

# Unit 7

## Multiplication and division 2



In this unit we will ...

- ✦ Multiply a number up to 4 digits by a 1- or 2-digit number
- ✦ Divide a number up to 4 digits by a 1-digit number
- ✦ Interpret remainders
- ✦ Solve problems involving multiplication, division and remainders

How can you use the grid method to work out  $17 \times 4$ ?

10	7	
$10 \times 4 = 40$	$7 \times 4 = 28$	
		T O
		4 0
		+ 2 8
		6 8



### KEY LANGUAGE

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

- total, sum, remainder
- place value, partition
- multiply, divide, add, subtract
- factor, multiple

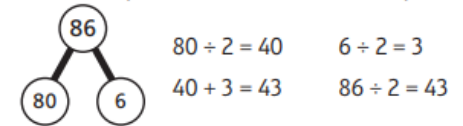
### STRUCTURES AND REPRESENTATIONS

**Area model or grid method:** These allow children to partition numbers in order to multiply by 2-digit numbers.

	30	2	
10	$30 \times 10 = 300$	$2 \times 10 = 20$	
7	$30 \times 7 = 210$	$2 \times 7 = 14$	
			H T O
			3 0 0
			2 1 0
			2 0
			+ 1 4
			5 4 4

$32 \times 17 = 544$

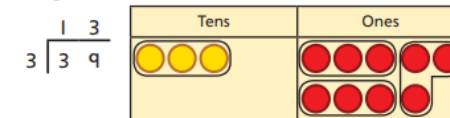
**Part-whole models:** These allow children to see how numbers can be partitioned in order to complete divisions.



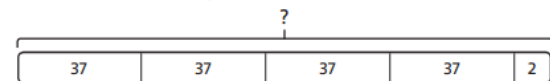
**Column method of short and long multiplication:** This allows children to multiply efficiently.

$74$	$4 \times 8 = 32$	$34$
$\times \quad 8$	$70 \times 8 = 560$	$\times \quad 27$
$592$		$238$
		$34 \times 7$
		$680$
		$34 \times 20$
		$918$
		$34 \times 27$

**Short division:** This allows children to divide efficiently by a 1-digit number.



**Bar model:** This allows children to translate problems into calculations and interpret remainders.



# Unit 8

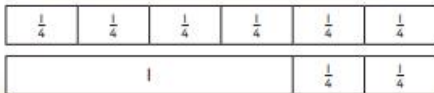
## Fractions 1



In this unit we will ...

- ⚡ Find and use equivalent fractions
- ⚡ Convert between improper fractions and mixed numbers
- ⚡ Compare and order fractions
- ⚡ Understand fractions as division
- ⚡ Use fractions to show remainders

Do you remember what this model is called? We will use it to represent mixed numbers and improper fractions. Can you tell which is which?



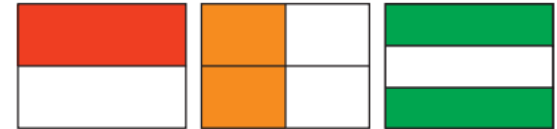
### KEY LANGUAGE

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

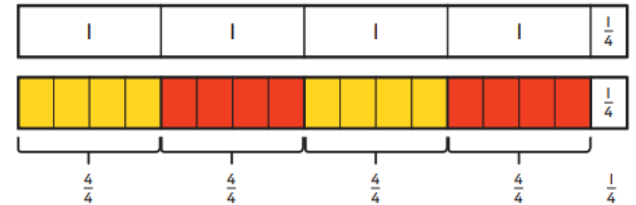
- equivalent
- numerator, denominator
- whole, fraction
- simplify, expand
- multiply ( $\times$ ), divide ( $\div$ ), multiplication, division, multiple, factor
- remainder
- improper, mixed number
- convert
- greater than ( $>$ ), less than ( $<$ ), equal to ( $=$ )
- divisor, dividend, quotient

### STRUCTURES AND REPRESENTATIONS

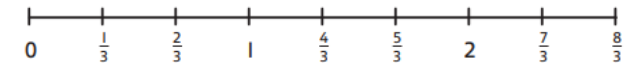
**Shape fractions:** Shape fractions are used in this unit to show fractions pictorially. Different shapes are shared equally into different fractions to reinforce children's conceptual understanding.



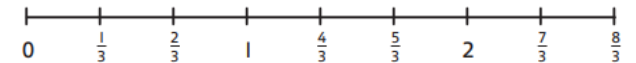
**Fraction strip:** Fraction strips are used in this unit to show fractions in a pictorial way more formally.



**Number line:** Number lines are used in this unit to represent number sequences.



**Number line:** Number lines are used in this unit to represent number sequences.



**Fraction cards:** Fraction cards are used to represent fractions in the problems and puzzles children will solve in this unit. They are also used to help children compare and order fractions.



# Unit 9 Fractions 2

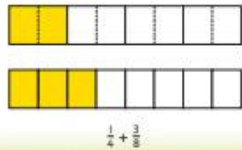
Rectangular Strip



In this unit we will ...

- Add and subtract fractions with the same denominator
- Add and subtract fractions, including mixed numbers, where one denominator is a multiple of the other
- Solve word problems involving fractions

How can you add these two fractions?



## KEY LANGUAGE

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

- ➔ fraction, whole, part, equal parts, equivalent
- ➔ add, sum, total, subtract, difference
- ➔ divide, multiply, multiple
- ➔ numerator, denominator, common denominator
- ➔ simplify, convert
- ➔ proper fraction, improper fraction, mixed number
- ➔ method, multi-step, efficient

## STRUCTURES AND REPRESENTATIONS

**Fraction shapes:** Shapes divided into equal parts can represent fractions, show equivalence and support the addition and subtraction of proper fractions, improper fractions and mixed numbers.



$$\frac{3}{5} \text{ is equivalent to } \frac{6}{10}$$

$$\frac{3}{5} = \frac{6}{10}$$

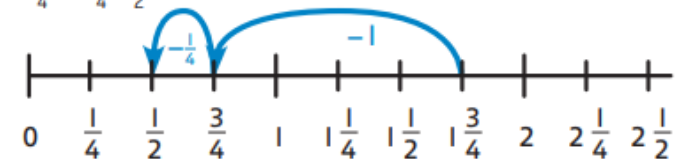
**Fraction strips:** These models represent proper fractions, improper fractions and mixed numbers. They can demonstrate operations involving fractions and support conversion between improper fractions and mixed numbers. Fraction strips can also be used with a number line.

$$\frac{1}{3} + \frac{7}{12} = \frac{4}{12} + \frac{7}{12}$$



**Number lines:** These models support children to convert between improper fractions and mixed numbers and can represent addition and subtraction.

$$1\frac{3}{4} - 1\frac{1}{4} = \frac{1}{2}$$



# Unit 10

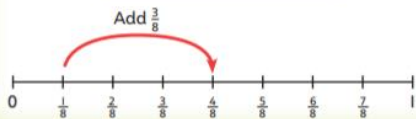
## Fractions 2



In this unit we will ...

- ⚡ Find equivalent fractions
- ⚡ Compare fractions
- ⚡ Add and subtract fractions
- ⚡ Solve word problems about fractions and finding fractions of an amount

Do you remember what this is called? Use it to find what fraction is  $\frac{3}{8}$  more than  $\frac{1}{8}$ .



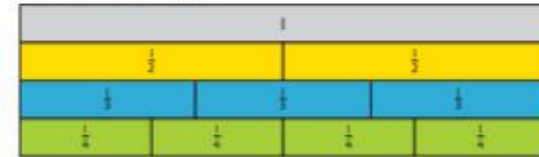
### KEY LANGUAGE

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

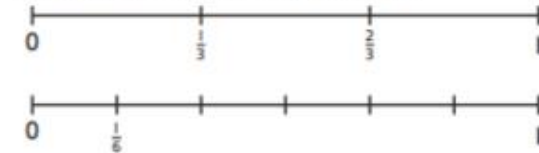
- ➔ part, whole, equal parts, unit fraction, non-unit fraction, denominator, numerator, equivalent fraction
- ➔ partition, split, share, count on, count back, compare, measure, calculate, method
- ➔ whole number, add, subtract, difference, multiply, divide, equal to, greater than (>), less than (<)

### STRUCTURES AND REPRESENTATIONS

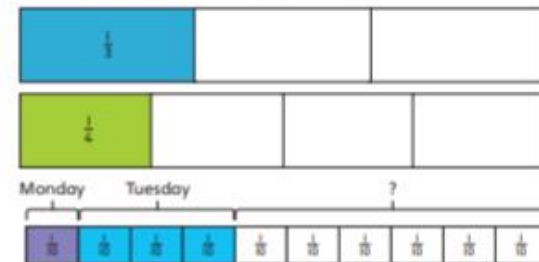
**Fraction wall:** This representation is crucial to allow children to find equivalent fractions. If children become confident using the fraction wall, it will increase their conceptual understanding of fractions. It can be used by itself or with a number line to compare fractions with different denominators.



**Number line:** This model helps children to understand fractions as numbers. Positioning fractions on a number line will require a secure understanding of the role of the numerator and denominator within a fraction.



**Fraction strip:** This is a powerful representation that allows children to organise the information they are given visually, and understand how it should be manipulated in order to find the solution to a problem. It can be used alone, or with a number line to enhance understanding.



# Unit 11

## Decimals and percentages



In this unit we will ...

- ⚡ Read and write decimals up to three decimal places, including numbers greater than 1
- ⚡ Round decimals to nearest whole number and to one decimal place
- ⚡ Order and compare decimal numbers up to three decimal places
- ⚡ Write percentages as fractions and as decimals.

Do you remember what this is called? We use it to understand the place value of digits in a number. How would you place 0.034 into the grid?

0	.	Tth	Hth	Thths
	.			



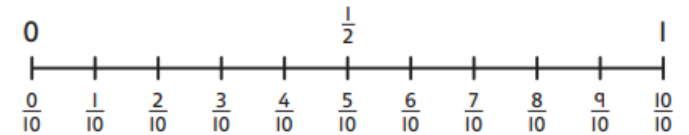
### KEY LANGUAGE

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

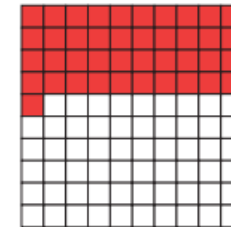
- decimal place
- tenths
- hundredths
- thousandths
- decimal point
- place value
- digits
- fractions
- per cent (%)
- rounding
- improper fractions
- mixed numbers
- convert
- exchange

### STRUCTURES AND REPRESENTATIONS

**Number line:** Number lines help to represent equivalent decimals, fractions and percentages. They also provide a very visual way to see how to order numbers and how to round numbers to the nearest whole number or to one decimal place.



**Hundredths grid:** Hundredths grids are particularly useful for explaining parts out of 100. They are very effective for showing percentages and equivalent fractions.



**Place value grid:** Place value grids are used to show the value of each digit in a number very clearly.

0	.	Tth	Hth
2	.	3	0