

Understand percentages

Notes and guidance

In this small step, children explore percentages. They were introduced to percentages for the first time in Year 5, learning that “per cent” relates to “the number of parts per 100” and that if the whole is split into 100 equal parts, then each part is worth 1%.

Using bar models, children split 1 whole into 10 equal parts to explore multiples of 10%. They estimate 5% on a bar model split into 10 equal parts by splitting a section in half, for example 45% is four full sections and half of another section. Other common percentages that are useful to explore are 50%, 25% and 20% by splitting the bar model into 2, 4 and 5 equal parts respectively. They then explore ways of making more complex percentages using a combination of these, for example $65\% = 50\% + 10\% + 5\%$.

It is important for children to recap knowledge of complements to 100 to allow them to see that, for example, $35\% + 65\% = 100\%$.

Things to look out for

- Children may think that 1% means 1 unit rather than 1 part out of 100 equal parts.
- If children are not confident with dividing 100 by 10, 5, 4 and 2, they may struggle to use bar models to find common percentages.

Key questions

- What does “per cent” mean?
- How many parts are shaded/not shaded?
- What does 100% mean?
- How many equal parts is the bar model split into? What percentage is each part worth?
- How many ways could you make 95% using 50%, 25%, 10%, 5% and 1%?

Possible sentence stems

- If the whole is shared into 100/10/5/4/2 equal parts, each part represents ____%.
- If ____ parts are shaded, the percentage shown is ____%.
- To find ____%, I can halve ____%.

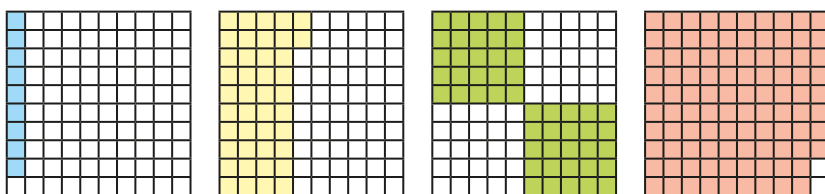
National Curriculum links

- Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

Understand percentages

Key learning

- Here are some hundred squares.

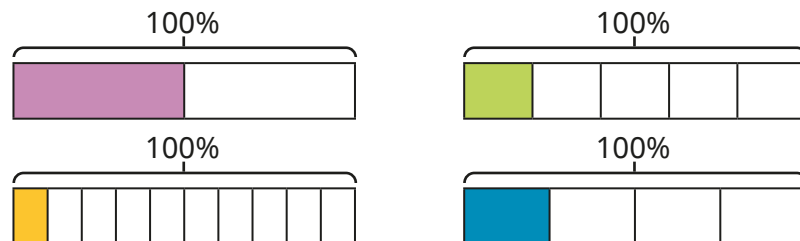


- How many parts out of 100 are shaded on each hundred square?
- What percentage of each hundred square is shaded?
- What percentage of each hundred square is **not** shaded?

What do you notice?

- What percentage of each bar model is shaded?

Use the sentences to help.



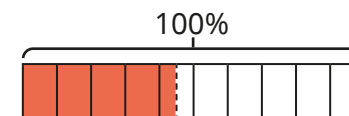
100% has been split into _____ equal parts.

Each part is worth _____%.

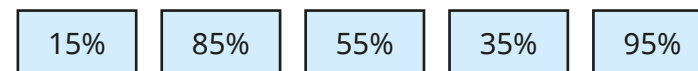
- Shade the percentages on the bar models.



- 45% of the bar model is shaded.



Draw bar models to show the percentages.



- Alex, Mo and Eva are exploring different ways of making 95%.

Alex

$$95\% = 9 \times 10\% + 5\%$$

Mo

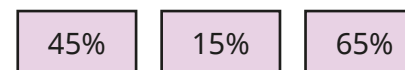
$$95\% = 50\% + 25\% + 20\%$$

Eva

$$95\% = 100\% - 5\%$$

Explain each child's thinking.

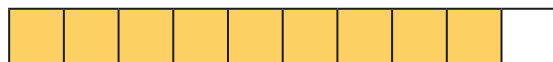
Find four different ways of making each percentage.



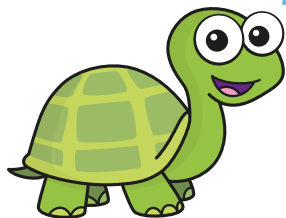
Understand percentages

Reasoning and problem solving

Tiny is shading percentages on bar models.



I have shaded 9% of the bar model.



Explain the mistake that Tiny has made.

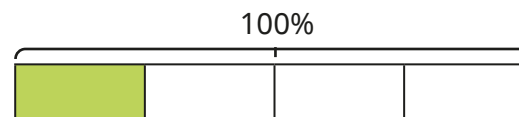
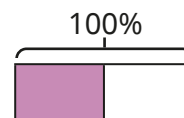
What percentage of the bar model has Tiny shaded?

What would 9% look like on the bar model?

90%

Part of the first box shaded. Just under 10%

Tommy is comparing percentages.



25% is greater than 50%, because the green part is bigger than the purple part.



Do you agree with Tommy?

Explain your answer.

No