



Mathematics expectations

Year 6

Number and Place Value			
Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit			
Round any whole number to a required degree of accuracy			
Solve problems which require answers to be rounded to specified degrees of accuracy			
Identify the value of each digit in numbers given to 3 decimal places			
Use negative numbers in context, and calculate intervals across zero			
Solve number and practical problems which involve all of the above			

Addition, Subtraction, Multiplication and Division			
Multiply multi-digit numbers up to 4-digits by a 2-digit whole number using the formal written method of long multiplication			
Multiply 1-digit numbers with up to two decimal places by whole numbers			
Divide numbers up to 4-digits by a 2-digit whole number using the formal written method of long division			
Divide numbers up to 4-digits by a 2-digit number using the formal written method of short division			
Use written division methods in cases where the answer has up to two decimal places			
When dividing, interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context			
Multiply and divide numbers by 10, 100 and 1,000, giving answers to 3 decimal places			
Perform mental calculations, including with mixed operations and large numbers			
Identify common factors, common multiples and prime numbers			
Use knowledge of order of operations to carry out calculations involving all four operations			
Solve addition and subtraction multi-step problems in contexts, deciding which operations to use and why			
Solve problems involving all four operations			
Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy			

Fractions, Decimals and Percentages			
Use common factors to simplify fractions			
Use common multiples to express fractions in the same denomination			
Compare and order fractions, including fractions > 1			
Add fractions with different denominators and mixed numbers, using the concept of equivalent fractions			
Subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions			
Multiply simple pairs of proper fractions, writing the answer in its simplest form			
Divide proper fractions by whole numbers			
Associate a fraction with division and calculate decimal fraction equivalents			
Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts			
Solve problems involving the calculation of percentages, [for example, of measures, and such as 15% of 360] and the use of percentages for comparison			



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Ratio and Proportion			
Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts			
Solve problems involving similar shapes where the scale factor is known or can be found			
Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples			

Algebra			
Use simple formulae			
Generate and describe linear number sequences			
Express missing number problems algebraically			
Find pairs of numbers that satisfy an equation with two unknowns			
Enumerate possibilities of combinations of two variables			

Measurement			
Read, write and use standard units of measurement with precision and accuracy			
Convert measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation up to three decimal places where appropriate			
Solve problems involving the calculation of units of measure up to three decimal places			
Convert between miles and kilometres			
Accurately measure area and perimeters of shapes and understand that shapes with the same area can have different perimeters and vice versa			
Use formulae to calculate the area of parallelograms and triangles			
Estimate, calculate and compare volume of cubes and cuboids using standard units of metric measurement including cubic centimetres (cm ³) and cubic metres (m ³), and extending to other units			

Geometry: Shape			
Draw 2-D shapes using given dimensions and angles			
Recognise, describe and build simple 3-D shapes, including making nets			
Compare and classify geometric shapes based on their properties and sizes			
Find unknown angles in any triangles, quadrilaterals, and regular polygons			
Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius			
Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles			

Geometry: Position and Direction			
Describe positions on the full co-ordinate grid (all four quadrants)			
Draw and translate simple shapes on the co-ordinate plane, and reflect them in the axes			

Statistics			
Interpret and construct pie charts and line graphs, and use these to solve problems			
Calculate and interpret the mean as an average			



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Greater Depth			
Independently and consistently apply skills and knowledge in all areas of the year group expectations			
Show a high level of fluency, confidence and resilience when faced with more challenging and complex problems			
Apply skills and knowledge to a range of contexts across the curriculum			
Organise ideas to make connections with other areas of learning in mathematics and across the curriculum			
Return to an aspect of mathematical learning after a break and still feel confident that they can apply skills and knowledge without difficulty			
Explain their understanding of mathematical concepts, skills and knowledge to others			