# Curriculum Overview

Maths Year 10

| | HT1 | HT2 | HT3 | HT4 | HT5 | HT6 |
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| **Topic** | • Congruence, similarity and enlargement.<br>• Trigonometry | • Representing solutions of equations and inequalities.<br>• Simultaneous equations | • Angles and bearing<br>• Working with circles<br>• Vectors | • Ratio and fractions<br>• Percentages and interest | • Probability.<br>• Collecting representing and interpreting data.<br>• Non calculating methods | • Types of number and sequences.<br>• Indices and roots<br>• Manipulating expression. |
| **Key Objectives** | To be able to; enlarge triangles by positive and fractional scale factors (make smaller). Identify mathematically similar shapes. Use parallel line rules to work out missing angles. Establish when triangles are congruent or similar. | To be able to; understand what a solution is, form and solve equations and inequalities, show inequalities on a number line and interpret number lines with inequalities on them. Draw straight line graphs from equations. Form and solve equations /inequalities with | To be able to; Draw and use scale diagrams, measure and draw angles and bearings, calculate bearings using angles rules, solve bearing problems using Pythagoras and trigonometry Labels parts of circles, calculate | To be able to compare quantities using a ratio, link ratios and fractions, link ratios and graphs, solve best buy problems, link ratio and algebra. To be able to compare fractions decimals and percentages. To make calculations with percentages, | To find probabilities of and calculate probabilities of events happening. Use tree diagrams, construct sample space diagrams and construct and use tables, Venn diagrams and frequency trees. To be able to understand populations and | To understand the difference between factors and multiples, product of prime factors, Find the HCF and LCM, Explore sequences and find the nth term. To calculate using powers and roots, add and subtract indices, Calculate |

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| | Perform calculations in right angled triangles using Pythagoras' theorem and trigonometry. | unknowns on both sides.<br>Solve a pair of simultaneous equations by; using graphs, subtracting equations, adding equations or adjusting equations | the lengths of arcs, calculate the area of fractional parts of a circle and sectors.<br>Calculate the volume and surface areas of cylinders, cones and spheres.<br>Interpret, draw, use, scale, multiply, add and subtract; Vectors. | and calculate simple and compound interest. Solve problems with percentages, ratios and fractions. | samples, construct and use frequency tables and polygons, two-way tables, line and bar charts.<br>Calculate averages from tables and lists.<br>Use stem and leaf diagrams. Draw scatter graphs and lines of best fit.<br>Be proficient in using non-calculator methods for the 4 operations, for integers and decimals.<br>Estimation. Financial maths problems | using standard form.<br>To be able to simplify algebraic expressions, form and solve solve equations with inequalities that are fractions.<br>Complete algebraic problem solving. |
| **Assessment Opportunities (F&S)** | In class work and problem solving. | In class work and problem solving.<br>Formal written assessment . | In class work and problem solving. | In class work and problem solving. | In class work and problem solving .<br>Formal written assessment. | In class work and problem solving. |
| **CEIAG** | Game designer (Vectors), joiner, builder, designer. | Finance and cost control - running your own business. | Map reading, delivery driver, working to building plans. | Working out wages, pay increases, cooking - scaling up and down recipes<br>Sports Science /Performance analyst Financial Sector workers | Statisticians will use averages/graphs and probability to analyse results, see patterns in data and plan for the future using probabilities. | Engineering apprenticeships, motor vehicle apprenticeships |

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| | | | | Business/Retail workers | | |
| **Cultural Capital** | SCHOOL TRIP – IFLY MANCHESTER using compound units in context<br>Use scale drawing to create a floorplan | Create and evaluate formulas that relate to real life (e.g. converting currency or temperature and calculating bills)<br>Plot and interpret real life algebraic graphs such as exchange rates and costs/bills. | Develop the ability to follow a step by step logical problem-solving process by solving missing angle problems<br>SCHOOL VISIT- ARCHITECTURE WORKSHOP build a skyscraper<br>Consider financial data e.g. highest lowest and average UK salary. discuss poverty.<br>Compare average age of death in different countries and discuss possible reasons.<br>Discuss data we share and how it is used. | Develop skills of reading and following instructions by following steps of transformation problems<br>Create tessellation artwork | Create graph to show real life data. Such as use a box plot to consider wages in a company. Discuss job roles and salaries<br>Consider percentages in finance such as interest rates and profit/loss calculations<br>Consider sequences in modular number systems and use this to construct cardioids within a circle | Link negative calculations to financial debts. Included additional bank charges to show how difficult it is to get out of debt.<br>SCHOOL VISIT- NATWEST MONEY MATTERS Financial maths session.<br>Create and evaluate formulas that relate to real life (e.g. converting currency or temperature and calculating bills)<br>Plot and interpret real life algebraic graphs such as exchange rates and costs/bills. |

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| **Cross-Curricular Links** | Art- drawing abstractly<br>Construction- roof construction<br>Motor vehicle- engineering skills | PSHE - financial management | Outdoor Education - orienteering | PSHE - money management | Sport - taking risk,<br>PSHE - the risks in betting and gambling | Engineering - using equations in the workplace.<br>Manufacturing - calculating areas and volume. |