



# MATHEMATICS - YEAR 8

## Sets and probability:

Identify and represent sets. Interpret and create Venn diagrams. Use the intersection and union of sets. Know and use the vocabulary of probability in relation to the probability scale. Generate sample spaces for single events. Calculate the probability of a single event and know the sum of probabilities is 1.

## Prime numbers and proof:

Recognise and identify prime, square and triangular numbers. Find the HCF and LCM of a set of numbers. Write a number as a product of its prime factors. Make and test conjectures using counter examples to disprove a conjecture.

## Working in the cartesian plane:

Work with coordinates in all four quadrants. Plot graphs that are parallel to the axis. Recognise and plot graphs that have positive and negative gradients. Understand the general form of a line,  $y=mx+c$ . Explore the link between linear sequences and straight line graphs.

## Representing data:

Draw and interpret scatter graphs, including identifying correlation. Understand and use grouped frequency tables. Identify different types of data. Use two-way tables to represent data.

## Tables and probability:

Construct sample space diagrams for multiple events. Find probabilities from sample space diagrams, venn diagrams and two-way tables.

## Number sense:

Round numbers and estimate calculations. Converting metric units. Solve problems involving money, time and the calendar.

## Angles in parallel lines and polygons:

Solve problems involving angles in parallel lines. Investigate properties of quadrilaterals. Find interior and exterior angles of polygons.

## Ratio and scale:

Understand and use ratio notation, including simplifying ratios and unitary ratios. Share amounts into a given ratio. Find the proportional link in given scenarios, including between circumference and diameter of a circle.

## Multiplicative change:

Solve problems involving direct proportion. Use proportion graphs to solve problems, including conversion graphs for currency and unit conversions. Use scale factors and interpret scale diagrams and maps.

## Multiplying and dividing fractions:

Multiply combinations of integers, fractions and mixed numbers. Divide combinations of integers, fractions and mixed numbers. Understand and use the reciprocal.

## Brackets, equations and inequalities:

Form expressions, equations and inequalities. Expand brackets and combinations of brackets, simplifying the outcome where possible. Solve equations and inequalities. Factorise expressions into a single bracket.

## Sequences:

Generate sequences given in words and with an algebraic rule. Find the  $n$ th term rule for a linear sequence.

## Area of trapezia and circles:

Calculate the area of a trapezium. Calculate the area of circles and part circles. Find the area and perimeter of compound shapes.

## Line symmetry and reflections:

Recognise line symmetry. Perform reflection of shapes in horizontal, vertical and diagonal lines.

