Subject: Mathematics

Head of Department: Ms S Arrowsmith

Curriculum Intent

Hornchurch High School's Maths department equips students with the mathematical fluency and reasoning needed to tackle problems. Our curriculum is logically sequenced such that knowledge and skills are developed cumulatively, which ensures students are appropriately challenged and able to make links between mathematical strands. Our essential wider curriculum - including trips, workshops, competitions and access to careers advice - serves to provide our students with an appreciation of the application of maths to the world around them. We strive to ensure all students, regardless of their starting points, are able to master threshold concepts and cultivate a deeper understanding of the subject which, in turn, develops their confidence and resilience both in and outside the classroom. Indeed, students will leave us equipped with the ability to methodically analyse and break down problems – a skill transferable to any position they upheld in wider society - as well as the qualifications they require to move on their chosen next steps.

Year 7 Topics

- Autumn Term 1 – Place value, four operations and HCF and LCM
- Autumn Term 2 – Negative numbers, area and perimeter
- Spring Term 1 – Algebra, fractions and ratio
- Spring Term 2 – Decimals and Angles
- Summer Term 1 – Representing data and probability
- Summer Term 2 – Probability, units and group projects

Year 8 Topics

- Autumn Term 1 – Sequences, graphs, transformations and percentages
- Autumn Term 2 – Percentages, indices and algebra
- Spring Term 1 – Ratio and averages
- Spring Term 2 – Representing data and probability
- Summer Term 1 – Algebra, angles and circles
- Summer Term 2 – Circles, 3D shapes and group projects

Year 9 Topics

- Autumn Term 1 – Indices, Standard form and equations
- Autumn Term 2 – Angles, accuracy and bounds, bearings and map scales and algebra
- Spring Term 1 – Transformations, linear graphs, Pythagoras' Theorem and trigonometry

- Spring Term 2 – Graphs, Compound measures, surface area and volume
- Summer Term 1 – Inequalities, compound measures, ratio and proportion
- Summer Term 2 – Similarity and congruency, construction and loci

Year 10 Topics

- Autumn Term 1 – Calculations, percentages, expanding and factorising, surds and types of number
- Autumn Term 2 – Indices, equations, Pythagoras' Theorem and Graphs
- Spring Term 1 – Inequalities, probability and simultaneous equations
- Spring Term 2 – Representing data, bounds and sequences
- Summer Term 1 – Area and circles, volume and statistics
- Summer Term 2 – Statistics and similar shapes

Year 11 Foundation Topics

- Autumn Term 1 – Fractions, algebra, percentages, vectors and angles
- Autumn Term 2 – Rati, equations, graphs and simultaneous equations
- Spring Term 1 – Probability, Inequalities, Pythagoras' Theorem and Trigonometry
- Spring Term 2 – Similar shapes, volume and surface area
- Summer Term 1 – Revision
- Summer Term 2 – GCSE exams

Year 11 Higher Topics

- Autumn Term 1 – Quadratics, circle theorems, velocity time graphs, algebraic fractions, functions and vectors.
- Autumn Term 2 – Iteration, advanced trigonometry, direct and inverse proportion and transforming graphs
- Spring Term 1 – Exponential graphs, further algebra, quadratic simultaneous equations, congruency and proof and circle theorem proof
- Spring Term 2 – Problem solving
- Summer Term 1 – Revision
- Summer Term 2 – GCSE exams

GCSE Specification Details and Assessment:

Edexcel GCSE Maths 1MA1

https://qualifications.pearson.com/content/dam/pdf/GCSE/mathematics/2015/specification-and-sample-assesment/gcse-maths-2015-specification.pdf

Spiritual, moral, social and cultural development (SMSC)

We teach real life maths-related skills, such as how to understand a pay check, how tax brackets work and how to budget, as well as link the subject to different cultures; for example, the history of Sudoku, the work of black mathematicians in the US and UK since 1900 and the origins of number systems. We also make explicit connections between some of the units we teach and their real life significance, such as the importance of ratio in careers such as building and construction and hairdressing, or the appreciation for numerical skills - such as mental arithmetic, fractions and percentages – in and outside of the workplace.

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Maths Learning Journey

HORNCHURCH HIGH SCHOOL
EXCELLENCE FOR ALL

Engineering
Computing
Statistician
Economics
Actuary
Finance
Accounting

Proof

Further algebra

Exponential functions

Transforming graphs

Proportion

Right angled triangles

Advanced trigonometry

Simultaneous equations

Ratio

Iteration

Vectors

Percentages

Vectors

Functions

Algebraic fractions

Velocity time graphs

Circle theorems

Year 11

Similar shapes

Averages

Area

Sequences

Representing data

Bounds

Simultaneous equations

Graphs

Probability

Indices

Percentages

Constructions and loci

Inequalities

Similar shapes

Right angled triangles

Ratio

Compound measures

Equations

Right angled triangles

Quadratics

Area and volume

Graphs

Year 10

Indices and standard form

Bounds

Transformations

3D Shapes

Angles

Bearings and map scales

Equations

Probability

Representing data

Probability Equations Angles

Year 9

Ratio

Averages

Indices

Sequences

Units

Representing data

Algebra

Angles

Percentages

Ratio

Transformations

Graphs

Decimals

Fractions

Algebra

Area and Perimeter

Year 8

Place value

HCF and LCM

Understanding place value
Properties of shapes
Averages, representing data

Year 7

Negative numbers

Four operations

Aspire **Believe** **Achieve**