

Unit 7 Decimals



In this unit we will ...

- ⚡ Recognise the value of each digit in a decimal number
- ⚡ Multiply and divide decimals by 10, 100 and 1,000
- ⚡ Convert between fractions and decimals
- ⚡ Multiply and divide decimals by single digit numbers

Do you remember using place value grids?

H	T	O	.	Tth	Hth	Thth
			.			



KEY LANGUAGE

There is some key language that children will need to know as part of the learning in this unit.

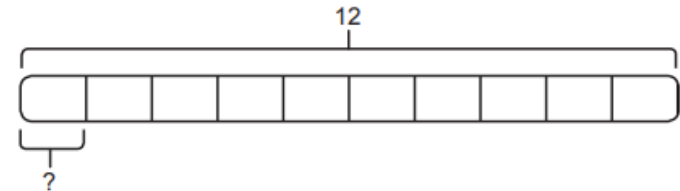
- multiply (\times), divide (\div)
- decimal
- placeholder
- place value, tenths, hundredths, thousandths
- factor, multiple, product
- group, share
- numerator, denominator
- convert, simplify, equivalent
- divisor, dividend, quotient, remainder

STRUCTURES AND REPRESENTATIONS

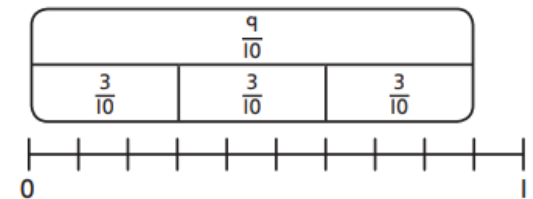
Place value grid: This model can be used with counters or digits to demonstrate the value of each digit and to show exchanges taking place between columns.

T	O	.	Tth	Hth	T	O	.	Tth	Hth
		.	●	●●●●●			.	1	5
T	O	.	Tth	Hth	T	O	.	Tth	Hth
	●	.	●●●●●			1	.	5	

Bar model: This model can be used to visually represent division calculations. It can also be used with a number line to represent equivalence.



Number line: This model can be used to represent multiplication as repeated addition. It can also be used with a bar model to represent equivalence.



Short division: This model can be used to represent a fraction as division and to express a remainder as a decimal.

$$\begin{array}{r}
 0.375 \\
 8 \overline{) 3.060} \\
 \underline{3 0} \\
 6 \\
 \underline{6 0} \\
 0 \\
 \underline{0 0} \\
 0
 \end{array}$$

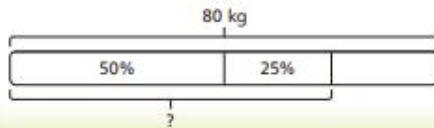
Unit 8 Percentages



In this unit we will ...

- ✦ Develop a deeper understanding of percentages as parts of 100
- ✦ Understand a range of methods to work out percentages
- ✦ Find 1% and multiples of 1%
- ✦ Work out missing values, such as 30% of ? = 60
- ✦ Convert, order and solve problems involving fractions, percentages and decimals

Do you remember what this model is called?
It can be used to represent percentages of amounts and to solve problems.



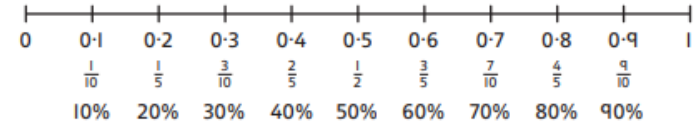
KEY LANGUAGE

There is some key language that children will need to know as part of the learning in this unit.

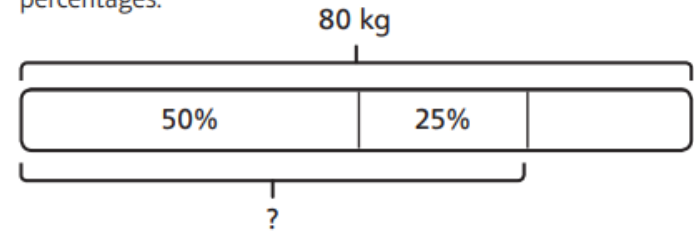
- per cent (%), percentage
- parts, whole
- decimal
- fraction, equivalent fraction, tenth, hundredth, half, quarter
- less than (<), greater than (>)
- divide (÷), share, multiply (×)
- convert, compare, order, simplify

STRUCTURES AND REPRESENTATIONS

Number line: This model helps children to visualise the order of numbers. In this unit, it will help children to understand and order decimals, fractions and percentages, and to find equivalent values.



Bar model: This is a powerful representation that allows children to organise information visually. It helps children to find the fraction, decimal or percentage left over in problem-solving questions. It is also used to find the total, or the difference between amounts, in fractions, decimals or percentages.



Place value grid: This provides a structured representation of the place value of the digits in numbers.

	Th	H	T	O
Whole amount		5	0	0
$\frac{1}{100}$ of the amount				5

Unit 9 Algebra



In this unit we will ...

- ✦ Find and write algebraic rules
- ✦ Write algebraic expressions
- ✦ Write algebraic formulae
- ✦ Write and solve algebraic equations
- ✦ Solve equations that have lots of solutions

Do you remember what this model is called? We will use it to represent different equations. Can you predict what equation is being represented here?

36	x
42	



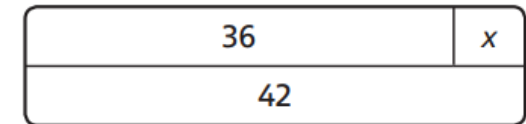
KEY LANGUAGE

There is some key language that children will need to know as part of the learning in this unit.

- pattern, growing pattern
- sequence
- rule
- term
- algebra, algebraic
- expression
- formula, formulae
- substitute
- generalise
- operation
- calculation, calculate
- equation
- inverse
- solution
- represent
- value

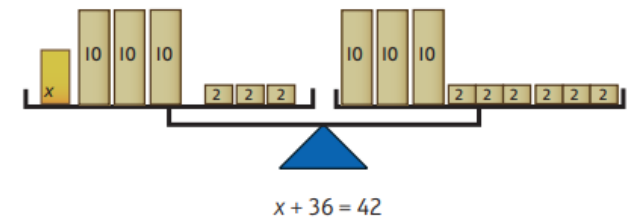
STRUCTURES AND REPRESENTATIONS

Bar model: The bar model is used in this unit to represent the different algebraic expressions, formulae and equations that children will meet and solve.

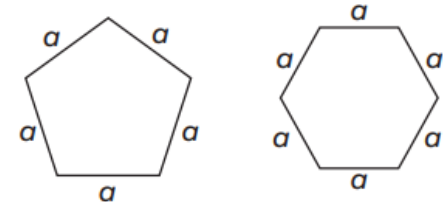


$$x + 36 = 42$$

Balance model: The balance model is used in this unit to help children visualise the concept of keeping an equation balanced, while trying to find an unknown number.



2D shapes: 2D shapes are used in this unit to provide a context for the formulae children will create.



Tables: Tables are used in this unit to help children formulate and organise the different solutions to an equation they are working on.

Unit 10 Measure – imperial and metric measures



In this unit we will ...

- Choose the most appropriate metric units of measurement to measure different things
- Convert between metric units, between imperial units and from one to the other
- Solve problems involving metric units
- Recognise the difference between metric and imperial units of measurement and what they are worth

What is 1 inch about the same as?
What are 5 inches about the same as?

5 inches

1 inch	1 inch	1 inch	1 inch	1 inch
2.5 cm	2.5 cm	2.5 cm	2.5 cm	2.5 cm



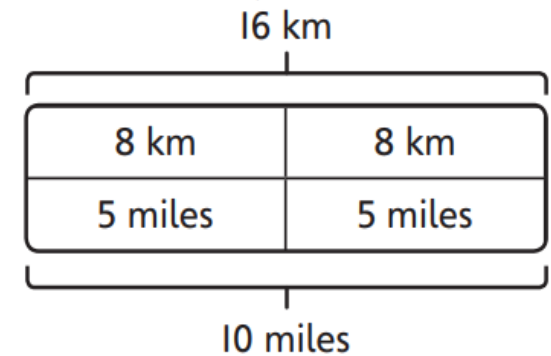
KEY LANGUAGE

There is some key language that children will need to know as part of the learning in this unit.

- ➔ units (of measure/ment), metric, imperial, length, mass, volume, capacity, distance
- ➔ measure, convert, equal, equivalent, approximate, smaller (unit), larger (unit), for every, ratio
- ➔ millimetres (mm), centimetres (cm), metres (m), kilometres (km), grams (g), kilograms (kg), millilitres (ml), litres (l)
- ➔ inches (in), feet (ft), ounces (oz), pounds (lbs), pints, miles, gallons, yards
- ➔ digits, decimal
- ➔ conversion table, conversion graph.

STRUCTURES AND REPRESENTATIONS

Bar model: This model provides a useful way of visualising the equivalence between two units of measure as they are converted (where each individual bar representing a value in one unit is shown as equal to a bar representing the equivalent value in another unit).



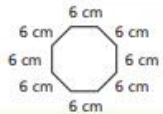
Unit II Measure – perimeter, area and volume



In this unit we will ...

- ✦ Find and draw shapes with the same area or perimeter
- ✦ Explore how the perimeter changes when the area changes and vice versa
- ✦ Calculate the area of parallelograms and triangles
- ✦ Calculate and estimate the volume of cubes and cuboids

The regular octagon and regular hexagon have the same perimeter. What is the length of one side of the hexagon?



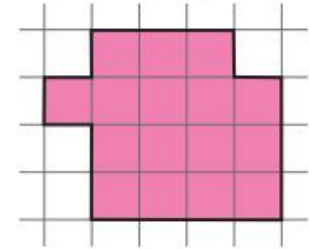
KEY LANGUAGE

There is some key language that children will need to know as part of the learning in this unit.

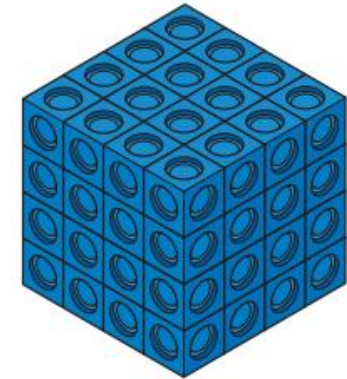
- perimeter, distance, area, space, volume
- centimetres (cm), metres (m), square centimetres (cm²), square metres (m²), cubic centimetres (cm³), cubic metres (m³)
- rectangle, square, triangle, rectilinear shape, sides, length, width, parallelogram, cube, cuboid
- measure, combine, total, double, estimate.

STRUCTURES AND REPRESENTATIONS

2D rectilinear shapes represented on squared grids: This model allows children to count the side lengths of a shape and the number of squares that fit inside a shape.



3D shapes made of 1 cm cubes: This model allows children to count the number of cubic centimetres in a solid shape.



Unit 12

Ratio and proportion



In this unit we will ...

- ⚡ Calculate ratios
- ⚡ Use ratios to work out amounts
- ⚡ Enlarge shapes by a scale factor
- ⚡ Identify similar shapes
- ⚡ Solve problems involving ratio

We will use bar models to represent ratio problems. For every 1 slice of carrot cake there are 4 slices of lemon cake. If there are 20 slices in total, how many slices are carrot?



KEY LANGUAGE

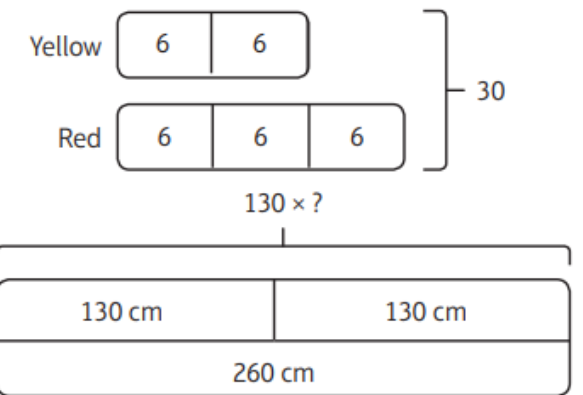
There is some key language that children will need to know as part of the learning in this unit.

- ratio, ratio notation, 1 : 2
- proportion
- part, whole, total
- group
- fraction
- unequal, equal
- simplest form, simplify
- for every x there are y
- similar
- enlarge, enlargement
- scale, map scale, scale factor

STRUCTURES AND REPRESENTATIONS

Counters: Use counters, in two different colours, to help children represent ratio problems practically.

Bar models: Bar models are used to represent problems visually, helping children to work out the value of 1 part of a ratio or the scale factor of an enlargement.



Number lines: Number lines are used to help children understand map scales.

