Multiplication Machines

★

I can multiply together three numbers.

You will need a set of **0 - 12 digit cards**. Place all the digit cards face down in front of you. Then turn over one card and imagine it is going through the machine.

5

Write down a number sentence to describe what happens to the number as it goes through the machine: 5 × 4 = **20**   **20** × 2 = 40

Write down the number answer which will come out of the end: 5 × 4 × 2 = 40

Put ten numbers into each machine.
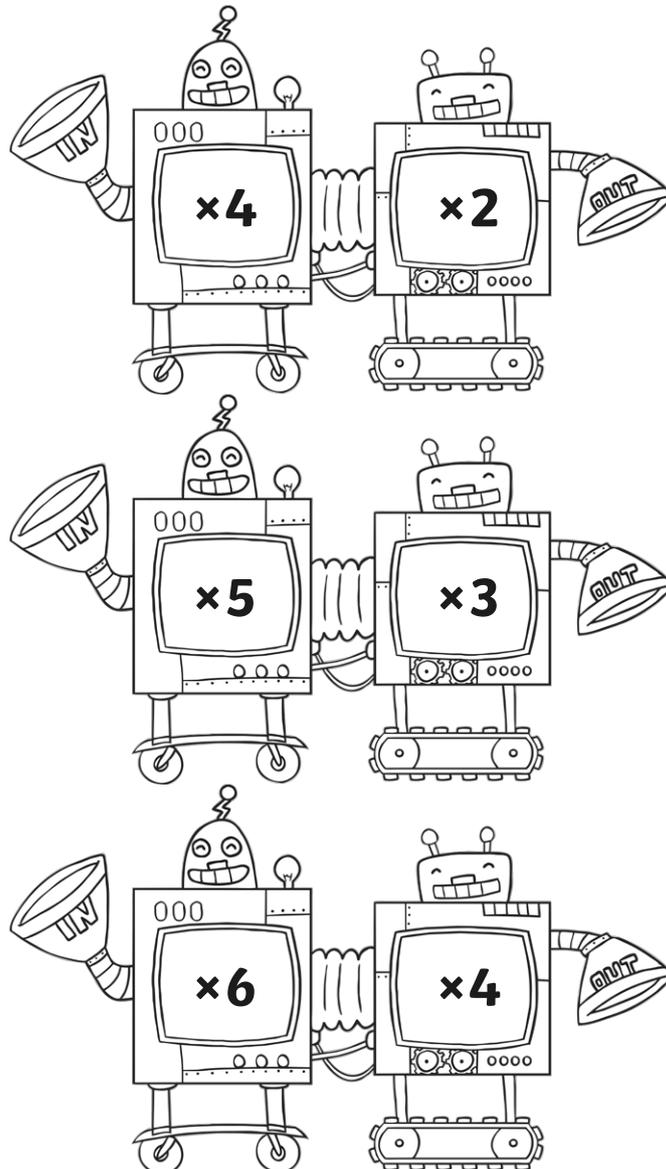
000 ×4   ×2

000 ×5   ×3

000 ×6   ×4

twinkl planit   **Maths** I Year 4 I Multiplication and Division I Mental Multiplication and Division I Lesson 2 of 4: Multiplication Machines

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Multiplication Machines

I can multiply together three numbers.

1. Put these numbers through the Multiplication Machine:

a) 6   **b)** 4   **c)** 5   **d)** 9   **e)** 12
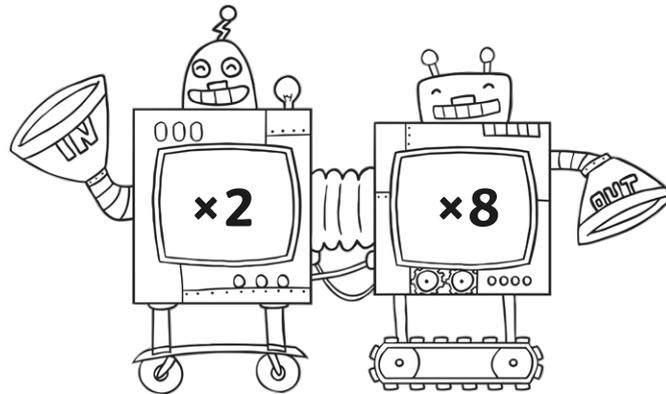
2. What happens if you change the order of the calculation? Do you get a different answer?

a. 6 × 2 × 8 =

b. 2 × 6 × 8 =

c. 8 × 2 × 6 =

d. 6 × 8 × 2 =

e. 4 × 2 × 8 =

f. 2 × 4 × 8 =

g. 8 × 2 × 4 =

h. 8 × 4 × 2 =

What do you notice? Try to explain what you find out.

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Multiplication Machines

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

4 →IN [×3] [?] OUT→ **24**

a. _____

? →IN [×5] [×6] OUT→ **60**

b. _____

6 →IN [?] [×6] OUT→ **72**

c. _____

? →IN [×4] [×9] OUT→ **108**

d. _____

8 →IN [×12] [?] OUT→ **0**

e. _____
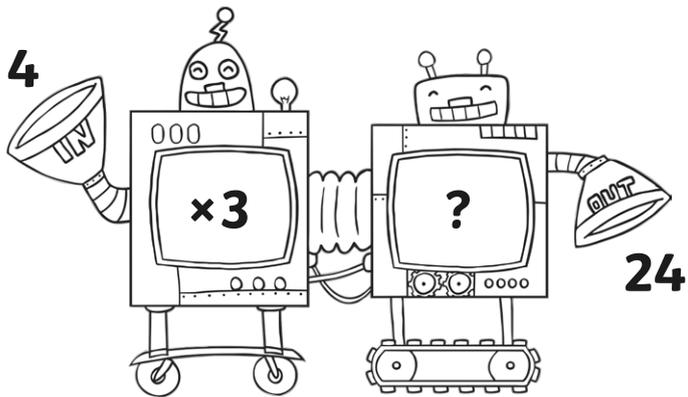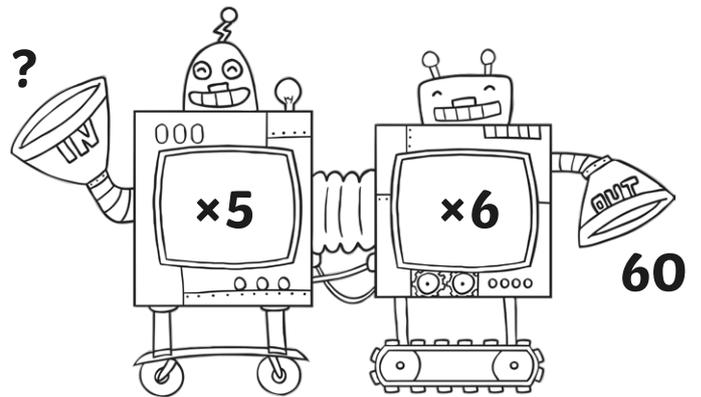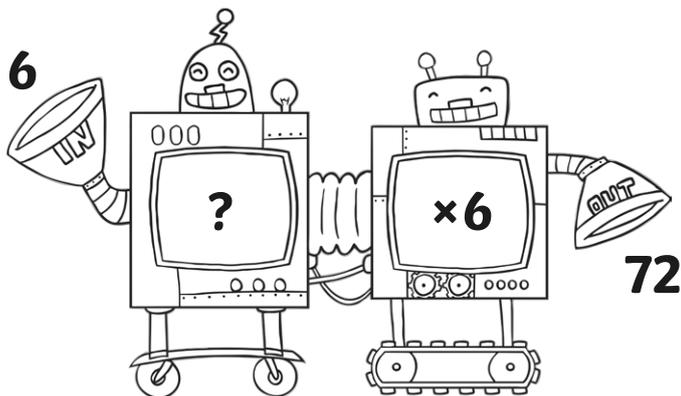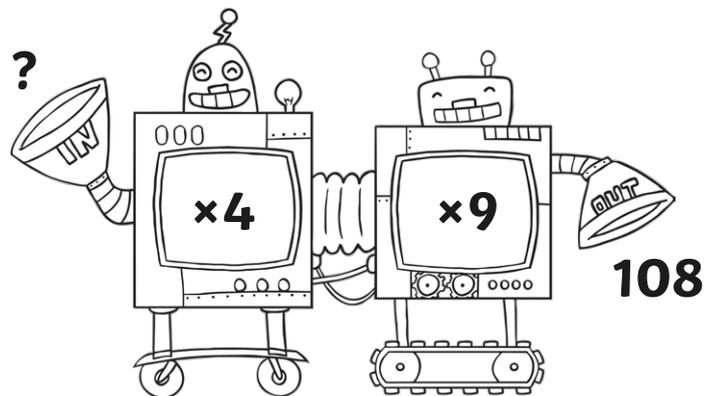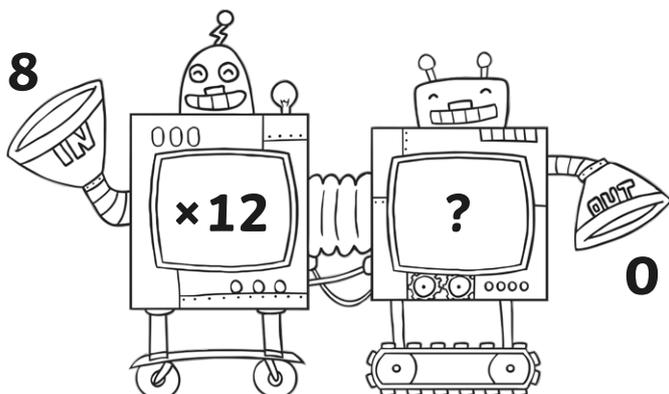
Multiplication Machines **Answers**

1. **Put these numbers through the Multiplication Machine:**

   a. 6 × 2 × 8 = 96

   b. 4 × 2 × 8 = 64

   c. 5 × 2 × 8 = 80

   d. 9 × 2 × 8 = 144

   e. 12 × 2 × 8 = 192

2. **What happens if you change the order of the calculation? Do you get a different answer?**

   a. 6 × 2 × 8 = **96**

   b. 2 × 6 × 8 = **96**

   c. 8 × 2 × 6 = **96**

   d. 6 × 8 × 2 = **96**

   e. 4 × 2 × 8 = **64**

   f. 2 × 4 × 8 = **64**

   g. 8 × 2 × 4 = **64**

   h. 8 × 4 × 2 = **64**

   What do you notice? Try to explain what you find out.

   It doesn't matter what order you work them out in, you will get the same answer (or words to that effect).

3. **What happens if you change the order of the calculation? Do you get a different answer?**

   a. 4 × 3 × **2** = 24

   b. **2** × 5 × 6 = 60

   c. 6 × **2** × 6 = 72

   d. **3** × 4 × 9 = 108

   e. 8 × 12 × **0** = 0

Multiplication Machines

I can multiply together three numbers.

1. Put these numbers through the Multiplication Machine:

**a)** 6   **b)** 4   **c)** 5   **d)** 9   **e)** 12
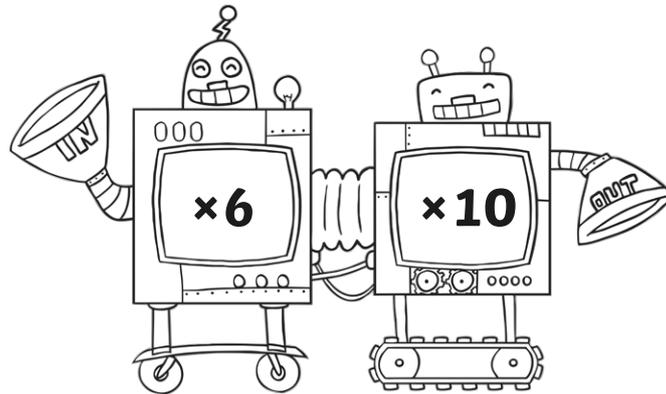
2. What happens if you change the order of the calculation? Do you get a different answer?

    a. 6 × 6 × 10 =

    b. 10 × 6 × 6 =

    c. 6 × 10 × 6 =

    d. 4 × 6 × 10 =

    e. 6 × 4 × 10 =

    f. 10 × 4 × 6 =

    g. 6 × 10 × 4 =

What do you notice? Try to explain what you find out.

_____

_____

_____

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Multiplication Machines

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

12 → [IN] [×3] [?] → 36 [OUT]

a. _____

? → [IN] [×9] [×2] → 90 [OUT]

b. _____

6 → [IN] [?] [×6] → 72 [OUT]

c. _____

? → [IN] [×4] [×9] → 108 [OUT]

d. _____

5 → [IN] [×8] [?] → 0 [OUT]

e. _____
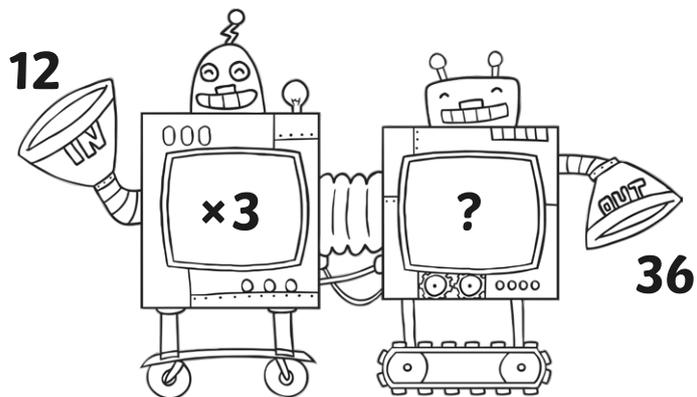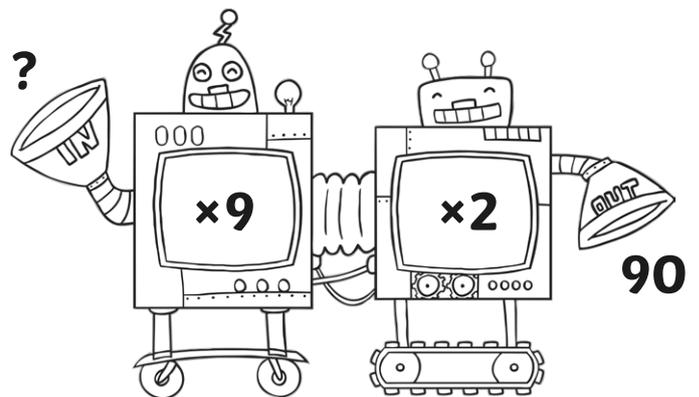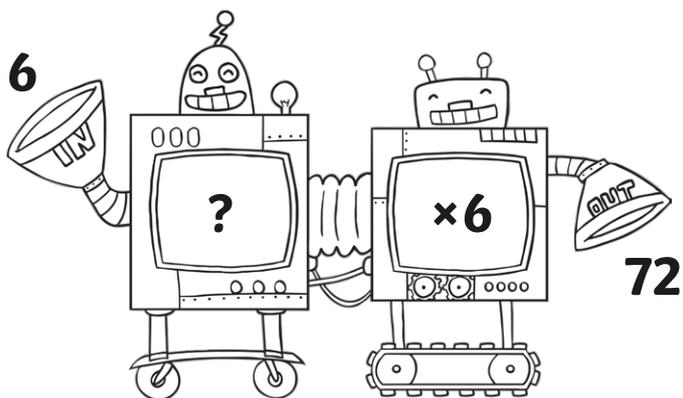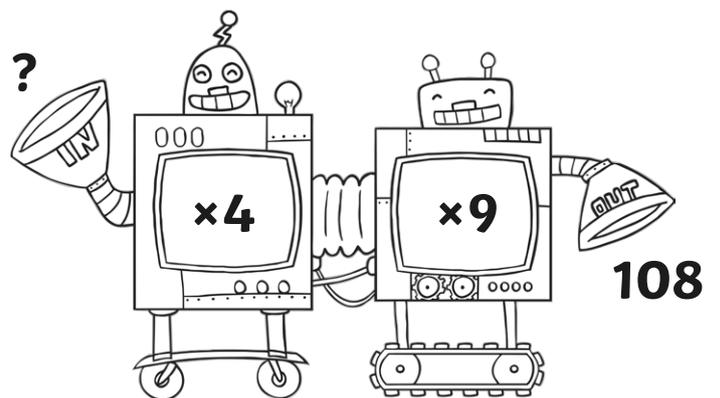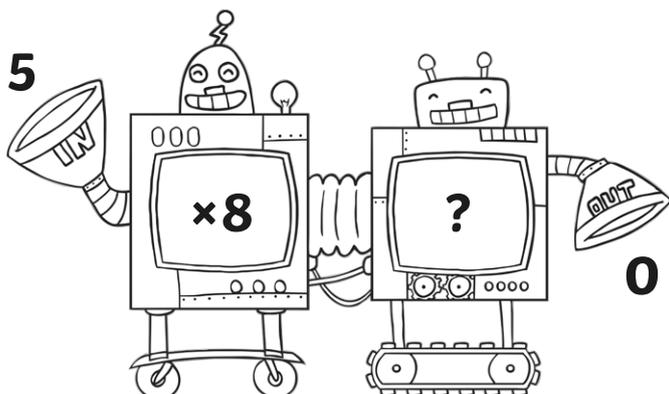
Multiplication Machines **Answers**

1. **Put these numbers through the Multiplication Machine:**

   a. $6 \times 6 \times 10 = 360$

   b. $4 \times 6 \times 10 = 240$

   c. $5 \times 6 \times 10 = 300$

   d. $9 \times 6 \times 10 = 540$

   e. $12 \times 6 \times 10 = 720$

2. **What happens if you change the order of the calculation? Do you get a different answer?**

   a. $6 \times 6 \times 10 = \underline{\textbf{360}}$

   b. $10 \times 6 \times 6 = \underline{\textbf{360}}$

   c. $6 \times 10 \times 6 = \underline{\textbf{360}}$

   d. $4 \times 6 \times 10 = \underline{\textbf{240}}$

   e. $6 \times 4 \times 10 = \underline{\textbf{240}}$

   f. $10 \times 4 \times 6 = \underline{\textbf{240}}$

   g. $6 \times 10 \times 4 = \underline{\textbf{240}}$

   What do you notice? Try to explain what you find out.

   It doesn't matter what order you work them out in, you will get the same answer (or words to that effect).

3. **What happens if you change the order of the calculation? Do you get a different answer?**

   a. $12 \times 3 \times \underline{\textbf{1}} = 36$

   b. $\underline{\textbf{5}} \times 9 \times 2 = 90$

   c. $6 \times \underline{\textbf{2}} \times 6 = 72$

   d. $\underline{\textbf{3}} \times 4 \times 9 = 108$

   e. $8 \times 12 \times \underline{\textbf{0}} = 0$

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