

# Division Workshop

Friday 3rd December

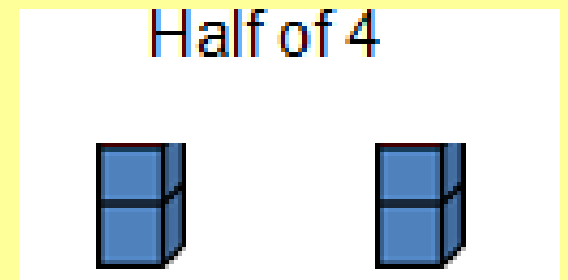
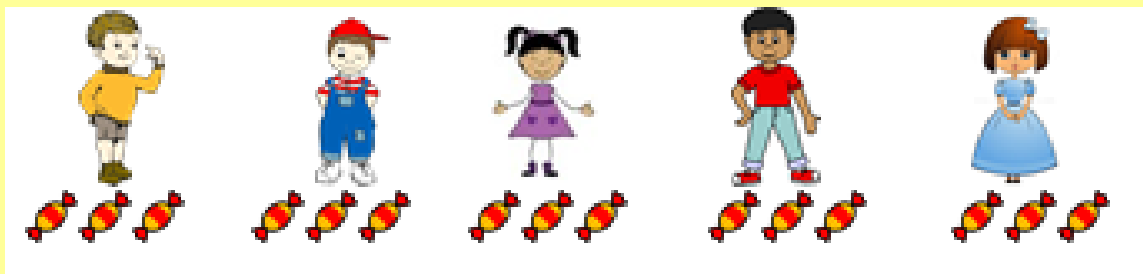
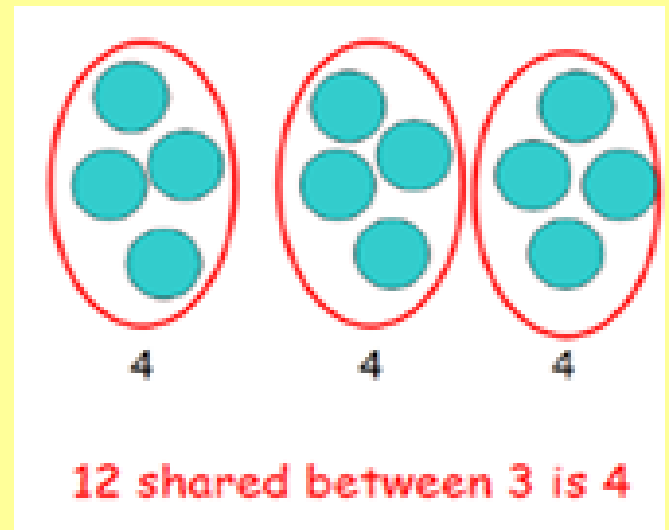
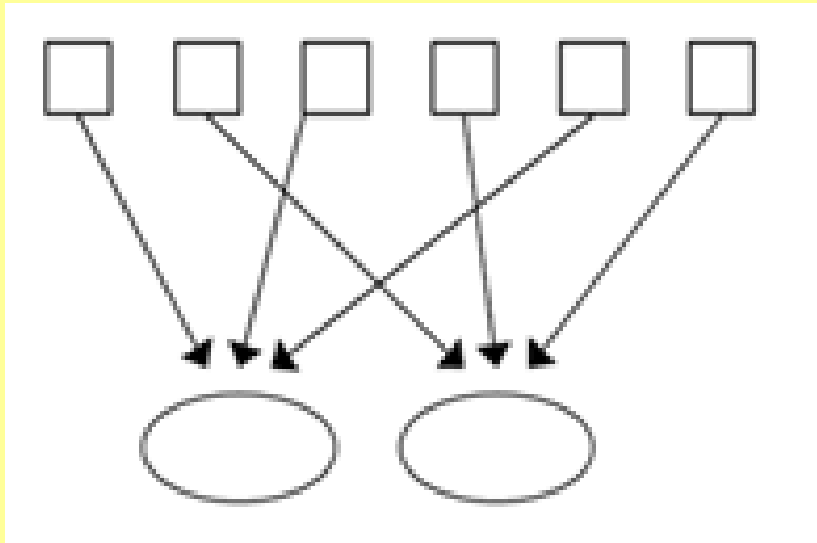
# Year 1

## National Curriculum

- Solve one-step problems involving division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

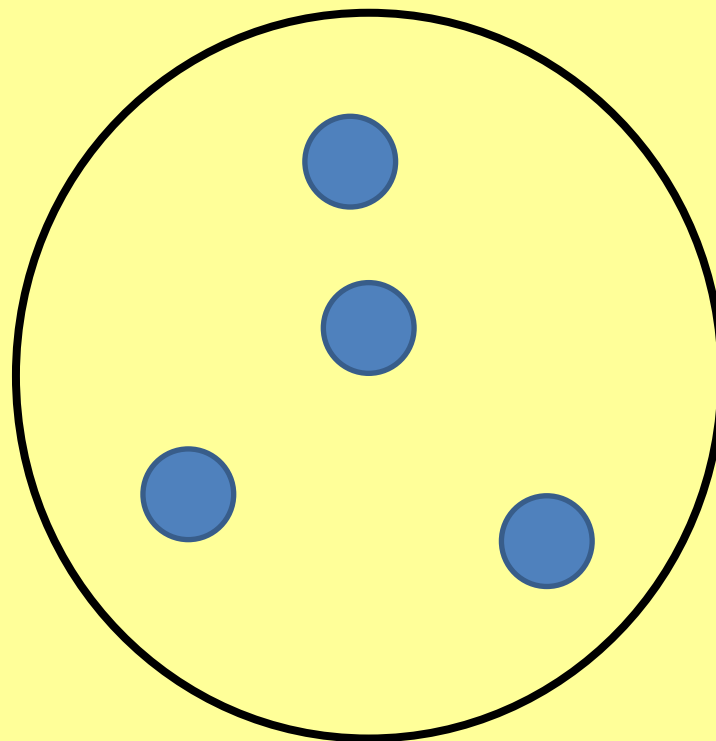
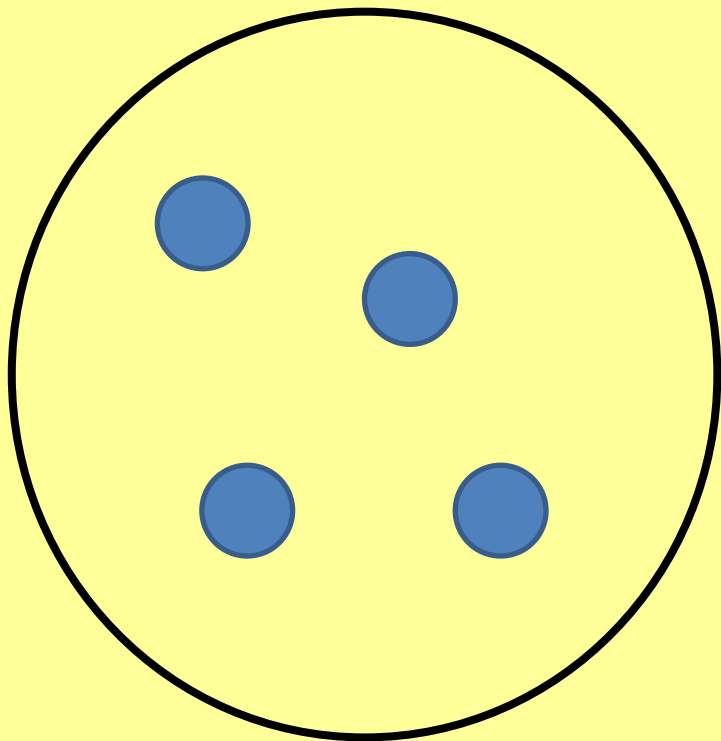
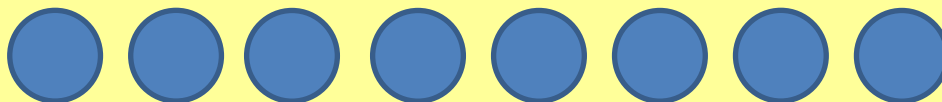
# Year 1

- Practical division as sharing. Focussing on sharing equally.
- Halving even numbers up to 10.



# Sharing

$8 \div 2 =$

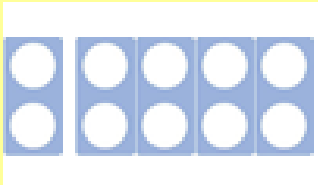
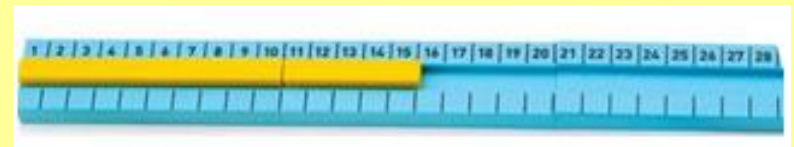
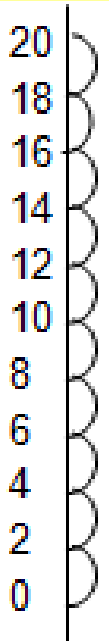


# Year 2

- Recall and use division facts for the 2, 5 and 10 times tables.
- Calculate mathematical statements for division within the 2, 5 and 10 times tables.
- Use ' $\div$ ' and '=' to represent multiplication calculations.
- Understand that division of 1 number by another cannot be done in any order.
- Solve problems involving division using materials, arrays, repeated addition, mental methods and multiplication facts, including problems in context.

# Year 2

- Recall and use division facts for 2, 5 and 10.
- Continue to use division as sharing.
- Division as grouping.
- Practical activities and meaningful contexts using concrete objects, pictorial representations and arrays.
- Understand ' $\div$ ' as 'half of'.
- Recognise the relationship between ' $\times$ ' and ' $\div$ '.
- Repeated subtraction on number lines.



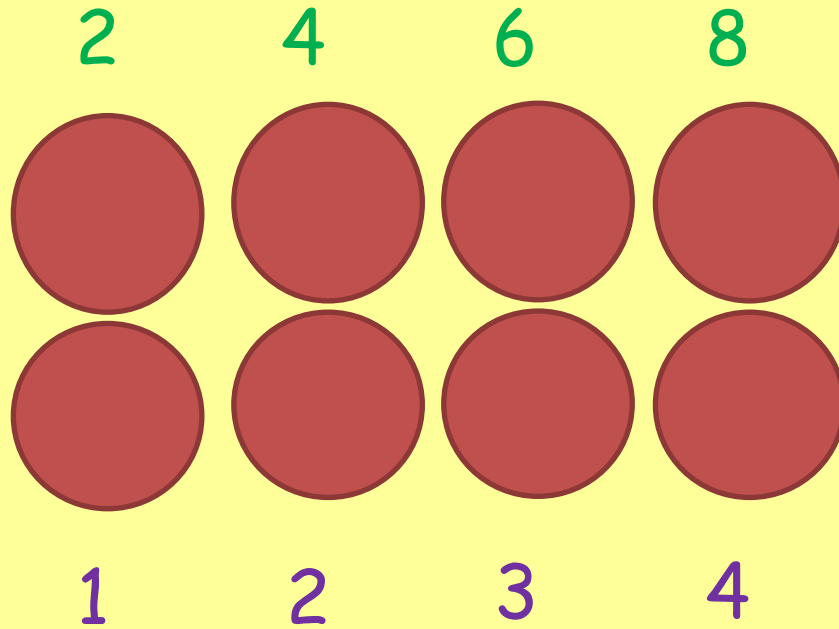
How many 2's in 10?



# Grouping

$$8 \div 2 =$$

How many 2s in 8?



# Year 3

- Recall and use division facts for the 3, 4 and 8 times tables.
- Calculate using the division facts that they know.
- Divide 2 digit numbers and 1 digit numbers.
- Move from mental calculations to formal written methods.
- Solve problems, including missing number problems,



# Year 3

- Recall and use division facts for the 3, 4 and 8 tables.
- Continue with repeated subtraction on vertical number lines.
- Write and calculate mathematical statements for the division tables

they know.

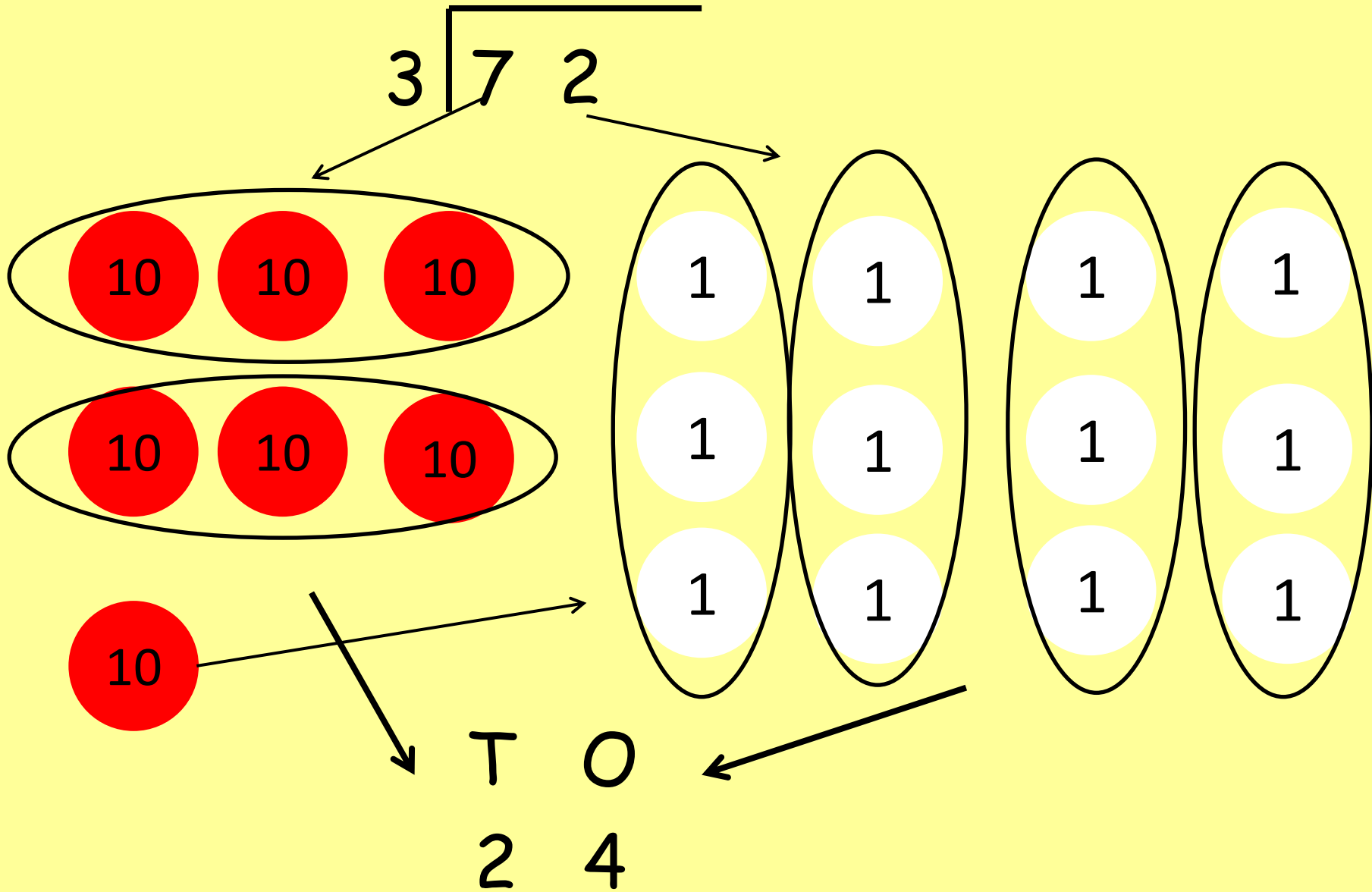
- Introduce grouping method before short division.
- Short division with exact answers.
- Short division involving carrying with exact answers.

$$\begin{array}{r} \underline{13} \\ 5 \overline{) 65} \\ \underline{- 50} \quad (5 \times 10) \\ 15 \\ \underline{- 15} \quad (5 \times 3) \\ 0 \end{array}$$

A handwritten short division problem on a grid background. The divisor is 3, the dividend is 96, and the quotient is 32. The division is shown as 3 into 96 equals 32.

$$\begin{array}{r} 32 \\ 3 \overline{) 96} \end{array}$$

$$72 \div 3 =$$



Have a go!

$$96 \div 4 =$$

$$54 \div 3 =$$

$$84 \div 6 =$$

$$76 \div 4 =$$

$$72 \div 3 =$$

$$\begin{array}{r} 24 \\ 3 \overline{) 72} \\ - 60 \\ \hline 12 \\ - 12 \\ \hline 00 \end{array}$$

$(3 \times 20)$

$(3 \times 4)$

Have a go!

$$96 \div 4 =$$

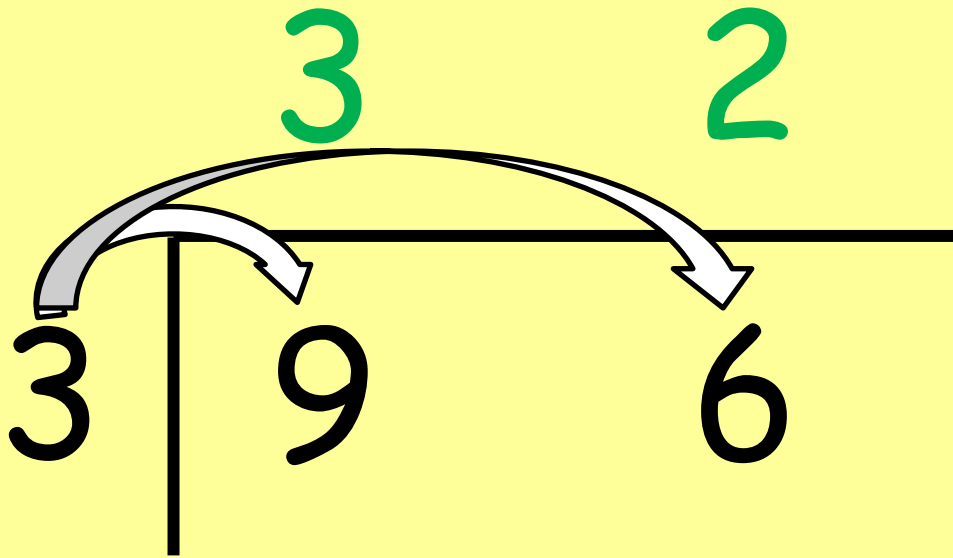
$$54 \div 3 =$$

$$84 \div 6 =$$

$$76 \div 4 =$$

# Short Division

$$96 \div 3 =$$



How many  
3s in 9?

How many  
3s in 6?

# Have a go!

$$84 \div 4 =$$

$$96 \div 3 =$$

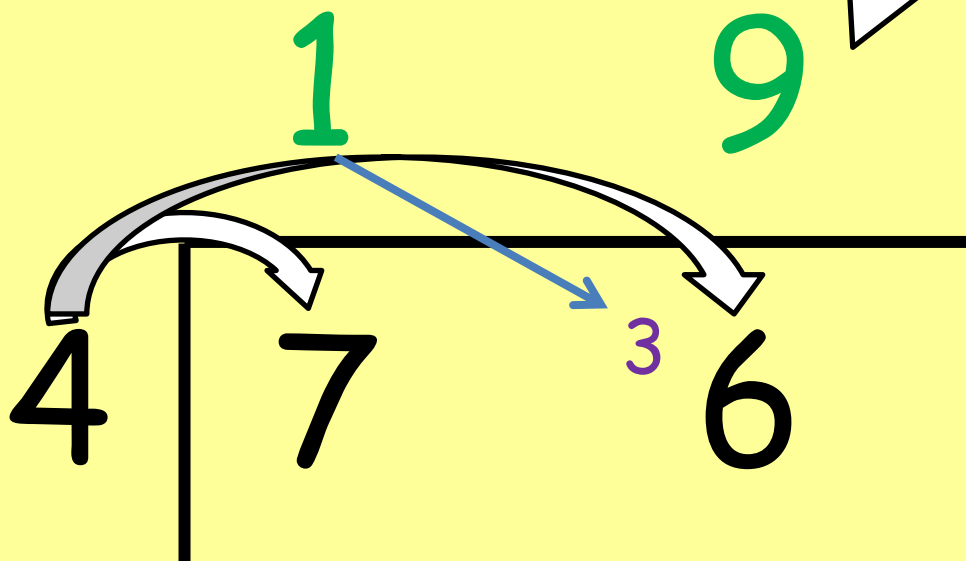
$$66 \div 3 =$$

$$48 \div 4 =$$

$$55 \div 5 =$$

# Short Division

$$76 \div 4 =$$



How many  
4s in 7?

How many  
4s in 36?



Have a go!

$$52 \div 4 =$$

$$75 \div 3 =$$

$$87 \div 3 =$$

$$92 \div 4 =$$

$$78 \div 6 =$$

# Year 4

- Recall and use division facts for multiplication tables up to  $12 \times 12$
- Use place value, known and derived facts to divide mentally, including dividing by 1.
- Recognise and use factor pairs.
- Solve problems involving division.

# Year 4

- Recall and use all division facts for all tables up to  $12 \times 12$ .
- Continue using the short division method with exact answers.
- Progress to short division with remainders.

$$\begin{array}{r} 18 \\ 4 \overline{) 732} \end{array}$$
$$\begin{array}{r} 037 \\ 5 \overline{) 185} \end{array}$$
$$\begin{array}{r} 218 \\ 4 \overline{) 872} \end{array}$$

$$\begin{array}{r} 204 \\ 4 \overline{) 816} \end{array}$$

$$\begin{array}{r} 141 \text{ r}1 \\ 3 \overline{) 424} \end{array}$$

# Year 5

- Identify multiples and factors.
- Identify prime numbers to 100 and recall prime numbers to 19.
- Divide numbers mentally using known facts.
- Divide whole numbers and decimal numbers by 10, 100 and 1000.
- Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately in context.

# Year 5

- Consolidate the use of the formal written method of short division.

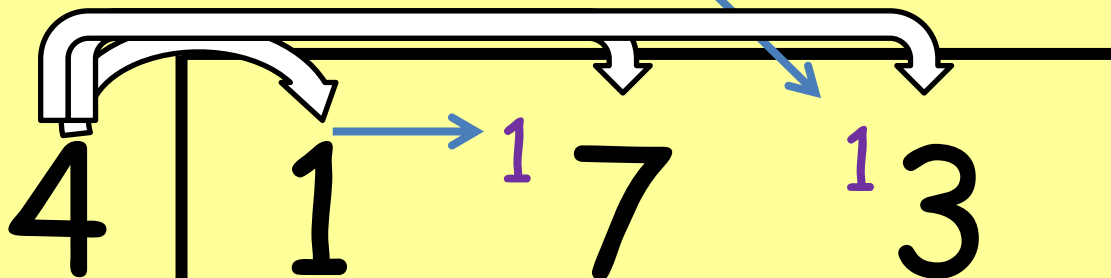
A handwritten short division problem is shown on a blue grid background. The divisor is 8, written to the left of the dividend. The dividend is 53509, with a horizontal line above it. The quotient is 663, written above the line, and the remainder is 5, written to the right of the line. The numbers are written in a cursive style.

$$\begin{array}{r} 663 \text{ r } 5 \\ 8 \overline{) 53509} \end{array}$$

# Short Division

$$173 \div 4 =$$

0 4 3 .25



3 remainder  
1

Remainder

$$1 \rightarrow \frac{1}{4}$$
$$\frac{1}{4} = 0.25$$

# Have a go!

$$153 \div 4 =$$

$$3178 \div 5 =$$

$$337 \div 5 =$$

$$5233 \div 8 =$$

$$357 \div 6 =$$

$$1407 \div 4 =$$

$$1/5 = 0.2$$

$$2/5 = 0.4$$

$$3/5 = 0.6$$

$$4/5 = 0.8$$

$$1/8 = 0.125$$

$$\frac{1}{4} = 0.25$$

$$\frac{3}{4} = 0.75$$

$$\frac{1}{2} = 0.5$$

# Year 6

- Multiply multi-digit numbers up to 4 digits by a two digit whole number using formal written methods.
- Mental calculations, including mixed operations and large numbers.
- Identify common factors, common multiples and prime numbers.



# Year 6

- Consolidate short division.

$98 \div 7$ becomes $\begin{array}{r} 14 \\ 7 \overline{) 98} \\ \underline{7 \phantom{0}} \\ 28 \\ \underline{28} \\ 0 \end{array}$ Answer: 14	$432 \div 5$ becomes $\begin{array}{r} 86 \text{ r}2 \\ 5 \overline{) 432} \\ \underline{40 \phantom{0}} \\ 32 \\ \underline{30} \\ 2 \end{array}$ Answer: 86 remainder 2	$496 \div 11$ becomes $\begin{array}{r} 45 \text{ r}1 \\ 11 \overline{) 496} \\ \underline{44 \phantom{0}} \\ 56 \\ \underline{55} \\ 1 \end{array}$ Answer: $45 \frac{1}{11}$
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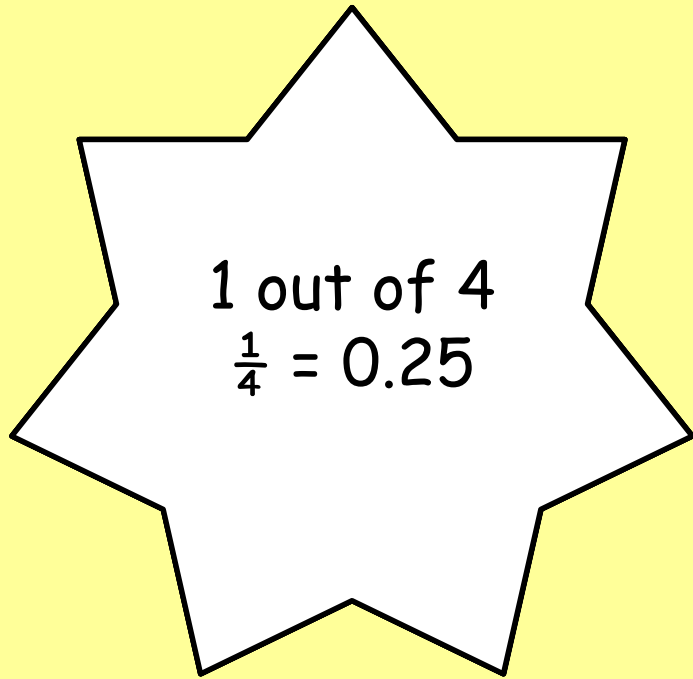
- Children should be able to interpret remainders as whole number remainders, fractions or by rounding, as appropriate for the context.

- Introduce long division.

$432 \div 15$ becomes $\begin{array}{r} 28 \text{ r}12 \\ 15 \overline{) 432} \\ \underline{30 \phantom{0}} \\ 132 \\ \underline{120} \\ 12 \end{array}$ Answer: 28 remainder 12	$432 \div 15$ becomes $\begin{array}{r} 28 \\ 15 \overline{) 432} \\ \underline{30 \phantom{0}} \\ 132 \\ \underline{120} \\ 12 \end{array}$ $\frac{12}{15} = \frac{4}{5}$ Answer: $28 \frac{4}{5}$	$432 \div 15$ becomes $\begin{array}{r} 28.8 \\ 15 \overline{) 432.0} \\ \underline{30 \phantom{00}} \\ 132 \\ \underline{120} \\ 120 \\ \underline{120} \\ 0 \end{array}$ Answer: 28.8
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# Long Division

$$173 \div 4 =$$



$$\begin{array}{r} 4 \quad 3.25 \\ 4 \overline{) 173} \\ \underline{- 160} \quad (4 \times 40) \\ 013 \\ \underline{- 12} \quad (4 \times 3) \\ 01 \end{array}$$

# Long Division

$$173 \div 4 =$$

$$\begin{array}{r} 207.5 \\ 4 \overline{) 2905} \\ \underline{- 2800} \phantom{0} \\ 0105 \\ \underline{- 98} \\ 027 \end{array}$$

(14 × 200)

(14 × 7)

7 out of 14 =  
 $\frac{1}{2} = 0.5$

# Have a go!

$$449 \div 8 =$$

$$579 \div 12 =$$

$$362 \div 5$$

$$4020 \div 16 =$$

$$3849 \div 15 =$$

$$1755 \div 18 =$$

$$1/5 = 0.2$$

$$2/5 = 0.4$$

$$3/5 = 0.6$$

$$4/5 = 0.8$$

$$1/8 = 0.125$$

$$\frac{1}{4} = 0.25$$

$$\frac{3}{4} = 0.75$$

$$\frac{1}{2} = 0.5$$