Pie charts with percentages

Notes and guidance

This small step revises children's understanding of percentages, in the context of pie charts.

Children need to know that a whole pie chart represents 100% of the data, so one half represents 50%, one quarter represents 25% and so on. It may also be useful to revisit efficient strategies for finding multiples of 10%, 20% and 25%.

Children look at pie charts where the total number is not given, and they need to work out the total from a given percentage. They can then work out the value of the remaining sections, using either the total or proportional reasoning (for example, knowing 40% must be 8 times the size of 5%).

Things to look out for

- Children may not use the most efficient strategy for working out the percentage of an amount.
- Children may assume two pie charts alongside each other represent the same amount.
- When given a part and asked to find the whole, children may not work backwards and instead continue to find a percentage of the amount given.

Key questions

- What percentage does the whole pie chart represent?
- What percentage does half/quarter of the pie chart represent?
- What percentages of an amount can you work out easily?
- How do you work out 10% of an amount? How does this help you to work out other percentages?
- If you know 10%/20%/25%, how can you work out the total?

Possible sentence stems

- If _____% is worth _____ , then I can multiply/divide it by_____ to find _____%.
- If the total is _____ , then the part representing _____% is worth _____
- If the part representing _____% is worth _____ , then the total is _____
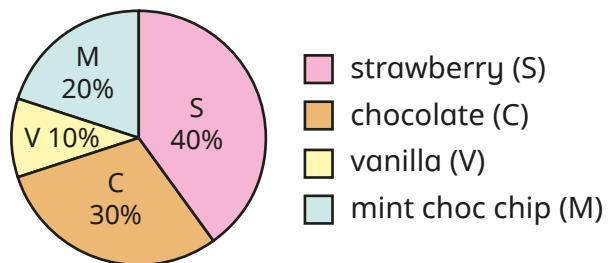
National Curriculum links

- Interpret and construct pie charts and line graphs and use these to solve problems

Pie charts with percentages

Key learning

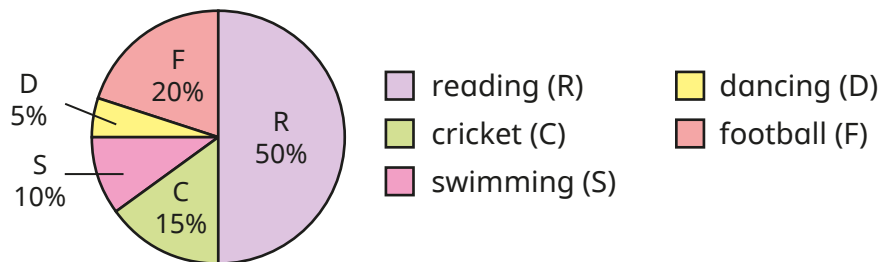- 150 children were asked to name their favourite flavour of ice cream.

  The results are shown in the pie chart.

▢	strawberry (S)
▢	chocolate (C)
▢	vanilla (V)
▢	mint choc chip (M)

  How many children chose each flavour of ice cream?

- 200 children in Key Stage 2 chose an after-school activity.

  The pie chart shows the results.

▢	reading (R)	▢	dancing (D)
▢	cricket (C)	▢	football (F)
▢	swimming (S)		

  ▶ How many children chose each activity?

  ▶ How many more children chose football than dancing?

- 1,200 people were asked to name their favourite day of the week.

 | | |
  |---|---|
  | ▢ | Monday (Mon) |
  | ▢ | Tuesday (Tue) |
  | ▢ | Wednesday (Wed) |
  | ▢ | Thursday (Thu) |
  | ▢ | Friday (Fri) |
  | ▢ | Saturday (Sat) |
  | ▢ | Sunday (Sun) |
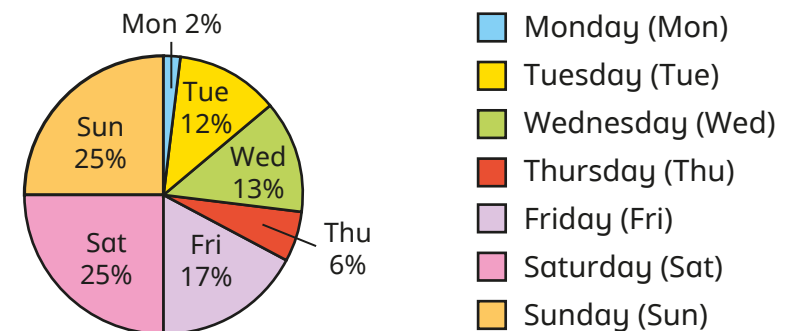
  Use the pie chart to create a table showing how many people chose each day of the week.

- 50 people were asked to name their favourite destination.

  The results were recorded in this table and a pie chart was drawn.

Destination	People
Legoland	12
Disneyland	21
Thorpe Park	6
Alton Towers	11

▢	Legoland (L)
▢	Disneyland (D)
▢	Thorpe Park (T)
▢	Alton Towers (A)
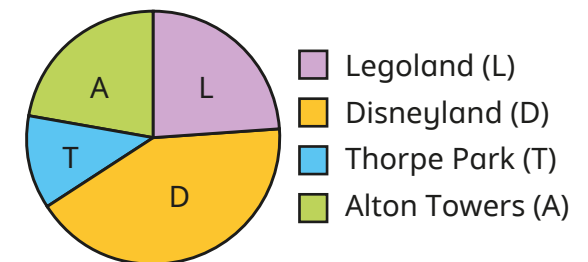
  Use the table to help you write the percentages on the pie chart.
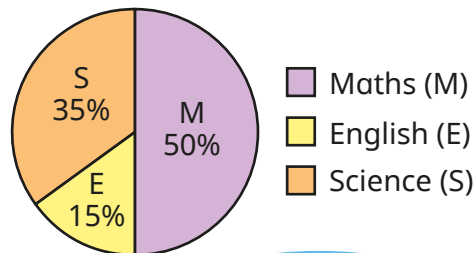
Pie charts with percentages
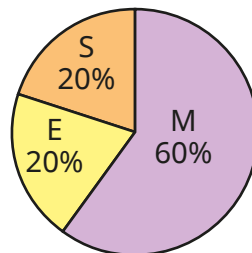
Reasoning and problem solving

120 boys and 100 girls were asked to name their favourite subject.
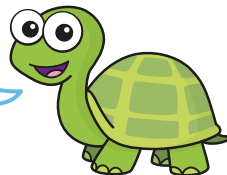
The results are shown in the pie charts.

boys' favourite subjects   **girls' favourite subjects**

Maths (M)
English (E)
Science (S)

> More girls prefermaths than boys, because 60% is greater than 50%.
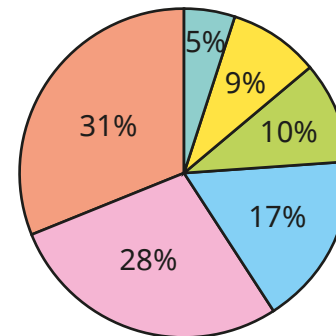
Do you agree with Tiny?

Explain your answer.

No

The pie chart shows the results of a survey about how many siblings people have.

15 people in the survey have no siblings.

no siblings   3 siblings
1 sibling   4 siblings
2 siblings   5 siblings

Draw a table to show how many people each sector of the pie chart represents.

How many people took part in the survey?

No siblings: 15

1 sibling: 27

2 siblings: 30

3 siblings: 51

4 siblings: 84

5 siblings: 93

300