



Mathematics – Year 7



AUTUMN 1

Sequences

Continuing shape sequences
Linear and non-linear sequences
Representing sequences
Finding missing terms in a sequence

Algebraic Notation

Inputs and outputs of two step function machines
Substitution
Using inverse operations
Forming algebraic expressions

Equality and equivalence

Solving one step equations
Simplifying expressions by collecting like terms
Use of the equivalence sign

PRIOR LEARNING

Repeating patterns, squares and roots, bar models, function machines, fact families, inverse operations

Summative Assessment 1

Series of questions assessing students' fluency, reasoning, and problem-solving skills in relation to the first 5 taught topics.

AUTUMN 2

Place value and ordering

Recognising and using place value of any number
Comparing and ordering numbers
Rounding numbers
Converting to and from standard form

Fractions, decimals and percentages

Converting fractions, decimals and percentages
Identifying and using equivalent fractions
Linking fractions and division
Interpreting pie charts

Addition and subtraction

Use of column method for addition and subtraction
Calculating with time
Reading and interpreting charts and tables
Adding and subtracting with standard form

Use of place value chart, powers of 10, basic fraction, decimal and percentage conversions, mental and written addition, and subtraction strategies

PRIOR LEARNING

Number bonds, times tables, Order of operations, areas of rectangles, parallelograms, and triangles,

Summative Assessment 2

Series of questions assessing students' fluency, reasoning, and problem-solving skills in relation to the first 10 taught topics.

SPRING 1

Multiplication and division

Identifying factors and multiples of a number
Using formal multiplication and division
Finding the area of triangles and parallelograms
Using the order of operations
Working out the mean of a data set

Fractions and percentages of amounts

Calculating the fraction of an amount
Calculating the fraction of an amount
Using a calculator to work out fractions and percentages
Finding the whole given a fraction or a percentage

Number bonds, times tables, Order of operations, areas of rectangles, parallelograms, and triangles,

SPRING 2

Directed number

Ordering directed numbers
Calculating with directed numbers
Substituting with directed number
Solving two-step equations
Investigating powers and roots

Fractional Thinking

Convert between mixed numbers and improper fractions
Using equivalent fractions
Adding and subtracting proper fractions
Adding and subtracting mixed numbers

Negative numbers, substitution, solving one-step equations, order of operations, powers and roots, factors, and multiples.

SUMMER 1

Constructions and measuring

Using geometric notation
Drawing and measuring angles
Constructing shapes
Identifying properties of shapes

Geometric Reasoning

Finding unknown angles on straight lines and at a point
Identifying vertically opposite angles
Finding unknown angles in a triangle
Finding missing angles in a quadrilateral
Finding unknown angle sin parallel lines

PRIOR LEARNING

Angle facts, accurate use of rulers and protractors, names of polygons.

SUMMER 2

Developing number sense

Using mental methods for calculations involving integers, fractions and decimals
Using factors to simplify calculations
Estimating the answers to calculations

Sets and probability

Identifying and representing sets
Creating and interpreting Venn Diagrams
Calculating the probability of single events
Use the probability scale

Primes and proofs

Recognising prime, scale and triangular numbers
Writing a number as the product of its prime numbers
Making and testing conjectures
Using counterexamples to disprove a conjecture

Addition and subtraction techniques, fact families, Venn Diagrams, factors and multiples, prime numbers



Mathematics – Year 8



AUTUMN 1

Ratio and scale

Use ratios to compare quantities
Write ratios in their simplest form
Write ratios in the form $n:1$ and $1:n$
Divide quantities in a given ratio
Find a gradient as a ratio

Multiplicative change

Using multipliers to find unknown quantities
Convert between currencies
Draw and interpret conversion graphs
Recognise similar shapes and find unknown sides
Draw and interpret scale diagrams

Multiplying and dividing fractions

Multiplying fractions by an integer
Multiply fractions by fractions
Divide an integer by a fraction
Dividing fractions by fractions
Multiply and divide complex fractions

PRIOR LEARNING

Simplifying fractions, fractions of an amount, highest common factors, perimeter, rounding, unit conversions, mixed numbers and improper fractions

AUTUMN 2

Working in the Cartesian plane

Working with coordinates in all 4 quadrants
Finding coordinates that lie on a line
Drawing straight line graphs
Finding the coordinates of the midpoint of a line
Comparing gradients and y-intercepts

Representing data

Draw and interpret scatter graphs
Identifying different types of data
Working with grouped and ungrouped data
Completing two-way tables

Tables and probability

Constructing sample space diagrams
Finding probabilities from sample space diagrams, two-way tables and Venn diagrams
Using the product rule to find the total number of possible outcomes

Coordinates, equations of lines parallel to axis, substitution, solving equations, frequency tables, inequalities, basic probability.

SPRING 1

Brackets, equations and inequalities

Forming and using algebraic expressions
Expanding single brackets and pairs of single brackets
Expanding a pair of binomials
Forming and solving linear equations and inequalities
Identifying formulae, expressions, identities and equations

Sequences

Finding the next terms in sequences
Using a rule in words to generate sequences
Using algebraic rules to generate sequences
Describing sequences in words

PRIOR LEARNING

Function machines, simplifying expressions, highest common factors, expand brackets, linear and non-linear sequences,

SPRING 2

Indices

Adding and subtracting expressions with indices
Simplifying algebraic expressions by multiplying and dividing indices
Working with powers of powers

Fractions and percentages

Convert between fractions, decimals & percentages
Work out percentage of amounts
Working out percentage increase and decrease
Expressing numbers as a percentage of another

Standard Index Form

Working with numbers greater than 1 in standard form
Working with numbers between 0 and 1 in standard form
Calculating with numbers in standard form

Simplifying expressions, expanding brackets, converting fractions, decimals and percentages, fractions, decimals and percentage of amounts, powers of 10, powers

SUMMER 1

Number sense

Rounding numbers to a given number of significant figures or decimal places
Converting between metric units of length, mass and capacity
Calculating with time and the calendar

Angles in parallel lines and polygons

Working out unknown angles on straight lines and at a point
Working out unknown angles in parallel lines
Finding missing angles in triangles, quadrilaterals and other polygons

Area of trapezia and circles

Calculating the area of rectangles, triangles and parallelograms
Calculating the area of trapezia and circles
Calculating the perimeter of compound shapes

PRIOR LEARNING

Rounding, order of operations, place value, unit conversions, basic angle rules and notation, names of polygons, area of triangles and quadrilaterals, circle parts

SUMMER 2

Line symmetry and reflection

Recognise line symmetry
Reflecting shapes in horizontal and vertical lines
Reflecting shapes in diagonal lines
Recognising the mirror line for a reflection

The data handling cycle

Drawing charts and graphs
Representing grouped quantitative data
Calculating the range
Identifying how graphs can be misleading

Measures of location

Calculating the mean, median and mode of a list of data
Calculating the mean from a frequency table
Estimating the mean of grouped data

Frequency tables, types of data, pictograms, bar charts, pie charts, mean, mode and median.

Summative Assessment 1

Series of questions assessing students' fluency, reasoning, and problem-solving skills in relation to the first 6 taught topics.

Summative Assessment 2

Series of questions assessing students' fluency, reasoning, and problem-solving skills in relation to the first 12 taught topics.



Mathematics – Year 9



AUTUMN 1

Straight line graphs

Recognising and plotting lines parallel to the axes
Recognising and plotting the lines $y = x$ and $y = -x$
Using tables of values
Drawing lines in the form $y = mx + c$
Identifying gradients and intercepts of straight lines

Forming and solving equations

Solving one and two step equations and inequalities
Solving equations and inequalities with brackets
Solving equations and inequalities with unknowns on both sides

Testing conjectures

Recognising factors and multiples
Expressing a number as a product of prime factors
Simplifying algebraic expressions
Expanding a pair of binomials

PRIOR LEARNING

Coordinates, tables of values, expanding brackets, solving one-step equations, inequalities, factors, multiples and primes.

Summative Assessment 1

Series of questions assessing students' fluency, reasoning, and problem-solving skills in relation to the first 6 taught topics.

AUTUMN 2

Three dimensional shapes

Identifying and naming 2-D and 3-D shapes
Identifying prisms through their properties
Finding the areas of 2-D shapes
Finding the surface areas of cuboids and prisms
Finding the volume of simple 3-D shapes

Constructions and congruency

Constructing shapes
Recognising congruency
Constructing loci
Constructing bisectors of lines and angles
Constructing perpendiculars to and from points

Numbers

Identifying integers, real and rational numbers
Calculating with directed numbers
Calculating with integers, decimals and fractions
Working with numbers in standard form

Names and properties of mathematical shapes, area, circumference, angle facts, rounding, directed number, factors, and multiples.

PRIOR LEARNING

Fractions, decimals and percentage conversions, ratio, angle facts, solving equations.

SPRING 1

Percentages

Converting between fractions, decimals and percentages
Calculating percentages of amounts
Finding percentage increases and decreases
Using a calculator to work with percentages

Maths and money

Carry out calculations involving money
Calculating interest as a percentage of an amount
Finding the cost after Vat has been added
Working out the cost of one unit of an item

Deduction

Find missing angles on a straight line, around a point and in 2-D shapes
Find missing angles in problems involving parallel lines
Use algebra to set up and solve simple equations

Fractions, decimals and percentage conversions, ratio, angle facts, solving equations.

SPRING 2

Rotations and translations

Identifying the order of rotational symmetry of a shape
Identifying line symmetry in a shape
Rotating a shape about a point
Translating points and shapes by a given vector

Pythagoras' Theorem

Calculating squares and square roots
Identifying the hypotenuse of a right-angled triangle
Calculating side lengths in right-angled triangles

Reflections, coordinates, squares and roots, 3D shapes

Summative Assessment 2

Series of questions assessing students' fluency, reasoning, and problem-solving skills in relation to the first 12 taught topics.

SUMMER 1

Enlargement and similarity

Recognise enlargement and similarity
Enlarging a shape by a positive integer scale factor
Enlarging a shape by positive scale factors from a centre of enlargement
Enlarging a shape by a negative scale factor

Solving ratio and proportion problems

Solving ratio problems when given a part or whole
Solving direct proportion problems
Finding the best value using the unit cost
Drawing and using direct proportion graphs
Solving simple inverse proportion problems

PRIOR LEARNING

Fractions of amount, ratio, scale factors, direct proportion, conversion graphs, inverse operations circle parts

SUMMER 2

Rates

Perform calculations involving speed, distance and time
Perform calculations involving density, mass and volume
Converting compound units

Probability

Calculate the probability of a single event
Using diagrams to calculate probabilities
Calculating relative frequency
Drawing probability tree diagrams to model possible outcomes

Algebraic representations

Reading quadratic graphs
Interpreting graphs showing more than one straight line
Solving simultaneous equations using graphs
Showing inequalities using number lines & graphs

Significant figures, conversions, gradients, single event probability, multiplying fractions, probability diagrams, substitution, lines parallel to axis.



Maths - Year 10 Foundation



AUTUMN 1

Types of Averages and range
Estimating Mean
Sampling

Perimeter and Area: Rectangles, Triangles, Parallelograms and Trapeziums
Converting units
Area of compound shapes
Volume and Surface area of prisms

PRIOR LEARNING

Rounding, Calculations, Reading Charts, Estimating, Naming Shapes

Summative Assessment 1

GCSE Exam Questions on the topics covered in Year 10 and using skills covered in Years 7,8 and 9.

AUTUMN 2

Graphs
Plotting coordinates
Linear graphs
Finding the gradient of a line
Real life graphs

Circles: Area and Circumference
Translation
Reflection
Rotation
Enlargement

Describing transformations
Combining transformations

Reading and Plotting Coordinates, Substituting into Expressions, Naming Shapes

SPRING 1

Ratio and Proportion
Writing ratios
Using ratios: dividing in a ratio with 2 or 3 parts
Using ratios involving decimals

Comparing ratios
Using proportion
Proportion and graphs

Pythagoras theorem
Trigonometry: SOHCAHTOA
Finding lengths and angles using trigonometry

PRIOR LEARNING

Equivalent Fractions, Converting Units, Highest Common Factor, Rounding, Squares and Roots, Identifying Types of Triangles

SPRING 2

Calculating probability
Two way tables
Sample space diagrams
Experimental probability
Venn diagrams
Tree diagrams

Percentages: calculating profit or loss
Growth and Decay

Compound measures
Speed, Distance and time
Direct and Inverse proportion

Converting Units, Simplifying Ratios, Finding a Percentage/Fraction of an Amount, Reading Scales, Converting Fractions, Decimals and Percentages

Summative Assessment 2

GCSE Exam Questions on the topics covered in Year 10 and using skills covered in Years 7,8 and 9.

SUMMER 1

Circumference and area of a circle
Semicircles and sectors
Area and perimeter of composite 2D shapes

Volume and surface area of cylinders
Volume and surface area of pyramids, cones and spheres

PRIOR LEARNING

Squares and Roots, Rounding, Converting Units, Naming Shapes

SUMMER 2

Constructions, loci and bearings
3D shapes: names, properties and nets
Plans and elevations

Accurate drawings of triangles
Identify congruent triangles
Scale drawings and maps
Constructions: bisect angles

Loci and identify regions
Find and use bearings
Use angles in parallel lines to work out bearings

Naming 3D Shapes, Using a Ratio, Using a Pair of Compasses, Using a Protractor



Maths - Year 10 Higher



AUTUMN 1

Perimeter and area of compound shapes and trapezium
Convert between metric units of area
Volume and surface area of prisms

Area and circumference of a circle
Calculate arc lengths and areas of sectors
Volume and surface area of cylinders, spheres, pyramids and cones

Solving quadratic equations
Quadratic formula
Probability including product rule
Sample space diagrams
Mutually exclusive outcomes and events

PRIOR LEARNING

Converting Units, Changing the Subject, Solving Linear Equations, Factorising Quadratics

Summative Assessment 1

GCSE Exam Questions on the topics covered in Year 10 and using skills covered in Years 7,8 and 9

AUTUMN 2

Experimental and theoretical probability
Frequency trees and tree diagrams
Independent events and conditional probabilities
Using Venn diagrams to calculate probabilities - Set notation

Complete the square
Solving quadratic equations by completing the square
Solving linear inequalities
Representing inequalities on a number line

Translation, reflection, rotation and enlargement
Mixed transformations
Combinations of transformations

FDP Conversion, Percentages of Amounts, Reading a Scale, Manipulating Algebraic Expressions

SPRING 1

Repeated percentage change and growth and decay
Compound measures
Convert between metric speed measures
Use relationships involving ratio
Direct and indirect proportion

Solving linear simultaneous equations
Simultaneous equations in real life problems
Solving simultaneous equations with one quadratic equation

PRIOR LEARNING

Converting Units, Solving Quadratics, Percentages
Using a Calculator

SPRING 2

Sampling
Cumulative frequency and box plots
Drawing and interpret histograms
Comparing and describing populations

Accuracy – bounds and trigonometry
Graph of the sine function
Graphs of the cosine function
Tangent functions
Finding the area of a triangle

The sine rule
The cosine rule
Bearing problems using trigonometry
Pythagoras' Theorem in 3D
Trigonometry in 3D

Pythagoras, Right Angled Trigonometry, Percentages of Amounts, Averages

Summative Assessment 2

PPEs - GCSE Exam Questions on the topics covered in Year 10 and using skills covered in Years 7,8 and 9.

SUMMER 1

Similarity and Congruency
Conditions and proving congruency
Similar shapes

Linear and area scale factor
Similarity in 3D shapes

PRIOR LEARNING

Squares and Roots, Enlargement Scale Factors, Solving Equations, Angle Reasoning

SUMMER 2

Equations and graphs
Solving simultaneous equations graphically
Represent inequalities graphically

Represent inequalities graphically
Graphs of quadratic functions including solving
Graphs of cubic functions

Solving Inequalities, Expand Quadratics, Solving Quadratic Equations



Maths - Year 11 - Foundation



AUTUMN 1

Expanding double brackets
Plotting and using quadratic graphs
Factorising quadratic expressions
Solving quadratic equations algebraically

Find and use 3 figure bearings
Use angles and parallel lines to work out bearings
Bearings and scale diagrams

Multiply and divide fractions
Laws of indices
Writing small & large numbers in standard form
Calculations in standard form

PRIOR LEARNING

Squares and Roots, Adding and Subtracting Negatives, Simplifying Expressions

Summative Assessment 1

PPEs - Exam Questions based on topics covered so far in Years 9,10 and 11

AUTUMN 2

Use similarity to solve angle problems
Find the scale factor of enlargement

Recognise congruent shapes
Use congruency to work out unknown sides

Add and subtract vectors
Resultant vectors
Find multipliers of a vector

Multiplying and Dividing by powers of 10, Converting from Mixed Numbers to Improper Fractions, Fraction of an Amount

SPRING 1

Draw and interpret graphs of cubic and reciprocal functions
Draw and interpret non-linear graphs
Solve simultaneous equations graphically and algebraically

Rearrange formula
Identify expressions, equations, formulae and identities
Prove results using algebra

PRIOR LEARNING

Changing the Subject, Expanding Brackets, Substituting Changing the Subject, Expanding

SPRING 2

Revision

Summative Assessment 2

GCSE Examinations

SUMMER 1

Revision

PRIOR LEARNING

SUMMER 2

Revision



Maths - Year 11 - Higher



AUTUMN 1

Circle Theorems
Radii and chords
Tangents
Angles in a circle
Applying circle theorems

Rearranging formula
Change the subject

Simplify algebraic fractions
Add and subtract algebraic fractions
Multiply and divide algebraic fractions
Surd
Solve algebraic fraction equations

PRIOR LEARNING

Parts of a circle, basic angle facts, factorising, calculations with numerical fractions, roots

Summative Assessment 1

PPEs - Exam Questions based on topics covered so far in Years 9,10 and 11

AUTUMN 2

Vectors and Geometric proof
Vector notation and vector arithmetic
Resultant vectors

Parallel vectors and collinear points
Solving geometric problems with vectors

Factorising, basic algebraic manipulation

SPRING 1

Use function notation
Composite functions
Inverse functions
Prove a result using algebra

Direct and inverse proportion
Exponential functions
Non linear graphs
Gradient of a tangent
Translating, reflecting and stretching graphs of functions

Transforming trigonometric graphs
Recognise how changes in a function affect trigonometric graphs

PRIOR LEARNING

Functions, proportion, gradient of a straight line, transformations

SPRING 2

Transforming trigonometric graphs
Recognise how changes in a function affect trigonometric graphs
Revision

Summative Assessment 2

GCSE Examinations

SUMMER 1

Revision

PRIOR LEARNING

SUMMER 2

Revision



Mathematics - Year 12



AUTUMN 1

Algebraic Expressions (Teacher 1)
Quadratics (Teacher 2)
Measures of Location and Spread (Teacher 1)

Equations and Inequalities (Teacher 2)
The Binomial Expansion (Teacher 1)
Modelling in Mechanics (Teacher 2)
Algebraic Methods (Teacher 1)

Constant Acceleration (Teacher 2)
Statistical Distributions (Teacher 1)
Differentiation (Teacher 2)

PRIOR LEARNING

GCSE Higher Content

Summative Assessment 1

Biweekly assessments of previous content in exam question style. Mid-year assessment - exam style questions on content learned so far.

AUTUMN 2

Statistical Distributions (Teacher 1)
Differentiation (Teacher 2)
Straight Line Graphs (Teacher 1)

Integration (Teacher 2)
Circles (Teacher 1)
Forces and Motion (Teacher 2)

Probability (Teacher 1)
Data Collection (Teacher 1)

GCSE Higher Content

SPRING 1

Data Collection (Teacher 1)
Forces and Motion (Teacher 2)
Hypothesis Testing (Teacher 1)

Vectors (Teacher 2)
Trigonometric Identities and Equations (Teacher 1)

PRIOR LEARNING

GCSE Higher Content

SPRING 2

Trigonometric Identities and Equations (Teacher 1)
Equations and Inequalities (Teacher 2)

Exponentials and Logarithms (Teacher 1)
Graphs and Transformations (Teacher 2)

GCSE Content

Summative Assessment 2

PPE at the end of year 12 covering all year 1 content.

SUMMER 1

Representations of Data (Teacher 1)
Variable Acceleration (Teacher 2)
Correlation (Teacher 1)

Moments (Y2) (Teacher 2)
Algebraic and Partial Fractions (Y2) (Teacher 2)

Projectiles (Y2) (Teacher 2)
The Binomial Expansion (Y2) (Teacher 1)

PRIOR LEARNING

GCSE Higher and A-Level Y1 Content

SUMMER 2

PPE Revision (Both Teachers)
Regression and Correlation (Y2) (Teacher 1)
Forces and Friction (Teacher 2)

GCSE Higher and A-Level Y1 Content



Mathematics - Year 13



AUTUMN 1

Trigonometry Part 1 (Teacher 1)
Differentiation (Teacher 2)
Proof (Teacher 1)

Vectors 3D (Teacher 2)
Normal Distribution (Teacher 1)

PRIOR LEARNING

A-Level Year 1 Content

Summative Assessment 1

Biweekly assessments of previous content in exam question style. PPEs - previous exam only covering all content covered up to that point.

AUTUMN 2

Series and Sequences (Teacher 1)
Integration (Teacher 2)

Conditional Probability (Teacher 1)
Trigonometry Part 2 (Teacher 1)

A-Level Year 1 Content

SPRING 1

Trigonometry Part 2 (Teacher 1)
Functions and Graphs (Teacher 2)

PRIOR LEARNING

A-Level Year 1 Content

SPRING 2

Parametric Equations (Teacher 1)
Applications of Forces (Teacher 2)

Numerical Methods (Teacher 1)
Further Kinematics (Teacher 2)

A-Level Year 1 Content

Summative Assessment 2

Final examination

SUMMER 1

Topic specific revision

PRIOR LEARNING

All A-Level Content

SUMMER 2



Further Mathematics - Year 12



AUTUMN 1

Matrices (Teacher 1)
Complex Numbers (Teacher 2)
Argand Diagrams (Teacher 2)

The Poisson Distribution (Teacher 1)
Momentum and Impulse (Teacher 2)

PRIOR LEARNING

Circles, SUVAT, Binomial Expansion, Functions and Graphs

Summative Assessment 1

Bi-weekly assessments of previous content in exam style.
Mid-year assessment - exam style questions on content learned so far

AUTUMN 2

Linear Transformations (Teacher 1)
Complex NUMbers -2 (Teacher 2)
Series (Teacher 2)

Discrete Probability Distributions (Teacher 1)
Work, Kinetic Energy and Power (Teacher 2)

GCSE content and A Level content

SPRING 1

Roots of Polynomials (Teacher 1)
Vectors (Teacher 2)
Poisson Distribution - 2 (Teacher 1)

PRIOR LEARNING

Binomial Distribution GCSE vectors

Summative Assessment 2

PPE at the end of year 12 covering all year 1 content

SPRING 2

Elastic Collisions in One Dimension (Teacher 2)
Proof by Induction (Teacher 1)

Chi Squared Tests (Teacher 1)
Volumes of Revolution (Teacher 2)

PRIOR LEARNING

SUMMER 1

Chi Squared Tests (Teacher 1)
Volumes of Revolution (Teacher 2)
Recap

SUMMER 2

Review and Recap



Further Mathematics - Year 13



AUTUMN 1

Complex Numbers (Teacher 2)
Geometric and Negative Binomial Distributions (Teacher 1)

Elastic Strings and Springs (Teacher 2)
Central Limit Theorem (Teacher 1)

PRIOR LEARNING

Year 12 content

Summative Assessment 1

PPE half term 3 on content to date

AUTUMN 2

Polar Coordinates (Teacher 1)
Elastic Strings and Springs (Teacher 2)

Probability Generating Function (Teacher 1)
Series (Teacher 2)

Year 12 content

SPRING 1

Hyperbolic Functions (Teacher 1)
Elastic Collisions in 2 Dimensions (Teacher 2)

PRIOR LEARNING

Year 12 content

SPRING 2

Quality of Tests (Teacher 1)
Methods in Calculus (Teacher 2)
Methods and Modelling with Differential Equations (Teacher 1)

Year 12 content

Summative Assessment 2

Final External Exam

SUMMER 1

Methods and Modelling with Differential Equations (Teacher 1)
Volumes of Revolution (Teacher 2)

PRIOR LEARNING

Year 12 content

SUMMER 2