

Age-related expectations: Year Four

MATHS

Number and place value

- count in multiples of 6, 7, 9, 25 and 1000
 - find 1000 more or less than a given number
 - count backwards through zero to include negative numbers
 - recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, ones)
 - order and compare numbers beyond 1000
 - identify, represent and estimate numbers using different representations
 - round any number to the nearest 10, 100 or 1000
 - solve number and practical problems that involve all of the above and with increasingly large positive numbers
 - read Roman numerals to 100 (I to C) and know that the numeral system changed to include concept of zero and place value
- Use tenths, hundredths and thousandths when comparing values and solving addition and subtraction problems
 Relate tenths and hundredths to fractional values
 Round any number to 100,000 to the nearest 10, 100, 1000 or 10000

Addition and subtraction

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

Use multi-step problems involving more than one of the operations

Multiplication and division

- recall multiplication and division facts for multiplication tables up to 12×12 (aim for rapid recall within five seconds)
- use place value, known and derived facts to multiply and divide mentally (eg $3 \times 6 = 18$ so $30 \times 6 = 180$)
- multiply by 0 and 1; divide by 1; multiply together three numbers
- recognise and use factor pairs (eg 12×20 is the same as $12 \times 2 \times 10$) and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- divide two-digit and three-digit numbers by a one-digit number using formal written layout
- solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects

Rapidly recall answer when multiplying and dividing a whole or decimal number by 10

Solve multi-step problems involving more than one of the operations

Fractions (including decimals)

- recognise and show, using diagrams, families of common equivalent fractions
 - as a vulgar and decimal fraction: count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten
 - recognise and write decimal equivalents: any number of tenths or hundredths
 - recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$
 - solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
 - add and subtract fractions with same denominator
 - find the effect of (ie begin to do the following) multiplying and dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths (ie this means understand the concept, know vocabulary such as 'ten times smaller', and the procedure of moving digits, place holders etc)
 - round decimals with one decimal place to the nearest whole number
 - compare numbers with the same number of decimal places up to two decimal places
 - solve simple measure and money problems involving fractions and decimals to two decimal places
- Work out simple percentage values of whole numbers as is related to on-going learning in science, history and geography
 Compare and add fractions whose denominators are all multiples of the same number

Measurement

- convert between different units of measure [eg kilometre to metre; hour to minute]
 - measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres
 - find the area of rectilinear shapes by counting squares
 - estimate, compare and calculate different measures, including money in pounds and pence
 - read, write and convert time between analogue and digital 12- and 24-hour clocks
 - solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days
- Use knowledge of perimeter to work out perimeter of large areas around school using meters and centimetres
 Use a 24-hour timetable to find out times for a journey between various places

Geometry: properties of shapes

- compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes
- identify acute and obtuse angles and compare and order angles up to two right angles by size
- identify lines of symmetry in 2-D shapes presented in different orientations
- complete a simple symmetric figure with respect to a specific line of symmetry.

Geometry: position and direction

- describe positions on a 2-D grid as coordinates in the first quadrant
- describe movements between positions as translations of a given unit to the left/right and up/down
- plot specified points and draw sides to complete a given polygon

Statistics

- interpret and present discrete and continuous data using appropriate graphical methods, including bar charts, time graphs
 - solve comparison, sum and difference problems using data presented in bar charts, pictograms, tables and other graphs
- Collect own data on given project and present information in graphical formats of their choosing