# The Rawlett Mathematics Curriculum

## Maths Curriculum Intent

***Progress in Maths...Enjoy the Journey!***

At Rawlett we want our students to enjoy the mathematical journey and know that everyone can be a mathematician. We want them to realise that maths is everywhere and to ensure they make lasting progress in the subject. When they leave school they will use their mathematical knowledge to communicate more precisely and be able to analyse and interpret data with assurance. Above all they will be confident enough to learn from their mistakes and use maths to think creatively to problem solve through reasoned argument and logic.

**Structure:**

The Rawlett Mathematics scheme of learning is structured as a 5-year spiralled curriculum which is designed to build upon previous learning and ensure depth of understanding.

Each unit of work, listed below, has a progression map that carefully outlines the development of key ideas within a strand from Year 9 to 11 ensuring that the learning journey is cohesive and that each new element builds on the appropriate conceptual components.

- Calculations
- Place Value
- Integers, Powers & Roots
- Fractions & Decimals
- Percentages
- Ratio, Proportion & Rates of Change
- Sequences
- Use of Symbols
- Solving Equations
- Functions & Graphs
- Geometric Reasoning
- Perimeter & Area
- Volume & 3D Shapes
- Pythagoras & Trigonometry
- Transformations
- Constructions & Loci
- Measures
- Statistics
- Probability

In Year 7 and 8 students follow the Sparx Curriculum which encourages depth of understanding and our homework platform will complement the work in lessons.

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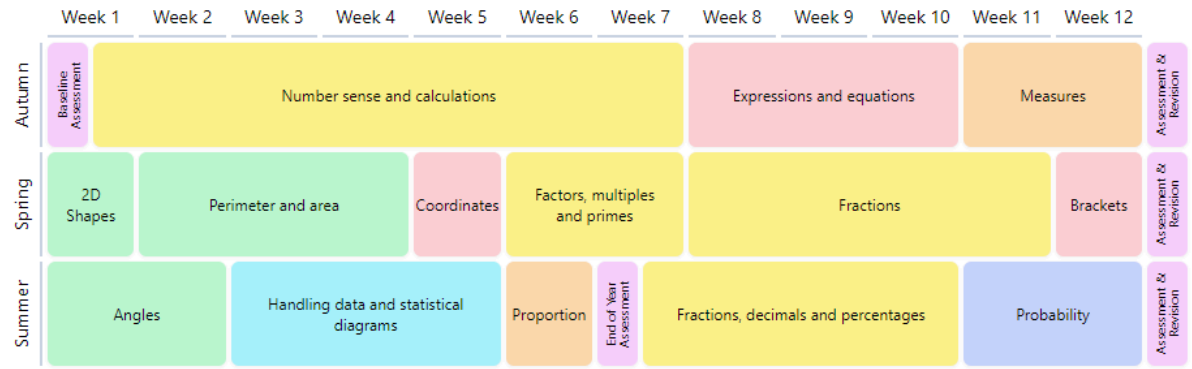
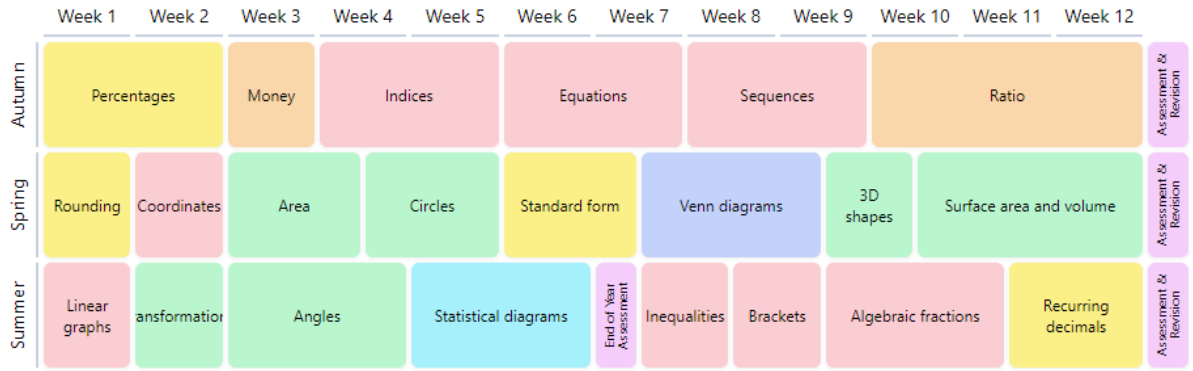
## Example of Progression Map – Integers, Powers & Roots

| Stage 6 | Stage 7 | Stage 8 | Stage 9 | Stage 10/11 |
|---|---|---|---|---|
| Recall my multiplication facts up to 12 x12 | | | | |
| Recognise when a number is divisible by 2, 3, 4, 5 & 10 | Recognise when a number is divisible by any number between 1 and 10 | | | |
| Find all the factors of any two digit number. Find common factors & multiples in simple cases | Find all the factors of any given number e.g. using factor pairs. Find the HCF and LCM in simple cases | Find the prime factor decomposition of a number and realise that this unique. Find the HCF & LCM of two numbers using any method e.g. a Venn Diagram | Use prime factor decomposition to find the HCF and LCM of two numbers | |
| Recall all the prime numbers below 50 | Recall all the prime numbers below 100 | | | |
| Evaluate the square of any number up to $12^2$, the cube of any number up to $5^3$ and evaluate the associated root of these square or cube numbers | Evaluate the square of any number up to $20^2$ and the cube of any number up to $10^3$ and evaluate the associated root of these square or cube numbers | Estimate square roots to one decimal place | Estimate cube roots to one decimal place. | Evaluate a base number with a unit and non-unit fractional index |
| | Evaluate the first few powers of 2, 3, 4 and 5. e.g. $3^4$ | Use the index laws for multiplication and division, work out the power of a power and know that any number to the power of zero = 1 | Evaluate a number raised to a negative power and show that anything to the power of zero = 1 | Evaluate a base number with a negative fractional index and can use the index laws for combined negative and fractional powers |
| | | | | Simplify, multiply and divide, add an subtractand expand brackets involving surds. Calculate with surds in real contexts. Understand the concept and rational and irrational numbers. Rationalise the denominator of a fraction |
| Add and subtract negative numbers using a number line e.g. on a temperature scale. Multiply and divide negative numbers, Find differences in temperatures involving negatives | Use the four operations with negative numbers | Use the four operations with negative numbers. Use inequality symbols with negative number | Use the four operations with negative numbers. Evaluate a negative number raised to a given positive power e.g. $(-4)^3$ | |
| Calculate in the correct order (BIDMAS) | | Use the correct order of operations to calculate, including expressions involving square roots and reciprocals | | |

**Scheme of Learning**

The curriculum is broken down into a 5-year learning journey as follows:

| | |
|---|---|
| Year 7 and Year 8<br><br>Knowledge (substantive and disciplinary) | The Sparx Maths Curriculum is sequenced to build on prior learning, enables a deep understanding of the concepts taught and supports the delivery of high-quality teaching and learning. The supporting resources have been designed to complement each other and link to the curriculum.<br><br>**Year 7** →<br>  <br><br><br>**Year 8** →<br>  <br> |
| Year 9<br><br>Knowledge (substantive and disciplinary) | In Year 9, the curriculum provides 3 pathways, selected based on pupils' needs at the end of Year 8 to provide appropriate support and challenge:<br>• Advanced: aimed at pupils with full mastery of all Year 7 and 8 content, pushes pupils to work beyond age-related expectations with mathematical rigour and flexibility.<br>• Core: aimed at pupils with mastery of most Year 7 and 8 content, supports pupils to consolidate challenging Year 7 and 8 concepts at depth whilst also encountering new, linked content.<br>• Support: aimed at pupils without mastery of the Year 7 and 8 content, to build strong conceptual foundations for the next phase of study. |

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Y9 Support/Core

| Autumn Term | Spring Term | Summer Term |
|---|---|---|
| Place Value (NC) | Percentages (NC) | Graphs & Functions (NC) |
| Calculations (NC) | Sequences (NC) | Transformations (NC) |
| IPR (NC) | Solving Equations (NC) | Probability (NC) |
| Geometric Reasoning (NC) | Perimeter, Area, *Pythagoras & Trig (NC) | Statistics (NC) |
| Use of Symbols (NC) | Volume & 3D shapes (NC) | Constructions & Loci (NC) |
| Fractions & Decimals (NC) | Ratio, Proportion & Rates of Change (NC) | Measures (NC) |

Y9 Advanced

| Autumn Term | Spring Term | Summer Term |
|---|---|---|
| Place Value (NC) | Ratio, Proportion & Rates of Change (NC) | *Geometry: proving (NC) |
| IPR (NC) | Sequences (NC) | Graphs & Functions (NC) |
| Constructions & Loci (NC) | Solving Equations (NC) | Transformations (NC) |
| Use of Symbols (NC) | Perimeter, Area, *Pythagoras & Trig (NC) | Probability (NC) |
| Percentages (NC) | Geometric Reasoning (NC) | Statistics (NC) |
| Fractions & Decimals (NC) | Volume & 3D shapes (NC) | |

*Unit overviews are largely consistent across pathways with depth of content varying between each.

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**Note: Pace and Progress**

As per the national curriculum, the expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.