

We Are Learning To

understand how scientists develop their ideas from evidence and observations they have collected

What I am Looking For is for you to be able to:

- recognise that scientific ideas are based on evidence (all);
- recognise that scientists interpret evidence in different ways (most); and
- distinguish between evidence and opinion (some).

Lesson plan**Starter**

Give pupils this statement 'Some scientists think that the canals they can see on Mars are evidence that water exists, or existed, on Mars'. Show pupils images of the canals on Mars from the sheet 'Is there water on Mars?' Ask pupils to consider what they think and what evidence supports their ideas. Take some feedback and use this to check that pupils understand what constitutes evidence.

Main

Give the pupils access to the five pieces of evidence: diary extract, web page, two news articles and a postcard. Make the postcard by cutting it out and sticking the picture back-to-back with the text; there is an English version and also a version using Greek letters.

Pupils read the evidence to establish:

- Who wrote the article?
- Why was it written?
- What does the article actually tell you?
- Is there any bias in the article, and how do you know?

The emphasis is on assessing the reliability of the evidence. For example, anyone can buy an address and make a website, so how do you know if the Herschel article is accurate? Also, some sources of evidence are written for a particular audience or to promote a particular point of view, for example the newspaper and the diary.

This could be a convenient place to end lesson 4.

The next lesson uses an audio clip of a conversation between the previous astronomers so the pupils can listen to the evidence 'first hand'. On the tape, the pupils will hear the astronomers explain how they used each other's work to develop their own ideas. They also describe the evidence they used to explain and develop their ideas. You could play the tape in sections and use the question sheet to help pupils to stay focussed. Or you could ask pupils to use the written script of the audio conversation to act out the conversation.

During the tape pupils are asked to:

- write about each scientist;
- note one idea of each scientist; and
- note any possible agreements with other scientists.

Plenary

Pupils are given simple statements relating to ideas and discoveries made over a long period of time. Ask them to put the statements in order along a time line.

Watch the short video on present day space scientists.