



Maths

Multiplication and Division

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

Lesson Breakdown

Below is our suggestion for the most coherent and progressive sequence to teach this area of Place Value Maths steps on the White Rose Maths scheme of learning although we have not aimed to mirror the exact order in which the resources are presented.

Groups (1): Equal and Unequal Groups
 This fantastic lesson builds on children's prior experience of grouping, from manipulating unequal groups to make them equal. The children are given the choice to become fluent before moving on to reasoning.

NC Statement: Pupils work with a range of materials and contexts in which multiplication and division relate to grouping and sharing discrete and continuous quantities, to arrays and to repeated addition. (Please note this is a non-statutory aim)

Lesson Aim: To identify equal and unequal groups.

Groups (2): Describing Equal Groups
 This magical themed lesson coaches children through describing equal groups. They say how many equal groups there are and how many objects in each group. This lesson can be used to support children's understanding of multiplication and division.

NC Statement: Pupils work with a range of materials and contexts in which multiplication and division relate to grouping and sharing discrete and continuous quantities, to arrays and to repeated addition. (Please note this is a non-statutory aim)

Lesson Aim: To describe equal groups.

Introduction

These lessons introduce the children to multiplication and division facts leading to instant recall and use of inverse operations. Children begin with practical grouping before using skip counting, number lines and eventually learning number facts. Children write multiplication and division expressions and calculations using a range of stimulus resources to deepen understanding of these concepts. They explore and reason about commutativity, solve problems and use a variety of models and images to demonstrate their thinking.

SolveIt Lesson Pack: Reshaped Rectangles Using their knowledge of multiplication, can children break rectangles into different chunks to help them calculate mentally? Children break up rectangles in different ways to build up their knowledge of multiplicative reasoning. They reason about what they have noticed and apply this to multiplying large numbers.

Assessment Statements
 by the end of this unit:

children working towards the expected level will be able to:

- sort objects into equal groups and recognise equal and unequal groups;
- count fluently in twos, fives and tens from zero and keep track of their count to multiply;
- use equipment and different models and images to demonstrate multiplication and division;
- use equipment and different models and images to solve simple multiplication and division problems;
- recognise odd and even numbers up to 20 and explain the difference between them;
- know some doubles and halves of numbers.

children working at the expected level will be able to:

- recall and use multiplication and division facts for two, five and ten times tables;
- recognise odd and even numbers up to 100 reasoning to explain how to identify larger or smaller even numbers;
- write expressions and calculations using the multiplication (\times), division (\div) and equals ($=$);
- understand that multiplication is commutative that division is not;
- demonstrate that multiplication and division are inverse;
- recall doubles and halves of numbers up to 100;
- link doubling and halving to multiplying and dividing by two and use this to solve problems.

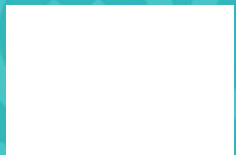
Multiplication and Division
 Years 1-2 Progression Overview

The aim of this overview is to support teachers using Place Value Maths to show the most coherent and progressive sequence to teach each area of maths. We also want to fully support teachers who use the White Rose Maths scheme of learning to make full use of the resources available within Place Value Maths. Wherever possible, lesson packs have been matched to each of the small steps on the White Rose Maths scheme of learning.

Yearly Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value		Number: Addition and Subtraction				Measurement: Money		Number: Multiplication and Division			
Spring	Number: Multiplication and Division		Statistics		Geometry: Properties of Shape			Number: Fractions		Measurement: Length and Height		
Summer	Position and Direction		Problem Solving and Efficient Methods		Measurement: Time		Measurement: Mass, Capacity and Temperature		Investigations			

Factors and Products



Aim

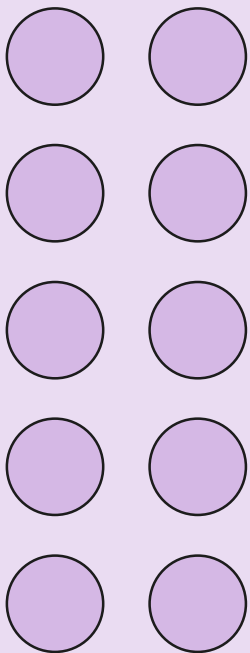
- To understand and use the words 'factor' and 'product' when calculating.

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.

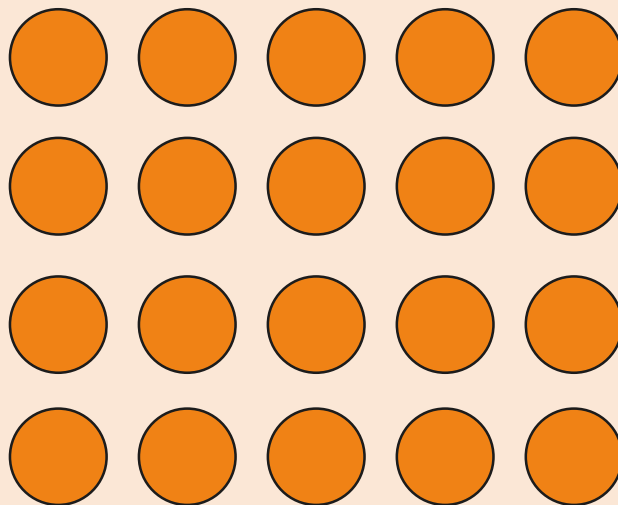
Remember It

Write two multiplication expressions for each array.



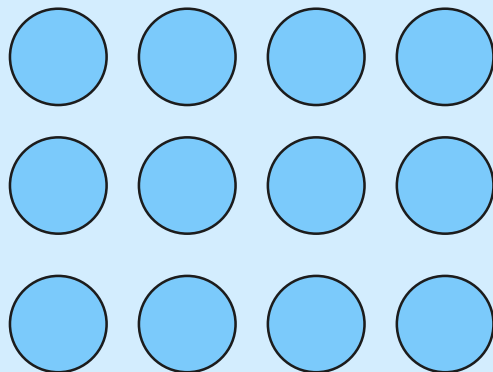
$$\boxed{2} \times \boxed{5}$$

$$\boxed{5} \times \boxed{2}$$



$$\boxed{5} \times \boxed{4}$$

$$\boxed{4} \times \boxed{5}$$

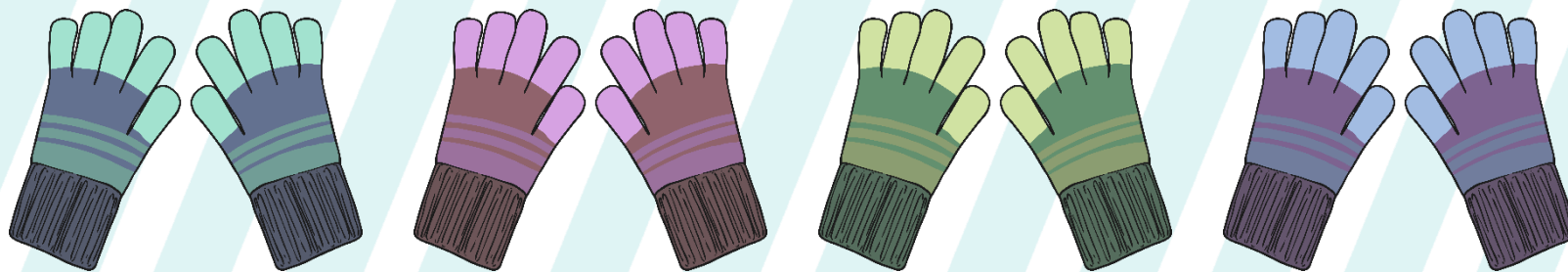


$$\boxed{3} \times \boxed{4}$$

$$\boxed{4} \times \boxed{3}$$

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 is this symbol?
What does it mean?

It is the equals symbol. It means **the same as** or **equal to**.

$$4 \times 2 = 8$$

This part of the calculation is the same as the multiplication expression we used to describe the groups of gloves.

This part of the calculation tells us the total number.

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

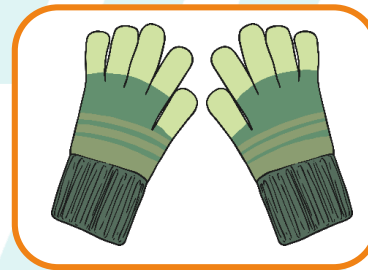
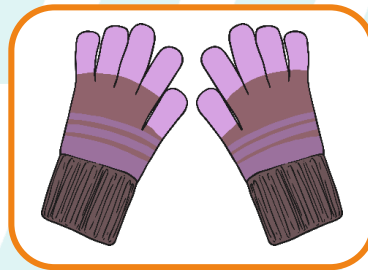
Multiplication Calculations

$$8 = 4 \times 2$$

The 4 represents
the number of
groups of gloves.

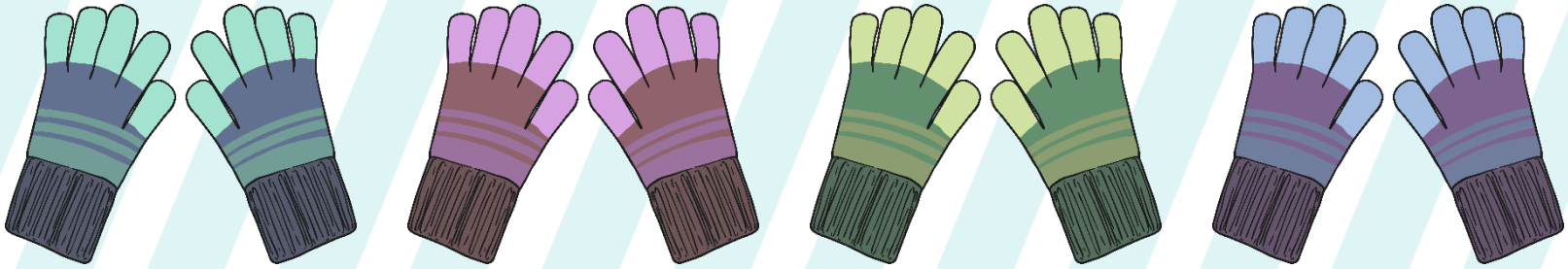
The 8 represents
the total number
of gloves.

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

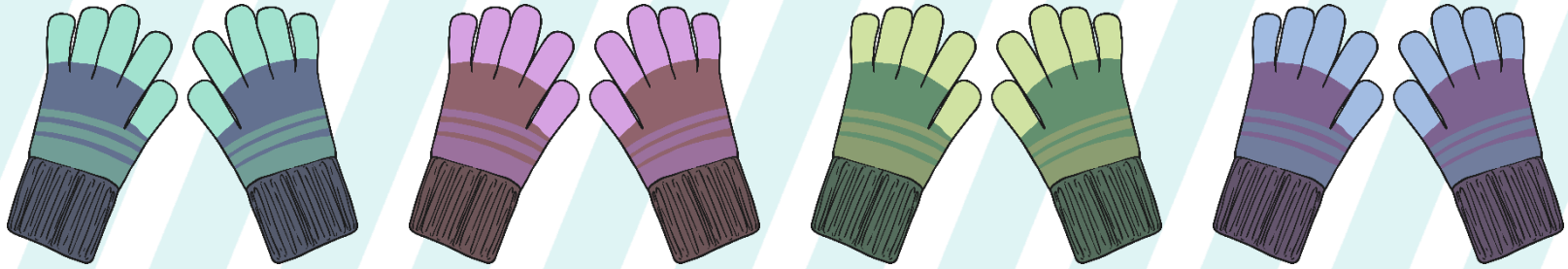
The number of groups is a **factor**.

The group size is a **factor**.

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

Factors and Products

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



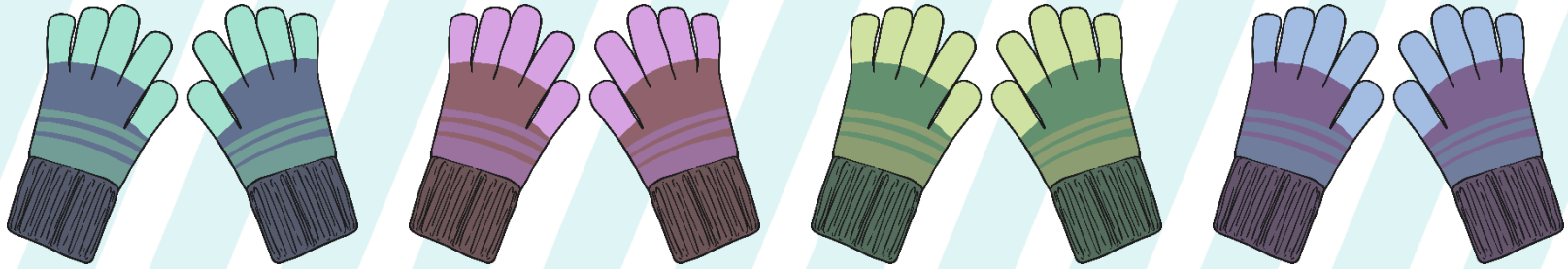
factor	×	factor	=	product
4	×	2	=	8

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.

Factors and Products

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



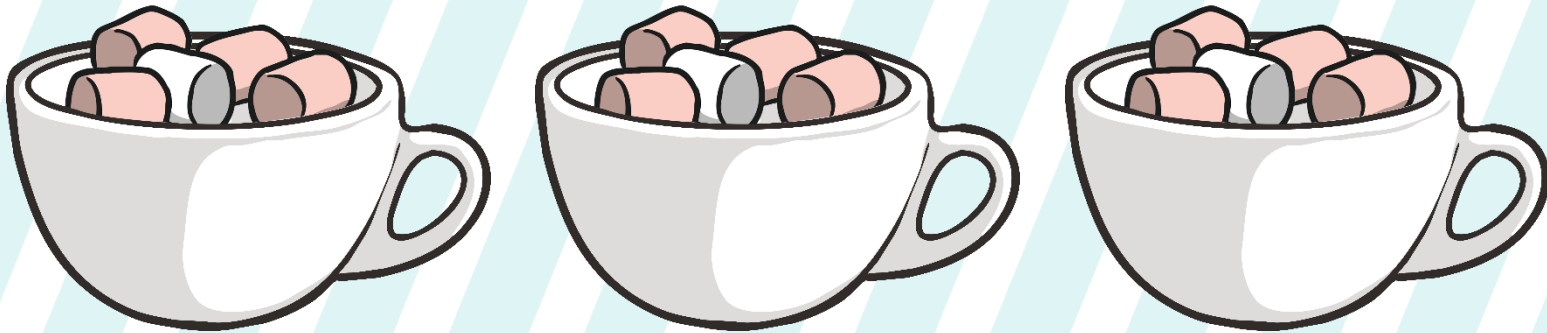
product	=	factor	×	factor
8	=	4	×	2

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**.

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

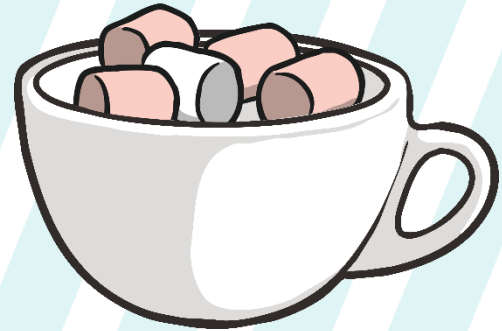
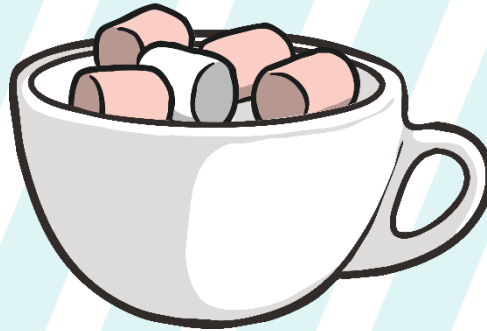
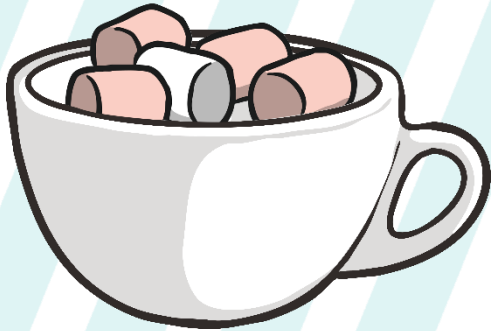


Write a **multiplication calculation** to represent the marshmallows.

$$3 \times 5 = 15$$

What does each number represent?

Complete the sentences.

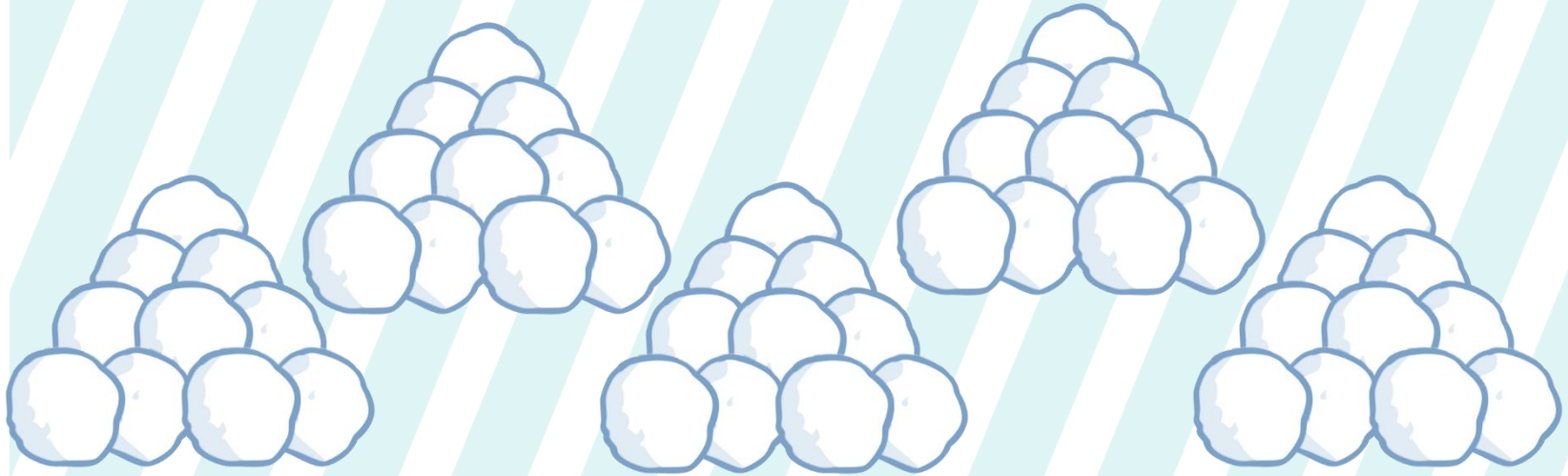


factor	×	factor	=	product
3	×	5	=	15

3 is a .
 5 is a .
 15 is the .

The product of and is .
 is the product of and .

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



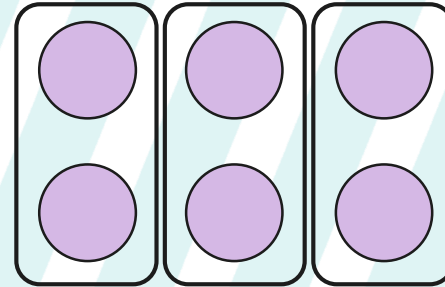
Write a multiplication calculation, **starting with the product**.
Hint: Skip count in 10s to find the product.

product	=	factor	×	factor
50	=	5	×	10

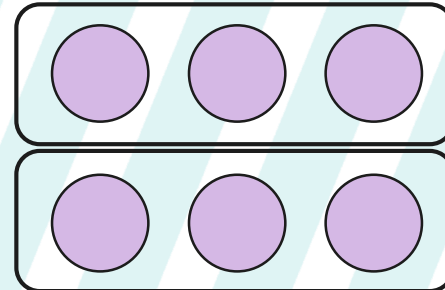
Commutativity

Look carefully at these two multiplication calculations represented by arrays.

$$3 \times 2 = 6$$



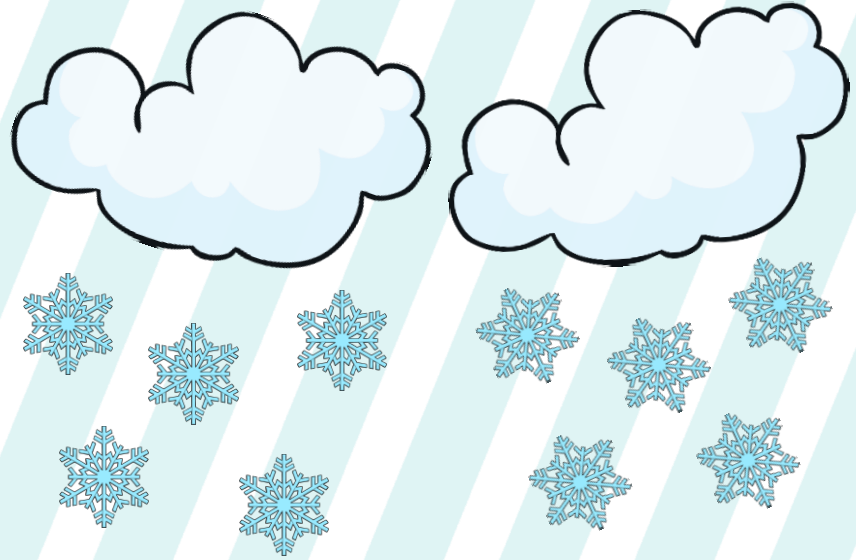
$$2 \times 3 = 6$$



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.



$$5 \times 2 = 10$$

$$10 = 5 \times 2$$

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?

$$\boxed{2} \times \boxed{10} = \boxed{20}$$

Explain how you worked it out.

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?

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?

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

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.

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

Diving into Mastery



Dive in by completing your own activity!



Factors and Products

Use the words **factor** and **product** to complete the calculations.

factor \times _____ = _____

_____ = _____ \times _____

Write multiplication calculations to match the pictures.



_____ \times _____ = _____



_____ = _____ \times _____

Complete the missing factors and products.

$$11 \times \square = 0$$

$$\square = 3 \times 5$$

$$\square \times 9 = 9$$

$$2 \times 10 = \square$$

Aim



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Success Criteria

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