM: Metric and imperial units 8.2 Writing ratios 8.3 Sharing in a given ratio 8.4 Proportion 8.5 Proportional reasoning 8.6 Using the unitary method	10 Sequences and graphs 10.1 Sequences 10.2 The nth term 10.3 Pattern sequences 10.4 Coordinates and line segments 10.5 Graphs
2 Number skills 2.1 Factors, primes and multiples 2.2 Using negative numbers 2.3 Multiplying and dividing 2.4 Squares and square roots 2.5 More powers and roots 2.6 Calculations	4 Fractions 4.1 Working with fractions 4.2 Adding and subtracting fractions 4.3 Fractions, decimals and percentages 4.4 Multiplying and dividing fractions 4.5 Working with mixed numbers	6 Decimals 6.1 Ordering decimals 6.2 Rounding decimals 6.3 Adding and subtracting decimals 6.4 Multiplying decimals 6.5 Dividing decimals 6.6 Fractions, decimals and percentages 6.7 STEM: Working with percentages		9 Perimeter, area and volume 9.1 Triangles, parallelograms and trapeziums area 9.2 Perimeter and area of compound shapes 9.3 Properties of 3D solids 9.4 Surface area 9.5 Volume 9.6 STEM: Measures of area and volume	
	Assessment		Assessment		Assessment

Year 8 Extended

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
1 Factors and powers 1.1 Prime factor decomposition 1.2 Laws of indices 1.3 STEM: Powers of 10 1.4 Calculating and estimating	3 2D shapes and 3D solids 3.1 Plans and elevations 3.2 Surface area of prisms 3.3 Volume of prisms 3.4 Circumference of a circle 3.5 Area of a circle 3.6 Cylinders 3.7 Pythagoras' theorem	5 Transformations 5.1 Reflection and translation 5.2 Rotation 5.3 Enlargement 5.4 More enlargement 5.5 STEM: Combining transformations 5.6 2D shapes and 3D solids	7 Constructions and loci 7.1 Accurate drawings 7.2 Constructing shapes 7.3 Constructions 1 7.4 Constructions 2 7.5 Loci	8 Probability 8.1 Comparing probabilities 8.2 Mutually exclusive events 8.3 Estimating probability 8.4 Experimental probability 8.5 Probability diagrams 8.6 Tree diagrams	10 Graphs 10.1 Plotting linear graphs 10.2 The gradient 10.3 $y = mx + c$ 10.4 Parallel and perpendicular lines 10.5 Inverse functions 10.6 STEM: Non-linear graphs
2 Working with powers 2.1 Simplifying expressions 2.2 More simplifying 2.3 Expanding and simplifying 2.4 Substituting and solving	4 Real life graphs 4.1 Direct proportion 4.2 STEM: Interpreting financial graphs 4.3 Distance-time graphs 4.4 Rates of change 4.5 Misleading graphs	6 Fractions, decimals and percentages 6.1 Recurring decimals 6.2 Using percentages 6.3 Percentage change 6.4 STEM: Repeated percentage change	9 Scale drawings and measures 9.1 Maps and scales 9.2 Bearings 9.3 Scales and ratio 9.4 Congruent and similar shapes 9.5 Solving geometry problems		
Assessment	Assessment		Assessment		Assessment

In year 9 and 10 the focus is on building on the basics to ensure students cover the GCSE syllabus through making clear links between the different strands of mathematics.

Year 9 and 10

We start the Edexcel scheme of learning in year 9. Students will follow either higher or foundation scheme in order to prepare them for the different tiers for the GCSE exams. More information regarding this can be found at

<https://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics->

[2015.coursematerials.html#filterQuery=category:Pearson-UK:Category%2FTeaching-and-learning-materials&filterQuery=category:Pearson-UK:Document-Type%2FScheme-of-work](https://www.pearson.com/uk/education/learning-materials/coursematerials.html#filterQuery=category:Pearson-UK:Category%2FTeaching-and-learning-materials&filterQuery=category:Pearson-UK:Document-Type%2FScheme-of-work)

By year 11 the scheme of learning becomes highly personalised towards maximising the progress of individual groups of students.

At key stage 5, mathematics becomes optional and students following these courses study for nationally recognised and accredited qualifications. Students have access to Pearson's online ActiveLearn system which provides them with digital textbooks for the Edexcel course.

Homework – Hegarty Maths

In year 7, 8 and 9 students will be set two tasks on Hegarty Maths to complete. In year 10 and 11 students may be set specific tasks on Hegarty Maths but are also encouraged to pick tasks they know they need to work on as part of their two required tasks a week.

Each task consists of watching and taking notes from a video then completing a quiz. Students should aim to write down full working out for each question. Students can ask their teachers questions via the comment boxes and will get instant feedback on how well they did. Students should be aiming for between 80-90% in the quiz. Their notes and quiz work then need to be brought into school to be filed in their folders.

For more information on Hegarty Maths please visit <https://hegartymaths.com/>

For further information regarding mathematics programmes of study please [click here](#) or contact Head of Maths, Miss G Smith.