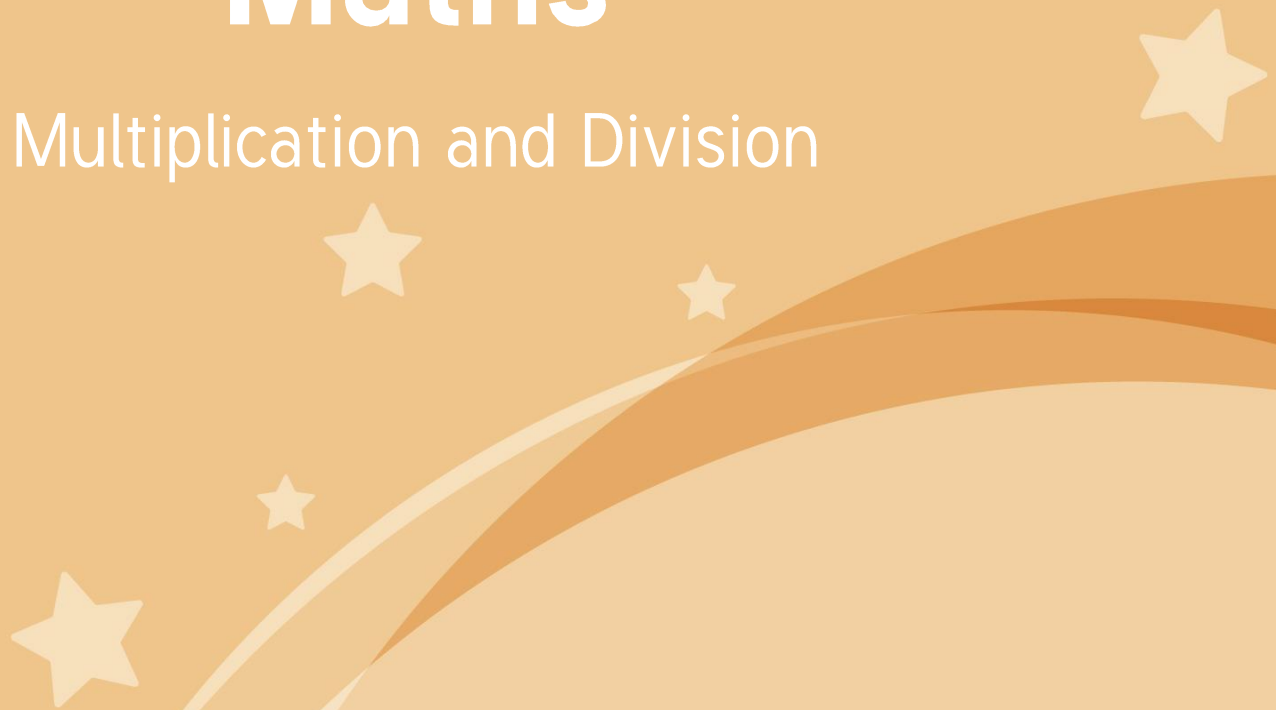


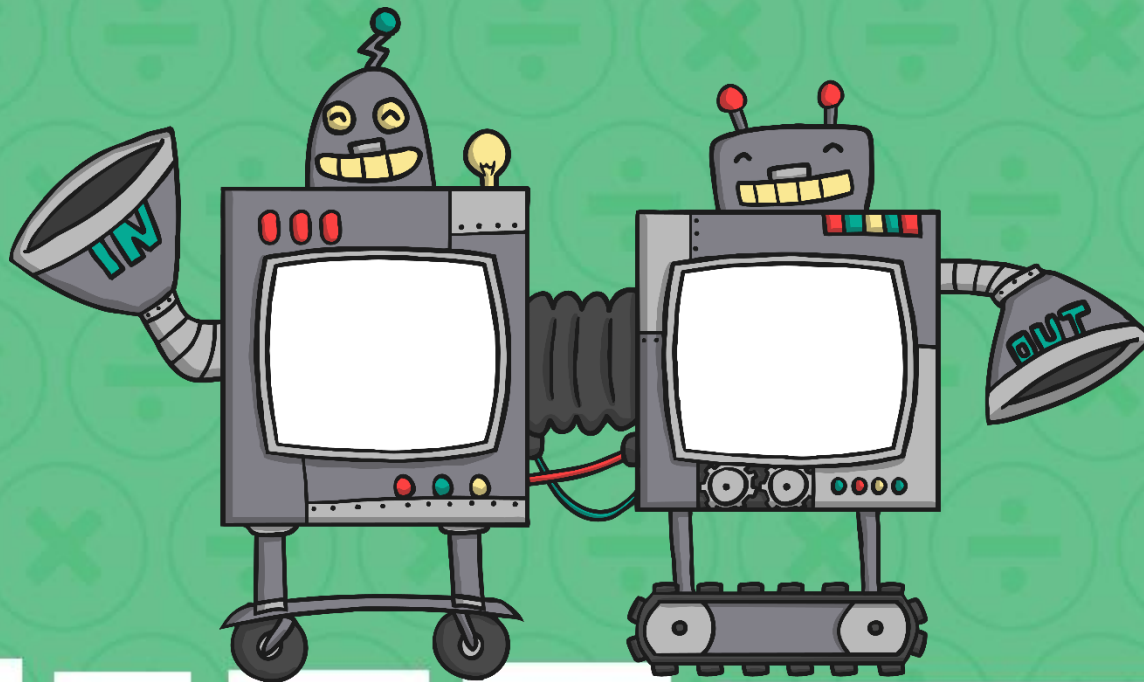


# Maths

## Multiplication and Division



# Multiplication Machines



# Aim

- I can multiply three numbers.

# Success Criteria

- I can begin by multiplying two of the numbers together.
- I can multiply the product of these two numbers by the third number to find the answer.
- I can see that multiplication can be done in any order.

# Missing Pieces



×	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	?	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	?	60
6	6	12	18	24	30	?	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	?	24	32	40	48	?	64	72	80	88	96
9	9	18	27	36	45	?	63	72	81	90	99	?
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	?	84	96	108	120	132	144

Can you work out what the missing squares in this multiplication square should be? Which numbers are hidden?

**Click the squares to reveal the numbers underneath.**

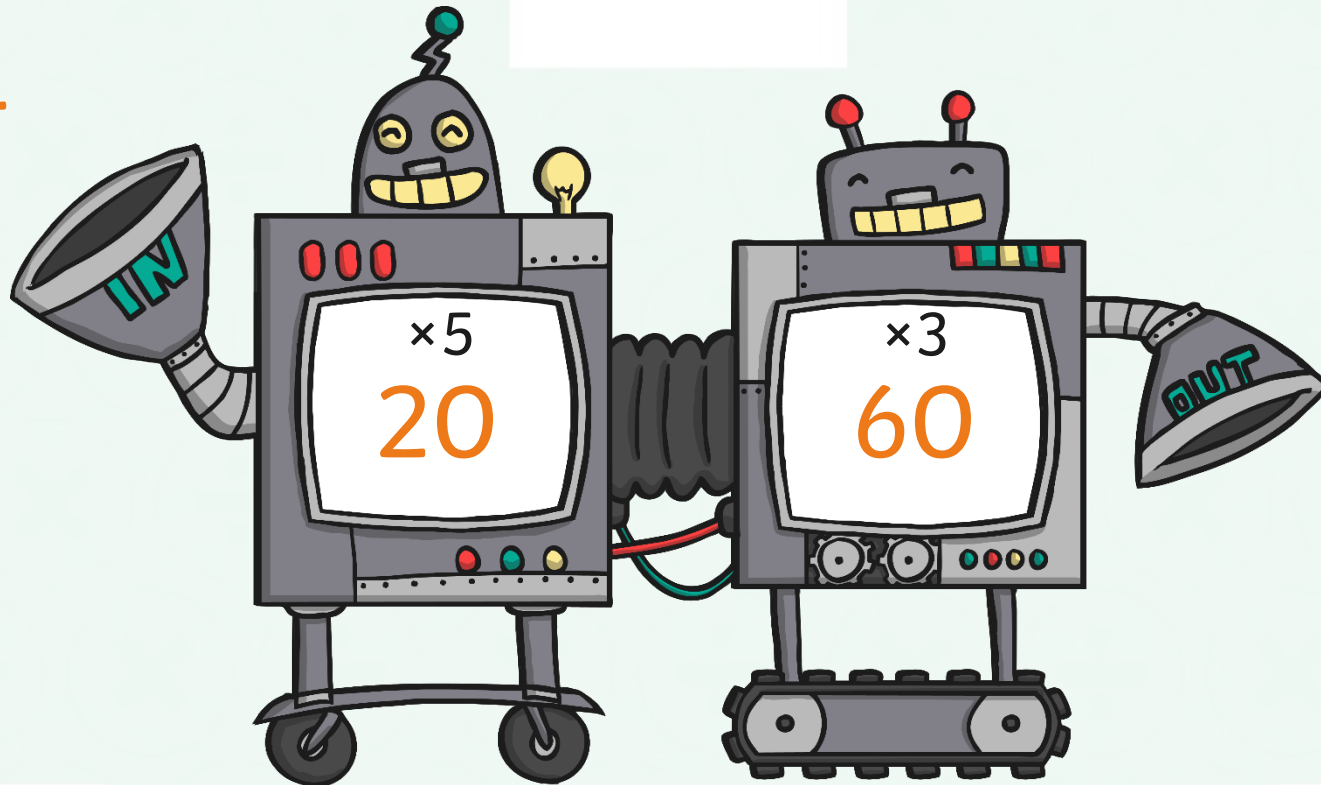
On the next slide, can you fill in the 13x and 14x tables?

×	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1	2	3	4	5	6	7	8	9	10	11	12		
2	2	4	6	8	10	12	14	16	18	20	22	24		
3	3	6	9	12	15	18	21	24	27	30	33	36		
4	4	8	12	16	20	24	28	32	36	40	44	48		
5	5	10	15	20	25	30	35	40	45	50	55	60		
6	6	12	18	24	30	36	42	48	54	60	66	72		
7	7	14	21	28	35	42	49	56	63	70	77	84		
8	8	16	24	32	40	48	56	64	72	80	88	96		
9	9	18	27	36	45	54	63	72	81	90	99	108		
10	10	20	30	40	50	60	70	80	90	100	110	120		
11	11	22	33	44	55	66	77	88	99	110	121	132		
12	12	24	36	48	60	72	84	96	108	120	132	144		
13														
14														



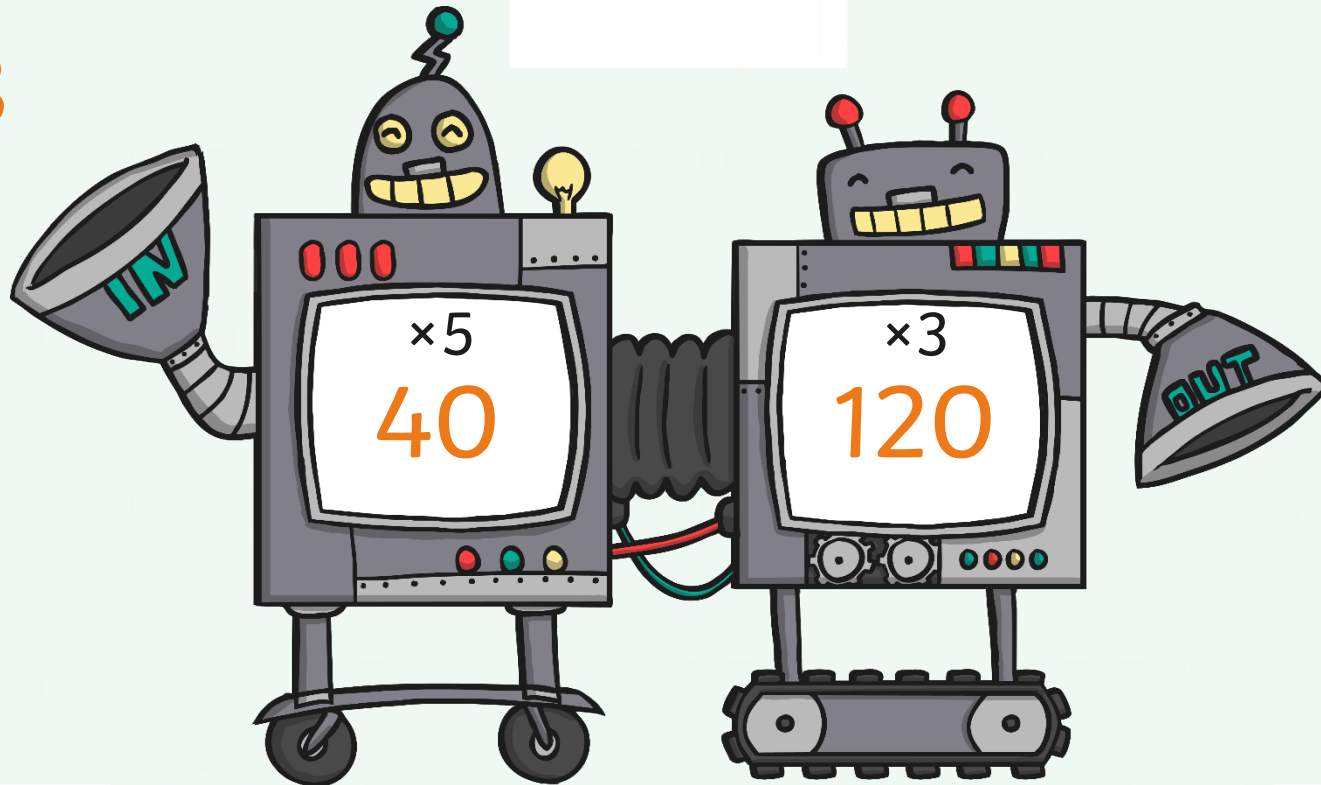
# Multiplication Machines

4



# Multiplication Machines

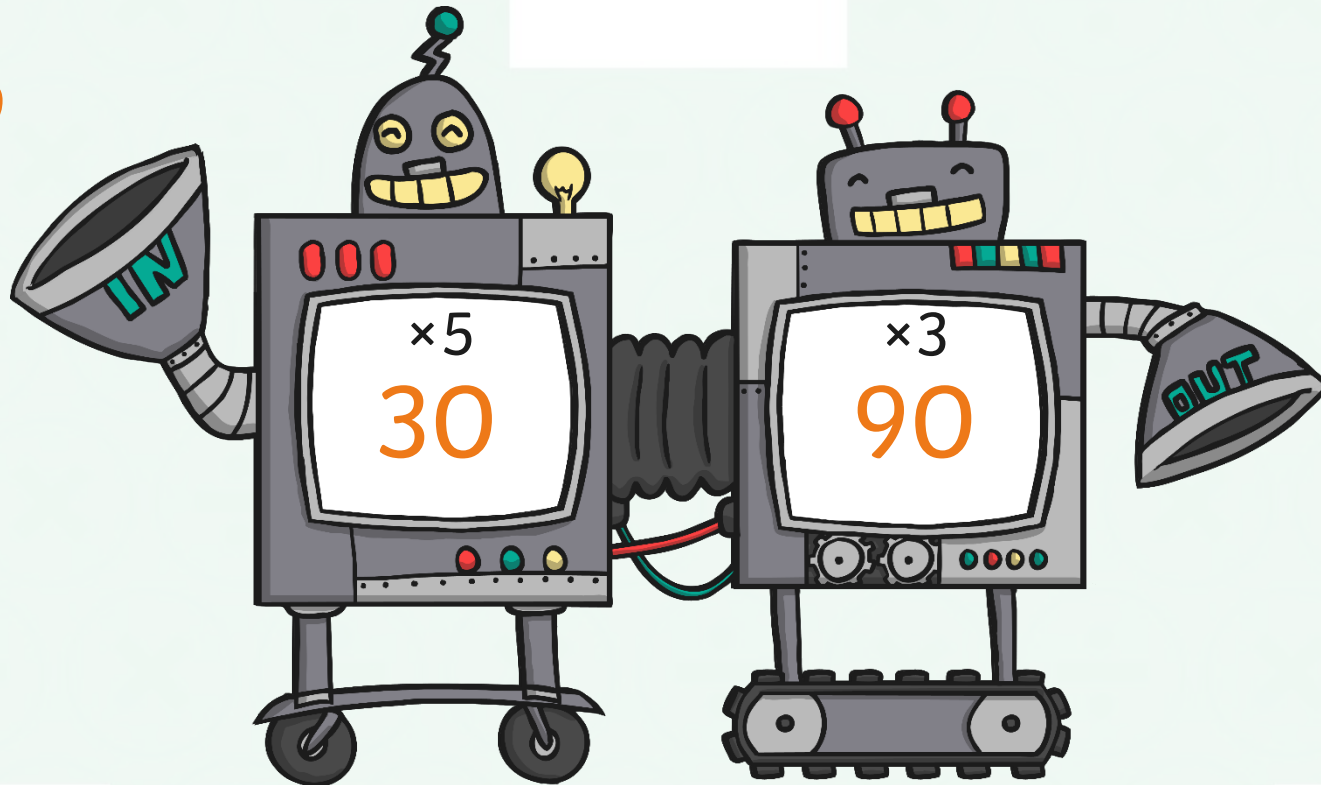
8





# Multiplication Machines

6





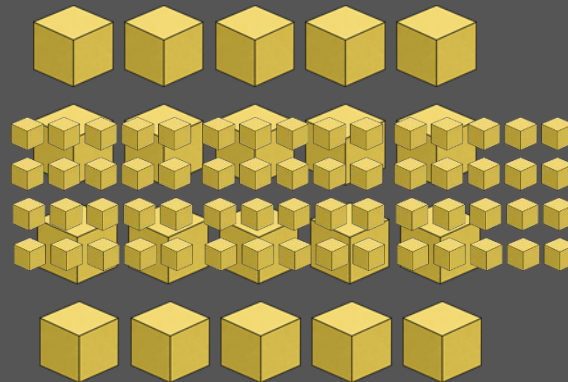
# Inside the Machine

$$4 \times 5 \times 3 = 60$$

What is happening inside the machine?

**Step 2:**  $20 \times 3 = 60$

Multiply the **product** of the first two numbers by the third number.



# Multiplication Machines



## ★ Multiplication

**5** You will need a set of ten numbers. Then turn over the page. Write down a number sentence for each machine:  $5 \times 4 = 20$   $20 \div 5 = 4$   
Write down the number answers for each machine.  
Put ten numbers into each machine.

## ★ Multiplication

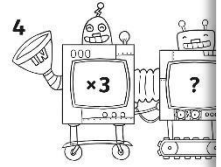
1. Put these numbers through the machine:  
a) 6      b) 4

2. What happens if you change the numbers?  
a.  $6 \times 2 = 8$   
b.  $2 \times 6 = 8$   
c.  $8 \times 2 = 6$   
d.  $6 \times 8 = 2$   
e.  $4 \times 2 = 8$   
f.  $2 \times 4 = 8$   
g.  $8 \times 2 = 4$   
h.  $8 \times 4 = 2$

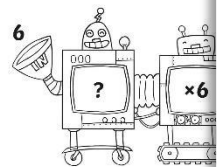
What do you notice?  
\_\_\_\_\_  
\_\_\_\_\_

## ★ Multiplication

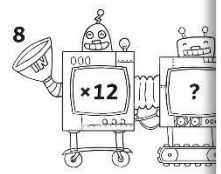
3. Can you work out what is missing from these machines?



a. \_\_\_\_\_



c. \_\_\_\_\_



e. \_\_\_\_\_

## ★★★ Multiplication

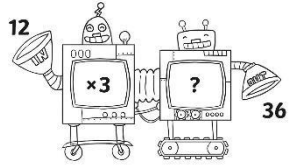
1. Put these numbers through the machine:  
a) 6      b) 4

2. What happens if you change the numbers?  
a.  $6 \times 6 \times 10 =$   
b.  $10 \times 6 \times 6 =$   
c.  $6 \times 10 \times 6 =$   
d.  $4 \times 6 \times 10 =$   
e.  $6 \times 4 \times 10 =$   
f.  $10 \times 4 \times 6 =$   
g.  $6 \times 10 \times 4 =$

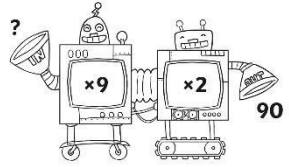
What do you notice? Try to explain.  
\_\_\_\_\_  
\_\_\_\_\_

## ★★★ Multiplication Machines

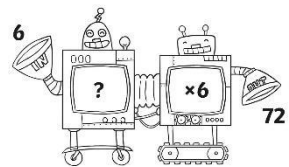
3. Can you work out what is missing from these machines?



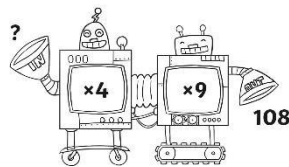
a. \_\_\_\_\_



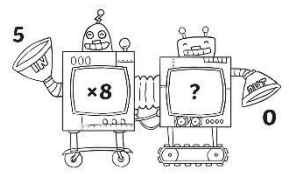
b. \_\_\_\_\_



c. \_\_\_\_\_



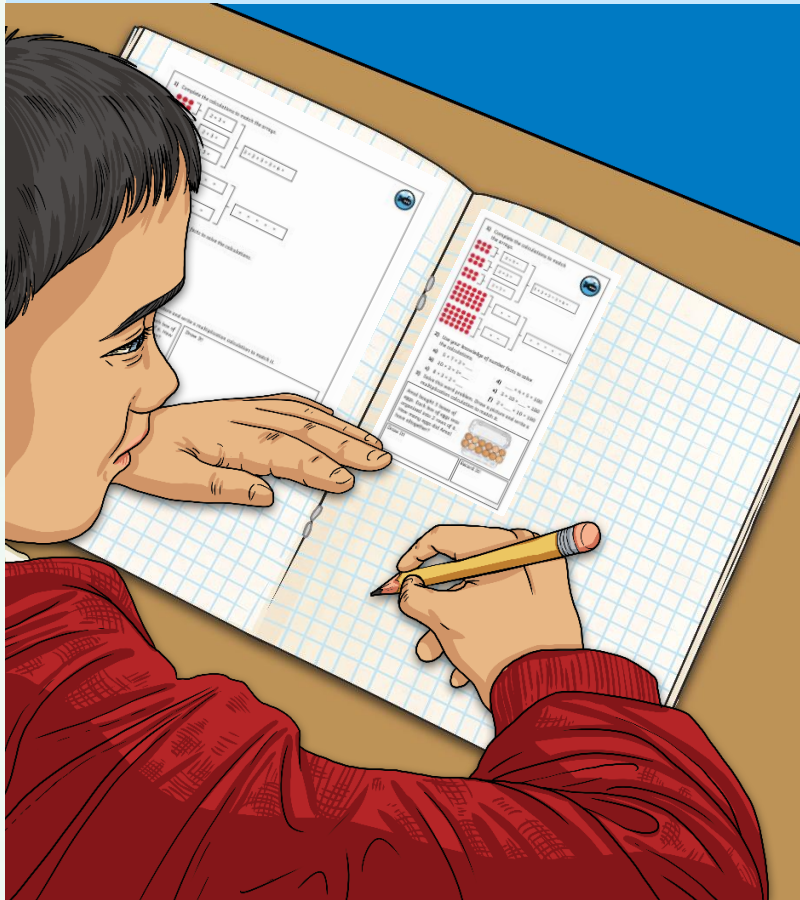
d. \_\_\_\_\_



e. \_\_\_\_\_

# Diving into Mastery

Dive in by completing your own activity!



1) Complete the calculations to match the arrays.

$2 \times 3 =$   $3 \times 2 = 3 + 3 = 6$   
 $2 \times 3 =$   $3 \times 2 = 3 + 3 = 6$   
 $2 \times 3 =$   $3 \times 2 = 3 + 3 = 6$   
 $\times =$   $\times =$    
 $\times =$   $\times =$

- 2) Use your knowledge of number facts to solve the calculations.
- a)  $5 \times 7 \times 2 =$       d)  $\_ \times 4 \times 5 = 100$   
 b)  $10 \times 3 \times 1 =$       e)  $3 \times 10 \times \_ = 180$   
 c)  $8 \times 3 \times 2 =$       f)  $2 \times \_ \times 10 = 180$
- 3) Solve this word problem. Draw a picture and write a multiplication calculation to match it.

Amal bought 5 boxes of eggs. Each box of eggs was organised into 2 rows of 6. How many eggs did Amal have altogether?

Draw It!  Record It!

1) Read the statement below. Is it always, sometimes or never true? Explain your reasoning. Multiplying 3 numbers can be done in any order.

- 2) Look at the calculations below. Which is the odd one out and why?
- $1 \times 10 \times 2 =$        $4 \times 5 \times 1 =$   
 $2 \times 5 \times 3 =$        $2 \times 5 \times 2 =$

3) Carly is completing the calculation 10 multiplied by 5 multiplied by 2. She has got a little stuck and has asked her friends for help. Who is correct? Who is incorrect?

$10 \times 5 \times 2 = 100$

$10 \times 5 \times 2 = 52$

$10 \times 5 \times 2 = 52$

1) Complete the calculations to match the arrays.

$2 \times 3 =$   $3 \times 2 = 3 + 3 = 6$   
 $2 \times 3 =$   $3 \times 2 = 3 + 3 = 6$   
 $2 \times 3 =$   $3 \times 2 = 3 + 3 = 6$   
 $\times =$   $\times =$    
 $\times =$   $\times =$

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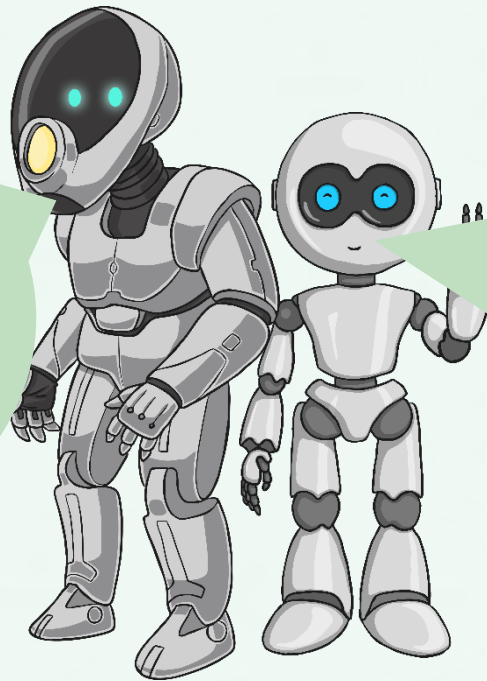
to match it.

# The Wrong End



Does the order of calculation matter when multiplying three numbers?

It doesn't matter which order you do multiplication questions in, you will always get the same answer!



You can't just put the numbers in the wrong end! You won't get the right answer. Multiplication questions need to be worked out from left to right, in order, or you'll get them wrong.

**Who is correct?** Give examples to support your ideas.



# Aim



- I can multiply three numbers.

# Success Criteria

- I can begin by multiplying two of the numbers together.
- I can multiply the product of these two numbers by the third number to find the answer.
- I can see that multiplication can be done in any order.

