

YEAR 7

Key information

Low Stakes Assessment

Each topic outlined below will be assessed via an Exit Ticket at the end of the unit of learning. This will be teacher marked and whole class feedback will be provided.

Summative Assessment

Students will sit two assessments across the year that cumulatively assess learning from the year. Students will be provided with a revision list in advance and are expected to revise independently for these assessments.

ILS

- Students in Y7 are expected to complete a 40-minute task on Sparx Maths each week. This is comprised of practice questions and flashcards. The tasks are set on a two-week lag behind taught curriculum content. Support videos are available within Sparx for reference if students are stuck, as well as worked examples on students' knowledge organisers.
- Key vocabulary should be practiced using flashcards or self-quizzing from the unit knowledge organiser.

Wider Reading

- Students can look in more depth at each unit of learning via the Sparx Maths Independent Learning function. This has videos and practice questions for self-study.
- Students can use revision guides for wider reading on a topic.
- Students can use BBC Bitesize for wider reading on a topic.

SMSC

Students spiritual, moral, social and cultural development is fostered in maths through discussion activities in which different perspectives on a problem are discussed. Students are exposed to the work of a vast array of mathematicians through the curriculum and explicit cultural links to art, architecture and language are made where appropriate.



Autumn Term

N5a. Number Sense

Composites

- Mental methods for addition, subtraction, multiplication and division
- Using estimation to check calculations

Key Vocabulary

Difference	The result of a subtraction.
Product	The result of a multiplication.
Quotient	The result of a division
Sum	The result of an addition (the total).

How to help at home

- Encourage use of mental methods when calculating in daily life (support students to resist the urge to grab their phone calculator straight away!)
- Practice times tables until complete fluency

Careers Links

Strong number sense is a fundamental skill used in almost every career. It is particularly important in fields such as engineering, finance, healthcare, construction, retail and the trades, where professionals need to estimate, calculate accurately, solve problems and make informed decisions using numbers every day.

A1a. Sequences 1

Composites

- Describe and continue sequences in diagram and number forms, both linear and non-linear
- Compare numerical and graphical forms

Key Vocabulary

Linear	Has a constant additive difference.
Sequence	An ordered set of numbers, shapes or objects, arranged according to a rule.
Term (Sequence)	A number, shape or object in a sequence.

How to help at home

- Encourage students to spot patterns and notice relationships between numbers in the real world – e.g. house numbers are the sequence of odd/even numbers on opposite sides of the street.
- [Describing Rules Video \(Corbett Maths\)](#)
- [Patterns and Sequences Video \(Corbett Maths\)](#)

Careers Links

Understanding sequences helps develop pattern recognition and logical thinking, skills that are valued in careers such as computer programming, engineering, finance, architecture and data science. Professionals use sequences to identify trends, make predictions and solve real-world problems.



N3. Directed Number

Composites

- Understand the concept of a zero pair
- Addition, subtraction, multiplication and division with directed number

Key Vocabulary

Magnitude	Size (of a number or the length of a vector).
Negative	A value less than zero (written with a minus sign).
Value	The size of a number based on its magnitude and sign.

How to help at home

- Discuss temperatures – these are a real-life example of directed (negative) numbers (a thermometer is effectively a vertical number line!)
- Refer to the ‘Directed Number Counter’ video on the [Alder Maths Department](#) page

Careers Links

Directed (negative) numbers are used in professions that measure debt, direction, temperature drop, or sub-sea level. Key careers include accountants, meteorologists, architects, navigators, and software engineers. They rely on these numbers for tasks like balancing budgets, tracking freezing temperatures, or defining 3D space.

A1b. Algebraic Notation

Composites

- Using inverse operations
- Algebraic zero pairs
- Algebraic function machines
- Understanding and collecting like terms
- Substitution

Key Vocabulary

Inverse	A mathematical opposite.
Substitution	Replace a variable with a numerical value.
Term (Expression)	A single number or variable, or the product of several numbers and variables.
Variable	A letter that represents an unknown number or a changeable quantity.

How to help at home

- Refer to the ‘Algebra Tiles’ video on the [Alder Maths Department](#) page
- [Function Machines Video \(Corbett Maths\)](#)
- [Collecting Like Terms Video \(Corbett Maths\)](#)
- [Substitution Video \(Corbett Maths\)](#)

Careers Links

Algebra is essential for solving unknown variables, analysing data, and building logic. Professionals across technology, healthcare, finance, and the trades use it daily to calculate dosages, program software, draft blueprints, and manage budgets.

A1c. Mathematical Relationships 1



Composites - Understanding the difference between equality and equivalence - Solving one-and two-step equations	Key Vocabulary <table> <tr> <td>Equation</td><td>A mathematical relationship stating two expressions are equal.</td></tr> <tr> <td>Expression</td><td>A mathematical sentence made up of numbers, variables and operations.</td></tr> <tr> <td>Solve</td><td>To find a numerical value that satisfies a mathematical relationship (makes it true).</td></tr> </table>	Equation	A mathematical relationship stating two expressions are equal.	Expression	A mathematical sentence made up of numbers, variables and operations.	Solve	To find a numerical value that satisfies a mathematical relationship (makes it true).
Equation	A mathematical relationship stating two expressions are equal.						
Expression	A mathematical sentence made up of numbers, variables and operations.						
Solve	To find a numerical value that satisfies a mathematical relationship (makes it true).						
How to help at home Refer to the 'Algebra Tiles' video on the Alder Maths Department page	Careers Links Solving equations develops logical reasoning and problem-solving skills that are essential in careers such as engineering, architecture, computer programming, economics and science. Professionals use equations to model real-life situations, calculate unknown values and make accurate predictions and decisions.						

Spring Term													
N1a. Place-Value & Ordering													
Composites - Understanding the decimal number system - Working with number lines - Comparing value - Rounding decimals and integers - Converting metric units	Key Vocabulary <table> <tr> <td>centi-</td><td>A prefix meaning one hundredth.</td></tr> <tr> <td>kilo-</td><td>Prefix meaning 1000.</td></tr> <tr> <td>milli-</td><td>A prefix meaning one thousandth.</td></tr> <tr> <td>Place-Value</td><td>The value of a digit depending on its position in a number.</td></tr> <tr> <td>Rounding</td><td>Approximating to the nearest bound.</td></tr> <tr> <td>Significant Figure</td><td>A digit that gives meaning to a number. The most significant digit is the left-most non-zero digit.</td></tr> </table>	centi-	A prefix meaning one hundredth.	kilo-	Prefix meaning 1000.	milli-	A prefix meaning one thousandth.	Place-Value	The value of a digit depending on its position in a number.	Rounding	Approximating to the nearest bound.	Significant Figure	A digit that gives meaning to a number. The most significant digit is the left-most non-zero digit.
centi-	A prefix meaning one hundredth.												
kilo-	Prefix meaning 1000.												
milli-	A prefix meaning one thousandth.												
Place-Value	The value of a digit depending on its position in a number.												
Rounding	Approximating to the nearest bound.												
Significant Figure	A digit that gives meaning to a number. The most significant digit is the left-most non-zero digit.												
How to help at home - Refer to the 'Place-Value Chart' video on the Alder Maths Department page Rounding (Decimals Places) Video (Corbett Maths)	Careers Links Understanding place value and ordering numbers is an essential skill in careers such as banking, healthcare, engineering, logistics and retail.												



- [Rounding \(Significant Figures\) Video \(Corbett Maths\)](#)
- [Metric Units \(Length\) Video \(Corbett Maths\)](#)
- [Metric Units \(Mass\) Video \(Corbett Maths\)](#)
- [Metric Units \(Capacity\) Video \(Corbett Maths\)](#)

Professionals use these skills to interpret large numbers, compare data, measure accurately and make informed decisions in everyday work.

N1b. Fraction, Decimals & Percentage Equivalence

Composites

- Create equivalent fractions
- Understand FDP equivalents
- Convert between FDP

Key Vocabulary

Denominator The number below the fraction bar. The number represents the total number of parts.

Numerator The number above the fraction bar.

Percent Out of 100.

How to help at home

- [Key FDP Equivalents Video \(Corbett Maths\)](#)
- [Equivalent Fractions Video \(Corbett Maths\)](#)
- [Equivalent FDP Video \(Corbett Maths\)](#)

Careers Links

Understanding the equivalence between fractions, decimals and percentages is essential in careers such as finance, healthcare, retail, engineering and science. Professionals use these representations interchangeably to calculate discounts, interpret data, measure quantities and communicate numerical information accurately.

N2a. Additive Operations with Decimals

Composites

- Column addition and subtraction
- Solving additive problems with perimeter, money, bar and line charts

Key Vocabulary

Perimeter The distance around the edge of a 2D object.

How to help at home

- [Column Addition Video \(Corbett Maths\)](#)
- [Subtracting Decimals Video \(Corbett Maths\)](#)
- [Adding Decimals Video \(Corbett Maths\)](#)

Careers Links

Adding and subtracting decimals is an important skill in careers such as accounting, healthcare, engineering, retail and construction. Professionals



	use decimal calculations when handling money, taking precise measurements, managing budgets and ensuring accuracy in everyday tasks.						
N2b. Multiplicative Operations with Decimals							
Composites • Multiplying integers and decimals using the area model • Short division • Finding the highest common factor (HCF) and lowest common multiple (LCM) • Calculating using the hierarchy of operations	Key Vocabulary <table><tr><td>Area</td><td>The space inside a 2D shape.</td></tr><tr><td>Factor</td><td>An integer that divides into a number without leaving a remainder, or integers that multiply to make a specific number.</td></tr><tr><td>Multiple</td><td>The result of multiplying a number by a positive integer.</td></tr></table>	Area	The space inside a 2D shape.	Factor	An integer that divides into a number without leaving a remainder, or integers that multiply to make a specific number.	Multiple	The result of multiplying a number by a positive integer.
Area	The space inside a 2D shape.						
Factor	An integer that divides into a number without leaving a remainder, or integers that multiply to make a specific number.						
Multiple	The result of multiplying a number by a positive integer.						
How to help at home • Refer to the 'Area Model' video on the Alder Maths Department page • HCF Video (Corbett Maths) • LCM Video (Corbett Maths)	Careers Links Multiplying and dividing decimals is a key skill in careers such as engineering, pharmacy, construction, manufacturing and finance. Professionals use these calculations to work with measurements, costs, quantities and rates, ensuring precision and accuracy in real-world situations.						
N2c. Fractions and Percentages of Amounts							
Composites • Using a ratio table to work out fractions and percentages of amounts • Working backwards to find the whole given a fraction or percentage of an amount	Key Vocabulary <table><tr><td>Divisor</td><td>The number to divide by.</td></tr><tr><td>Multiplier</td><td>A value to multiply by.</td></tr></table>	Divisor	The number to divide by.	Multiplier	A value to multiply by.		
Divisor	The number to divide by.						
Multiplier	A value to multiply by.						
How to help at home • Refer to the 'Ratio Tables' video on the Alder Maths Department page	Careers Links Calculating fractions and percentages of an amount is an essential skill in careers such as finance, retail, healthcare, hospitality and business. Professionals use these calculations to work out discounts, taxes, wages, medication doses, budgets and profit, supporting accurate decision-making in everyday work.						



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Summer Term

N4. Additive Operations with Fractions

Composites • Converting between mixed and improper fractions • Adding and subtracting fractions, mixed fractions and decimals • Solving additive problems involving fractions	Key Vocabulary <table><tr><td>Improper Fraction</td><td>A fraction with a bigger numerator than denominator.</td></tr><tr><td>Mixed Fraction</td><td>A number with an integer and fractional part.</td></tr><tr><td>Proper Fraction</td><td>A fraction with a smaller denominator than numerator.</td></tr></table>	Improper Fraction	A fraction with a bigger numerator than denominator.	Mixed Fraction	A number with an integer and fractional part.	Proper Fraction	A fraction with a smaller denominator than numerator.
Improper Fraction	A fraction with a bigger numerator than denominator.						
Mixed Fraction	A number with an integer and fractional part.						
Proper Fraction	A fraction with a smaller denominator than numerator.						
How to help at home • Improper to Mixed Fraction Video (Corbett Maths) • Mixed to Improper Fraction Video (Corbett Maths) • Adding and Subtracting Fractions Video (Corbett Maths)	Careers Links Adding and subtracting fractions is an important skill in careers such as engineering, construction, cooking, healthcare and science. Professionals use fractions when working with measurements, quantities and proportions, ensuring accuracy when combining or comparing parts of a whole.						

G1a. Geometric notation

Composites • Describing angles and line segments using letter notation • Classifying angles by size • Constructing lines and angles • Exploring parallel and perpendicular lines • Categorising polygons	Key Vocabulary <table><tr><td>Parallel</td><td>Two straight lines that never intersect and are always the same distance apart (the same gradient).</td></tr><tr><td>Perpendicular</td><td>Two straight lines that intersect at a right angle (at 90°).</td></tr><tr><td>Polygon</td><td>A 2D closed shape made with straight lines.</td></tr></table>	Parallel	Two straight lines that never intersect and are always the same distance apart (the same gradient).	Perpendicular	Two straight lines that intersect at a right angle (at 90°).	Polygon	A 2D closed shape made with straight lines.
Parallel	Two straight lines that never intersect and are always the same distance apart (the same gradient).						
Perpendicular	Two straight lines that intersect at a right angle (at 90°).						
Polygon	A 2D closed shape made with straight lines.						
How to help at home • Parallel Lines Video (Corbett Maths) • Drawings and Measuring Angles (BBC Bitesize) • Polygons (BBC Bitesize)	Careers Links Understanding geometric notation is important in careers such as engineering, architecture, surveying, computer graphics and design. Professionals use standard mathematical notation to communicate shapes, angles,						



	transformations and spatial relationships clearly and accurately in technical drawings and models.	
G1b. Geometric Reasoning		
Composites - Solving problems using the angle facts, such as: - Angles around a point - Angles on a straight line - Vertically opposite angles - Angles in a triangle - Angles in a quadrilateral	Key Vocabulary Adjacent Next to. Vertically Opposite Equal angles formed when two or more straight lines cross at a point.	
How to help at home Angles Around a Point Video (Corbett Maths) Angles on a Straight Line Video (Corbett Maths) Vertically Opposite Angles Video (Corbett Maths) Angles in a Triangle Video (Corbett Maths) Angles in a Quadrilateral Video (Corbett Maths)	Careers Links Understanding angle facts is essential in careers such as engineering, architecture, construction, surveying and design. Professionals use knowledge of angles to ensure accuracy in building structures, create precise technical drawings and solve spatial problems in real-world contexts.	
P1.Probability 1		
Composites - Sets and Venn diagrams - Likelihood vs. Probability - Fair events - Sample space diagrams (for single events) - The sum of probabilities (of an exhaustive set of mutually exclusive outcomes)	Key Vocabulary Fair There is zero bias, and all outcomes have an equal likelihood. Intersection The overlapping part of a Venn diagram (AND $\cap$). Probability The likelihood of an event happening. Union Two ellipses that join (OR $\cup$).	
How to help at home Basic Probability Video (Corbett Maths)	Careers Links Understanding basic probability and Venn diagrams is important in careers such as data analysis, finance, healthcare, marketing and science. Professionals use these skills to analyse uncertainty, compare groups of data,	



	identify relationships and make informed predictions and decisions based on information.
N5b. Prime Numbers	
Composites • Calculating powers and roots • Identifying prime numbers • Writing as a product of primes	Key Vocabulary Composite Made up of several parts of elements. Power A base with an exponent/index. Sometimes used as a synonym for exponent/index. Prime An integer with exactly 2 factors.
How to help at home • Practice fluent recall of square, cube and prime numbers using flashcards • Square Numbers Video (Corbett Maths) • Cube Numbers Video (Corbett Maths) • Square Roots Video (Corbett Maths) • Cube Roots Video (Corbett Maths) • Prime Numbers Video (Corbett Maths) • Product of Primes Video (Corbett Maths)	Careers Links Understanding prime numbers is important in careers such as computer science, cybersecurity, engineering and mathematics. Professionals use properties of prime numbers in encryption, coding systems and problem-solving, particularly when working with algorithms and secure data transmission.