| | Progression Year 6/7 | |
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**1 Using and applying mathematics**

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| | Solve problems by breaking down complex calculations into simpler steps; choose and use operations and calculation strategies appropriate to the numbers and context; try alternative approaches to overcome difficulties; present, interpret and compare solutions | |
| | Represent information or unknown numbers in a problem, for example in a table, formula or equation; explain solutions in the context of the problem | |
| | Develop and evaluate lines of enquiry; identify, collect, organise and analyse relevant information; decide how best to represent conclusions and what further questions to ask | |
| | Generate sequences and describe the general term; use letters and symbols to represent unknown numbers or variables; represent simple relationships as graphs | |
| | Explain and justify reasoning and conclusions, using notation, symbols and diagrams; find a counter-example to disprove a conjecture; use step-by-step deductions to solve problems involving shapes | |

**2 Counting and understanding number**

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| | Compare and order integers and decimals in different contexts | |
| | Order a set of fractions by converting them to decimals | |
| | Use ratio notation, reduce a ratio to its simplest form and divide a quantity into two parts in a given ratio; solve simple problems involving ratio and direct proportion (e.g. identify the quantities needed to make a fruit drink by mixing water and juice in a given ratio) (EOY) | |
| | Recognise approximate proportions of a whole and use fractions and percentages to describe and compare them, for example when interpreting pie charts | |

**3 Knowing and using number facts**

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| | Consolidate rapid recall of number facts, including multiplication facts to 10 × 10 and the associated division facts | |
| | Recognise the square roots of perfect squares to 12 × 12 | |
| | Recognise and use multiples, factors, divisors, common factors, highest common factors and lowest common multiples in simple cases | |

Make and justify estimates and approximations to calculations

**4 Calculating**

Understand how the commutative, associative and distributive laws, and the relationships between operations, including inverse operations, can be used to calculate more efficiently; use the order of operations, including brackets

Consolidate and extend mental methods of calculation to include decimals, fractions and percentages

Use standard column procedures to add and subtract integers and decimals, and to multiply two-digit and three-digit integers by a one-digit or two-digit integer; extend division to dividing three-digit integers by a two-digit integer

Calculate percentage increases or decreases and fractions of quantities and measurements (integer answers)

Use bracket keys and the memory of a calculator to carry out calculations with more than one step; use the square root key

**5 Understanding shape**

Use correctly the vocabulary, notation and labelling conventions for lines, angles and shapes

Extend knowledge of properties of triangles and quadrilaterals and use these to visualise and solve problems, explaining reasoning with diagrams

Know the sum of angles on a straight line, in a triangle and at a point, and recognise vertically opposite angles

Use all four quadrants to find coordinates of points determined by geometric information

Identify all the symmetries of 2-D shapes; transform images using ICT

Construct a triangle given two sides and the included angle

**6 Measuring**

Convert between related metric units using decimals to three places (e.g. convert 1375 mm to 1.375 m, or vice versa)

Solve problems by measuring, estimating and calculating; measure and calculate using imperial units still in everyday use; know their approximate metric values

Calculate the area of right-angled triangles given the lengths of the two perpendicular

sides, and the volume and surface area of cubes and cuboids

Understand and use the probability scale from 0 to 1; find and justify probabilities based on equally likely outcomes in simple contexts

Explore hypotheses by planning surveys or experiments to collect small sets of discrete or continuous data; select, process, present and interpret the data, using ICT where appropriate; identify ways to extend the survey or experiment

Construct, interpret and compare graphs and diagrams that represent data, for example compare proportions in two pie charts that represent different totals

Write a short report of a statistical enquiry and illustrate with appropriate diagrams, graphs and charts, using ICT as appropriate; justify the choice of what is presented