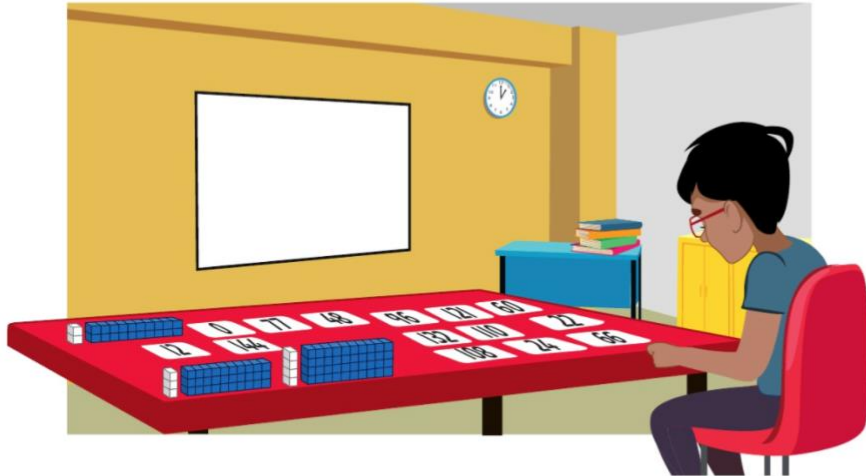


11 and 12 times-tables

Discover

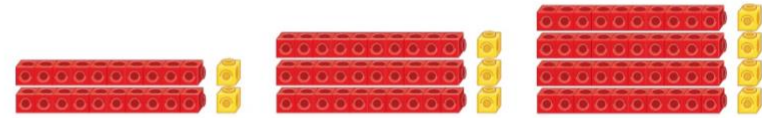


- 1 a) Which 11 times-table facts has Max used cubes to show?
- b) Sort the number cards into two groups. Explain your sorting.

Share



a) Max made these facts from the 11 times-table:



$2 \times 11 = 22$

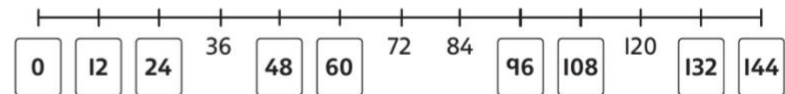
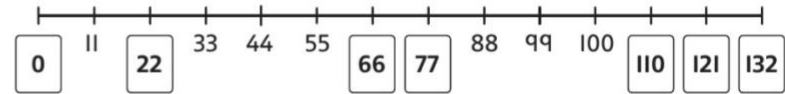
$3 \times 11 = 33$

$4 \times 11 = 44$

b)



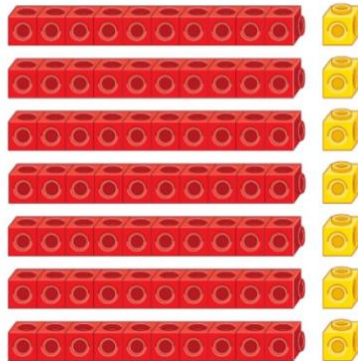
I sorted into numbers in the 11 times-table and numbers in the 12 times-table. I used a number line to help me.



0 and 132 appear in both the 11 and 12 times-tables.

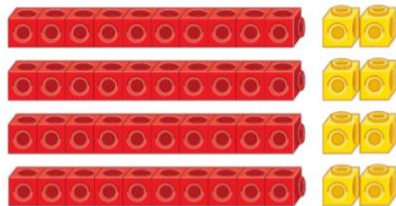
Think together

- 1 Use cubes to work out 7×11 .



$$7 \times 11 = \square$$

- 2 What times-table facts are shown here?



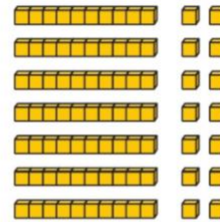
$$\square \times \square = \square$$

$$\square \times \square = \square$$

I think I have seen some of these facts before in other times-tables, but where?



- 3 Olivia uses base 10 equipment to show 7×12 .



I've noticed that in each row I have a line of 10 cubes and 2 extra cubes. Perhaps I can use these times-tables to find the solution.

Olivia



- a) Explain how she can use number facts from the 10 and 2 times-tables to get the correct answer.
- b) Work out these multiplications. Use the other times-tables to help you.

$$4 \times 12 =$$

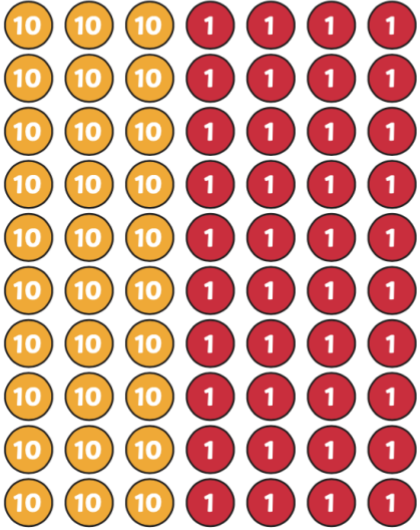
$$9 \times 12 =$$

$$16 \times 12 =$$

I think there is more than one way to find the solutions to these multiplications.



Mastery

Write It	a) _____ × _____ = _____	b) _____ × _____ = _____	c) $18 \times 10 = 180$
Draw It			
Describe It	<p>Every row has _____ tens counters and _____ ones counters. There are _____ rows. Each row has a value of _____.</p>	<p>Every row has <u>2</u> tens counters and <u>2</u> ones counters. There are <u>10</u> rows. Each row has a value of <u>22</u>.</p>	<p>Every row has _____ tens counter and _____ ones counters. There are _____ rows. Each row has a value of _____.</p>

End of unit check



1 What is the missing number?

$$\square \times 5 = 400$$

- A 8 B 80 C 800 D 2,000

2 Which number is missing from each calculation?

$$4 \times \square = 4 \qquad 5 \times \square = 5 \qquad 11 \div \square = 11$$

- A 0
 B 1
 C 10
 D A different number each time.

3 Which calculation does not work out the total number of hearts?



- A 6×6 B 6×3 C 2×9 D 9×2

4 An athlete runs 12 km every day for 7 days.

How many kilometres (km) does the athlete run in total?

- A 12 km B 19 km C 84 km D 96 km

5 What is $9 \times 7 - 4 \times 7$?

- A 28 B 1,764 C 63 D 35

6 A box contains 72 marbles.

They are shared equally between 9 bags.

How many marbles are there in each bag?

$$\square \div \square = \square$$

There are \square marbles in each bag.

Mastery

- 1) a) Hiba multiplied a two-digit number by 10. Her answer was a multiple of 7. Her original number had fewer than 6 tens. Shade Hiba's possible calculations on this grid.



7×10	21×10	35×10	32×10
65×10	14×10	63×10	84×10
28×10	40×10	49×10	36×10
77×10	42×10	70×10	24×10



- b) One of Hiba's possible calculations is missing from this grid. Can you find the missing calculation?

Think about your $\times 7$ facts and answers.



Deepen Activities

1 Is each of these number sentences correct? Explain how you know.

$$16 \times 0 = 32 \times 0$$

$$2 \times 3 \times 0 = 2 \times 0 \times 3$$

$$0 \times 0 = 1,000 \times 0$$

$$28 \times 0 = 28 \times 1$$

$$80 \times 1 = 80 \div 1$$

$$10 \times 1 \times 4 = 20 \times 2 \div 1$$

$$1 \times 7 \times 9 = 63 \div 1$$

$$100 \div 1 = 2 \times 0 \times 50$$

Make up some number sentences of your own for a partner to solve.

I used what I know about multiplying and dividing by 0 and 1 to solve these.





2 Complete the statements:

$$6 \times 3 = 36 \div \square$$

$$8 \times 4 = 64 \div \square$$

$$40 \div 2 = 4 \times \square$$

$$3 \times 3 = 18 \div \square$$

$$13 \times 6 = (10 \times 6) + (\square \times 6)$$

$$15 \times 7 = (10 \times 7) + (\square \times 7)$$

3 a) Which of these are multiples of 3?

9, 13, 19, 24, 31, 36, 60, 120, 300

b) Which of these are multiples of 4?

4, 14, 24, 40, 48, 64, 100, 140, 160

c) Which of these are multiples of 6?

12, 17, 32, 48, 60, 66, 122, 360, 606

Explain how you know.

Mastery

2) a) Write a number story and calculation to match each bar model. The first one has been done for you.

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?																						
12	12	12	12	12	12	12	12	12	12													
<table border="1"> <tr> <td colspan="10" style="text-align: center;">?</td> </tr> <tr> <td>15</td><td>15</td><td>15</td><td>15</td><td>15</td><td>15</td><td>15</td><td>15</td><td>15</td><td>15</td> </tr> </table>	?										15	15	15	15	15	15	15	15	15	15		
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Unit 6

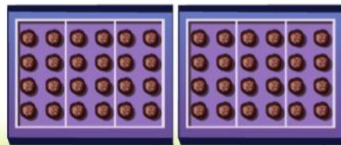
Multiplication and division 2



In this unit we will ...

- ⚡ Learn how to multiply a number using the written method
- ⚡ Learn how to multiply and divide numbers in our heads
- ⚡ Find the remainder when a number is divided
- ⚡ Use bar models and part-whole models to solve multiplication and division problems

We have already learnt the times-tables facts. Can you use the facts to work out how many chocolates I have? Is there a quicker way?

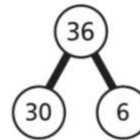


We will need some maths words. How many of these have you used before?

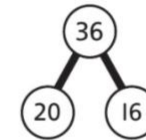
multiply	divide	times-tables
partition	array	bar model
part-whole model		remainder
factor pair	factors	commutative

We need to know how to use a part-whole model to multiply or divide. First, we need to know how to partition a number. Is there another way to partition 36?

$$36 = 30 + 6$$



$$36 = 20 + 16$$



Problem solving – addition and multiplication



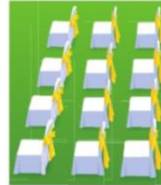
Discover



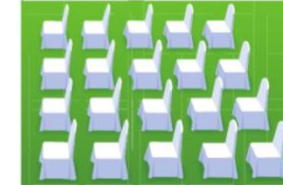
- 1** a) How many chairs have bows?
How many plain chairs are there?
- b) How many chairs are there in total?
Find two ways of working out the total.

Share

- a) There are 4 rows of 3 chairs with bows.
There are 4 rows of 5 plain chairs.

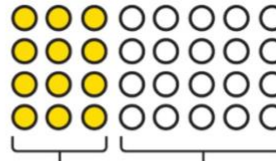


$4 \times 3 = 12$
12 chairs have bows.

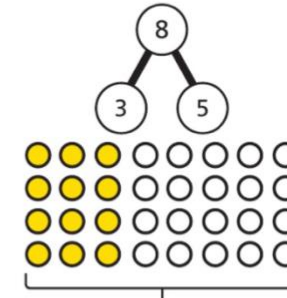


$4 \times 5 = 20$
There are 20 plain chairs.

- b)



$4 \times 3 = 12$ $4 \times 5 = 20$
 $12 + 20 = 32$



$4 \times 8 = 32$



I just added the numbers from earlier.

There are 32 chairs in total.

I did $3 + 5 = 8$, which gives the number of chairs in each row.

Then I multiplied my answer by 4, as there are 4 rows.



Think together

- 1 How many chairs are there in total?
Find the answers using the two methods.

Method 1

Chairs with bows: \times 3 =

Plain chairs: \times 3 =

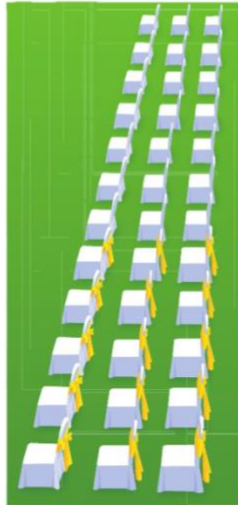
+ =

Method 2

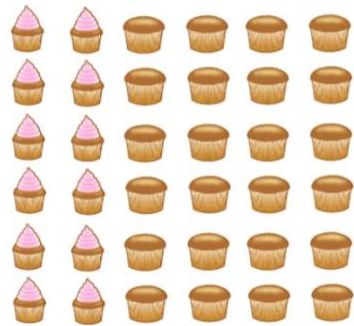
+ =

3 \times =

There are chairs in total.



- 2 Work out the total number of cupcakes.



There are cupcakes in total.

CHALLENGE

- 3 a) Use the counters to help you to work out:
 $2 \times 5 + 2 \times 7$



Explain your method to your partner.



I found the number of counters in each group and then added these together.



I wonder if there is a more efficient method, which needs only one multiplication.

- b) Show that $7 \times 3 + 7 \times 2 = 7 \times 5$
c) Show that $2 \times 4 + 3 \times 2 = 7 \times 2$

Mastery

1) Match the division statements on the left to the correct answers on the right.



$+ 10$

$+ 10$

$+ 10$

$+ 10$

10 1 1

$40 + 3$

10 10 10 1
1 1 1

Problem solving – mixed problems

Discover



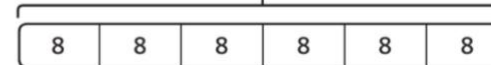
- 1** a) How many butterflies are there in the tray?
- b) The butterflies are put into new trays. Each tray holds 12 butterflies. How many new trays are needed?

Share

a) There are 6 rows of 8 butterflies.



48



$$6 \times 8 = 48$$

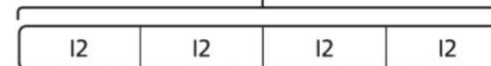
There are 48 butterflies in the tray.

I used my knowledge of arrays, and then the facts from the 8 times-table, to work this out.



b) There are 48 butterflies. Each tray holds 12 butterflies.

48



$$48 \div 12 = 4$$

4 new trays are needed.

I grouped the butterflies into 12s. This showed it was a division.



Think together

- 1 There are 8 pencils in each box.



- a) How many pencils are there in total?

$$\square \times \square = \square$$

There are \square pencils in total.

- b) The pencils are shared between 2 classes.

How many pencils does each class get?

$$\square \div \square = \square$$

Each class gets \square pencils.

- 2 Work out the missing value.

6	6	6	6
?	?	?	

$$? = \square$$

- 3 There are 5 toy cars. They cost the same, in total, as 3 toy planes.



How much does a toy plane cost?

A toy plane costs £ \square .

I will draw bar models to help me to work out the missing number.

Let's put one bar model above the other. Do they need to be the same length?



Mastery



1) Decide whether the following statements are true or false. Explain your reasoning.

	True or False?	Explanation
If I cut a 200cm piece of ribbon into ten pieces, each piece will measure 10cm.		
If I divide 4630 by 10, I will have 4 hundreds, 6 tens and 3 ones.		
$1500 \div 10 < 550 \div 10 > 1550 \div 10$		