Snap!

Groups ×3

Purpose:

- to recall the ×3 table facts quickly
- to relate multiplication to repeated addition
- to begin to recall division facts related to the ×3 table

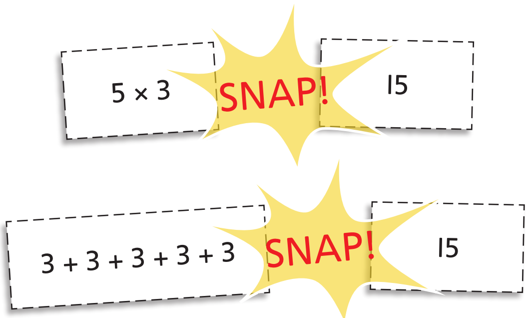
Resources (per group): PCM B, PCM C

In this activity children play in small groups (2–4 children). They mix and share ×3 cards, number cards and repeated addition cards (all made from PCM B and PCM C). When they see a pair of cards that show equal amounts they call 'Snap!'

As they move from T to S to D they connect repeated addition and multiplication, recall the ×3 table facts, and ask and answer division facts.

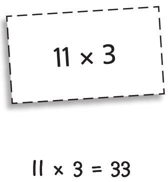
T Towards

Children shuffle all the cards made from PCM B and PCM C and share them equally. Each child puts their cards face down in a pile.They take turns to turn over their top card and add it to a pile in the middle of the desk. When they spot two consecutive cards showing the same amount, with a product, a multiplication or an addition, they call 'Snap'. The first child to do this correctly takes all the cards in the pile. They go through their piles three times. The child with the most cards at the end of the game is the winner.



S Securing

Same as Towards but each time they turn over a multiplication card, children also say the product, as well as looking for matching pairs of cards.



D Deeper

Same as Securing, but this time, when a player calls 'Snap!' when they spot a pair of matching cards, they ask the rest of the group a question based on the ×3 table (including division facts). If one of the other children answers correctly, they win the cards in the pile. The first child to win all the cards wins the game.

What division question can you ask?
Is that a difficult question?

4-square

Groups ×4

Purpose:
- to generate multiples of 4
- to identify the nearest multiple of 4 in a given number of objects

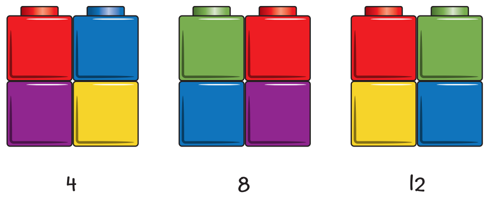
Resources (per group): interlocking cubes (at least 50 per group), sticky notes

In this activity children play in small groups (2–4 children). They use interlocking cubes to make cuboids with two square faces made with 4 cubes.

As children move from T to S to D they go on to predict how many groups of 4 can be made from a handful of cubes, and use these to write multiplication sentences.

T Towards

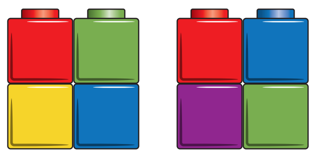
Children take turns to take 4 cubes and join them to make a cuboid with two square faces showing 2×2. After each cuboid has been made, it is placed in a line with a square face upwards. As each child places their cuboid in line, they count in 4s along the line, beginning with 4.



> How many 4s do you have? How many altogether? What do you think the next number will be?

S Securing

Children take turns to take some cubes – this could be a small number or a couple of handfuls. They count the cubes they have taken and predict how many groups of 4 they can make.They keep and make the 4s, and put any unused cubes back in the pile.They tell the group how many 4s they have, and how many cubes that is altogether. The first child to make twelve 4s and count along their line in 4s to 48 wins the game.

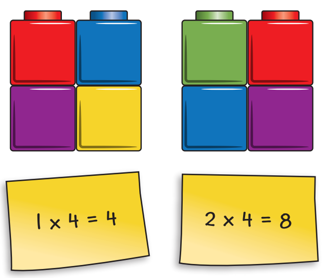


> I have two 4s.
> I have 8 altogether

> How many more 4s do you need to make 48?

D Deeper

Same as Securing, but children also write the multiplication fact for the number of squares in the line on a sticky note as the game progresses.



Code 8

Whole class

×8

Purpose:

- to use the patterns and relationships in the ×8 table to solve a problem

Resources (per group): PCM K (cut into strips)

In this activity children are presented with multiplication facts for the ×8 table in code, where a letter represents each digit (PCM K). They are given the digits, and are asked to crack the code by replacing each letter with one of the digits to make the multiplication sentence true.

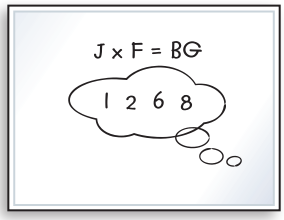
The tasks in S and D build on the outcomes of the task in the previous tier. As children move from T to S to D they work out the code with increasing independence, and eventually crack the code for all the facts in the ×8 table

T Towards

Write **J** × **F = BG** on the board.

Explain to children that they are going to be code-breakers. Tell them that one of the letters on the board represents 1, another represents 2, another represents 6 and another represents 8. Write these digits on the board. Explain that their task is to work out which digit is represented by each letter.

Invite suggestions from children. If they are correct, replace the letters with numbers to reveal 2 × 8 = 16.



F	J	B	G
8	2	1	6

The number sentence must be true.

S Securing

Give small groups (two or three) of children strips of code from PCM K and ask them to decipher using the digits given for each code. When they have decoded one strip, they can try another.

B × F = F	1 8 8	1 × 8 = 8
J × F = BG	1 2 6 8	2 × 8 = 16
C × F = JA	2 3 4 8	4 × 8 = 32

D Deeper

Children try to decipher all the codes without using the digit clues on the right-hand side of PCM K.

Do you think all the strips show a fact from the ×8 table?

! If children do not use the number clues, F × F = GA and BB × F = FF are good places to start. Encourage children to make a note under each multiplication on PCM K as they find each digit, as well as in the answer frame at the bottom of the page.

Always true, sometimes true, never true

Purpose:

- to become familiar with the properties of numbers that are multiples of 2, 3, 4, 5, 8 and 10

Resources (per pair): PCM T

In this activity children work together to decide whether statements on PCM T about different times-tables are always true, sometimes true or never true.

As they move from T to S to D, they go on to justify their answers and use their reasoning to give other examples that are always true, sometimes true or never true.

T Towards

Give each pair of children the four statements in the first row on PCM T. They work together to sort the cards into three groups: those that are always true, those that are never true and those that are sometimes true.

always true

Multiples of 8 are multiples of 4

sometimes true

Multiples of 3 are also multiples of 5

never true

Multiples of 10 could be odd

2 is a multiple of 4

Explain how you know this will *always* be true. Convince me that this will *never* be true.

S Securing

Same as Towards, but children use the 4 statements in the second row on PCM T. They also give reasons or examples to support their decisions. Encourage children to give full explanations.

always true

You can work out the multiples of 4 by knowing the multiples of 2

If you double the multiples of 2, you get multiples of 4.

sometimes true

Multiples of 2 are also multiples of 8

Some multiples of 2 are multiples of 8 (8, 16, 24, ...), but not all (2, 4, 6, 10, ...).

never true

12 is a multiple of 2, 3, 4 and 10

12 is a multiple of 2, 3and 4 but is never a multiple of 10.

Can you give some examples of numbers to show that you are correct? How many examples do you need to give if you think a statement is sometimes true?

D Deeper

Same as Securing but children sort the remaining four statements on PCM T. They also use the four blank cards to invent four new statements of their own. They swap their new statements with another pair and sort each other's statements.

Can you write some examples to convince someone that your statement is always true?

PCM T

24 is a multiple of 2, 3, 4, 6, 8 and 12.

Multiples of 2 are also multiples of 8.

2 is a multiple of 4.

Multiples of 3 are odd numbers.

Multiples of 10 end in 0.

Multiples of 8 are multiples of 4.

You can work out ×6 table facts using the ×3 table facts.

12 is a multiple of 2, 3, 4 and 10.

Multiples of 10 could be odd.

If you halve a multiple of 8, the answer could be an even or an odd number.

You can work out the multiples of 4 by knowing the multiples of 2.

Multiples of 3 are also multiples of 5.

Assessment: x8 table

T	S	D
1 10 × 8 = ☐	11 1 × 8 = ☐	21 32 = ☐ × 8
2 4 × 8 = ☐	12 8 × 3 = ☐	22 8 × ☐ = 40
3 1 × 8 = ☐	13 11 × 8 = ☐	23 8 × ☐ = 88
4 8 × 8 = ☐	14 8 × 10 = ☐	24 56 ÷ ☐ = 8
5 11 × 8 = ☐	15 8 × 4 = ☐	25 ☐ = 10 × 8
6 6 × 8 = ☐	16 8 × 8 = ☐	26 9 × 8 = ☐
7 9 × 8 = ☐	17 9 × 8 = ☐	27 48 ÷ 8 = ☐
8 3 × 8 = ☐	18 8 × 10 = ☐	28 8 ÷ ☐ = 8
9 2 × 8 = ☐	19 6 × 8 = ☐	29 64 = ☐ × 8
10 5 × 8 = ☐	20 8 × 12 = ☐	30 80 ÷ 8 = 40 ÷ ☐

T

1 Write the missing numbers in the sequence.

24 32 ☐ 48 ☐ 64 ☐

2 Some rowing boats have 8 oars. How many oars would 4 of these rowing boats have?

S

1 Which of these numbers are multiples of 8? Circle them.

18 28 38 48 58 68 78 88

2 There are 8 pencils in every box. How many pencils are in 10 boxes?

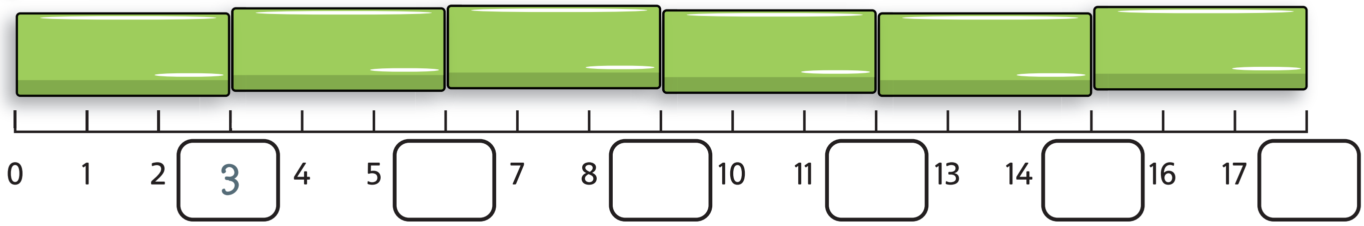
D

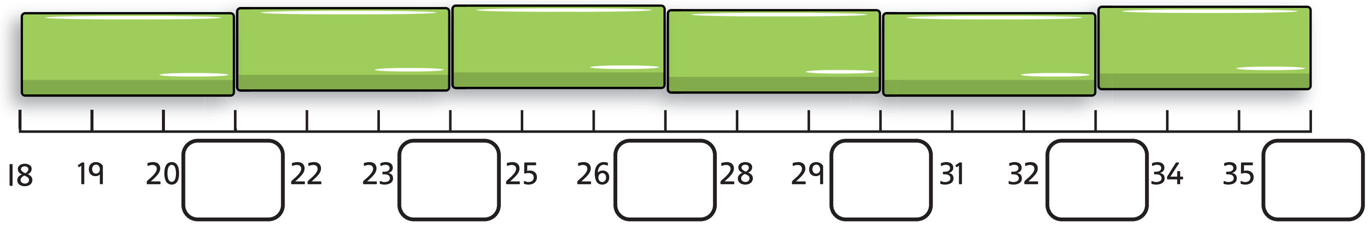
1 Ewan is thinking of two whole numbers. The sum of the numbers is 12 and the product is 32. What are Ewan's numbers?

3-rods

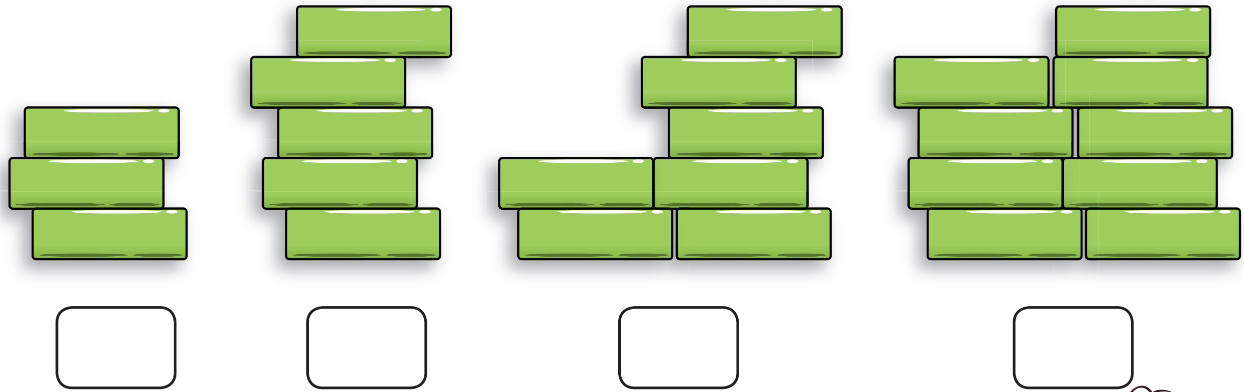
×3

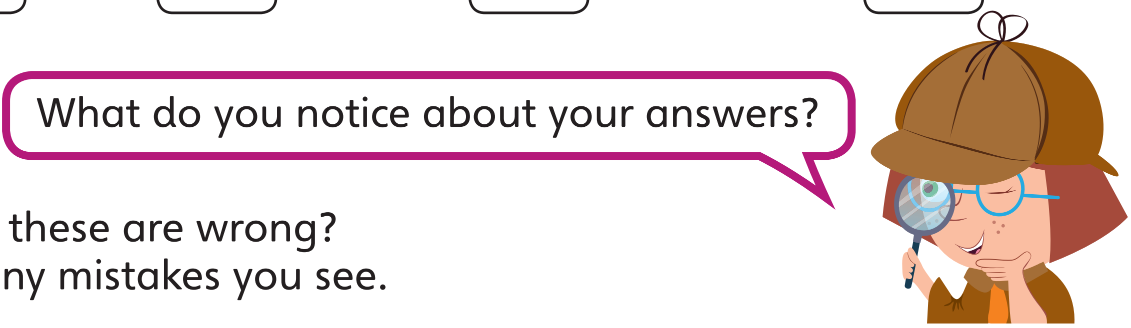
T Fill in the missing multiples of 3.





S Each rod is worth 3. Write the value of each set of rods.





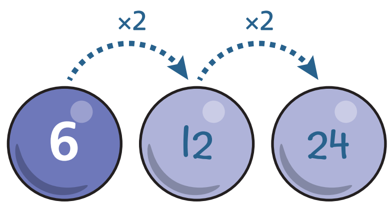
D Which of these are wrong?
Correct any mistakes you see.

7 × 3 = 21	11 × 3 = 33	5 × 3 = 18	8 × 3 = 27
4 × 3 = 12	9 × 3 = 24	12 × 3 = 36	6 × 3 = 15

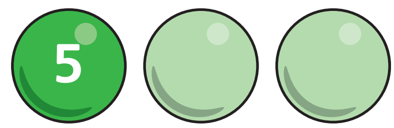
Double double

T Use 'double, double' to multiply each number by 4.

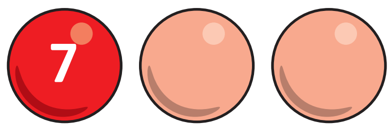
Double the number, then double the answer.



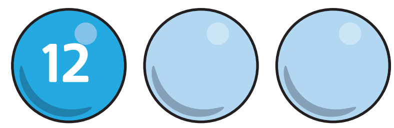
6 × 4 = 24



5 × 4 =

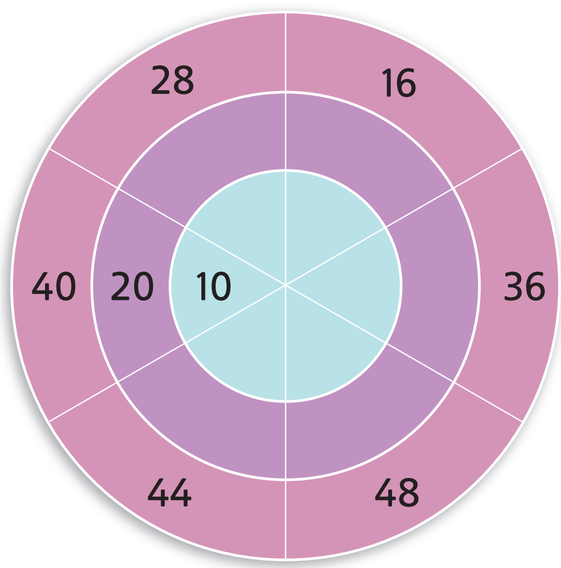


7 × 4 =



12 × 4 =

S Fill in the empty spaces. Choose a multiple of 4 from the outer circle and work inwards. Use 'halve and halve again' to divide each by 4.



D

Write the answers. Do you see a pattern? Use it to work out 20 × 4.

1		2		3		4	
5 × 2 =		6 × 2 =		8 × 2 =		11 × 2 =	
5 × 4 =		6 × 4 =		8 × 4 =		11 × 4 =	

Lots of tables

mixed practice

T Fill in the missing numbers to complete the grids.

×	2	10	5
4	8		
7		70	
12			

×	3	4	8
6	18		
11			88
8			

Multiply the number on the left by each number at the top.

S Work out all the missing numbers in these grids.

×	4		8
4	24		48
9		45	
		20	

×	10	3	8
		18	48
			24
7	70		

Be careful! There may be more than one way to make a multiple.

D Find three different ways to complete this grid. Which of the completed grids has the most numbers that are greater than 60?

×			
	24		
		36	
			20

×			
	24		
		36	
			20

×			
	24		
		36	
			20