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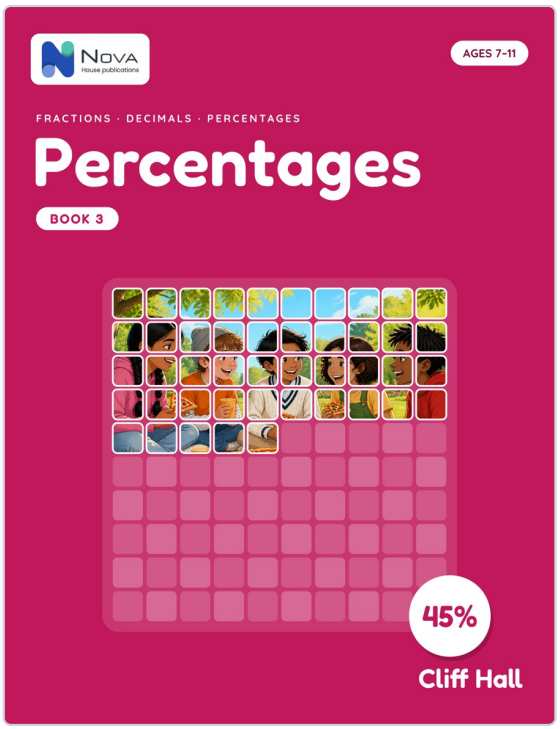
Maths · Book 3 · Free Sample

FREE SAMPLE PAGES

Fractions, Decimals and Percentages

Book 3: Percentages

Unit 1: What Is a Percentage?



Inside this sample

p. 2	Unit opener: What Is a Percentage?, with the sunflower-seed story
p. 3	The rest makes 100%, common mistakes and the Key Words
p. 4	How To; Try It With Help; Activity 1: Read the Grids; Activity 2: Percentages to Fractions and Decimals
p. 5	Activity 3: Fractions and Decimals to Percentages; Activity 4: The Rest of the Square; Activity 5: Out of 100; Activity 6: True or False?
p. 6	Activity 7: Think Harder (Challenge)
p. 7	Answers for the whole unit, from Teacher's Guide 3

1. **Print**
   Print on A4 at home. Every page fits the sheet, so choose "Fit to page" if your printer asks.

2. **Have a go**
   Read the story and the teaching pages together, then let your child try the activities. Allow 30 to 40 minutes.

3. **Check together**
   Use the answers on page 7 and talk through anything that was tricky.

About the book

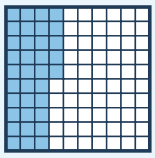
Percentages are everywhere: in sales, test scores, surveys and sports results. This friendly workbook builds understanding step by step: children start with "out of 100" and finish finding percentages of amounts, working out sale prices and reading pie charts, with no calculator needed. For ages 7 to 11.

Find out more about the full book at novaeducation.uk

Unit 1 CHALLENGE

What Is a Percentage?

Understand that per cent means "out of 100", and link percentages to hundredths.



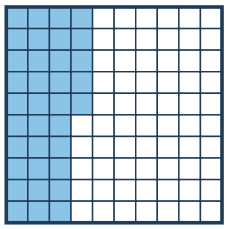


Meet Leila and Finn. Leila loves gardening, and this spring she and Finn have planted sunflower seeds in a tray of 100 little pots. After a week, 45 of the 100 pots have a green shoot. Leila says 45 per cent of the seeds have sprouted. Per cent means "out of 100".

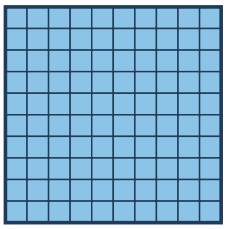
In Book 2 you met hundredths: $\frac{45}{100} = 0.45$. A **percentage** is another way to write hundredths, using the sign **%**.

Out of 100

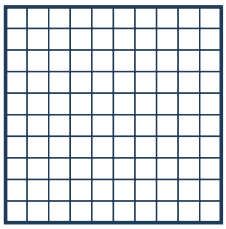
The word **per cent** comes from the Latin per centum, meaning "for each hundred". 35% means 35 out of 100. On a hundred square, 35% is 35 of the 100 small squares.



$35\% = \frac{35}{100} = 0.35$



100% is the whole square



0% is none of it

> **Per cent means "out of 100". 100% is the whole. $35\% = \frac{35}{100} = 0.35$.**

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The Rest Makes 100%

If 35% of the square is shaded, the part that is not shaded is 100% − 35% = 65%. The shaded and unshaded parts always add up to 100%.

Common Mistakes

Mistake	Correct it
35% means 35 out of any number	A percentage is always out of 100.
7% = 0.7	7% is 7 hundredths: 0.07.
Forgetting the % sign	45 is not the same as 45%.

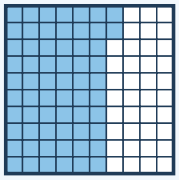
KEY WORDS

per cent out of 100, written %

percentage an amount written as a number out of 100

How To

What percentage of this hundred square is shaded?



Step 1 Count the shaded squares: 6 full columns of 10 and 2 more.

Step 2 62 out of 100 are shaded.

Answer: 62%

How To

Write 40% as a fraction out of 100 and as a decimal.

Step 1 40% means 40 out of 100: $\frac{40}{100}$.

Step 2 40 hundredths = 0.40 = 0.4.

Answer: $\frac{40}{100} = 0.4$

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How To

Finn tries 100 jumps at the skate park and lands 73 of them. What percentage does he land? What percentage does he miss?

Step 1 73 out of 100 = 73%.

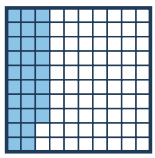
Step 2 Missed: 100% − 73% = 27%.

Answer: 73% landed, 27% missed



Try It With Help Your Turn

Use the How To boxes to help.

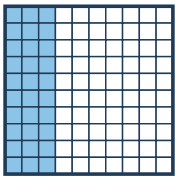
1.  ☐ %

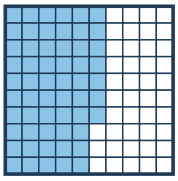
2. 9% = ☐/100

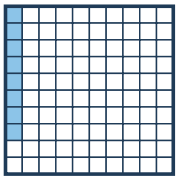
3. 0.6 = ☐ %

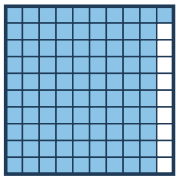
Activity 1 Read the Grids

What percentage of each hundred square is shaded?

 ☐ %

 ☐ %

 ☐ %

 ☐ %

Activity 2 Percentages to Fractions and Decimals

Write each percentage as a fraction out of 100 and as a decimal.

1. 20% = ☐/100 = ☐
2. 45% = ☐/100 = ☐
3. 7% = ☐/100 = ☐
4. 80% = ☐/100 = ☐
5. 66% = ☐/100 = ☐
6. 100% = ☐/100 = ☐

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Activity 3 Fractions and Decimals to Percentages

Write each one as a percentage.

1. $\frac{55}{100}$ = ☐ %
2. $\frac{12}{100}$ = ☐ %
3. $\frac{3}{100}$ = ☐ %
4. 0.41 = ☐ %
5. 0.9 = ☐ %
6. 0.06 = ☐ %

Activity 4 The Rest of the Square

Each percentage is shaded. What percentage is not shaded?

1. 25% → ☐ %
2. 60% → ☐ %
3. 12% → ☐ %
4. 99% → ☐ %
5. 0% → ☐ %
6. 48% → ☐ %

Activity 5 Out of 100

Write each answer as a percentage.

1. 100 children were asked about their favourite food. 70 chose pizza. What percentage chose pizza?
   ☐ %
2. In Leila's tray of 100 pots, 38 tomato seeds have sprouted. What percentage have sprouted?
   ☐ % What percentage have not? ☐ %
3. A box holds 100 crayons. 15 are blue. What percentage are blue? ☐ %
4. Finn has £1. He spends 35p. What percentage of his pound has he spent? ☐ %

Activity 6 True or False?

Tick TRUE or FALSE.

1. 50% means half. TRUE FALSE
2. 35% means 35 out of 1000. TRUE FALSE
3. 0.07 is the same as 7%. TRUE FALSE
4. If 40% of a square is shaded, then 60% is not shaded. TRUE FALSE
5. 100% means all of it. TRUE FALSE

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Activity 7 Think Harder CHALLENGE

Think carefully.

1. On a hundred square, 23 squares are red, 41 are blue and the rest are white. What percentage is white? ☐ %
2. A grid has only 50 squares, and 25 of them are shaded. What percentage is shaded? ☐ %
3. Leila says 5% is bigger than 30% because 5 tenths is more than 3 tenths. What is wrong?
   ☐
4. There are 100 centimetres in a metre. What percentage of a metre is 45 cm? ☐ %
5. Leila plants 100 seeds. How many seeds is 1% of them? ☐ How many is 12%? ☐

Next: Unit 2 · Common Percentages

★ ★ ★

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Answers Unit 1: What Is a Percentage?

For the adult checking this work. These answers come from Teacher's Guide 3: Percentages, which shows every pupil page with its answers beside it, plus short teaching notes for every unit.

Try It With Help

1. 28%
2. 9 (9/100)
3. 60%

Activity 1

1. 30%
2. 57%
3. 8%
4. 91%

Activity 2

1. 20/100 = 0.2
2. 45/100 = 0.45
3. 7/100 = 0.07
4. 80/100 = 0.8
5. 66/100 = 0.66
6. 100/100 = 1

Activity 3

1. 55%
2. 12%
3. 3%
4. 41%
5. 90%
6. 6%

Activity 4

1. 75%
2. 40%
3. 88%
4. 1%
5. 100%
6. 52%

Activity 5

1. 70%
2. 38%; 62%
3. 15%
4. 35%

Activity 6

1. TRUE
2. FALSE
3. TRUE
4. TRUE
5. TRUE

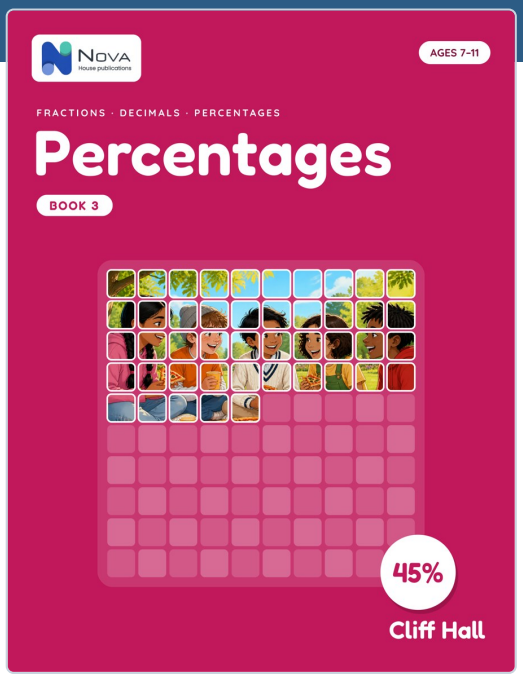
Activity 7

1. 36%
2. 50% (25 out of 50 is half)
3. 5% is 5 hundredths (0.05) and 30% is 30 hundredths (0.3), so 30% is bigger
4. 45%
5. 1 seed; 12 seeds

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Book 3: Percentages

- 14 clear units, from what per cent means to sales, price rises, pie charts and problem solving
- How To boxes with worked examples that show every step
- Try It With Help, then activities that grow harder, with CHALLENGE questions for Years 5 and 6
- Four 30-mark Summary Exercises and a 50-mark Final Test

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