

# Reasoning

Fluency

Arithmetical Proficiency



Mathematical Habits

Mathematical Mindsets

# Solving Problems



# Reasoning

## Year 2

Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward

Recognise the place value of each digit in a two-digit number (tens, ones)

Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures, applying their increasing knowledge of mental and written methods

Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.

Identify, represent and estimate numbers using different representations, including the number line

Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.

Add and subtract numbers using concrete objects, pictorial representations, and mentally, including a two-digit number and ones, a two-digit number and tens, two two-digit numbers adding three one-digit numbers

Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication division and equals signs

Compare and order numbers from 0 up to 100; use  $<$ ,  $>$  and  $=$  signs

Use place value and number facts to solve problems.

Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.

Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.

Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

Read and write numbers to at least 100 in numerals and in words

Recognise, find, name and write fractions  $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{2}{4}$  and  $\frac{3}{4}$  of a length, shape, set of objects or quantity.

Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ( $^{\circ}$ C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.

Interpret and construct simple pictograms, tally charts, block diagrams and simple tables

Write simple fractions e.g.  $\frac{1}{2}$  of 6 = 3 and recognise the equivalence of two quarters and one half.

Compare and order lengths, mass, volume/capacity and record the results using  $>$ ,  $<$  and  $=$

Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.

Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity

Identify 2-D shapes on the surface of 3-D shapes (for example a circle on a cylinder and a triangle on a pyramid)

Find different combinations of coins that equal the same amounts of money.

Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.

Ask and answer questions about totalling and comparing categorical data.

Order and arrange combinations of mathematical objects in patterns and sequences

Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line.

Compare and sequence intervals of time.

Tell and write the time to five minutes past/to the hour and draw the hands on a clock face to show these times.

Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and in terms of right angles for quarter, half and three-quarter turns.

Compare and sort common 2-D and 3-D shapes and everyday objects.

Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.

Know the number of minutes in an hour and the number of hours in a day.

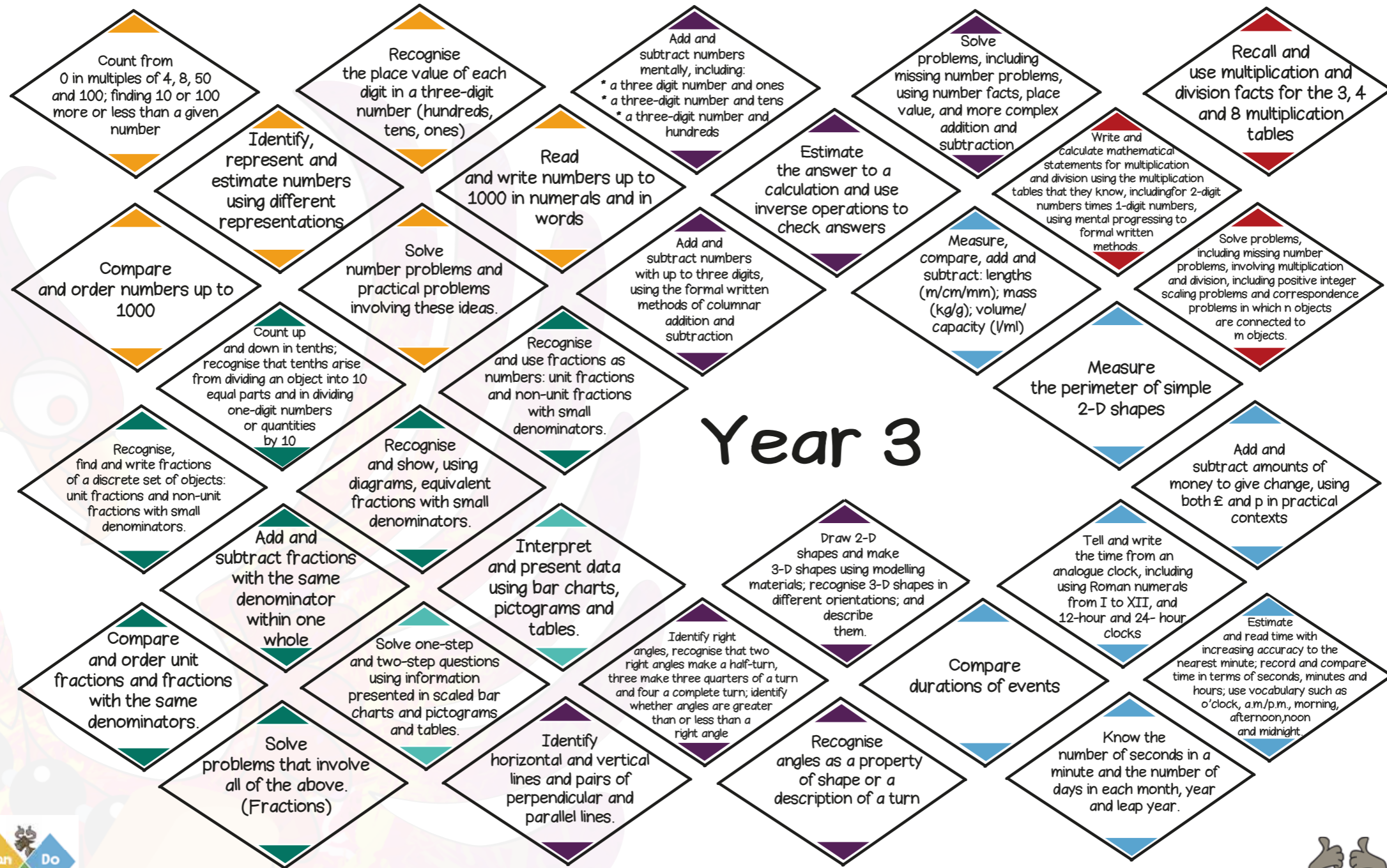


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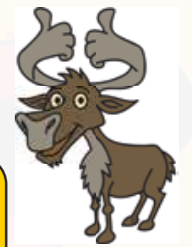
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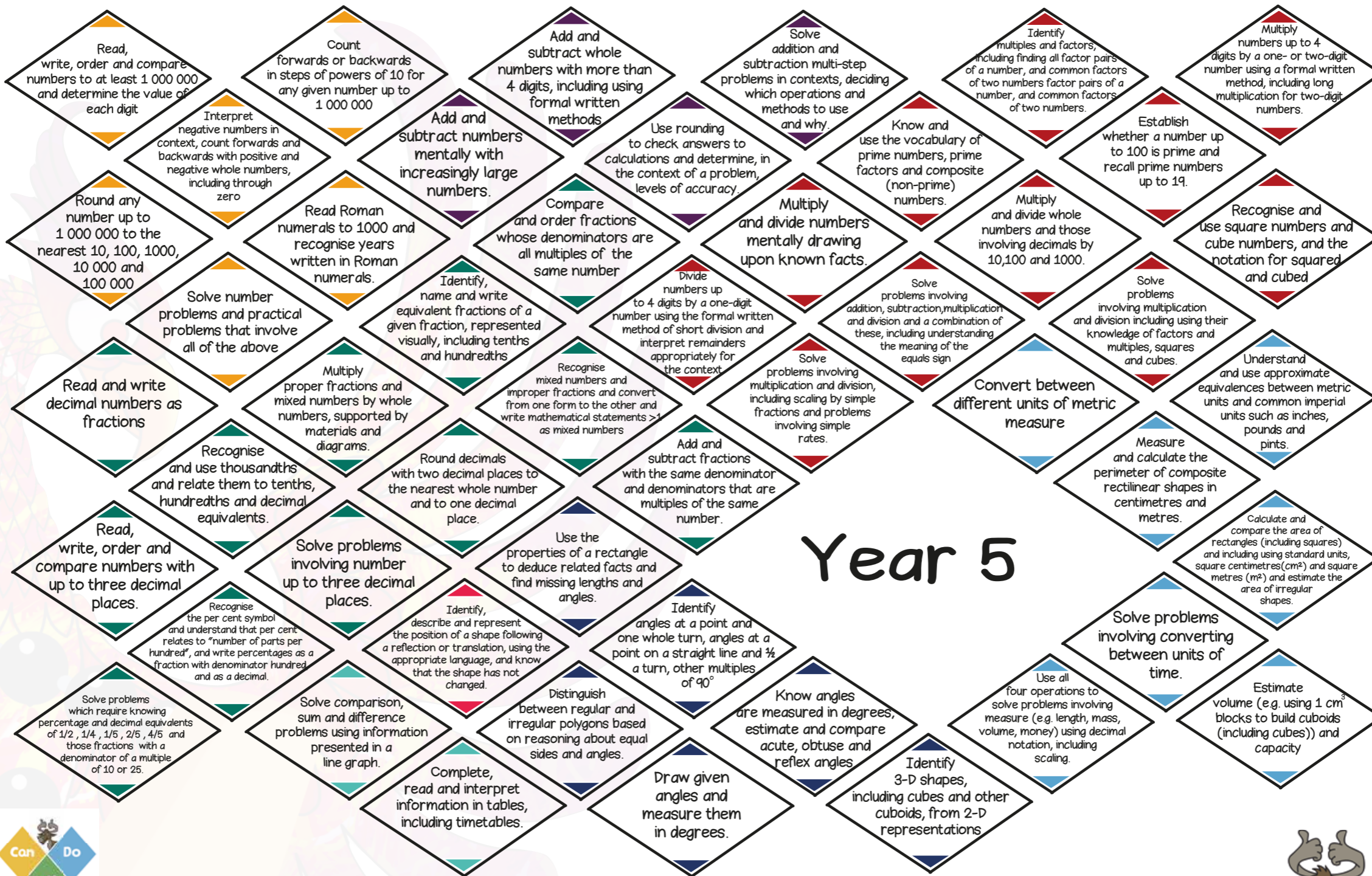


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## Year 6

# Solving Problems

