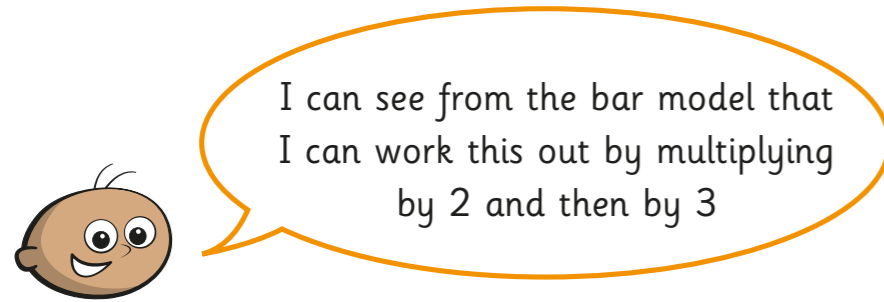


Use factors to simplify calculations

1 Tommy wants to multiply 26 by 6



a) Talk to a partner about why the bar model helps Tommy.

26	26	26	26	26	26

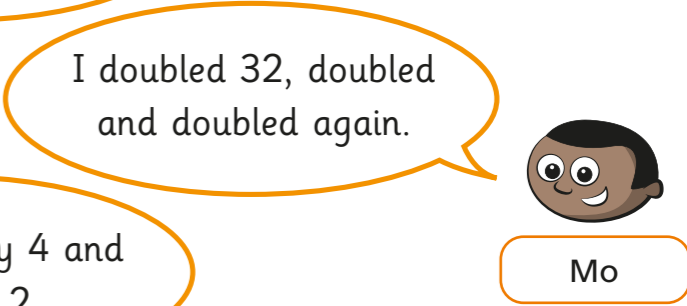
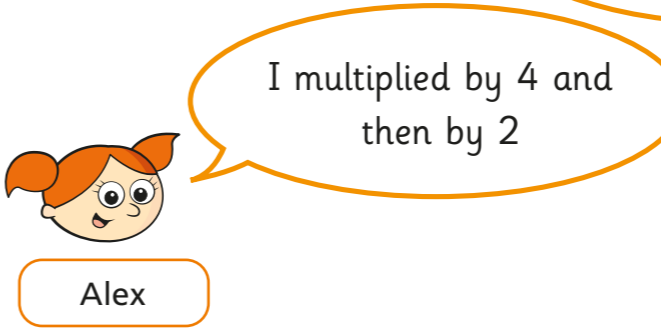
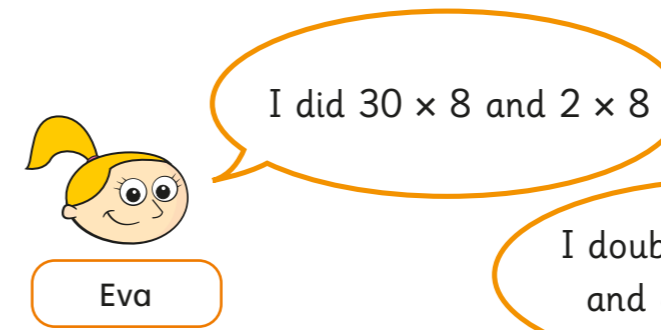
b) Fill in the missing values on the bar model.

Do the calculations mentally.

c) Explain why multiplying by 2 and then by 3 is the same as multiplying by 6

d) How else could you work out 26×6 mentally?

2 Eva, Mo and Alex are multiplying 32 by 8



a) Explain why Mo's method works.

You may draw a diagram to help.

b) Work out 32×8 using each method.

Which method did you prefer?

3 a) Write the factors of 24

b) Use factors to work out 24×25 in your head.

c) Write the mental calculations you did to show how you worked this out.

4 Tick the calculation that does **not** give the answer to 32×18

$16 \times 9 \times 2 \times 2$	$8 \times 8 \times 9$	$9 \times 8 \times 2 \times 2 \times 2$	$30 \times 2 \times 10 \times 8$
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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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a) Use one of the correct calculations to work out 32×18 mentally.

b) Which one did you use and why?

5 Here are three methods for working out 24×12

Multiply 24 by 6 and then by 2	Multiply 12 by 12 and then by 2	Multiply 12 by 8 and then by 3
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Tick the method you prefer.
Talk to a partner about why you prefer this method.

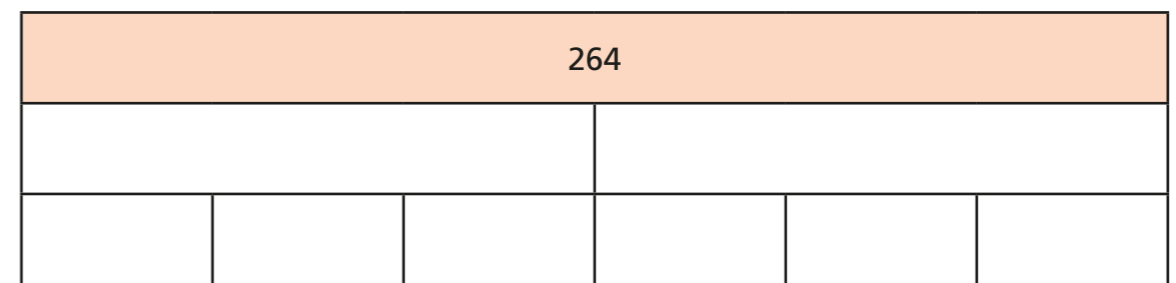


6 Complete the calculations.

- a) $37 \times 20 = 37 \times 2 \times 10 =$
- b) $16 \times 40 = 16 \times 2 \times 2 \times$ $=$
- c) $30 \times 49 = 49 \times$ \times $=$
- d) $32 \times 300 = 32 \times$ \times $=$

7 Find three different ways to multiply 16 by 50 using factors.

8 The bar model helps you divide 264 by 6



Work out $264 \div 6$

9 Use factors to work out these divisions mentally.
Show each step of your thinking.

- a) $124 \div 4 =$
- b) $352 \div 16 =$
- c) $276 \div 12 =$

10 Show that 80 divided by 24 is equal to $3\frac{1}{3}$ using factors.

