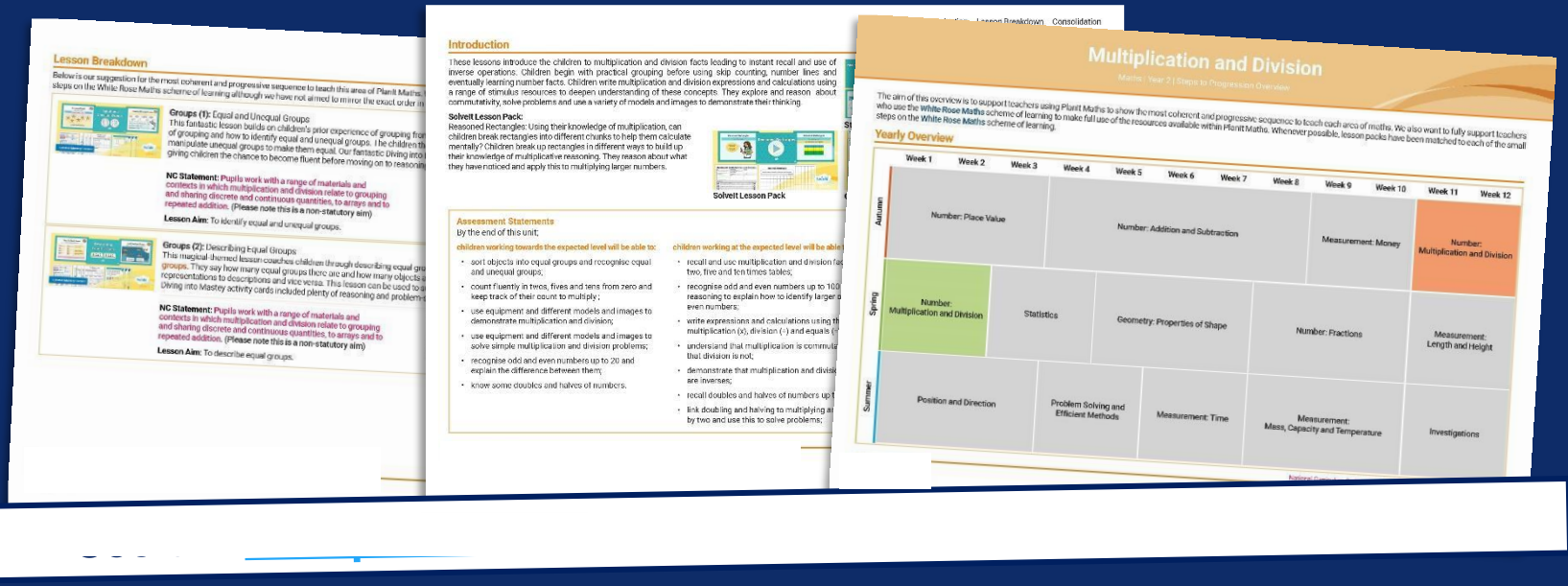
Maths

Multiplication and Division

Need a coherently planned sequence of lessons to complement this resource?



Factors and Products

Aim

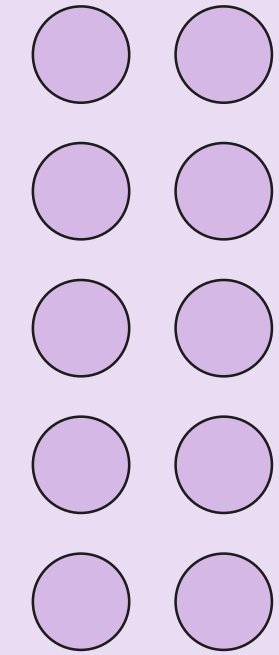
- To understand and use the words ‘factor’ and ‘product’ when calculating.

Success Criteria

- I know that both the number of groups and the group size are factors.
- I know the total number of objects is the product.
- I can write a multiplication calculation with two factors and a product.
- I can skip count to find the product of two factors.

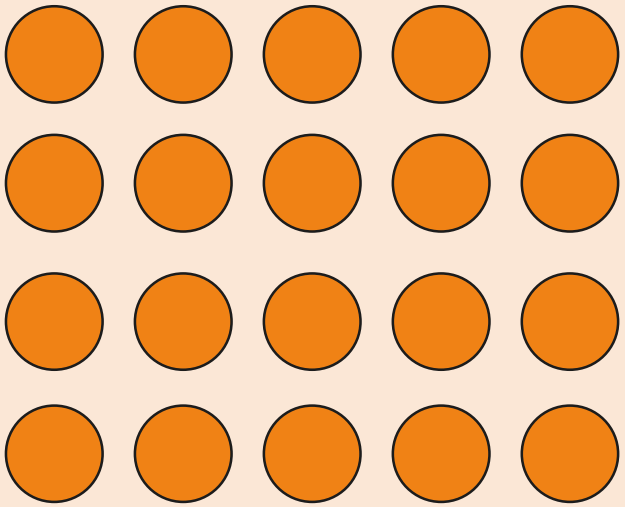
Remember It

Write two multiplication expressions for each array.



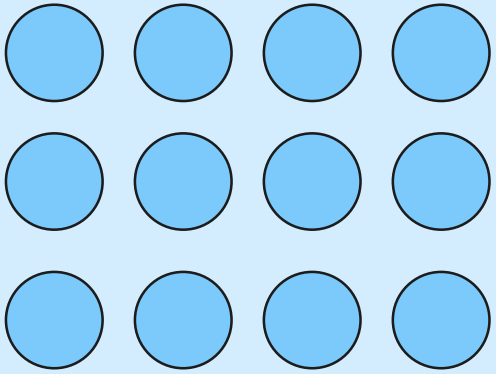
2×5

5×2



5×4

4×5

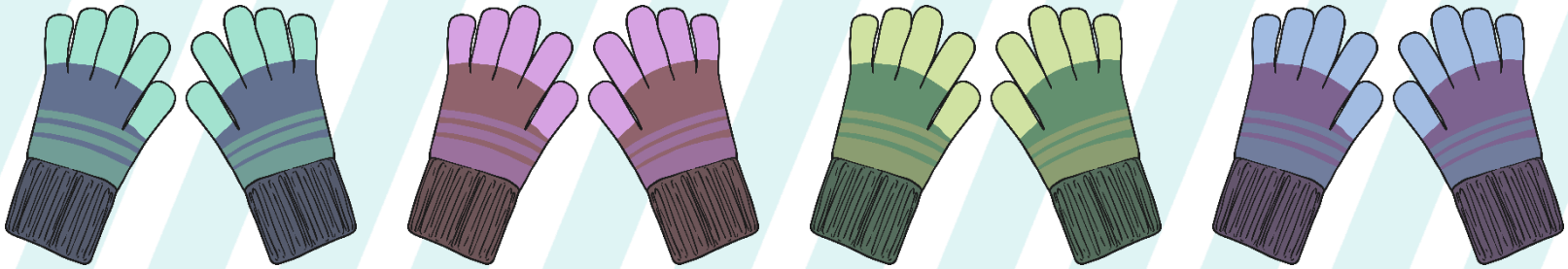


3×4

4×3

Multiplication Calculations

How many gloves are there? Count in 2s.



2 4 6

We can write this **multiplication calculation**:

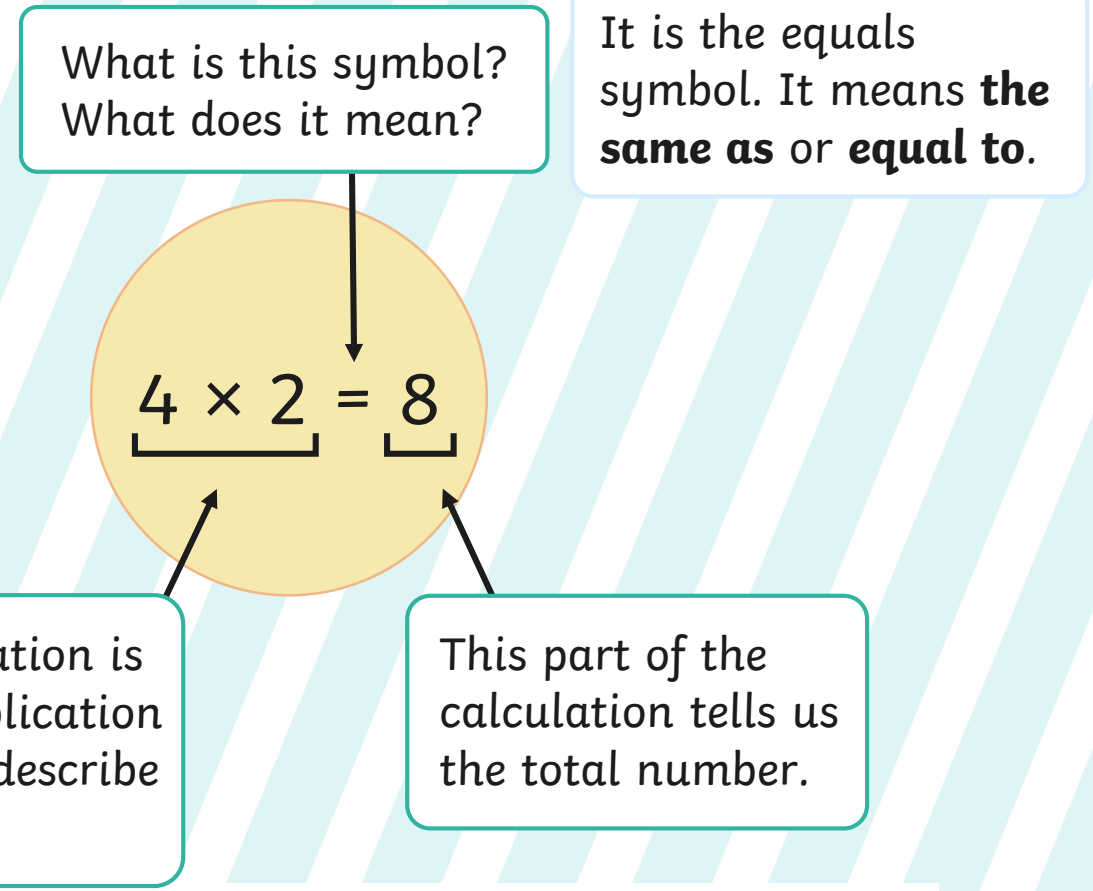
$4 \times 2 = 8$

How is the **calculation** different from the **multiplication expression** 4×2?

8

How is it the same?

Multiplication Calculations



What does each number in the calculation represent?
Hint: Think about the gloves.

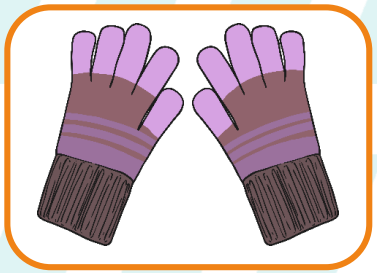
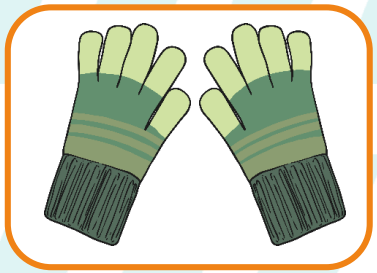
Multiplication Calculations

$8 = 4 \times 2$

The 4 represents the number of groups of gl

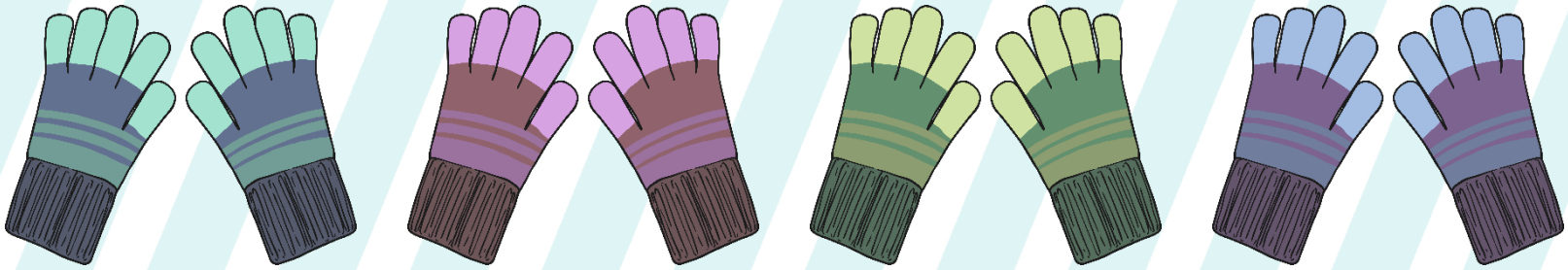
The 8 represents the total number oves.

We can also write the calculation the other way round, starting with the total.

Factors and Products

There are 4 groups of 2. There are 8 gloves altogether.



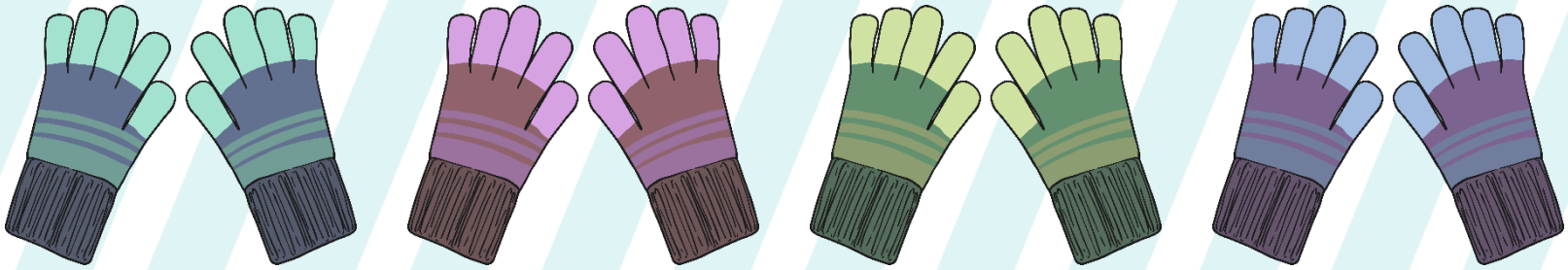
factor	×	factor	=	product
4	×	2	=	8

The number of groups is a **factor**.

The group size is a **factor**.

Let's say together: There are two factors. 4 is a factor. 2 is a factor.

There are 4 groups of 2. There are 8 gloves altogether.

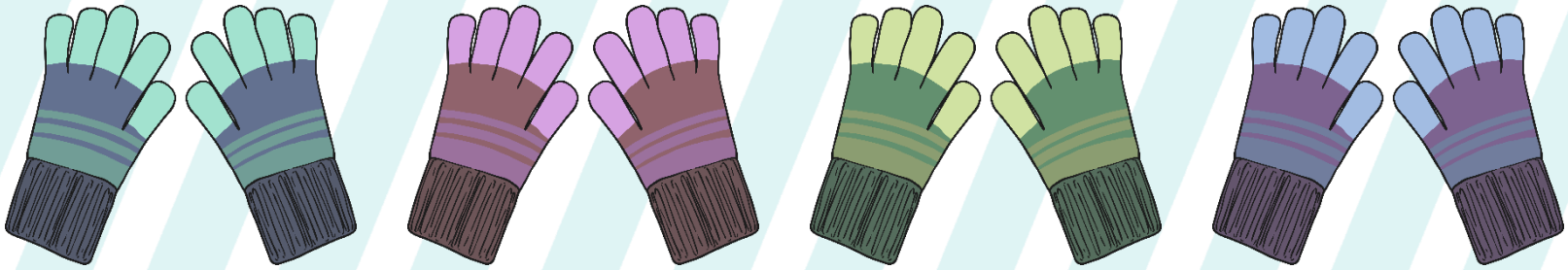


factor	×	factor	=	product
4	×	2	=	8

The **product** is the total number. Here, the product is the number of gloves altogether.

Let's say together: 8 is the **product** of 4 and 2. The **product** of 4 and 2 is 8.

There are 4 groups of 2. There are 8 gloves altogether.



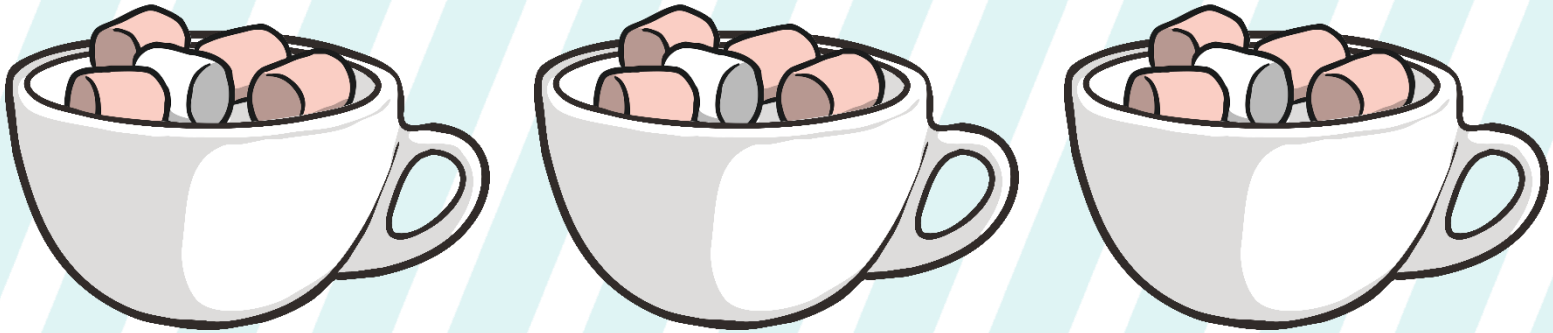
product	=	factor	×	factor
8	=	4	×	2

This is what the calculation would look like if we wrote the product first.

Let's say together:
Factor times **factor** is equal to the **product**.
The **product** is equal to **factor** times **factor**.

Practice Time

How many groups of marshmallows are there?
How many in each group?



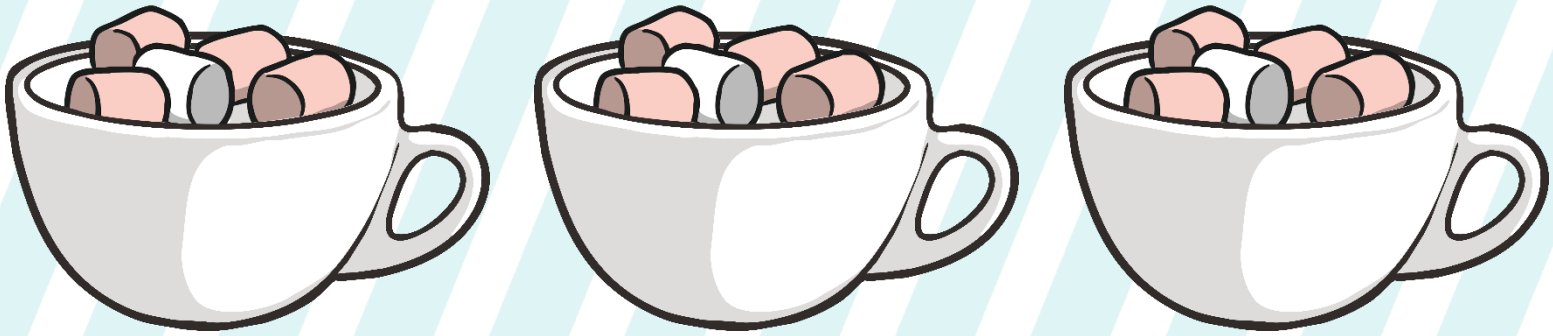
Write a **multiplication calculation** to represent the marshmallows.

3	×	5	=	15

What does each number represent?

Practice Time

Complete the sentences.



factor	×	factor	=	product
3	×	5	=	15

3 is a ____.

5 is a ____.

15 is the ____.

The product of ____ and ____ is ____.

____ is the product of ____ and ____.

Practice Time

How many snowballs are in each pile?
How many piles are there?

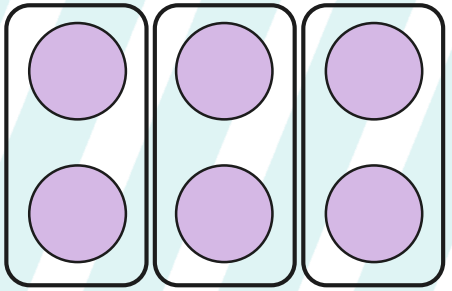
Write a multiplication calculation, **starting with the product**.
Hint: Skip count in 10s to find the product.

product	=	factor	×	factor
50	=	5	×	10

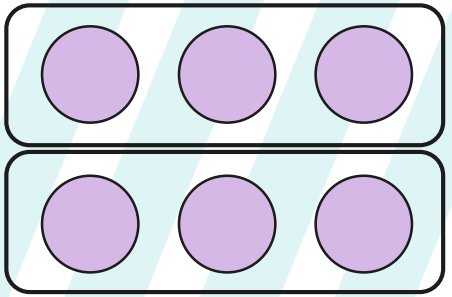
Commutativity

Look carefully at these two multiplication calculations represented by arrays.

$3 \times 2 = 6$



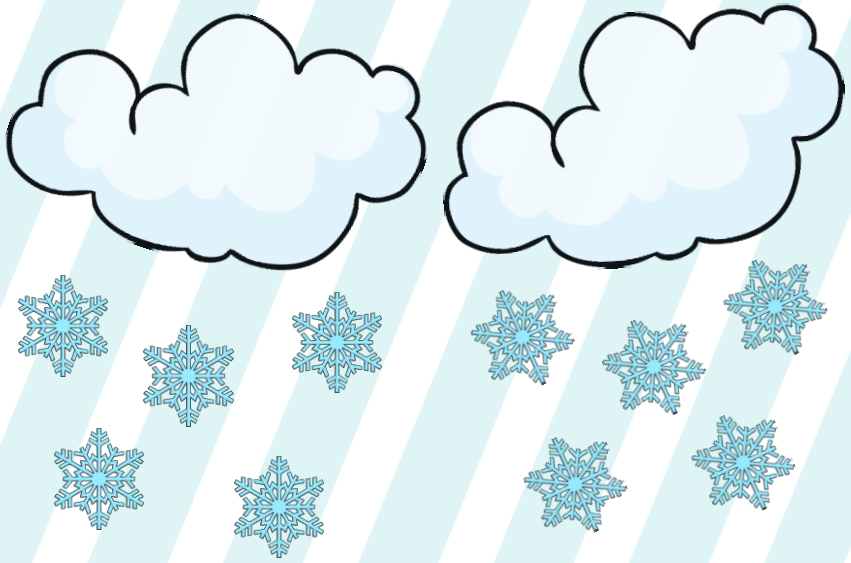
$2 \times 3 = 6$



We know that multiplication is **commutative**. The factors can be written in either order and the product will be the same.

Missing Numbers

Complete the calculations.



5 × 2 = 10

10 = 5 × 2

What does each number in the calculation represent?
Which numbers are factors? Which numbers are products?

Missing Numbers

There are 10 socks on each washing line.

There are 20 socks total.
How many washing lines are there?

2 × 10 = 20

Explain how you worked it out.

Factors of 0 and 1

What do you notice about these multiplication calculations?

$0 \times 2 = 0$	$2 \times 0 = 0$
$0 \times 5 = 0$	$5 \times 0 = 0$
$0 \times 10 = 0$	$10 \times 0 = 0$

Let's say together:
When zero is a factor, the product is zero.

Is this always true? How do you know?

Factors of 0 and 1

What do you notice about these multiplication calculations?

$2 = 1 \times 2$	$2 = 2 \times 1$
$5 = 1 \times 5$	$5 = 5 \times 1$
$10 = 1 \times 10$	$10 = 10 \times 1$

Let's say together:
When one is a factor, the product is equal to the other factor.

Find the Factors

Use what you know to complete the calculations.

$0 \times \boxed{9} = 0$

$1 \times \boxed{7} = 7$

$6 = 6 \times \boxed{1}$

$0 = 8 \times \boxed{0}$

How many ways can you find to complete this calculation in 1 minute?

$\boxed{0} \times 9 = \square \times 0$

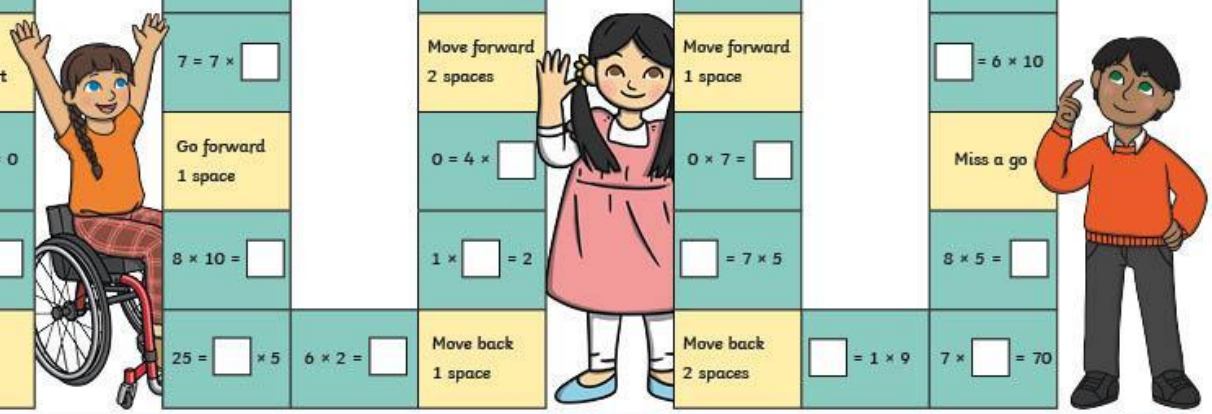
Any number can go here.

Missing Factors and Products Board Game

To understand and use the words 'factor' and 'product' when calculating.

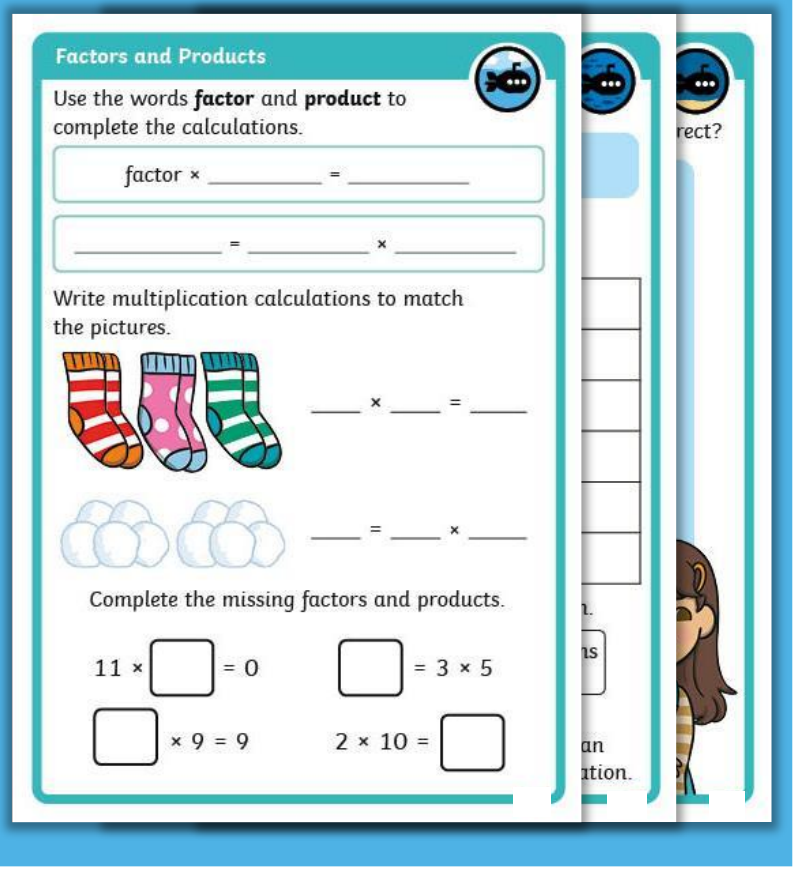
Roll the dice and work out the missing factor or product from the multiplication you land on.
Top tips: Skip counting will help you work out the factors and products. Remember what happens when 0 or 1 is a factor.

6 = 1 × ☐	4 × 10 = ☐	Miss a go	☐ = 4 × 5	Miss a go	☐ × 2 = 16	☐ × 8 = 0	Finish
3 × 5 = ☐	2 × 2 = ☐	☐ × 2 = 6	6 × 5 = ☐	2 × 8 = ☐
Go back to the start	7 = 7 × ☐	Move forward 2 spaces	Move forward 1 space	☐ = 6 × 10
☐ × 5 = 0	Go forward 1 space	0 = 4 × ☐	0 × 7 = ☐	Miss a go
5 × 2 = ☐	8 × 10 = ☐	1 × ☐ = 2	☐ = 7 × 5	8 × 5 = ☐
Start	25 = ☐ × 5	6 × 2 = ☐	Move back 1 space	Move back 2 spaces	☐ = 1 × 9	7 × ☐ = 70



Diving into Mastery

Dive in by completing your own activity!



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