KS3 Mathematics (Year 7 & 8)	Subject Leader – Mr J Dickinson KS3 Coordinator – Mr C Carlson-James

Overview

Mathematics at Garth Hill College follows the calendar from Mathematics Mastery - where learning how to solve mathematical problems is at the core of mathematics lessons.

All pupils will study essentially the same topics at the same time, with those in higher sets exploring topics in greater depth.

The content studied each term builds on previously studied material and the links between all areas of study are made clear. This means, for example, that although 'Factors' is studied in the beginning of year 7, fluency with using and understanding 'Factors' is required to become proficient in Fractions (Y7 spring), Percentages (Y7 summer) and Prime Factorisation Y8 Autumn).

Year 7 Content

Note: [Greater Depth in Square Brackets]

Autumn

- Place value
- Addition and Subtraction
- Decimals
- Estimation
- Perimeter
- Factors
- HCF, LCM
- Multiplication and Division
- Area of Triangles and Rectangles
- Calculate the Mean
- [Different Counting Systems, i.e. 'base 4']
- [Upper and Lower Bounds]
- [Generalising]
- [Alternative Methods for Multiplication]

Spring

- Classify Angles
- Measure and Draw Angles
- Use Properties of Angles on Straight Lines, Vertically Opposite, Around a Point, in a Triangle or Quadrilateral to solve problems.
- Equivalent Fractions
- Order Fractions and Decimals
- Convert Between Mixed Numbers and Improper Fractions
- Multiply and Divide Fractions
- [Tesselations]
- [Tangrams]
- [Terminating and Recurring Decimals]

Summer

- Order of Operations
- Algebraic Substitution
- Simplify Algebraic Expressions

- Construct and Interpret Pie Charts
- Convert Between Percentages, Fractions and Decimals
- Find Percentages of a Quantity
- Find the Whole, Given a Percentage
- [Algebraic Mean]
- [Applications of Percentages]

Year 8 Content

Note: [Greater Depth in Square Brackets]

Autumn

- Prime Numbers
- Indices
- Prime Factorisation to find HCF, LCM
- Venn Diagrams
- Add and Subtract Fractions
- Negative Numbers
- Formulate and Evaluate Expressions
- Find the nth Term of a Linear Sequence
- [Egyptian Fractions]
- [Non-Linear Sequences]

Spring

- Draw Triangles and Quadrilaterals (using a ruler, protractor, and pair of compasses)
- Find Unknown Angles in Triangles, Quadrilaterals, and Parallel Lines
- Convert Between Length and Area Units
- Calculate Area and Perimeter of Parallelograms, Trapeziums, and Composite Figures
- Percentage Increase and Decrease
- Reverse Percentage Problems
- Ratios
- Speed, Distance & Time
- [Complex Constructions]
- [Angle Proofs]
- [Similarity]
- [Density, Mass, Volume]
- [Area Scale Factors]
- [Introduction to Exponential Growth and Decay]

Summer

- Significant Figures
- Circumference and Area of a Circle
- 3D shapes and Nets
- Volumes of Cuboids, Prisms, Cylinders, and Composite Solids
- Mean, Median, Mode and Range
- Plans and Elevations
- Interpret Statistical Representations
- Collect and Organise Data
- Outliers
- [Platonic Solids]
- [Percentage Errors]
- [Misleading Graphs]
- [Histograms]
- [Different Methods of Sampling]

Assessment

- Students will be given a 'post test' every half term which covers half-termly topics.
- Students will also be given an 'end of year' exam.
- In Year 7, there are two end of year exams - one 'Essentials' that all year 7 children will write, then either 'Fluency' or 'Depth', depending on which is best for them.
- In Year 8, there are three end of year exams- two 'Essentials' that all year 8 children will write (one calculator and one non-calculator) followed by either 'Fluency' or 'Depth'.
- Excellent, Good, Developing, and Emerging criteria can be found here in the Year 7 and 8 Assessment Framework on our website here.