Aldermaston CE Primary School: age related expectations for ==maths==

By the end of FS:

Early Learning Goal:

I can count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two singledigit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

- I can say one more/less than any number between 0 and 10.
- I can recognise and carry on repeating 2/3 step patterns.
- I can solve problems by doubling, halving and sharing.
- I can recognise half of an object or shape.
- I can use everyday language to talk about size.
- I can use everyday language to talk about weight, capacity & position.
- I can use everyday language to talk about distance.
- I can use everyday language to talk about money.
- I can count by rote to 10/20.
- I can recognises numbers 0-5, 6-10, 11-20.
- I can count reliably 1:1 up to 10 and 20.
- I can sequence numbers to 10 to 20.

- I can carry on counting forwards/backwards from a number.
- I can count on to solve addition problems.
- I can count back to solve subtraction problems.
- I can practically add two numbers together (single digit).
- I can practically subtract two numbers (single digit).
- I can double numbers up to 5 + 5.
- I c an double numbers up to 10 + 10.
- I can halve numbers up to 10.

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By the end of Year 1:

Place value and number:
- I can count to and across 100, forwards & backwards from any number.
- I can form numerals correctly.
- I can read and write numbers to 20 in numerals and words.
- I can read and write numbers to 100 in numerals.
- When given a number between zero and one hundred, I can say what is 1 more/1 less.

Addition and subtraction
- I can read and understand number statements using + - and =.
- I can write number statements using + - and =.
- I can use bonds and subtraction facts to 20.
- I can add and subtract 1 digit and 2 digit numbers to 20, including zero.

Multiplication and division
- I can count in multiples of 2,5 and 10.
- I can solve one-step multiplication and division using objects, pictorial representation and arrays.

Fractions
- I can recognise and find half and quarter of object, shape or quantity
- I can tell how much coins and notes are worth.

Geometry
- I can recognise and name common 2D and 3D shapes.
- I can talk about whole, half, quarter and three-quarter turns.
- I can recognise and name common 2-D and 3-D shapes, including: 2-D shapes [for example, rectangles (including squares), circles and triangles], 3-D shapes [for example, cuboids (including cubes), pyramids and spheres].

Measure
- I can sequence events in chronological order.
- I can use language of day, week, month and year.
- I can tell time to the hour and to half past.
- I can solve problems for length, height, mass, capacity and time.
- I can measure and begin to record the following: lengths and heights, mass/weight, capacity and volume. Time (hours, minutes, seconds).
- I can recognise and know the value of different denominations of coins and notes.
- I can sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening].
- I can recognise and use language relating to dates, including days of the week, weeks, months and years.
- I can tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.

Year 1

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By the end of Year 2:

Number - number and place value
- I can count in steps of 2, 3, and 5 from 0, and in 10s from any number, forward and backward.
- I can recognise the place value of each digit in a two-digit number (10s, 1s).
- I can identify, represent and estimate numbers using different representations, including the number line.
- I can compare and order numbers from 0 up to 100; use <, > and = signs.
- I can read and write numbers to at least 100 in numerals and in words.
- I can use place value and number facts to solve problems.

Number - addition and subtraction
- I can solve problems with addition and subtraction: using concrete objects and pictorial representations,
- I can recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.
- I can add and subtract numbers using concrete objects, pictorial representations, and mentally.
- I can show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another.

- I can recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Number - multiplication and division
- I can recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables.
- I can calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ($\times$), division ($\div$) and equals (=) signs.
- I can show that multiplication of 2 numbers can be done in any order (commutative) and division.
- I can solve problems involving multiplication and division.

Number - fractions
- I can recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity.
- I can write simple fractions, for example 1/2 of 6 = 3 and recognise the equivalence of 2/4 and ½.

Measurement
- I can choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels
- I can compare and order lengths, mass, volume/capacity and record the results using >, < and =.
- I can recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.
- I can find different combinations of coins that equal the same amounts of money.

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- I can solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
- compare and sequence intervals of time.
- I can tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.
- I know the number of minutes in an hour and the number of hours in a day.

Geometry

- I can identify and describe the properties of 2-D shapes, including the number of sides, and line symmetry in a vertical line.
- I can identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.
- I can identify 2-D shapes on the surface of 3-D shapes.
- I can compare and sort common 2-D and 3-D shapes and everyday objects.
- I can order and arrange combinations of mathematical objects in patterns and sequences.
- I can use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti-clockwise).

Statistics

I can interpret and construct simple pictograms, tally charts, block diagrams and tables.

I can ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity ask-and-answer questions about totalling and comparing categorical data.

Year 2

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By the end of Year 3:

Number - number and place value
- I can count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.
- I can recognise the place value of each digit in a 3-digit number (100s, 10s, 1s).
- I can compare and order numbers up to 1,000.
- I can identify, represent and estimate numbers using different representations.
- I can read and write numbers up to 1,000 in numerals and in words.
- I can solve number problems and practical problems involving these ideas.

Number - addition and subtraction
- I can add and subtract numbers mentally.
- I can add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction.
- I can estimate the answer to a calculation and use inverse operations to check answers.
- I can solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

Number - multiplication and division
- I can recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.
- I can write and calculate mathematical statements for multiplication and division using the multiplication tables.
- I can solve problems, including missing number problems, problems and correspondence problems in which n objects are connected to m objects

Number - fractions
- I can count up and down in tenths.
- I can recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10.
- I can recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.
- I can recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.
- I can recognise and show, using diagrams, equivalent fractions with small denominators.
- I can add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7].
- I can compare and order unit fractions, and fractions with the same denominators.

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Measurement
- I can measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml).
- I can measure the perimeter of simple 2-D shapes.
- I can add and subtract amounts of money to give change, using both £ and p in practical contexts.
- I can tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks.
- I can estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight.
- I know the number of seconds in a minute and the number of days in each month, year and leap year.
- I can compare durations of events [for example, to calculate the time taken by particular events or tasks].

Statistics
- I can interpret and present data using bar charts, pictograms and tables.
- I can solve one-step and two-step questions [for example 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.

Year 3

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By the end of Year 4:

Number - number and place value
- I can count in multiples of 6, 7, 9, 25 and 1,000.
- I can find 1,000 more or less than a given number.
- I can count backwards through 0 to include negative numbers
- recognise the place value of each digit in a four-digit number (1,000s, 100s, 10s, and 1s).
- I can order and compare numbers beyond 1,000.
- I can identify, represent and estimate numbers using different representations.
- I can round any number to the nearest 10, 100 or 1,000.
- I can solve number and practical problems that involve all of the above and with increasingly large positive numbers.
- I can read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of 0 and place value.

Number - addition and subtraction
- I can add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.
- I can estimate and use inverse operations to check answers to a calculation.
- I can solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Number - multiplication and division
- I can recall multiplication and division facts for multiplication tables up to 12 × 12.
- I can use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together 3 numbers.
- I can recognise and use factor pairs and commutativity in mental calculations.
- I can multiply two-digit and three-digit numbers by a one-digit number using formal written layout.
- I can solve problems involving multiplying and adding.

Measurement
- I can convert between different units of measure [for example, kilometre to metre; hour to minute].
- I can measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.
- I can find the area of rectilinear shapes by counting squares
- estimate, compare and calculate different measures, including money in pounds and pence.
- I can read, write and convert time between analogue and digital 12- and 24-hour clocks.
- I can solve problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days.

Geometry

- I can compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.
- I can identify acute and obtuse angles and compare and order angles up to 2 right angles by size.
- I can identify lines of symmetry in 2-D shapes presented in different orientations.
- I can complete a simple symmetric figure with respect to a specific line of symmetry.
- I can describe positions on a 2-D grid as coordinates in the first quadrant
- I can describe movements between positions as translations of a given unit to the left/right and up/down
- I can plot specified points and draw sides to complete a given polygon.

Statistics

- Ican interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
- I can solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

Year 4

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By the end of Year 5:

Number - number and place value

- I can read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit.
- I can count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000.
- I can interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0.
- I can round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000.
- I can solve number problems and practical problems that involve all of the above.
- I can read Roman numerals to 1,000 (M) and recognise years written in Roman numerals.

Number - addition and subtraction

- I can add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).
- I can add and subtract numbers mentally with increasingly large numbers.
- I can use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.
- I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

Number - multiplication and division

- I can identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers.
- I know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.
- I can establish whether a number up to 100 is prime and recall prime numbers up to 19
- I can multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.
- I can multiply and divide numbers mentally, drawing upon known facts.
- I can divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.
- I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000.
- I can recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3}).
- I can solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes
- solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.
- I can solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.

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Number - fractions (including decimals and percentages)
- I can compare and order fractions whose denominators are all multiples of the same number.
- I can identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths.
- I can recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5].
- I can add and subtract fractions with the same denominator, and denominators that are multiples of the same number.
- I can multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.
- I can read and write decimal numbers as fractions [for example, 0.71 = 71/100].
- I can recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.
- I can round decimals with 2 decimal places to the nearest whole number and to 1 decimal place.
- I can read, write, order and compare numbers with up to 3 decimal places.
- I can solve problems involving number up to 3 decimal places
- recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per 100'
- I can write percentages as a fraction with denominator 100, and as a decimal fraction.
- I can solve problems which require knowing percentage and decimal equivalents of 1/2 , 1/4 , 1/5 , 2/5 , 4/5 and those fractions with a denominator of a multiple of 10 or 25.

Measurement
- I can convert between different units of metric measure.
- I understand and use approximate equivalences between metric units and common imperial units.
- I can measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.
- I can calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm²) and square metres (m²), and estimate the area of irregular shapes
- estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water].
- I can solve problems involving converting between units of time
- use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.

Geometry
- I can identify 3-D shapes, including cubes and other cuboids, from 2-D representations.
- I know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.
- I can draw given angles, and measure them in degrees (°).
- Ican identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.

Statistics
- I can solve comparison, sum and difference problems using information presented in a line graph
- I can complete, read and interpret information in tables, including timetables.

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By the end of Year 6:

Number - number and place value

- I can read, write, order and compare numbers up to 10,000,000 and determine the value of each digit.
- I can round any whole number to a required degree of accuracy.
- use negative numbers in context, and calculate intervals across 0.
- I can solve number and practical problems that involve all of the above.

Number - addition, subtraction, multiplication and division

- I can multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.
- I can divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.
- I can divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate.
- I can identify common factors, common multiples and prime numbers.
- I can solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
- I can solve problems involving addition, subtraction, multiplication and division.
- I can use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Number - Fractions (including decimals and percentages)

- I can use common factors to simplify fractions; use common multiples to express fractions in the same denomination.
- I can compare and order fractions, including fractions.
- I can add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
- I can multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $1/4 \times 1/2 = 1/8$].
- I can divide proper fractions by whole numbers [for example, $1/3 \div 2 = 1/6$].
- I can associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8].
- I can identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places.
- I can multiply one-digit numbers with up to 2 decimal places by whole numbers.
- I can use written division methods in cases where the answer has up to 2 decimal places.
- I can solve problems which require answers to be rounded to specified degrees of accuracy.
- I can recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.

YEAR 6

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Ratio and proportion
- I can solve problems involving the relative sizes of 2 quantities where missing values can be found by using integer multiplication and division facts.
- I can solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison.
- I can solve problems involving similar shapes where the scale factor is known or can be found.
- I can solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.

Algebra
- I can use simple formulae.
- I can generate and describe linear number sequences.
- I can express missing number problems algebraically.
- I can find pairs of numbers that satisfy an equation with 2 unknowns.
- I can enumerate possibilities of combinations of 2 variables.

Measurement
- I can solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate.
- I can use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3 decimal places.
- I can convert between miles and kilometres.
- I can recognise that shapes with the same areas can have different perimeters and vice versa.

- I can recognise when it is possible to use formulae for area and volume of shapes.
- I can calculate the area of parallelograms and triangles.
- I can calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3].

Geometry
- I can draw 2-D shapes using given dimensions and angles
- recognise, describe and build simple 3-D shapes, including making nets.
- I can compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.
- I can illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.
- I can recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
- I can describe position on the full coordinate grid.
- I can draw, translate and reflect simple shapes on the coordinates plane.

Statistics
- I can interpret and construct pie charts and line graphs and use these to solve problems.
- I can calculate and interpret the mean as an average.