

Key Learning in Mathematics at Allesley Primary School – Year 6

| Number – number and place value | Number – addition and subtraction | Number – multiplication and division | | |
|---|--|--|----------------------|-------------|
| <ul style="list-style-type: none">Count forwards or backwards in steps of integers, decimals, powers of 10Read, write, order and compare numbers up to 10 000 000 and determine the value of each digitIdentify the value of each digit to three decimal placesIdentify, represent and estimate numbers using the number lineOrder and compare numbers including integers, decimals and negative numbersFind 0.001, 0.01, 0.1, 1, 10 and powers of 10 more/less than a given numberRound any whole number to a required degree of accuracyRound decimals with three decimal places to the nearest whole number or one or two decimal placesMultiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal placesUse negative numbers in context, and calculate intervals across zeroDescribe and extend number sequences including those with multiplication and division steps, inconsistent steps, alternating steps and those where the step size is a decimalSolve number and practical problems that involve all of the above | <ul style="list-style-type: none">Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)Select a mental strategy appropriate for the numbers in the calculationRecall and use addition and subtraction facts for 1 (with decimals to two decimal places)Perform mental calculations including with mixed operations and large numbers and decimalsAdd and subtract whole numbers and decimals using formal written methods (columnar addition and subtraction)Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracyUse knowledge of the order of operations to carry out calculationsSolve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and whySolve problems involving all four operations, including those with missing numbers | <ul style="list-style-type: none">Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting, written method)Identify common factors, common multiples and prime numbersUse partitioning to double or halve any numberPerform mental calculations, including with mixed operations and large numbersMultiply multi-digit numbers up to 4 digits by a two-digit whole number using a written method (long multiplication)Multiply one-digit numbers with up to two decimal places by whole numbersDivide numbers up to 4 digits by a two-digit whole number using a written method and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the contextUse division methods in cases where the answer has up to two decimal placesUse estimation and inverse to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracyUse knowledge of the order of operations to carry out calculationsSolve problems involving all four operations, including those with missing numbers | | |
| Number – fractions, decimals and percentages | Geometry – properties of shapes | | | |
| <ul style="list-style-type: none">Compare and order fractions, including fractions > 1 (including on a number line)Use common factors to simplify fractions; use common multiples to express fractions in the same denominationRecall and use equivalences between simple fractions, decimals and percentages, including in different contextsAssociate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375 and $\frac{3}{8}$)Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractionsMultiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$)Divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$)Find simple percentages of amountsSolve problems involving fractionsSolve problems which require answers to be rounded to specified degrees of accuracySolve problems involving the calculation of percentages (e.g. of measures and such as 15% of 260) and the use of percentages for comparison | <ul style="list-style-type: none">Compare/classify geometric shapes based on the properties and sizesDraw 2-D shapes using given dimensions and anglesIllustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radiusRecognise, describe and build simple 3-D shapes, including making netsRecognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing anglesFind unknown angles in any triangles, quadrilaterals, regular polygons | | | |
| | Geometry – position and direction | | | |
| | <ul style="list-style-type: none">Describe positions on the full coordinate grid (all four quadrants)Draw and translate simple shapes on the coordinate plane, and reflect them in the axes | | | |
| | Statistics | | | |
| | <ul style="list-style-type: none">Continue to complete and interpret information in a variety of sorting diagrams (including sorting properties of numbers and shapes)Interpret and construct pie charts and line graphs and use these to solve problemsSolve comparison, sum and difference problems using information presented in all types of graphCalculate and interpret the mean as an average | | | |
| | Algebra | | | |
| <th>Ratio and proportion</th> <td><ul style="list-style-type: none">Use simple formulaeGenerate and describe linear number sequencesExpress missing number problems algebraicallyFind pairs of numbers that satisfy an equation with two unknownsEnumerate possibilities of combinations of two variables</td> <td><th>Measurement</th></td> | Ratio and proportion | <ul style="list-style-type: none">Use simple formulaeGenerate and describe linear number sequencesExpress missing number problems algebraicallyFind pairs of numbers that satisfy an equation with two unknownsEnumerate possibilities of combinations of two variables | <th>Measurement</th> | Measurement |
| <ul style="list-style-type: none">Solve problems involving the relative sizes of two quantities where missing values can be found using integer multiplication/division factsSolve problems involving unequal sharing and grouping using knowledge of fractions and multiplesSolve problems involving similar shapes where the scale factor is known or can be found | | <ul style="list-style-type: none">Use, read and write standard units of length, mass, volume and time using decimal notation to three decimal placesConvert between standard units of length, mass, volume and time using decimal notation to three decimal placesConvert between miles and kilometresRecognise that shapes with the same areas can have different perimeters and vice versaCalculate the area of parallelograms and trianglesRecognise when it is possible to use formulae for area and volume of shapesCalculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm³) and cubic metres (m³), and extending to other units (e.g. mm³ and km³)Calculate differences in temperature, including those that involved a positive and negative temperatureSolve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate | | |