

Year 3 Mathematics**Year 4 Mathematics****Number and place value**

- count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number
- recognise the place value of each digit in a three-digit number (hundreds, tens, ones)
- compare and order numbers up to 1000
- identify, represent and estimate numbers using different representations
- read and write numbers up to 1000 in numerals and in words
- solve number problems and practical problems involving these ideas.

Addition and subtraction

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

Multiplication and division

- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
- solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects.

Fractions

- count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
- recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators
- recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
- recognise and show, using diagrams, equivalent fractions with small denominators
- add and subtract fractions with the same denominator within one whole (e.g. $5/7 + 1/7 = 6/7$)
- compare and order unit fractions, and fractions with the same denominators
- solve problems that involve all of the above.

MEASUREMENT

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

Number and place value

- count in multiples of 6, 7, 9, 25, 100 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, and 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 over time, the numeral system changed to include the concept of zero and place value.

Addition and subtraction

- add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and 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.
- Add or subtract 10, 100 or 100 to / from whole numbers and count on or back in tens, hundreds or thousands from any whole numbers up to 10,000

Multiplication and division

- recall multiplication and division facts for multiplication tables up to 12×12
- use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
- recognise and use factor pairs and commutativity in mental calculations
- multiply 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 e digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

Fractions (including decimals)

- recognise and show, using diagrams, families of common equivalent fractions
- count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten.
- 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 the same denominator
- recognise and write decimal equivalents of any number of tenths or hundredths
- recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$,
- find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths
- 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.

MEASUREMENT

- Convert between different units of measure (e.g. 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.

Year 3 Mathematics**Year 4 Mathematics****GEOMETRY Properties of shapes**

- draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
- recognise that angles are a property of shape or a description of a turn
- identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle
- identify horizontal and vertical lines and pairs of perpendicular and parallel lines.

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.

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 data using bar charts, pictograms and tables
- solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables.

STATISTICS

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

Mental Calculations

- Derive quickly doubles of multiples of 5 from $5 + 5$ to $100 + 100$
- Identify near doubles for numbers less than 20
- Add mentally three or more small numbers within the range 1 to 50
- Add several numbers by finding pairs that total 10
- Recognise that when two 3 digit numbers are close together it is easier to find a difference by counting up not counting back
- Say or write the subtraction facts corresponding to a given addition fact, and vice versa
- Add and subtract combinations of 1 digit and 2 digit numbers
- Respond rapidly to oral and written questions phrased in a variety of ways.

Mental Calculations

- Count on/ back in repeated steps of 10, 100 or 1000
- Find the difference by counting up through the next multiple of 10, 100 or 1000
- Add and subtract the nearest multiple of 10, 100 or 1000 and adjust
- Identify near doubles
- Add 2 digit multiples of 10
- Add or subtract mentally by partitioning, adding / subtracting tens first
- Use number facts and place value to add/ subtract mentally any pairs of 2 digit whole numbers
- Derive sums and differences of pairs of multiples of 10, 100 or 1000
- Respond rapidly to oral or written questions explaining the strategy used.
- Use the relationship between addition and subtraction
- Recall squares of integers from 1 to 12

Problem Solving

- Is able to check possible solutions against all given criteria
- Is able to describe the rule of a pattern or relationship in own words or pictures.
- Is able to test predicted terms to see if a possible rule works.
- Is able to find a stated term in the sequence
- All possible solutions will be listed in a systematic way
- Is able to decide when all possibilities have been listed

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