POWER MATHS

White Rose Maths

White Rose Maths Edition

# Year 6
## Practice Book
# 6B

Pearson

Series Editor: Tony Staneff

# Year 6 Practice Book 6B

White Rose Maths Edition

Draw your favourite animal.

What do you think its mass is in kg?

This book belongs to _____ .

My class is _____ .

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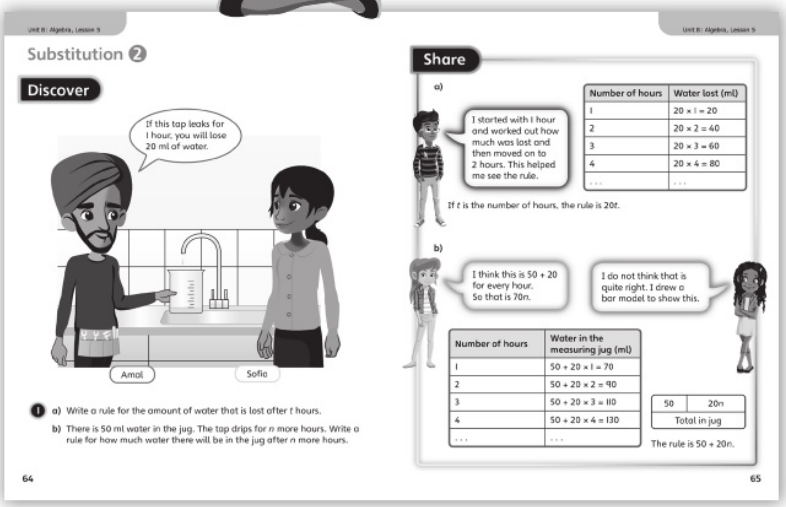
# Contents



# How to use this book

Do you remember how to use this **Practice Book**?

Use the **Textbook** first to learn how to solve this type of problem.



Substitution 2

Discover

If this tap leaks for 1 hour, you will lose 20 ml of water.

Amal Sofia

1 a) Write a rule for the amount of water that is lost after $t$ hours.

b) There is 50 ml water in the jug. The tap drips for $n$ more hours. Write a rule for how much water there will be in the jug after $n$ more hours.

64

Share

a)

I started with 1 hour and worked out how much was lost and then moved on to 2 hours. This helped me see the rule.

| Number of hours | Water lost (ml) |
|---|---|
| 1 | 20 × 1 = 20 |
| 2 | 20 × 2 = 40 |
| 3 | 20 × 3 = 60 |
| 4 | 20 × 4 = 80 |
| ... | ... |

If $t$ is the number of hours, the rule is $20t$.

b)

I think this is 50 + 20 for every hour. So that is 70n.

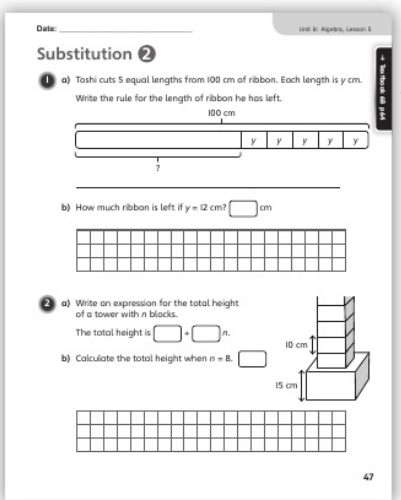
I do not think that is quite right. I drew a bar model to show this.

| Number of hours | Water in the measuring jug (ml) |
|---|---|
| 1 | 50 + 20 × 1 = 70 |
| 2 | 50 + 20 × 2 = 90 |
| 3 | 50 + 20 × 3 = 110 |
| 4 | 50 + 20 × 4 = 130 |
| ... | ... |

| 50 | 20n |
|---|---|
| Total in jug | |

The rule is 50 + 20n.

65



Substitution 2

1 a) Toshi cuts 5 equal lengths from 100 cm of ribbon. Each length is $y$ cm. Write the rule for the length of ribbon he has left.

100 cm

y y y y y

?

b) How much ribbon is left if $y$ = 12 cm? ☐ cm

2 a) Write an expression for the total height of a tower with $n$ blocks.

The total height is ☐ + ☐ $n$.

b) Calculate the total height when $n$ = 8. ☐

10 cm

15 cm

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This shows you which **Textbook** page you need.

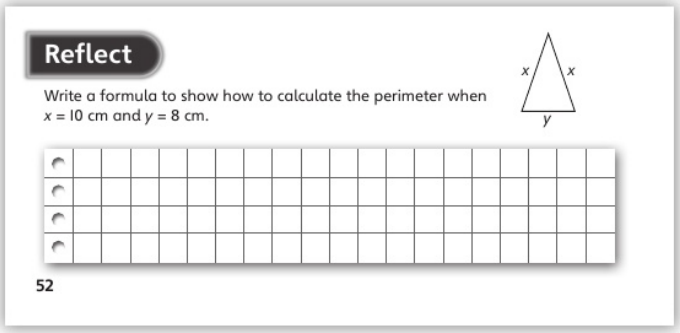
Have a go at questions by yourself using this **Practice Book**. Use what you have learnt.


Challenge questions make you think hard!

Questions with this light bulb make you think differently.

# Reflect

Each lesson ends with a **Reflect** question so you can think about what you have learnt.

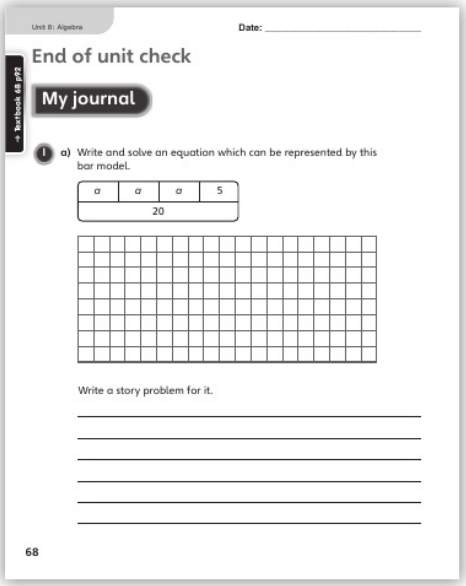


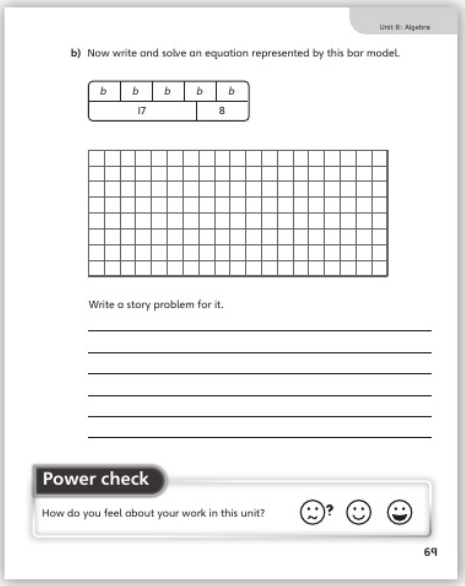

Use **My power points** at the back of this book to keep track of what you have learnt.

# My journal

At the end of a unit your teacher will ask you to fill in **My journal**.

This will help you show how much you can do now that you have finished the unit.



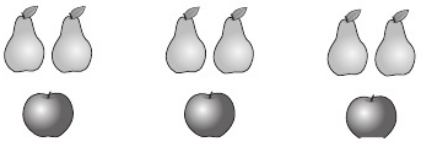



Date: _____

→ Textbook 6B p8

# Use ratio language

**1** Complete the sentences.

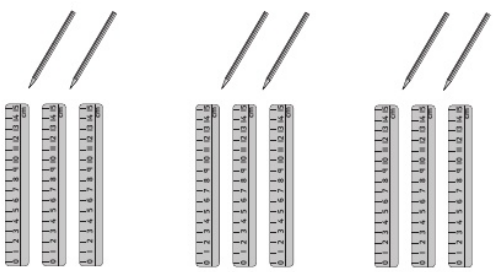


For every ☐ apple there are ☐ pears.

For every ☐ pears there is ☐ apple.

**2** Draw 3 apples for every 1 banana.

**3** Complete the sentences for the pencils and rulers.



**a)** For every ☐ rulers there are ☐ pencils.

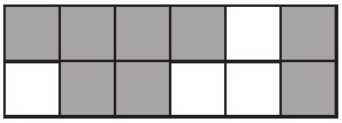
**b)** For every ☐ pencils there are ☐ rulers.

**4** Draw diagrams to represent the following ratio sentences.

**a)** There are 3 triangles for every 1 circle.

**b)** There are 2 squares for every 5 circles.

**5** **a)** Draw a line to match the correct shape to its corresponding ratio statement.



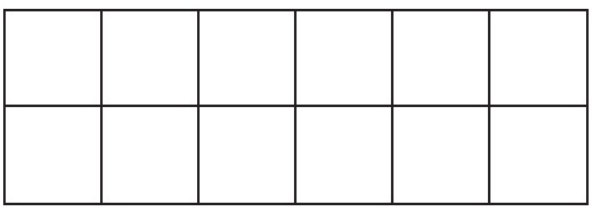
For every 1 shaded square there is 1 non-shaded square.

For every 1 shaded square there are 2 non-shaded squares.

For every 2 shaded squares there is 1 non-shaded square.

**b)** Shade squares in the rectangle to match the description below.

'For every 1 non-shaded square there are 5 shaded squares.'



CHALLENGE

**6** **a)** A tower is made up of red and white cubes.

Rohi says, 'For every 3 red cubes there is I white cube.'

Make or draw 2 possible towers of cubes.


**b)** The fraction that is red in each tower is $\frac{3}{4}$.

Discuss with a partner whether you agree or disagree with the statement.

## Reflect

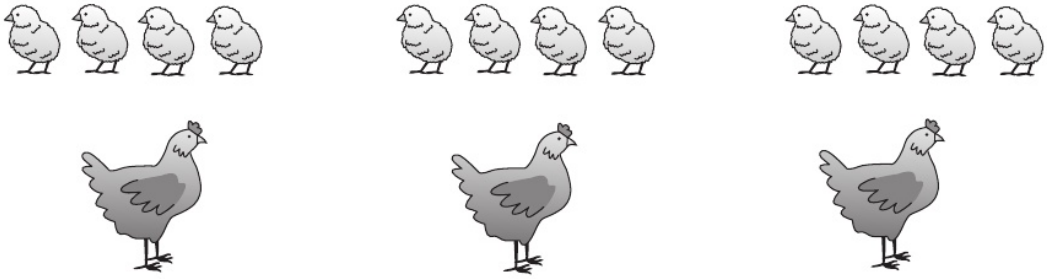
What can you see? Write your answer as a ratio sentence.

→ Textbook 6B p12

# Introduce the ratio symbol

**1** At the farm there are 12 chicks and 3 hens.

What is the ratio of chicks to hens?



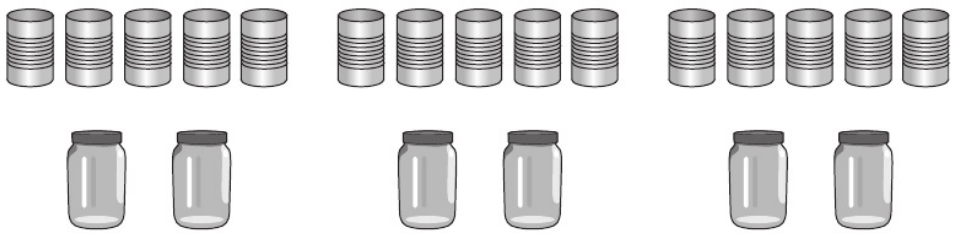
For every ☐ chicks there is ☐ hen.

Or, the ratio of chicks to hens is ☐ : ☐ .

**2** **a)** What is the ratio of jars to tins?

☐ : ☐

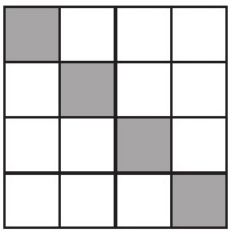
**b)** What is the ratio of jars to tins?



☐ : ☐

**3** What is the ratio of shaded to non-shaded squares in each diagram?

**a)**

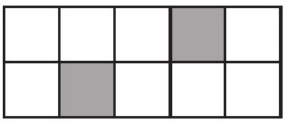


☐ : ☐

**b)**

☐ : ☐

**c)**



☐ : ☐

**4** In each box, draw triangles and circles to show the ratio.

Draw more than six shapes in each box.

| | |
|---|---|
| **a)** The ratio of triangles to circles is 3 : 1. | **c)** The ratio of triangles to circles is 1 : 3. |
| **b)** The ratio of triangles to circles is 3 : 2. | **d)** The ratio of triangles to circles is 1 : 4. |

**5** The ratio of the length of a pencil to the length of a straw is 1 : 2.

**a)** Is the pencil longer than the straw? Explain your answer.

_____

_____

**b)** Is the straw twice as long as the pencil? Explain your answer.

_____

_____

**6** Ambika mixes $1\frac{1}{2}$ litres of orange juice and lemonade.

She uses 250 ml of orange juice.

What is the ratio of orange juice to lemonade?

The ratio of orange juice to lemonade is ☐ : ☐.

## Reflect

'The ratio 2 : 1 is the same as the ratio 1 : 2.' Do you agree? Explain your answer.

_____

_____

_____

Date: _____

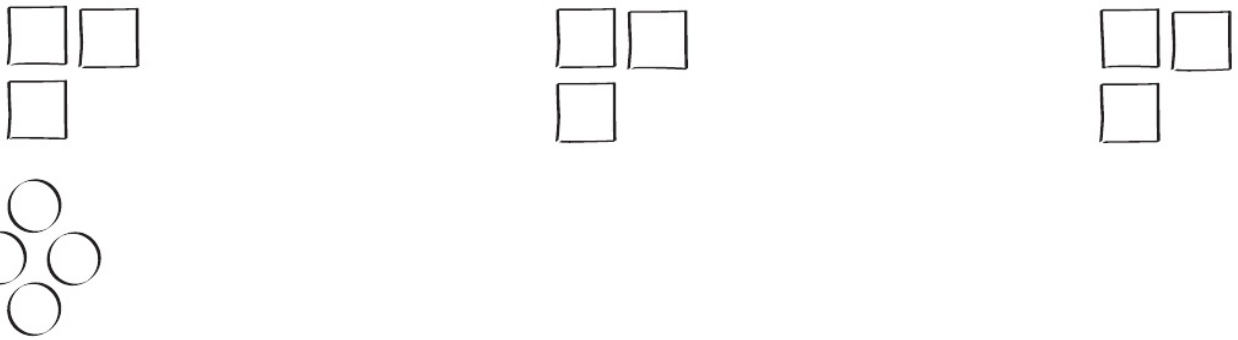
→ Textbook 6B p16

# Use ratio

**1** Lee draws some shapes.

For every 3 squares he draws 4 circles.

Here is part of the diagram Lee has drawn.



**a)** Complete Lee's diagram.

**b)** How many circles does Lee draw in total? ☐

**2** A jar contains strawberry sweets and lime sweets.

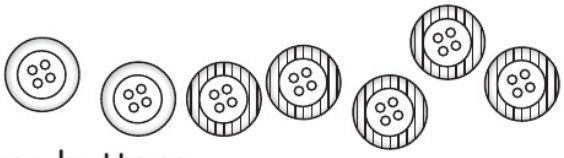
For every 2 strawberry sweets, there are 3 lime sweets.

There are 18 lime sweets in the jar.

Use the table to help you work out how many strawberry sweets are in the jar.

| Strawberry | Lime |
|---|---|
| 2 | 3 |
| 4 | 6 |
| | |
| | |
| | |
| | |
| | |

**3** A box contains some buttons.



For every 2 plain buttons there are 5 stripey buttons.

If there are 12 plain buttons in the box, how many stripey buttons are there?

**4** In a fish tank, for every 1 clown fish there are 4 box fish.

If the tank contains 7 clown fish, how many box fish are there?

**5** A pattern is made up of squares and rectangles.

For every 2 squares there are 5 rectangles.

Explain to a partner why the pattern cannot have 7 squares.

**6** For every 9 cows there are 5 sheep.

There are 36 cows. How many more cows than sheep are there?

**7** Josh has some 5p and 10p coins.

CHALLENGE

For every three 5p coins, Josh has one 10p coin.

Josh has 80p in 10p coins. How much money does Josh have in total?

## Reflect

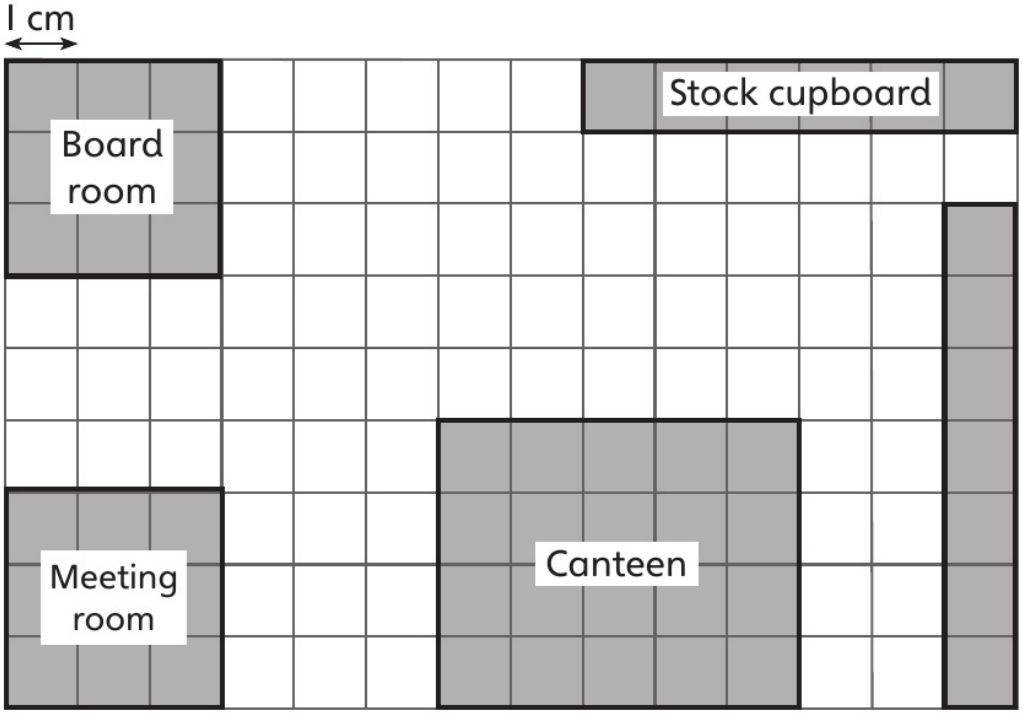
In a bag of balloons, there are 3 large balloons for every 4 small balloons.

Are there more large or more small balloons in the bag? How do you know?

→ Textbook 6B p20

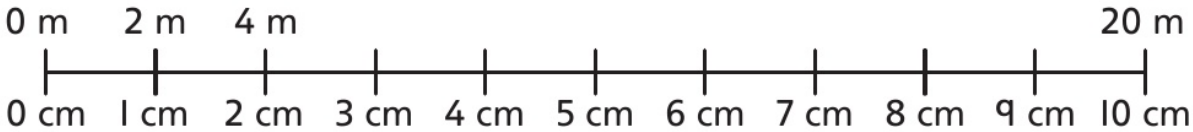
# Scale drawing

**1** The diagram shows a plan of an office space drawn on 1 cm squared paper.




On the plan, 1 cm represents 2 m in real life.

**a)** Complete the scale.




**b)** What is the length of the canteen in real life? ☐ m

**c)** The board room is a square.

What is the actual perimeter of the board room? ☐ m

**d)** A rectangular rug is added to the office. It is 2 m × 5 m.

Draw and label the rug on the plan.