Stage 6 Mathematics

Numbers and the Number System

Read, write, order and compare numbers up to 10 000 000 and identify the value of each digit

Calculating 1

Use knowledge of the order of operations to carry out calculations

Calculating: Division

Divide numbers using long and short division

Investigate Properties of Shape

Investigate the properties of 2D shapes

Visualising and Constructing

Draw 2D shapes using given dimensions and angles. Recognise, describe and build simple 3D shapes, including making nets.

Explore Fractions, Decimals and Percentages

Recall and use equivalences between simple fractions, decimals and percentages in different contexts.

Presentation of Data

Interpret and construct pie charts and line graphs and use these to solve problems

Measuring Data

Calculate and interpret the mean as an average

Proportional Reasoning

Solve problems involving the relative sizes of 2 quantities and problems involving similar shapes

Algebraic Proficiency:

Use simple formulae

Mathematical Movement

Move shapes by reflecting and translating them.

Pattern Sniffing

Describe the pattern from a sequence of numbers.

Checking, Approximating and Estimating

Solve problems which require answers to be rounded to specified degrees of accuracy

Calculating Shape

Solve problems involving perimeter, area and volume.

Solving Equations and Inequalities

Solve equations with 2 unknowns

Calculating Fractions, Decimals and Percentages

Add, subtract, multiply and divide fractions. Solve problem involving percentages

Investigating Angles

Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles

Measuring Space

Use, read, write and convert between standard units, converting measurements of length, mass, volume and time.

Stage 7 Mathematics

Numbers and the Number System
Understand the different types of numbers in the number system including square numbers and prime numbers

Counting and Comparing
Order positive and negative integers, decimals and fractions. Use =, <, >
Understand negative numbers

Calculating
Apply 4 operations: addition, subtraction, multiplication, division.

Visualising and Constructing
Understand geometrical notation

Investigating Properties of Shape
Properties of 2D and 3D shapes

Understand Algebraic Notation
Simplify an expression. Substitute into an expression.

Presentation of Data
Interpret and construct tables, charts and diagrams.

Measuring Data
Analyse data by considering the mean, mode, median and range.

Exploring Fractions, Decimals and Percentages
Express one quantity as a fraction of another

Mathematical Movement
Work with coordinates in all 4 quadrants and solve problems.

Pattern Sniffing
Generate terms of a sequence from term-to-term rule

Proportional Reasoning
Use ratio notation. Divide a given quantity into 2 parts

Checking, Approximating and Estimating
Estimate answers; Check calculations using approximations and estimation.

Calculating Shape
Use standard units of measure. Calculate area and perimeter of 2D shapes. Calculate the volume of a cuboid.

Solving Equations and Inequalities
Solve basic equations with 1 unknown

Using Fractions, Decimals and Percentages
Use fractions, decimals and percentages in calculations.

Investigating Angles
Apply the properties of angles

Measuring Space
Use standard units of measure and related concepts (length, area, volume/capacity, mass, time, money etc)

Stage 8 Mathematics

Numbers and the Number System

Solve problems involving highest common factor and lowest common multiple. Use standard form.

Calculating

Apply the 4 operations including decimals, fractions and negative numbers.

Visualising and Constructing

Investigate maps, scale, factors and bearings.

Understanding Risk 1

Consider the probability of an event happening by looking at all possible outcomes.

Algebraic Proficiency: Tinkering

Use and interpret algebraic notation and rearrange formulae to change the subject.

Exploring Fractions, Decimals and Percentages

Convert between terminating decimals and their corresponding fractions.

Measuring Data

Interpret, analyse and compare the distribution of data sets from the mean, mode, median and range.

Proportional Reasoning

Apply ratio to real contexts and problems. Use compound units such as speed, distance and   time.

Presentation of Data

Investigate discrete and continuous data. Use and interpret Scattergraphs.

Pattern Sniffing

Generate a sequence of numbers from a rule. Express the rule as the 'nth term'.

Understanding Risk 2

Calculate probability by using tables, Venn diagrams and probability trees.

Algebraic Proficiency: Visualising

Plot straight line graphs and understand the gradient and intercept of the line

Calculating Shape

Perform calculations with circles involving 'pie'

Solving Equations and Inequalities

Solve linear equations with the unknown on both sides of the equation. Find approximate solutions to linear equations using a graph.

Calculating Fractions, Decimals and Percentages

Solve problems involving percentage change. Calculate simple interest.

Investigating Angles

Solve problems of missing angles using facts about angles in parallel lines and angles in a polygon.

Stage 9 Mathematics

Calculating

Calculations involving indices, roots and standard form.

Visualising and Constructing

Standard ruler and compass constructions. Problem-solving using Loci. 3D visualisation.

Algebraic Proficiency: Tinkering

Translate situations in algebraic expressions or formulae. Manipulate quadratic expressions.

Proportional Reasoning

Problem-solving with direct/inverse proportion. Calculations involving speed, distance, time, density, mass and volume.

Pattern Sniffing

Recognise and use Fibonacci type sequences and quadratic sequences.

Solving Equations and Inequalities 1

Understand and use the concepts and vocabulary of inequalities. Solve linear inequalities in one variable.

Presentation of Data

Interpret and construct tables, charts and diagrams.

Understanding Risk

Calculate the probability of an event happening including tree diagrams

Solving Equations and Inequalities 2

Solve simultaneous equations.

Algebraic Proficiency: Visualising

Understand the significance and effect of an equation in its graphical form.

Conjecturing

Problem-solving using facts about angles.

Calculating Space

Know the properties of circles. Use Pythagoras' Theorem. Calculate surface area.