

1. Number and Algebra

Year 7 moves beyond just whole numbers to focus on the structure of the number system, including integers, fractions, decimals, and the foundational language of algebra.

Core Topics and Scope:

- **Integers:** Introduce **positive and negative integers**. Students compare, order, and solve problems involving the **addition and subtraction of integers** (e.g., $5 - 8 = -3$).
- **Rational Numbers:** Deepen understanding of **fractions, decimals, and percentages**. Students perform **all four operations** (+, −, ×, ÷) with positive fractions and decimals. They find equivalent representations of rational numbers (e.g., $\frac{1}{4} = 0.25 = 25\%$).
- **Prime Factors and Indices:** Represent natural numbers in **expanded notation** using place value and powers of 10. They investigate **exponent notation** (index laws) and represent natural numbers as **products of prime factors** (e.g., $12 = 2^2 \times 3$).
- **Rates, Ratios, and Financial Maths:** Introduce **ratios** (e.g., $1 : 3$) and apply them to solve problems. Solve practical problems involving rational numbers, percentages, and ratios, including simple **financial contexts** like calculating sale prices or discounts.
- **Algebraic Expressions:** Introduce the use of **variables** to represent numbers. Students create and interpret **algebraic expressions** (e.g., $3x + 5$) and **substitute values** into simple formulas.
- **Linear Equations:** Solve **simple linear equations** with natural number solutions (e.g., $x + 4 = 10$).

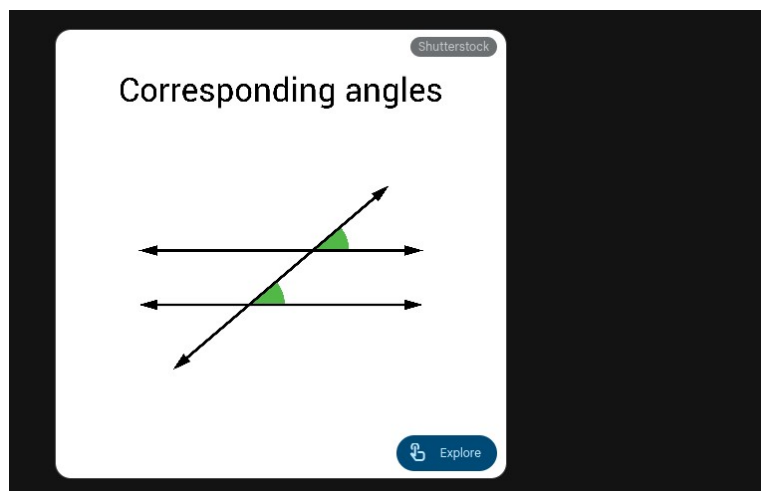
2. Measurement and Geometry

This strand becomes more formal, focusing on geometric reasoning, angle properties, and using formulas to calculate area and volume.

Core Topics and Scope:

- **Geometric Reasoning:** Formal classification of **triangles** (scalene, isosceles, right-angled) and **quadrilaterals** (parallelograms, rhombuses, trapeziums).
- **Angle Relationships:** Identify and apply knowledge of **angle relationships** involving parallel lines cut by a transversal, including **corresponding, alternate, and co-interior angles**, and apply the **angle sum of a triangle** (180°) to solve problems.

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- **Area and Volume Formulas:** Develop, explain, and apply formulas for the **area of triangles and parallelograms**. Calculate the **volume of rectangular and triangular prisms** using the formula $V = A \times h$ (Area of base $\times$ height).
- **Circles:** Describe the relationships between the **radius, diameter, and circumference** of a circle.
- **Location and Transformation:** Represent **transformations** (like reflection and rotation) on the **Cartesian plane** (coordinate system) and use coordinates to describe the position of points.

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3. Statistics and Probability

Students begin working with actual data sets, calculating measures of central tendency, and formalising the language of chance.

Core Topics and Scope:

- **Data Representation:** Construct and interpret **dot plots and stem-and-leaf plots**. Identify issues involving the collection of continuous data.
- **Data Analysis:** Calculate the **mean** (average), **median** (middle value), **mode** (most frequent), and **range** (spread) for small sets of data. They describe the relationship between the median and mean in data displays.
- **Probability/Chance:** Formalise the concept of **sample space** for single-stage events (listing all possible outcomes). Students assign **probabilities** to outcomes, often using fractions, decimals, or percentages (e.g., the probability of rolling a 3 on a die is $\frac{1}{6}$).

This Year 7 curriculum provides the essential bridge from primary school arithmetic to the more advanced algebraic and geometric topics they will encounter in Years 8-10.