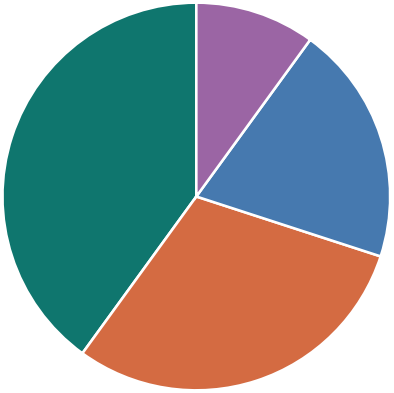
Pie charts: worked examples

Name: _____ Class: _____ Date: _____

To draw a pie chart, divide each category's frequency by the total. Multiply that fraction by 100 for its percentage or by 360 for its sector angle. The categories must be non-overlapping parts of the same whole.

Turn twenty fruit votes into sectors

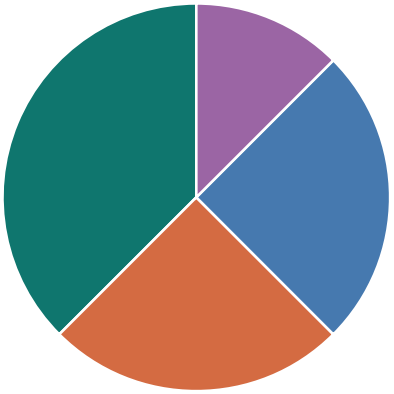


- Apple: 40%
  8 of 20 | 144 degrees
- Banana: 30%
  6 of 20 | 108 degrees
- Orange: 20%
  4 of 20 | 72 degrees
- Grapes: 10%
  2 of 20 | 36 degrees

Total: 20 votes

Twenty fictional pupils each choose one favourite fruit: apple 8, banana 6, orange 4 and grapes 2. The total is 20, and every pupil belongs to exactly one category.

Work backwards from a sector angle



- Music: 37.5%
  9 of 24 | 135 degrees
- Art: 25%
  6 of 24 | 90 degrees
- Coding: 25%
  6 of 24 | 90 degrees
- Chess: 12.5%
  3 of 24 | 45 degrees

Total: 24 votes

A different fictional group of 24 pupils chooses one club each. Music receives 9 votes, art 6, coding 6 and chess 3.

Original fictional data. Full explanations and copyable datasets: chartmaker.tools/lessons/pie-chart-angles-and-percentages

Five practice questions

Name: _____ Class: _____

1. What percentage of the fruit votes goes to apple?

2. Calculate the sector angle for banana.

3. What percentage and angle represent apple and banana together?

4. A sector is 90 degrees in the 24-pupil club chart. How many pupils does it represent?

5. Why is a pie chart of overlapping club memberships different from the single-choice survey here?

Teacher answers and working

Pie Chart Angles and Percentages: Step-by-Step Worked Examples

Keep this page separate when handing out student pages 1-2.

Question 1

8 / 20 x 100 = 40%.

Question 2

6 / 20 x 360 = 108 degrees.

Question 3

Together they have 14 votes. 14 / 20 x 100 = 70%, and 14 / 20 x 360 = 252 degrees.

Question 4

90 / 360 x 24 = 6 pupils.

Question 5

A person in more than one club would be counted more than once. Membership totals would not divide the pupils into non-overlapping parts of one whole.

Teaching notes

Using a different total for different categories in one chart.

Giving overlapping groups separate slices of the same whole.

Rounding each intermediate fraction before calculating the angle.

All data is fictional. Accept equivalent notation and explanations. Encourage students to show calculations, units and the conventions used.