

# Activity C

## Making and testing hypotheses



*A hypothesis is a provisional explanation. It is not the final thing. It is a first draft or an idea.*

### → Question 1

- Look at statements **A** to **C**.
- a** Which ones do you think are hypotheses?
  - b** Suggest how they might be tested.

- A** Excessive use of mobile phones can cause brain tumours.
- B** Global warming will lead to more polar bears.
- C** Plants use the Sun's light to produce glucose.

*Once a hypothesis has been tested, it might become an accepted scientific explanation. Until then, it remains a hypothesis.*

### → Question 2

- a** Look at statement **A**.  
How many tests do you think would be needed before it became an accepted explanation?
- b** Is it ever possible to be absolutely sure that a hypothesis is a correct explanation?

*A hypothesis must be phrased in a way that can be tested. A statement that cannot be tested, or verified, is not a hypothesis – it is an opinion.*

### → Question 3

- Look at statements **D** to **F**.
- a** Which ones do you think are opinions and which are hypotheses?
  - b** Explain your reasoning.

- D** Talking to plants makes them happy.
- E** Warmer oceans will lead to more phytoplankton.
- F** The Loch Ness monster is very shy.

### Question 4

Give some more examples of statements that are opinions rather than hypotheses.

*Some hypotheses link two variables. This makes them easy to test.*

### → Question 5

- a** Which of the statements, **A** to **F**, are hypotheses that link two variables?
- b** Choose two of these statements and write down the two variables in each case.

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A good hypothesis will lead to predictions that can be tested.

### → Question 6

Look at statement **A**.

- a** What predictions could you make from this hypothesis?
- b** Is it a good hypothesis (you don't need to say whether or not it is true, just whether it is useful as a hypothesis)

*It sometimes helps to phrase a hypothesis as something that can be disproved. The more time that passes without it being disproved, the more likely it is to become accepted. For example:*

**G** The Loch Ness monster does not exist.

### Question 7

- a** Look at statement **G**.
  - i** How could you disprove it?
  - ii** Has it been disproved?
  - iii** How sure can you be that the statement is true?
- b** Repeat part a for statement **F**.
- c** Which statement (**F** or **G**) is a more useful hypothesis?  
(Again, you do not have to say which one you agree with, just which one makes a better hypothesis)

### Question 8

Make a bullet point list of the features of a good hypothesis.