



Year 7 Mathematics – Units 1, 2 & 3

Learning about this topic is important because:

Being a confident mathematician means that we can apply our knowledge and skills to solve a variety of problems. Sometimes it is useful to use algebra to apply understanding to a variety of contexts, even if it is not always immediately obvious! This topic will allow you to become more confident in problem solving and making links in prior learning

This builds on: KS2 learning on a number sequences, function machines, order operations and simple algebra

This leads to: Finding the n th term of a sequence, simplifying algebraic expressions, solving equations using inverse operations and expanding brackets

We will learn:

- How to predict the next terms of linear and nonlinear sequences
- How to explain the term-to-term rule in linear sequences
- How to find the inputs and outputs of numerical and algebraic function machines
- How to substitute values into one and two step expressions
- How to use fact families both numerically and algebraically
- How to solve one step equations using inverse operations
- How to simplify expressions by collecting like terms

We will develop/practise skills including:

- Finding missing terms in sequences
- Identify whether sequence is linear or nonlinear
- Using fact families to identify inverse operations
- Solving equations
- Problem solving by applying our new learning

Talk for Learning / Oracy in Maths

In this topic, you will encounter and use important mathematical vocabulary such as *linear*, *non-linear*, *sequence*, *arithmetic*, *geometric*, *constant*, *Fibonacci*, *function*, *input*, *output*, *inverse*, *variable*, *coefficient*, *expression*, *substitute*, and *equation*. You'll be expected to understand these terms and use them accurately in your work and discussions.

Explaining your reasoning out loud, using the correct vocabulary, will help you strengthen your understanding and communicate your thinking more clearly and confidently.

Keep these questions in mind as you work through tasks: **What can I see? What do I know? What can I do?**

You could learn more about this topic by:

Watching videos and completing extra questions on Sparx, exploring different types of sequences online, completing all classwork and homework to the best of your ability, and speaking to your teacher or classmates if you're unsure. Asking questions and explaining your thinking out loud will help you understand and remember more.

Your teacher will assess your knowledge & understanding by looking at your Classwork, Sparx Homework, through questioning and discussion. They will give you feedback in lots of different ways. The key pieces of work in this topic are your low stakes end of topic tests and your termly cumulative assessments.



Year 7 Mathematics –Units 4, 5, 6 & 7

Learning about this topic is important because: Understanding place value, performing calculations accurately and interpreting data are fundamental mathematical skills that are used every day. Place value helps us understand the size of numbers and make sensible estimates, while the four operations allow us to solve a wide range of numerical problems. Averages and range help us summarise and compare data, enabling us to draw conclusions and make informed decisions. Together, these topics develop confidence with number, calculation and data handling.

This builds on: Work at KS2 on reading, writing and ordering numbers, performing calculations using the four operations and calculating simple averages. Students will extend these ideas by working with larger numbers, developing efficient calculation methods and interpreting data in greater depth.

This leads to: Future work involving fractions, percentages, ratio, algebra and statistical analysis. Secure number skills and an understanding of averages are essential throughout KS3 and GCSE mathematics and support learning across many other subjects.

We will learn:

- How to understand and use place value with whole numbers and decimals.
- How to compare, order and round numbers.
- How to add, subtract, multiply and divide using efficient written and mental methods
- How to interpret and compare sets of data using averages and range
- How to apply the four operations in real-life and problem-solving contexts
- Solve problems with estimation
- How to solve problems involving data and statistical information

We will develop/practise skills including:

- Estimating and checking calculations
- Performing calculations using all four operations
- Interpreting and analysing data sets
- Comparing data using averages and range
- Checking solutions for accuracy and reasonableness
- Communicating mathematical reasoning clearly using appropriate vocabulary

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In this topic, you will use key mathematical terms such as *place value, digit, decimal, round, estimate, operation, sum, difference, product, quotient, mean, median, mode, range, average and data*.

You will explain how numbers can be compared and rounded, justify the methods you use when performing calculations and describe how averages can be used to summarise data. You will communicate your reasoning clearly using full sentences and appropriate mathematical language.

You should use this vocabulary clearly when explaining your methods.

Keep these questions in mind as you work through tasks:

What can I see? What do I know? What can I do?

You could learn more about this topic by:

Watching videos and completing extra questions on Sparx, practising mental and written calculations, exploring data from surveys, sports and current events, and discussing different methods with your classmates. Explaining your reasoning aloud and checking whether answers are sensible will help strengthen your understanding and confidence.

Your teacher will assess your knowledge & understanding by looking at your Classwork, Sparx Homework, through questioning and discussion. They will give you feedback in lots of different ways. The key pieces of work in this topic are your low stakes end of topic tests and your termly cumulative assessments.



Year 7 Mathematics – Units 8 & 9

Learning about this topic is important because: Graphs, fractions, decimals and percentages are used in many aspects of everyday life. Graphs help us organise, display and interpret information, allowing us to identify patterns and trends. Fractions, decimals and percentages are different ways of representing the same quantities and are essential in contexts such as money, discounts, statistics and measurement. Together, these topics develop numerical fluency, analytical thinking and problem-solving skills that are important across mathematics and beyond.

This builds on: Work at KS2 on reading and interpreting simple graphs, understanding fractions, decimals and percentages, and converting between different forms of numbers. Students will extend these ideas by analysing more complex data and developing a deeper understanding of the relationships between fractions, decimals and percentages.

This leads to: Future work involving probability, ratio, proportion, algebra, statistical analysis and financial mathematics. These skills are fundamental throughout KS3 and GCSE mathematics and support learning in subjects such as science, geography and business studies.

We will learn:

- How to collect, organise and represent data using a variety of graphs and charts
- How to interpret and compare information presented in graphical form
- How to identify patterns and trends in data
- How to convert between fractions, decimals and percentages
- How to compare and order fractions, decimals and percentages

We will develop/practise skills including:

- Drawing and interpreting graphs accurately
- Extracting and analysing information from data displays
- Converting confidently between fractions, decimals and percentages
- Applying number skills to real-life situations
- Solving multi-step problems involving data and percentages

Talk for Learning / Oracy in Maths

In this topic, you will use key mathematical terms such as *graph, chart, axis, scale, data, frequency, fraction, numerator, denominator, decimal, percentage, equivalent, convert, proportion and compare*.

You will explain how data can be represented and interpreted, justify methods used when converting between fractions, decimals and percentages and describe relationships between different numerical representations. You will communicate your reasoning clearly using full sentences and appropriate mathematical language.

You should use this vocabulary clearly when explaining your methods.

Keep these questions in mind as you work through tasks:

What can I see? What do I know? What can I do?

You could learn more about this topic by:

Watching videos and completing extra questions on Sparx, analysing graphs and charts from newspapers, websites and scientific reports, practising conversions between fractions, decimals and percentages and discussing different solution methods with classmates. Explaining your thinking aloud and checking whether answers are reasonable will help strengthen your understanding and confidence.

Your teacher will assess your knowledge & understanding by looking at your Classwork, Sparx Homework, through questioning and discussion. They will give you feedback in lots of different ways. The key pieces of work in this topic are your low stakes end of topic tests and your termly cumulative assessments.



Year 7 Mathematics – Units 10, 11 & 12

Learning about this topic is important because: Understanding about how we work with negative integers rather than learning a series of rules will allow us to deepen our understanding and allow us to solve more complex problems. It will also help us to understand how negative numbers work in the real world.

This builds on: Work covered at KS2 on the basic ideas of directed number. We will be developing our understanding and exploring directed number in more detail.

This leads to: Being able to form and solve two-step equations and being able to substitute values into scientific formulae.

We will learn:

- How to use the four operations with directed numbers
- How to substitute negative values into expressions and formulae
- How to simplify and manipulate algebraic expressions
- How to order positive and negative integers, decimals and fractions
- How to express one fraction as a quantity of another
- How to select an appropriate strategy to solve increasingly complex problems
- How to use four operations with positive and negative integers, decimals and fractions (proper and improper) and mixed numbers
- How to find the area and perimeter of shapes
- How to form expressions using area and perimeter

We will develop/practise skills including:

- Working with calculations which involve positive and negative integers, decimals and fractions
- Substituting positive and negative integers into expressions
- Ordering positive and negative integers on a number line
- How to solve multi-step problems which involve positive and negative integers, fractions and decimals
- Exploring the roots of positive and negative integers
- Forming expressions from context questions

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In this topic, you will use key mathematical terms such as *positive*, *negative*, *integer*, *fraction*, and *decimal* to describe and work with different types of numbers. You will explore how *zero pairs* support understanding of negative values and apply concepts like *roots* to deepen your number sense. Ordering numbers in *ascending* and *descending* sequences will help develop your reasoning and problem-solving skills. You will use words such as *length*, *width*, *base* and *height* to find the *area* and *perimeter* of shapes using *formulae*.

You should use this vocabulary clearly when explaining your methods.

Keep these questions in mind as you work through tasks: **What can I see? What do I know?**

What can I do?

You could learn more about this topic by:

Watching videos and completing extra questions on Sparx, exploring different types of sequences online, completing all classwork and homework to the best of your ability, and speaking to your teacher or classmates if you're unsure. Asking questions and explaining your thinking out loud will help you understand and remember more.

Your teacher will assess your knowledge & understanding by looking at your Classwork, Sparx Homework, through questioning and discussion. They will give you feedback in lots of different ways. The key pieces of work in this topic are your low stakes end of topic tests and your termly cumulative assessments.



Year 7 Mathematics – Units 13 & 14

Learning about this topic is important because: Understanding the relationships between speed, distance and time allows us to solve real-world problems involving journeys, travel and planning. Exploring properties of numbers helps us recognise patterns, improve calculation skills, and build a deeper understanding of how numbers work. Together, these topics strengthen problem-solving and reasoning skills that are essential across all areas of mathematics.

This builds on: Work at KS2 on basic calculations, multiplication and division, factors and multiples, and an introduction to time and measurement. Students will extend these ideas to include more complex calculations and reasoning.

This leads to: Solving more advanced problems involving rates, ratio and proportion, and applying number properties in algebra. These skills also support work with formulas, graphs and real-life mathematical modelling.

We will learn:

- How to calculate speed, distance and time using appropriate formulae
- How to rearrange and apply the formula: $\text{speed} = \text{distance} \div \text{time}$
- How to solve problems involving real-life contexts (e.g. journeys)
- How to identify and use factors, multiples and prime numbers
- How to find the highest common factor (HCF) and lowest common multiple (LCM)
- How to recognise and use square and cube numbers
- How to apply number properties to solve problems efficiently
- How to select appropriate strategies for solving increasingly complex problems

We will develop/practise skills including:

- Solving multi-step problems involving speed, distance and time
- Interpreting and extracting information from worded problems
- Performing calculations involving multiplication and division
- Identifying number patterns and relationships
- Using factors and multiples to simplify problems
- Applying mathematical reasoning to justify answers
- Checking solutions for accuracy and efficiency

Talk for Learning / Oracy in Maths

In this topic, you will use key mathematical terms such as *positive, negative, integer, speed, distance, time, factor, multiple, prime, square number and cube number*. You will explain how you approach problems, justify your methods, and describe patterns in numbers.

You will also interpret real-life situations and communicate your reasoning clearly using full sentences and appropriate mathematical language.

You should use this vocabulary clearly when explaining your methods.

Keep these questions in mind as you work through tasks: **What can I see? What do I know?**

What can I do?

You could learn more about this topic by:

Watching videos and completing extra questions on Sparx, exploring different types of sequences online, completing all classwork and homework to the best of your ability, and speaking to your teacher or classmates if you're unsure. Asking questions and explaining your thinking out loud will help you understand and remember more.

Your teacher will assess your knowledge & understanding by looking at your Classwork, Sparx Homework, through questioning and discussion. They will give you feedback in lots of different ways. The key pieces of work in this topic are your low stakes end of topic tests and your termly cumulative assessments.



Year 7 Mathematics – Units 15 & 16

Learning about this topic is important because: Fractions and geometry are used in many everyday situations. Fractions help us solve problems involving sharing, measuring and proportions, while understanding angles and polygons allows us to describe, design and analyse shapes in the world around us. Together, these topics develop problem-solving, reasoning and numerical skills that are essential across all areas of mathematics and many real-life situations.

This builds on: Work at KS2 on recognising and comparing fractions, finding equivalent fractions, identifying angles and recognising common polygons. Students will extend these ideas by carrying out more complex fraction calculations and using angle relationships to solve geometric problems.

This leads to: Future work involving percentages, ratio, algebraic fractions, geometric reasoning, parallel lines, constructions and trigonometry. These skills form important foundations for many KS3 and GCSE mathematics topics.

We will learn:

- How to identify and generate equivalent fractions
- How to simplify fractions to the lowest terms
- How to add and subtract fractions
- How to identify and classify different polygons
- How to calculate missing angles on a straight line around a point and in different polygons.
- How to use the sum of interior angles and polygons
- How to solve problems involving fractions, angles and geometric reasoning

We will develop/practise skills including:

- Performing accurate calculations with fractions
- Converting fractions into equivalent forms
- Solving multi step problems involving fractions and geometry
- Drawing and interpreting geometric diagrams
- Using angle facts to calculate unknown angles
- Identifying patterns and relationships within numbers and shapes

Talk for Learning / Oracy in Maths

This topic introduces important words such as *fraction, numerator, denominator, equivalent, simplify, common denominator, improper fraction, mixed number, angle, polygon, triangle, quadrilateral, regular polygon, interior angle, exterior angle, vertically opposite angle and angle at a point*.

You should use this vocabulary clearly when explaining your methods.

Keep these questions in mind as you work through tasks: **What can I see? What do I know? What can I do?**

You could learn more about this topic by:

Watching videos and completing extra questions on Sparx, practising fraction calculations and geometric problems, reviewing examples from class and discussing different solution methods with classmates. Explaining your reasoning aloud and checking your answers carefully will help you deepen your understanding and improve your confidence.

Your teacher will assess your knowledge & understanding by looking at your Classwork, Sparx Homework, through questioning and discussion. They will give you feedback in lots of different ways. The key pieces of work in this topic are your low stakes end of topic tests and your termly cumulative assessments.