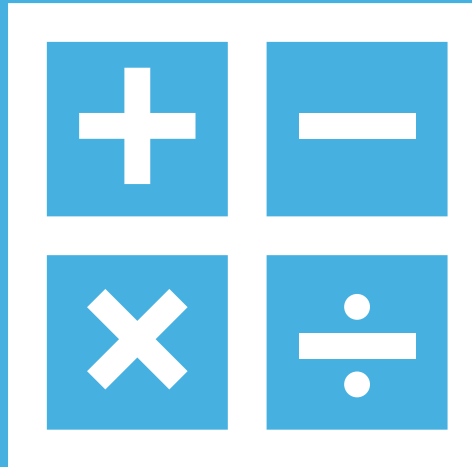
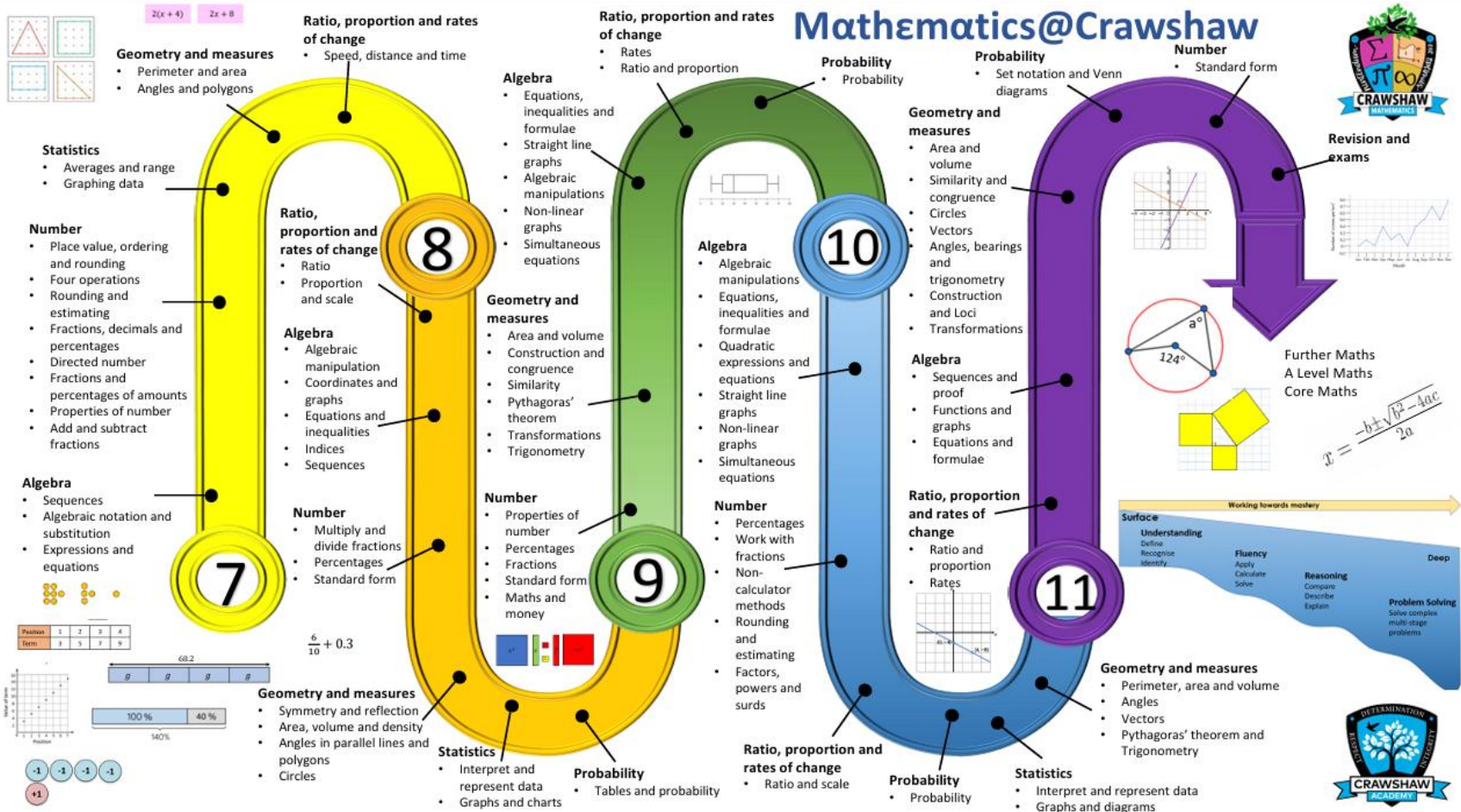


# Mathematics



**Head of Department:** Mr. A Searle  
**Email address:** [searlea@ca.rklt.co.uk](mailto:searlea@ca.rklt.co.uk)



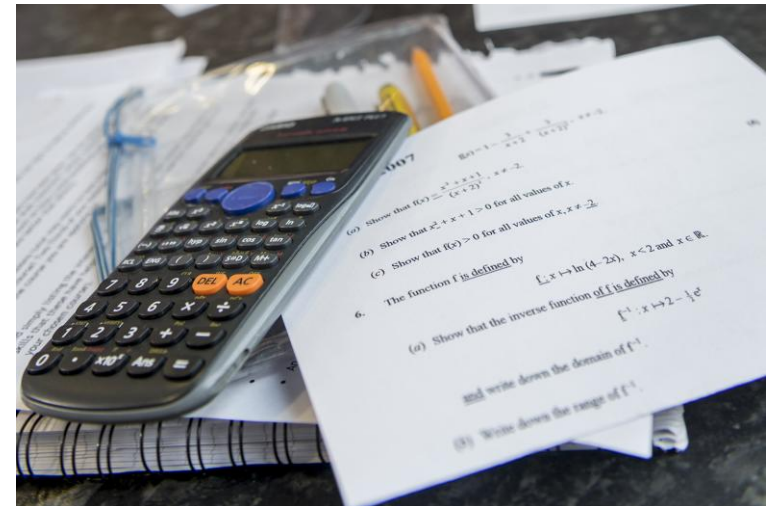
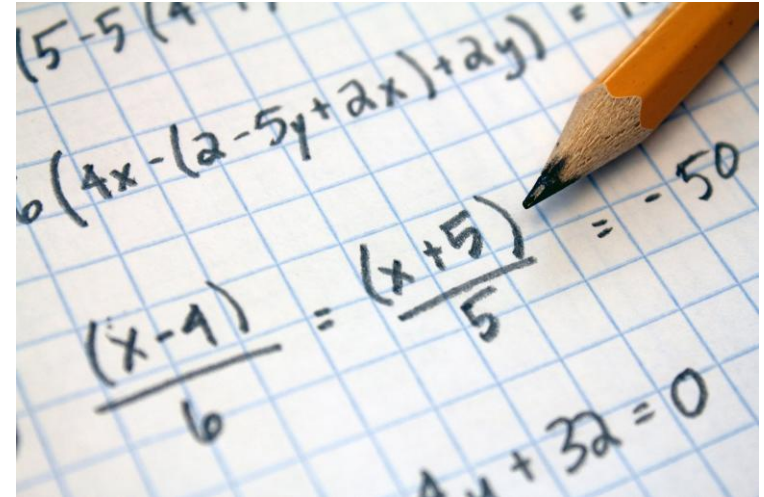




# Why is the study of Mathematics important?

Mathematics is an important subject because it helps students develop logical thinking, problem-solving skills and resilience. These skills support students not only in school but also in everyday life, such as interpreting information, managing money and making informed decisions. Mathematics also provides a strong foundation for many future careers, including science, technology, engineering and finance.

At Crawshaw Academy, the mathematics department aims to spark a passion for mathematics in every student, regardless of their starting point. We encourage students to explore patterns, make connections between different topics and understand the reasoning behind mathematical ideas rather than simply memorising methods. By focusing on the “why” behind mathematics, we help students build confidence, deepen their understanding and prepare successfully for GCSE and beyond.





# What knowledge and skills will your child learn in KS3 Mathematics?

## Number

Students strengthen their number skills, including working accurately with integers, fractions, decimals and percentages. They learn to estimate, check the reasonableness of answers, and use mental and written methods confidently.

## Algebra

In algebra, students begin to use letters to represent numbers and relationships. They learn to simplify expressions, substitute values, solve equations, explore sequences and understand graphs, helping them describe patterns and make predictions.

## Ratios and proportion

Students learn how to compare quantities, scale up or down, use percentages, and solve real-life problems involving things like recipes, best buys, speed, conversions and growth.

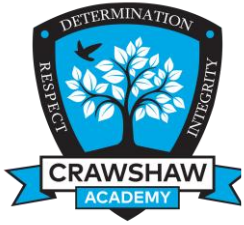
## Geometry and Measures

In geometry and measures, students learn about shapes, angles, symmetry, perimeter, area and volume, alongside using accurate measurement and understanding properties of 2D and 3D shapes.

## Statistics and Probability

In statistics and probability, students learn how to collect, display and interpret data using graphs and charts, and they explore probability to understand how likely events are and to make informed predictions.

Across all topics, students are encouraged to reason clearly, explain their thinking, and solve problems in different contexts — building confidence, resilience and strong mathematical understanding.



# The Curriculum Wall

Building your Mathematical knowledge



## Curriculum Outline

Year 11	P1	G17	G18	G19	G20	G21	G22	G23	R11	Revision					A20	A21	A22	R7	R8
	Self-revision and Veri-diagrams	Area and Volume	Similarity and congruence	Working with circles	Vectors	Angles, bearings and trigonometry	Construction and loci	Transformations	Standard forms						Sequences and proof	Functions and graphs	Equations and formulae	Ratio and proportion	Rates
Year 10	P3	S5	S6	G13	G14	G15	G16	R16	R17	R18	R19	R20	A14	A15	A16	A17	A18	A19	R6
	Probability	Interpret and represent data	Graphs and diagrams	Perimeter, area and volume	Angles	Vectors	Pythagoras' theorem and trigonometry	Percentages	Work with Fractions	Non-calculator methods	Revising and understanding	Factors and primes	Algebraic manipulation	Equations, inequalities and formulae	Quadratic expressions and equations	Straight line graphs	Non-Linear Graphs	Simultaneous equations	Ratio and scale
Year 9	P2	G7	G8	G9	G10	G11	G12	R10	R12	R13	R14	R15	A8	A10	A11	A12	A13	R4	R5
	Probability	Area and Volume	Constructions and congruence	Similarity	Pythagoras' theorem	Transformations	Trigonometry	Properties of number	Percentages	Fractions	Standard forms	Maths and Money	Equations, inequalities and formulae	Straight line Graphs	Algebraic Manipulation	Non-linear graphs	Simultaneous equations	Rates	Ratio and proportion
Year 8	P1	S3	S4	G3	G4	G5	G6	R8	R9	R10	Consolidation	A4	A5	A6	A7	A8	R2	R3	
	Tables and probability	Interpret and represent data	Graphs and charts	Symmetry and reflections	Area, Volume and density	Angles in parallel lines and polygons	Circles	Multiplying & Dividing Fractions	Percentages	Standard forms	Consolidation	Algebraic manipulation	Coordinates and graphs	Equations and Inequalities	Indices	Sequences	Ratio	Proportion and scale	
Year 7	S1	S2	G1	G2	R1	R2	R3	R4	R5	R6	R7	R8	A1	A2	A3	R1			
	Averages and Range	Graphing data	Perimeter and Area	Angles and polygons	Place Value, ordering and rounding	Four operations	Rounding and estimating	Fractions, decimals and percentages	Directed number	Fractions and percentage of groups	Properties of number	Add and subtract fractions	Sequences	Algebraic notation and Substitution	Expressions and equations	Speed, distance and time			



**NUMBER BONDS** **TIMES TABLES**

Key to topics: **N** = Number, **A** = Algebra, **G** = Geometry, **R** = Ratio and Proportion, **S** = Statistics, **P** = Probability

# WHAT MAKES A GREAT MATHEMATICIAN?

## Curriculum Outline



### **Problem Solving**

Problem solving is an important part of mathematics. I can use my understanding, skills and reasoning to help me work towards solution.



### **Understanding**

Mathematics is a network of linked ideas. I can connect new mathematical thinking to what I already know and understand.



### **Tools**

I have a toolkit that I can choose tools from to help me solve problems. Practising using these tools helps me become a better mathematician.



### **Attitude**

Mathematics makes sense and is worth spending time on. I can enjoy mathematics and become better at it by persevering.



### **Reasoning**

Mathematics is logical. I can convince myself that my thinking is correct and I can explain my reasoning to others.



# How is Mathematics assessed at KS3?

## Knowledge assessments

We assess pupils' mathematics in a variety of ways to make sure we have a full picture of their understanding and progress. This includes both **formative assessment** (ongoing checks during lessons) and **summative assessment** (more formal end-of-topic or end-of-term tests).

### What This Looks Like in the Classroom

- **Mini whiteboards** are used in every lesson. This allows teachers to see every pupil's thinking and quickly identify who may need more help or challenge.
- **Carefully planned questions** encourage children to think deeply about the maths they are learning.
- Teachers also assess through **observing children, discussing ideas, marking work**, and using **short assessments**.

### What We Are Looking For

Assessments help us understand how well children can:

- Grasp key mathematical concepts
- Work accurately and efficiently
- Apply their knowledge to different types of problems, not just familiar ones

Children are encouraged to use their classwork and resources such as **knowledge organisers** to support, review and strengthen their learning.

Homework is used to help consolidate learning. We use Sparx Maths ([www.sparxmaths.com](http://www.sparxmaths.com)) as our main weekly homework platform.



# How does Mathematics link to personal development?

## Careers

Mathematics highlights the real-world applications of mathematical skills in various professions. Lessons explore how mathematics is used in fields such as engineering, finance, architecture, data science, and technology, demonstrating the relevance of mathematical concepts like algebra, statistics, and geometry. Students work on projects and problem-solving exercises modelled on real industry scenarios, helping them understand how mathematics supports tasks like budgeting, design, or data analysis. This makes mathematics more engaging and helps students see a clear link between their studies and future career options.

## Fundamental British Values

Click [here](#) to find out how Mathematics helps to promote the Fundamental British Values (FBV).

## SMSC

Click [here](#) to find out how Mathematics develops Spiritual, Moral, Social and Cultural (SMSC) understanding.

## Economic Well-being

Click [here](#) to find out how Mathematics provides financial education and promotes economic well-being.



# Extra Information

## Enrichment

### Axiom Maths Club

Axiom Maths Club is part of a national organisation designed to help children develop their mathematical thinking through a programme of fun, challenging puzzles. Pupils take part in small groups called “**maths circles**”, which meet once a week to explore a curriculum of rich, engaging mathematical problems.

### What Pupils Do in Maths Circles

- **Explore challenging maths beyond the classroom**  
Pupils work through a structured set of problems that introduce them to fascinating mathematical ideas not usually covered in the National Curriculum. This helps deepen their understanding and broaden their experience of maths.
- **Learn to get ‘stuck’—and then ‘unstuck’**  
Problems are designed to be tricky. Pupils learn that it is normal not to get the answer straight away, and they build resilience and confidence as they work towards a solution.
- **Experience ‘flow’ in their learning**  
Maths circles are relaxed, enjoyable environments with no tests or pressure. Pupils often become absorbed in the challenge and enjoy the satisfaction of exploring ideas at their own pace.
- **Join a like-minded community**  
Axiom provides a space where children who enjoy maths can meet others who feel the same. It helps build a positive attitude toward maths in a culture where it isn’t always celebrated as much as it should be.

