



Curriculum Intent
Hilbre High School

What do students study for each Key Stage?

KS3 - Year 7

- *Place value (including decimals)*
- *Add and subtract (including decimals)*
- *Rounding*
- *Perimeter*
- *Mental strategies*
- *Factors and multiples*
- *Multiply and divide (including decimals)*
- *Area of rectangle, triangle and parallelogram*
- *Calculate the mean*
- *Further mental strategies*
- *Draw and measure angles*
- *Find unknown angles (straight lines, at a point, vertically opposite)*
- *Properties of triangles and quadrilaterals*
- *Unit conversions (linear)*
- *Symmetry and tessellation*
- *Equivalent fractions*
- *Compare and order fractions and decimals*
- *Change mixed numbers to improper fractions and vice versa*
- *Fraction of a quantity*
- *Multiply and divide fractions*
- *Order of operations*
- *Substitution*
- *Form and simplify algebraic expressions*
- *Expand over a single bracket, and factorise*
- *Sequences (term-to-term, not nth term)*
- *Construct and interpret statistical diagrams including pie charts*
- *Convert between percentages, vulgar fractions and decimals*
- *Percentage of a quantity*
- *Find the whole, given the part and the percentage*

KS3 - Year 8

- *Primes and indices*
- *Prime factorisation, squares and cubes*
- *Use of Venn diagrams to find LCM and HCF*
- *Add and subtract fractions*
- *Order and calculate with negative numbers*
- *Form and solve linear equations (unknowns on one side)*

- Use more complex algebraic expressions
- Linear sequences: n th term
- Construct triangles and quadrilaterals
- Calculate unknown angles (including parallel lines)
- Unit conversions (including area)
- Area of a trapezium
- Areas and perimeters of composite figures
- Percentage increase and decrease, including multipliers
- Reverse percentage problems
- Ratio (equivalent, of a quantity) and rate
- Scaling and multipliers
- Speed, distance, time
- Use of significant figures and estimation
- Circumference and area of a circle
- Visualise and identify 3-D shapes and their nets
- Volume of cuboid, prism, cylinder, composite solids
- Surface area
- Collect and organise data, including surveys
- Interpret and compare statistical representations
- Mean, median and mode averages
- The range and outliers

KS4 - Year 9

- Cartesian coordinates including midpoint of a line segment
- Linear graphs
- Direct and inverse proportion
- Calculate with scales
- Standard form
- Sequences including arithmetic and geometric
- Expand binomials and factorise simple quadratics
- Change the subject of familiar formulae
- Construction and loci
- Congruence and similarity
- Pythagoras' theorem
- Angles in polygons
- Construct and solve equations and inequalities (unknowns on both sides)
- Graphical solutions to simultaneous linear equations
- Quadratic and other graphs
- Probability
- Mean of grouped data
- Compare two data sets
- Scatter graphs
- Similarity and Enlargement'
- Transformations (translation, rotation, reflection)
- Exploring trigonometry

Years 10 and 11

- *Calculations with and rules of indices*
- *Calculations with standard form*
- *Geometric change including compound interest, growth and decay*
- *Standard non-linear sequences*

- *Enlargement*
- *Similar shapes*
- *Bearings*
- *Trigonometry in right angled triangles*
- *Algebraic arguments*
- *Geometric reasoning*
- *Equations of parallel lines*
- *Vectors*
- *Properties of 3-D shapes; their plans and elevations*
- *Surface area and volume of pyramids, cones and spheres (including exact answers)*
- *Estimation and limits of accuracy*
- *Loci*

- *Geometric proof*
- *Populations and samples*
- *Theoretical and experimental probability*
- *Probability of combined events, including tree diagrams and use of Venn diagrams*
- *Sample spaces and listing*
- *Expand and factorise binomials*
- *Quadratic equations*
- *Cubic and reciprocal graphs*
- *Linear simultaneous equations*
- *Graphical solutions of equations*
- *Arcs and sectors of circles*
- *Direct and inverse variation*
- *Proof in algebra and geometry*
- *Represent and describe distributions*
- *Identify misleading graphs*
- *Time series*
- *Correlation and lines of best fit*
- *Solve problems involving compound units*

What we think is important about our subject?

Mathematics is a creative and highly inter-connected discipline. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

The Curriculum

The national curriculum for mathematics aims to ensure that all pupils:

- become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programme of study for key stage 3 is organised into apparently distinct domains, but pupils should build on key stage 2 and connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge in science, geography, computing and other subjects.

Decisions about progression should be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content in preparation for key stage 4. Those who are not sufficiently fluent should consolidate their understanding, including through additional practice, before moving on.

What are your assessments?

KS3 - Half Termly Pre and Post Mastery Assessments. End of Year Mastery Assessments

KS4 - End of Topic Tests. GCSE Exam Paper at Monitoring 1,2 and 3.