Investigating climates

The Earth's climate is a big topic of discussion today, with most scientists saying that the Earth is getting warmer, and we need to do something about it. However, there are a few scientists who do not think that global warming is due to humans putting too much carbon dioxide into the atmosphere.

Our global furnace is out of control. By 2020, 2025, you will be able to sail a sailboat to the North Pole. The Amazon will become a desert, and the forests of Siberia will burn and release more methane, and plagues will return.

James Lovelock.

Up and down, up and down - that is how temperature and climate have always gone in the past and there is no proof they are not still doing exactly the same thing now. In other words, climate change is an entirely natural phenomenon, nothing to do with the burning of fossil fuels.

David Bellamy.

There are many different ways in which scientists can investigate the climate in the past. The statements below show some different pieces of evidence that can be seen in rocks.

Evidence

A Minerals such as halite and gypsum are called evaporites. The chemicals that formed the rock were originally dissolved in water. The chemicals were precipitated (left behind) when the water evaporated.

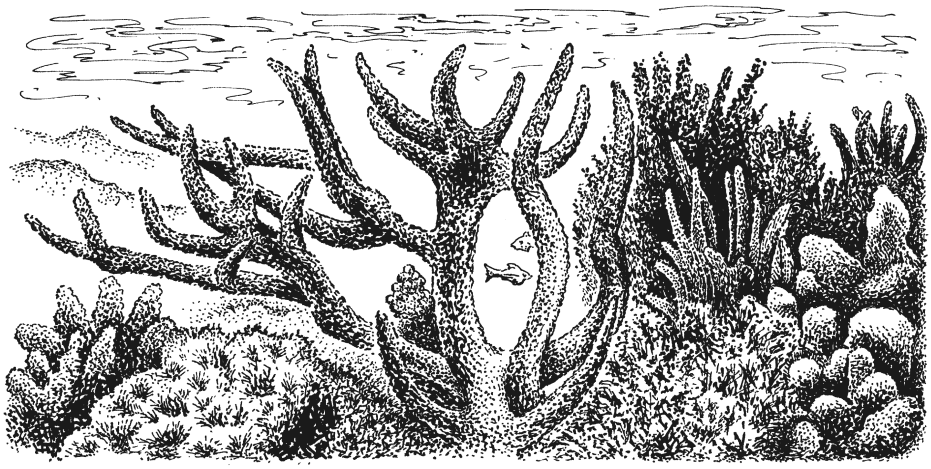
B Red rocks are usually red because they contain a mineral called haematite. This forms in tropical regions.

C Some fossils look similar to plants that grow today in warm, damp conditions.

D Coal is formed from the remains of swamp plants that did not rot. This suggests that they fell into swamps when they died (if the dead trees had been exposed to the air they would probably have rotted away and not formed coal).

Investigating climates (continued)

E Many limestones contain fossil corals. Today, most corals live in warm seas.



Present-day corals.

F Some sandstones with small grains have large sloping layers that show the sediments were once sand dunes.

G Tillites are sedimentary rocks made from a mixture of different-sized grains. The sediments that formed them are thought to have been deposited by glaciers.

1 a What does each piece of evidence tell you about the climate at the time the sediments were deposited? Choose from the words in the box. You can use more than one word if you need to.

cold	warm	wet	dry

b Explain the reasons for each of your answers and any assumptions that you made.

I CAN...
- interpret evidence in sedimentary rocks
- explain how evidence in sedimentary rocks can tell us about climates in the past.