Maths
Year 10

The Lowry Academy
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OVERVIEW

The Maths department at the Lowry Academy aims to provide students with a secure understanding of mathematical knowledge, categorised according to the following areas: number, algebra, geometry, ratio and proportion, probability, and statistics, meeting the needs of the National Curriculum at KS3 and KS4. The focus of the curriculum is to develop procedural knowledge of the fundamental elements of mathematics in order for students to access further problem solving elements and reason mathematically, whilst fostering a love of maths. In Year 10 students begin following either the Higher or Foundation syllabus, however we monitor students attainment closely throughout the year to ensure students are following the most appropriate scheme of learning. By the end of year 10, students will have developed their mathematical skills within the different areas of Maths (number, algebra, ratio and proportion, geometry, probability and statistics).

AUTMN

- Rearranging simple and complex formulae (changing the subject)
- Plotting straight line graphs from equations
- Plotting real-life graphs
- Identifying gradients and intercepts from graphs and equations
- Calculating an equation of a straight line from graphs and coordinates
- Calculating equations of parallel lines
- Calculating Speed, Distance and Time, including converting units of speed and distance time graphs
- Calculating density, mass and volume & force, pressure and area
- Plotting quadratic equations Finding roots and turning points of quadratic graphs
- Expanding triple brackets (HIGHER ONLY)
- Factorising quadratics with a coefficient of $x2$ greater than 1 (HIGHER ONLY)
- Completing the square (HIGHER ONLY)
- Solving linear simultaneous equations by elimination, substitution and graphically
- Working with cubic, reciprocal, and exponential graphs

ASSESSMENT

Within the autumn term, year 10 students will be assessed through:

KPI tests (after each topic), feedback sheets (twice per half term) and fluency Friday (fortnightly).

SPRING

- The probability scale
- Systematic listing
- Relative frequency
- Sample space diagrams
- Venn diagrams Probability tree diagrams
- Conditional probability (HIGHER ONLY)
- Converting between standard form and ordinary numbers
- Calculating with standard form
- Interest and percentage increase and decrease
- Simple and compound interest
- Exponential growth and decay (HIGHER ONLY)
- Sharing in a ratio and manipulating ratio
- Working with and converting recurring decimals (HIGHER ONLY)

ASSESSMENT

Within the spring term, year 10 students will be assessed through:

KPI tests (after each topic), feedback sheets (twice per half term) and fluency Friday (fortnightly).

SUMMER

- Manipulating surds (HIGHER ONLY)
- Plans and Elevations Constructions of triangles and perpendicular bisectors
- Loci
- Bounds and error intervals
- Types of data
- Constructing and interpreting pie charts, scatter graphs and frequency
- polygons
- Working with averages and the range including finding averages from discrete and continuous data and estimating the mean
- Right angle trigonometry (HIGHER ONLY)
- Finding the nth term of Quadratic Sequences
- Similar shapes
- Working with scale factors of area and volume for similar shapes

ASSESSMENT

Within the summer term, year 10 students will be assessed through:

KPI tests (after each topic), feedback sheets (twice per half term) and fluency Friday (fortnightly).

PERSONAL DEVELOPMENT

The Maths Department look for opportunities throughout the year to enrich the curriculum through trips and guest speakers. We have a range of external visitors that visit our department (such as AMSP and college and university speakers) which prepares our students for life outside of school and highlights what types of opportunities are available for them.

Students are also given the opportunity to visit colleges and universities (local and further away) to experience what lectures/college and university life looks like. We also provide a weekly SPARX and chess club which effectively develops their mathematical understanding and also enables them to logically think and develop their problem solving skills. Additionally, further maths lessons also take place to extend and challenge students further.

Useful resources for supporting your child at home:

- Corbett Maths
- BBC Bitesize
- Maths Genie
- SPARX

Homework

Students will complete weekly homework on SPARX (online platform) Homework is set every Friday (4pm) and due in every Friday (4pm) SPARX club is available during every lunch time (L8) There is also a SPARX club available to attend every Tuesday in L6 and every Thursday in P5.