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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Mathematics and Further Mathematics** | | | | | | | | | |
| **Key Stage 4:**  EdExcel | | | | | **Key Stage 5:**  EdExcel | | | | |
| **Year 7** | **Year 8** | | **Year 9** | **Year 10** | | **Year 11** | **Year 12** | | **Year 13** |
| 5 lessons per week | 5 lessons per week | | 6 lessons per week | 6 lessons per week | | 6 lessons per week | 6 lessons per week\* | | 6 lessons per week\* |
| *\* Students taking Further Maths at Key Stage 5 will receive 12 lessons a week, with A-Level Maths assessed at the end of Year 12 & Further Maths A-Level at the end of Year 13* | | | | | | | | | |
| **Staff** | | **Role** | | | **Staff** | | | **Role** | |
| **S. Moghal** | | Curriculum Leader | | | **G. Mateer** | | | 2 i/c Maths | |
| **R. Mills** | | Teacher/ Assistant Curriculum Leader | | | **T. Dikeulias** | | | Teacher/ KS5 Coordinator | |
| **M. Paul** | | Teacher/ Numeracy Coordinator | | | **M. Neziri** | | | Teacher/ Lead Practitioner | |
| **R. Ahmed** | | Teacher/ Maths Intervention | | | **O. Younge** | | | Teacher/ G+T Coordinator | |
| **C. Mathan** | | Teacher | | | **R. Parry** | | | Teacher | |
| **L. Loughran** | | Teacher | | | **S. Burgess** | | | Teacher | |
| **G. Hu** | | UT Trainee (Salaried) | | |  | | |  | |

**Intent: what are we trying to achieve with our curriculum?**

At the end of each term and year, all pupils will have completed the content in the scheme of work, which is also broken down into half termly programmes of study to support departments and teachers with their time management. The curriculum has been carefully designed to continuously interleave content, enabling pupils to revisit prior knowledge without having a spiral curriculum. The curriculum focuses on teaching in a sequence that provides building blocks for pupils to access future topics. To support and challenge our pupils, we use carefully constructed resources that exemplify accessible methods for students and teachers. We provide an opportunity for challenge by depth rather than accelerating through the Curriculum. In Key Stage 4, exam questions focusing on the specification objectives AO1/2/3 are used, when appropriate, to assess understanding of core fluency and application of it in context.

The development of long-term memory is supported by a curriculum that focuses on interleaving content, regular low-stakes quizzing, daily starter grids that review prior learning, and formative assessments that feed into teacher planning to close gaps in knowledge. Consistent review of key content is integral to the structure and order of the curriculum itself. Teachers also use Hegarty Maths to review this content as homework.

All the resources and assessments used within the department allow pupils to access key assessment language from year 7. Throughout all year groups there is an intentional focus on numeracy which will act as a scaffold to access mathematical questions in other subject areas.

**Implementation: how do we deliver our curriculum?**

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|  | **Module 1** | **Module 2** | **Module 3** | **Module 4** | **Module 5** | **Module 6** |
| **Year 7** | Place Value and Number Sense; Addition and Subtraction; Perimeter Rounding and Estimation | Multiplication and Division; Factors and Multiples; Area of Rectangles, Triangles and Parallelograms | Fractions as part of a whole; Fractions as a value; Fractions as an operation | Order of Operations; Basic Rules of Algebra; Expanding and Factorisation; Substitution | Angles; Polygons; Symmetry and Reflection; Coordinates | Mean; Two-way Tables and Venn Diagrams |
| **Year 8** | Indices; Prime Factorisation; Rounding; Fractions; Negative Numbers | Linear Equations; Linear equations in context; Coordinates and Basic Graphs | Units of Measurement; Angles in Parallel Lines; Interior and Exterior angles; Circumference | Proportional Reasoning; Fractions, Decimals and Percentages; Ratio | Area of circles and trapezia; Presenting and Interpreting Data; Averages | 3-D visualisation; Volume |
| **Year 9** | Place Value and Number Properties; Four Rules: Decimals; Indices, Power and Roots; Factors, Multiples and Primes; Ratio | FDP; Fractions; Percentages; Proportion | Notation; Simplifying and Index Laws; Expanding and Factorising; Expressions and Substitution | Linear Equations; Linear Inequalities; Perimeter and Area; Pythagoras | Properties of Shapes; Angle Facts; Parallel Lines; Circles; Volume | Surface Area; Sequences; Basic Vectors; Plans and Elevations |
| **Year 10** | Foundation and Higher: Linear Graphs; y=mx + c; Compound Measures; Rearrange Formulae | Foundation: Quadratic Graphs, TP and Roots; Linear Simultaneous Equations; Further Graphs. Higher:  As above, plus Further Expanding and Factorising | Foundation: Probability; Standard Form.  Higher: As above, plus Capture and Recapture; Proportion (Further) | Foundation: Growth and Decay; Simple Interest; Ratio (Further)  Higher: As above, plus Recurring Decimals | Foundation: Statistics Higher: Statistics; Surds; Bounds | Foundation: Revision Programme Higher: Right Angled Trigonometry; Similar Shapes; Quadratic Sequences |
| **Year 11** | Foundation: Pythagoras’ Theorem and Right-Angled Trigonometry; Bearings and Scale Drawings Higher: Algebraic Proof; Quadratic and Further Simultaneous Equations; Functions; Iterations; Quadratic Inequalities | Foundation: Transformations; Congruence  Higher: Bearings; Circle Theorems; Further Trigonometry and Trigonometric Graphs | Foundation: Vectors; Similar Shapes; Constructions and Loci Higher: Statistics (Further); Transformations; Congruence; Vectors | Foundation: Revision Programme  Higher: Gradients (Further) and Area Under a Graph; Kinematics; Graphical Transformations; Construction and Loci | Foundation: Revision Programme | Public Examinations |
| **Year 12** | Algebra and Functions; Coordinate Geometry in the (x, y) plane; Statistical Sampling; Data Presentation and Interpretation | Further Algebra; Trigonometry; Probability; Statistical Distributions; Hypothesis Testing | Vectors (2D); Differentiation; Quantities and Units in Mechanics; Kinematics 1: Constant Acceleration | Integration Exponentials and Logarithms; Dynamics; Kinematics 2: Variable Acceleration | Proof; Algebraic and Partial Fractions; Correlation and Regression | Functions and Modelling; Probability |
| **Year 13** | Series and Sequences; Binomial Theorem; Trigonometry; The Normal Distribution | Trigonometry; Parametric Equations; Moments; Forces at any Angle | Differentiation; Numerical Methods; Applications of Kinematics | Integration Vectors (3D); Applications of Forces; Further Kinematics | Consolidation of Pure Topics; Consolidation of Applied Topics | Public Examinations |

There are detailed lesson resources available to support teachers of all experience. They exemplify efficient and effective methods that can be used in the classroom. CPD videos are also available for each KPI in KS3 that outline key subject knowledge and pedagogical techniques where appropriate. Starter grids, KPI tests, Hegarty Maths usage and the interleaved curriculum support retention of prior learning so that pupils become fluent over time.

In every lesson independent practice follows modelled examples, structured into “I do”, “We do” delivery to check for understanding. We promote the use of mini white boards to gather live feedback and address misconceptions before starting independent work. Formative KPI tests allow teachers to assess understanding after the delivery of a topic.

A half termly programme of study is available alongside the scheme of work to ensure consistency between classes in each half term. Regular work scrutiny and KPI assessments at the end of each topic ensure the Curriculum is being delivered consistently. Department meeting time is used to co-plan with colleagues and discuss teaching strategies for upcoming topics.

To develop pupils’ understanding in mathematics, summative assessments are followed by an in-class review of key gaps in learning. Each pupil is provided with colour coded, personalised, question level analysis sheets directing them to independent learning tasks on Hegarty Maths or Sparx.

**Impact: what difference is our curriculum making to pupils?**

Pupils access prior learning embedded into new topics with ease. Regular exposure to key mathematical skills in starter grids helps pupils to remember these methods and skills, ensuring that confidence grows in these areas. To ensure that the Curriculum is being taught effectively in all classrooms, the department uses a consistent approach to lesson delivery by linking lesson structure to the Rosenshine Principles of Instruction, in line with UL’s centralised teaching and learning approach. The principles are used because cognitive research *(Kirschner, Sweller and Clark, 2006)* suggests that students need a large amount of subject knowledge in their long-term memory to become competent at any subject. In mathematics, pupils will be far better equipped to apply mathematical thinking to a problem if their working memory isn’t overloaded with basic calculations. Therefore, our Curriculum always emphasises secure content knowledge before moving onto problem solving tasks. This is a step away from discovery-based learning and acknowledges the gap between teachers as experts and pupils as novices, with the key point being that we can’t expect pupils to show mathematical expertise until they have acquired fluency with numbers.

**Further Information and Guidance**

**GCSE Subject Information Sheet**

**Sixth Form Subject Information Sheet**