

Activity worksheet 1

In science, we use a particular way of asking and answering questions to find out about things. To discover meaningful answers, we must ask scientific questions that are very specific. It is important that we identify precisely what type of information or data we need in order to answer a scientific question.

We must also develop a possible answer to the question — a hypothesis — that is able to be tested against the data we collect. A hypothesis is based on existing knowledge and on our observations. It should be written as a statement, rather than a question, and it must be testable by the use of a simple experiment or information-gathering activity.

The Scientific Method

The scientific method requires us to:

- Ask a scientific question
- Form a hypothesis (an 'educated guess')
- Choose a data-gathering method
- Gather the data
- Analyse the data
- Test the hypothesis through the analysis of the data
- Report the results
- Draw conclusions from the results

Read this background information, then conduct a discussion of each question marked by a Q symbol.

Background information

The Yawuru people of Broome, Western Australia, separate the year into six seasons. They are:

- Man-gala — the wet season
- Marrul — the changing season
- Wirralburu — the cooling season
- Barrgana — the cold season
- Wilburu — the warming-up season
- Laja — the hot time

This way of dividing time has helped Yawuru people set guidelines about hunting and gathering activities to maximise their access to essential resources all year round.

Source: *The Little Red Yellow Black Book — an introduction to Indigenous Australia* (4th edition), Aboriginal Studies Press, AIATSIS, Canberra, 2018, p. 24.

Discussion questions

Let's consider this hypothesis: *In Broome, Western Australia, the time of the Man-gala (wet season) delivers more rainfall than all the other seasons combined.*

Q What are some scientific methods that we could use to test this hypothesis? Think about the kinds of data that would need to be collected and analysed.

Q How would you design an investigation to measure rainfall in a particular place? Think about the points listed under the sub-heading **The Scientific Method**.

Q How would your experiment be designed to test this hypothesis?

Q What approach could you take to determine whether Man-gala is wetter than all the other seasons identified by the Yawuru people of Broome?

Discuss your ideas for answers to these questions within your group. For this task, just talk and listen. There's no need to do any writing.

Activity worksheet 2

Writing about scientific methods

We can use different methods to gather data to help us answer scientific questions. We've selected ten and presented them on the set of **Scientific Methods Cards**. Your group will receive two **Scientific Methods Cards** to consider.

Consider the two methods of gathering information shown on the **Scientific Methods Cards** you were given. Nominate a **scribe** (writer) for your group. This person will write some point form notes to show how the two methods on the cards might be used to gather information about rainfall in Broome. Think about the type of data that each method could be used to collect.

Write the name of the first **Scientific Method** you are discussing: _____

Write some points about how this method could be used to gather information about rainfall in Broome in the Man-gala season or to handle data and reach conclusions about this topic.

- _____

- _____

- _____

Write the name of the second **Scientific Method** you are discussing: _____

Write some points about how this method could be used to gather information about rainfall in Broome in the Man-gala season or to handle data and reach conclusions about this topic.

- _____

- _____

- _____

Speaking about Scientific Methods

Nominate a **spokesperson** (speaker) for your group. This person should report your group's ideas to the class during the next lesson. Listen to the other spokespeople for the other groups.

After the presentations of the spokespeople for each group, re-form your group and discuss the different approaches you heard about.