

# KS3 MATHS – STEYNING GRAMMAR SCHOOL

## Overview

At Steyning Grammar School we want every student to find their Maths lessons engaging and challenging. We want students to develop an understanding that Mathematics provides a way of thinking about things and not just doing calculations. We want students to begin to develop an appreciation of the abstract as well as the practical. We teach Maths as a continuum from year 7 to year 11 and Key Stage 3 is the beginning of that journey.

Learning Mathematics requires a positive growth mindset in order to struggle with difficult problems. We want students to develop an appreciation and enjoyment of Mathematics in a challenging and encouraging environment which enables them to develop confidence in their mathematical ability. Students will have the chance to make appropriate use of IT to enhance mathematical development and problem solving.

Mathematics is taught in five topic areas. Number, Algebra, Ration & Proportion, Geometry & Measures and Probability & Statistics.

During KS3 we follow a mastery curriculum where a large proportion of time in Year 7 is spent reinforcing number to build competency. Key number skills are then fed through the rest of the scheme so that students become more and more fluent. This is to build their fluency as number sense will affect their success in other areas of mathematics. Students who are successful with number are much more confident mathematicians.

Students are assessed formally once a term and this is used to assess progress based on their starting point at the beginning of KS3. Students also have regular feedback lessons in order to identify areas of strength and focus. Students will be set homework each week using Hegarty Maths online learning platform which will support students to revise a topic previously learnt and learn strategies to become better independent learners.

## Teaching for Mastery

KS3 Maths schemes of learning at Steyning Grammar are designed to support a mastery approach to teaching and learning and have been designed to support the aims and objectives of the National Curriculum.

The schemes of learning;

- Have number at their heart. A large proportion of time in Year 7 is spent reinforcing number to build competency. Key number skills are then fed through the rest of the scheme so that students become more and more fluent.
- Give teachers ideas for how to extend higher attaining students through depth rather than acceleration onto new content.
- Ensure students have the opportunity to stay together as they work through the schemes as a whole group
- Provide plenty of time to build reasoning and problem solving elements into the curriculum.

Below is a list of topics taught in year 7 and 8. These are not exhaustive lists and only give a broad overview.

<b>Year 7</b>		
<b>Autumn Term</b>	<b>Place Value</b>	<ul style="list-style-type: none"> <li>• Understand place value</li> <li>• Ordering positive and negative numbers</li> <li>• Rounding Numbers</li> </ul>
	<b>Addition and Subtraction</b>	<ul style="list-style-type: none"> <li>• Written methods for + and -</li> <li>• Links between + and -</li> <li>• Perimeter</li> </ul>
	<b>Multiplication and Division</b>	<ul style="list-style-type: none"> <li>• Multiply and divide by 10, 100, 1000</li> <li>• Written methods for multiplying and dividing</li> <li>• Links between multiplying and dividing</li> <li>• Order of operations (BIDMAS)</li> <li>• Primes and factors</li> <li>• Squares, cubes and powers</li> <li>• Prime factor decomposition</li> <li>• Area, rectangles, triangles and parallelograms</li> <li>• Mean averages</li> <li>• Approximation/Estimation</li> </ul>
<b>Spring Term</b>	<b>Fractions 1</b>	<ul style="list-style-type: none"> <li>• Fractions on diagrams and number lines</li> <li>• One quantity as a fraction of another</li> <li>• Equivalent fractions</li> <li>• Compare and order fractions</li> <li>• Mixed and improper fractions</li> <li>• Simplify fractions</li> <li>• Convert fractions and decimals</li> <li>• LCM</li> <li>• Add and subtract fractions</li> <li>• Fractions of amount</li> </ul>
	<b>Statistics 1</b>	<ul style="list-style-type: none"> <li>• Identify different types of data</li> <li>• Tally charts</li> <li>• 2 way tables</li> <li>• Median, mode and range</li> <li>• Bar charts</li> <li>• Pictograms</li> <li>• Line graphs</li> </ul>
	<b>Negative Numbers</b>	<ul style="list-style-type: none"> <li>• 4 operations</li> <li>• Understand order of operation including negatives</li> </ul>
<b>Summer Term</b>	<b>Algebra 1</b>	<ul style="list-style-type: none"> <li>• Using algebraic notation</li> <li>• Substitute into formulae and expressions</li> <li>• Simplify expressions and collect like terms</li> <li>• Solve linear equations with unknowns on one side</li> <li>• Find the next number in a given sequence</li> <li>• Find the nth term of a given sequence</li> </ul>
	<b>Geometry: Lines and Angles</b>	<ul style="list-style-type: none"> <li>• Labelling shapes, lines and angles accurately</li> <li>• Properties of 2D shapes</li> <li>• Measure and draw angles</li> <li>• Angles around a point and angles on a straight line.</li> <li>• Angles on parallel lines</li> <li>• Angles in triangles and quadrilaterals</li> <li>• Angles in polygons</li> </ul>

<b>Year 8</b>		
<b>Autumn Term</b>	<b>Fractions 2</b>	<ul style="list-style-type: none"> <li>• Multiply and divide fractions</li> <li>• Fractions of amounts</li> <li>• Find the whole amount given a fraction</li> <li>• Fractional increase and decrease</li> </ul>
	<b>Percentages</b>	<ul style="list-style-type: none"> <li>• Understand percentage as a number of parts per 100</li> <li>• Interpret percentages as diagrams</li> <li>• Fractions, decimals and percentages conversion</li> <li>• One quantity as a percentage of another</li> <li>• Compare amounts using percentages</li> <li>• Percentage of amounts</li> <li>• Percentage increase and decrease</li> <li>• Reverse percentages</li> <li>• Interest Calculations</li> </ul>
<b>Spring Term</b>	<b>Algebra 2</b>	<ul style="list-style-type: none"> <li>• Substitute into formulae and expressions</li> <li>• Simplify <ul style="list-style-type: none"> <li>○ Single term over a bracket</li> <li>○ Factorising</li> <li>○ Expanding double brackets</li> <li>○ Using powers</li> </ul> </li> <li>• Solve equations <ul style="list-style-type: none"> <li>○ Unknowns on both sides</li> <li>○ Brackets</li> <li>○ Fractional</li> </ul> </li> <li>• Understand inequalities</li> <li>• Represent inequalities on a number line</li> <li>• Solve linear inequalities</li> <li>• Rearrange formulae</li> </ul>
	<b>Geometry: Circles and Area</b>	<ul style="list-style-type: none"> <li>• Convert between units of area</li> <li>• Use formulae and calculate area of <ul style="list-style-type: none"> <li>○ Circles</li> <li>○ Composite shapes</li> <li>○ Trapezium</li> </ul> </li> <li>• Calculate and solve problems with perimeters including circumference of a circle</li> </ul>
<b>Summer Term</b>	<b>Ratio, Proportion and Rates of change</b>	<ul style="list-style-type: none"> <li>• Understand ratio notation</li> <li>• Simplify ratio</li> <li>• Divide a quantity into 2 or more parts</li> <li>• Find parts of a ratio given the other</li> <li>• Understand ratios and fractions</li> <li>• Solve problems involving <ul style="list-style-type: none"> <li>○ Recipes</li> <li>○ Best Buys</li> <li>○ Exchange Rates</li> </ul> </li> <li>• Draw and interpret pie charts</li> </ul>
	<b>Statistics 2</b>	<ul style="list-style-type: none"> <li>• Construct and analyse stem and leaf diagrams</li> <li>• Construct and analyse back to back stem and leaf diagrams</li> <li>• Find mean, median, mode and range from tables (non-grouped data)</li> </ul>
	<b>Geometry: 3D shapes</b>	<ul style="list-style-type: none"> <li>• Properties of 3D shapes (faces, edges and vertices)</li> <li>• Convert between units of volume</li> <li>• Know that 1 litre is 1000 cm cubed</li> <li>• Calculate volume and surface area of <ul style="list-style-type: none"> <li>○ Cubes</li> <li>○ Cuboids</li> <li>○ Prisms including cylinder</li> </ul> </li> <li>• Construct an interpret plans and elevations of 3D shapes</li> </ul>

## Resources

We understand that it is not always easy to find appropriate resources to help support a student with their mathematics. There are many websites that have materials and the recommended sites below have resources for students of all ability.

These can be used to help students with home learning tasks, to revise for assessments or dare we say, just do a bit of maths for fun!!!!

- [Hegarty Maths](#) – Homework tool, videos and quizzes on all topics
- [Corbett Maths](#) - Maths Videos and worksheets for every topic
- [Nrich](#) - Engaging mathematical problem solving tasks for students of all abilities
- [BBC Bitesize](#) - Revision lessons, activities, mini tests and games
- [Maths is Fun](#) - Tutorials, activities, puzzles