

## Link multiplication and division

### Notes and guidance

In this small step, children develop their understanding of related facts from earlier in the block, with a focus on linking multiplication and division facts.

In particular, children explore what happens when a number within a calculation is multiplied by 10 and how this affects the answer. They use these facts by unitising in tens, for example using  $8 \div 2 = 4$  to derive  $8 \text{ tens} \div 2 = 4 \text{ tens}$ , so  $80 \div 2 = 40$ . A range of representations are used to make the link between multiples of one and ten, which will be familiar from the multiplication steps earlier in the block.

This step will support children to work out divisions in the next few steps of the block.

### Things to look out for

- Children may try to find results by calculation, rather than recognising the relationship between two facts.
- In examples such as  $240 \div 80$ , children may think the answer is 30 because they know  $24 \div 8 = 3$  and they assume that they need to add a zero.

### Key questions

- What is the same and what is different about the two calculations?
- How can you show the calculation using place value counters/ base 10?
- How is multiplying by 10s different from multiplying by 1s?
- What division facts do you know by using the fact  $\text{_____} \times \text{_____} = \text{_____}$ ?

### Possible sentence stems

- $\text{_____} \times \text{_____}$  ones is equal to  $\text{_____}$  ones, so  $\text{_____} \times \text{_____}$  tens is equal to  $\text{_____}$  tens.
- $\text{_____} \div \text{_____}$  is equal to  $\text{_____}$ , so  $\text{_____}$  tens  $\div \text{_____}$  is equal to  $\text{_____}$  tens.

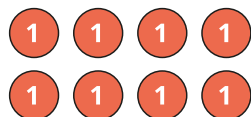
### National Curriculum links

- Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which  $n$  objects are connected to  $m$  objects

# Link multiplication and division

## Key learning

- What multiplication and division facts does the array show?



$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \times \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

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What multiplication and division facts does the array show?



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$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

$$\underline{\quad} \div \underline{\quad} = \underline{\quad}$$

What is the same and what is different about these arrays?

- Tiny is working out  $60 \div 3$



I know  $6 \text{ ones} \div 3$  is equal to 2 ones.  
So  $6 \text{ tens} \div 3$  is equal to 2 tens.  
 $60 \div 3 = 20$

Use Tiny's method to work out the divisions.

$$80 \div 4$$

$$90 \div 3$$

$$60 \div 2$$

$$70 \div 7$$

- Fill in the missing numbers.

$$\blacktriangleright 2 \times 6 = \underline{\quad}$$

$$\blacktriangleright 3 \times 8 = \underline{\quad}$$

$$\blacktriangleright \underline{\quad} = 5 \times 3$$

$$2 \times 60 = \underline{\quad}$$

$$3 \times \underline{\quad} = 240$$

$$150 = 5 \times \underline{\quad}$$

- 1 ticket to the zoo costs £20

How much do 4 tickets cost?

How many tickets can you buy for £180?

- There are 80 children in Year 3

The children are put into pairs.

How many pairs are there altogether?

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## Reasoning and problem solving

Eight friends go to a theme park for the day.



- Tickets to the theme park cost £20 each.
- Lunch costs £10 each.

Four of the friends share the cost between them.

How much do they each pay?

£60

Write  $<$ ,  $>$  or  $=$  to compare the statements.

$$8 \div 2 \quad \bigcirc \quad 80 \div 2$$

$$80 \div 2 \quad \bigcirc \quad 80 \div 4$$

$$60 \times 3 \quad \bigcirc \quad 60 \div 3$$

$$4 \times 80 \quad \bigcirc \quad 8 \times 40$$

$<$

$>$

$>$

$=$

Work out the divisions.

$$320 \div 2$$

$$320 \div 20$$

$$320 \div 4$$

$$320 \div 40$$

$$320 \div 8$$

$$320 \div 80$$

160    16

80    8

40    4

What do you notice?



Amir is finding related calculations.



I know  $5 \times 8 = 40$ ,  
so I also know all these  
other facts.

$$5 \times 80 = 400 \quad 400 \div 5 = 80$$

$$50 \times 8 = 400 \quad 400 \div 8 = 50$$

Which facts are correct?

They are  
all correct.