

# Planning fair tests and reading data

Grade 6 science (Year 7 · Class 6) · Test

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Class: \_\_\_\_\_ Mark: \_\_\_\_ / 20

This test has eight questions and is worth 20 marks. Show each step in calculations and write the unit with each answer. Think carefully about which variable is changed and which is measured. You have 45 minutes.

**Level:** Grade 6 science (Year 7 · Class 6) · **Curriculum:** SEP 3-4

Time: 45 minutes · 8 questions · Total: 20 marks · Calculator allowed

## Question 1 Identify the variables (2 marks)

Anna asks: "Does the water temperature change how fast an effervescent tablet dissolves?"

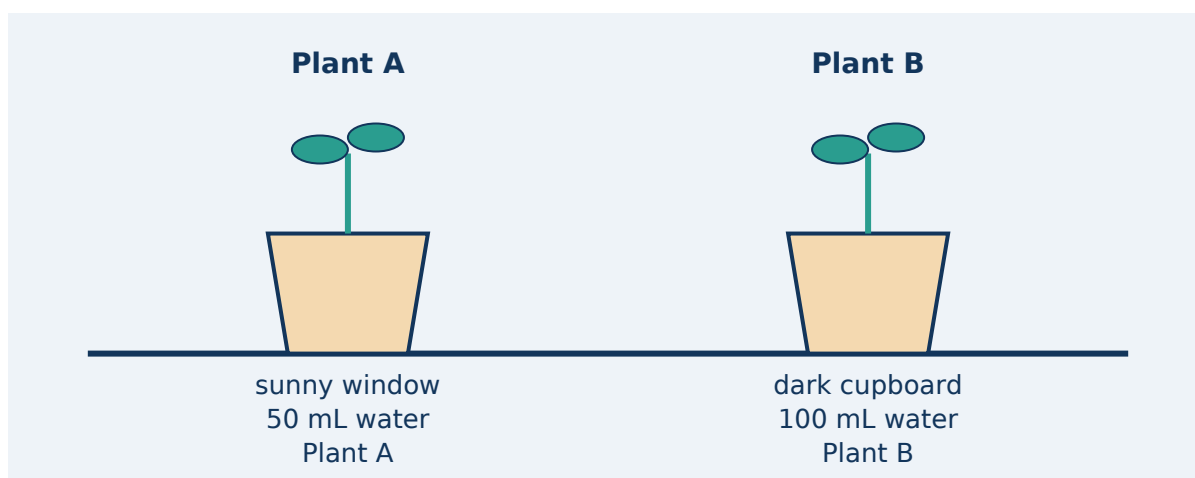
- Name the independent variable. (1 mark)
- Name the dependent variable. (1 mark)

## Question 2 Write a hypothesis (2 marks)

Write a testable hypothesis for the question: "Does the size of a sail change how far a toy boat travels?" Include a reason. (2 marks)

## Question 3 A fair test? (3 marks)

Aisha wants to test whether light affects plant growth. She sets up two plants as shown.



Two bean plants set up by Aisha.

- Name the independent variable. (1 mark)
- Identify one factor that makes the test unfair. (1 mark)

- c. Explain how to correct it. (1 mark)

**Question 4 Anomalies and means** (3 marks)

A student times a toy car over 1 m five times: 6.2 s, 6.0 s, 6.1 s, 8.9 s, 6.3 s.

- Identify the anomaly. (1 mark)
- Give one possible cause. (1 mark)
- Calculate the mean without it. (1 mark)

**Question 5 Chart faults** (2 marks)

A bar chart has a y-axis that starts at 40 and has uneven steps. Give two reasons why this makes the chart misleading. (2 marks)

**Question 6 Germination rate** (3 marks)

Out of 48 seeds, 36 sprouted without fertiliser. Out of 48 seeds, 42 sprouted with fertiliser.

- Calculate each percentage. (2 marks)
- Calculate the difference in percentage points. (1 mark)

**Question 7 Why repeat?** (2 marks)

Explain why scientists repeat a test several times. (2 marks)

**Question 8 Units and instruments** (3 marks)

- State the best instrument for measuring the mass of an apple. (1 mark)
- Convert 2.4 kg to g. (1 mark)
- Convert 750 mL to L. (1 mark)