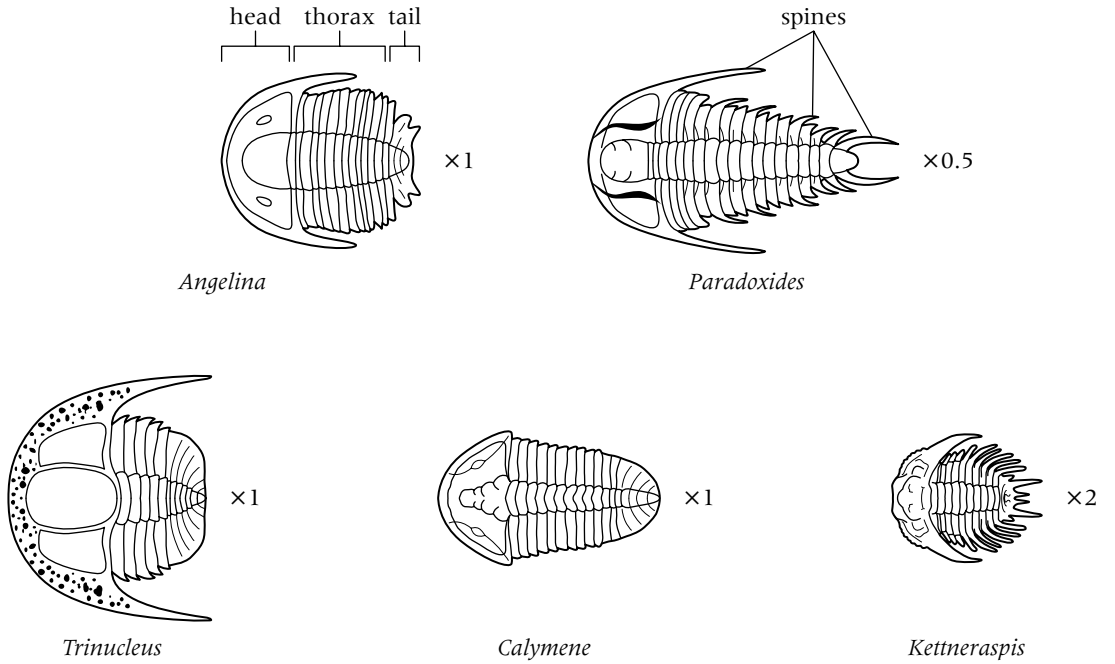
8Ge/6 Dating rocks

Many geologists are interested in finding out what happened to the Earth millions of years ago. They can examine rocks to work out how they were formed, and this can help them to find out if a particular piece of land was once under the sea, or had a river flowing across it.

To get a picture of what was happening to the Earth as a whole (rather than just studying small areas), geologists need to compare what was happening in different places at the same time. To do this, they need to have some way of comparing the ages of rocks in different places. Fossils are very useful in dating rocks.

Living creatures do not stay the same. They **evolve** over millions of years and form different species. For instance, **trilobites** were a kind of animal very common around 500 million years ago. If a layer of rock in the UK contains a particular kind of trilobite, geologists can be fairly sure that it is about the same age as rocks with the same kind of trilobite found in Germany, or in the USA.



Different trilobite species.

If geologists are going to use fossils to date rocks, they have to learn about the different species, and how to tell the difference between them. Geologists have worked out when these species of trilobites lived: *Trinucleus* and *Angelina* lived between 500 and 430 million years ago, *Kettneraspis* and *Calymene* lived between 430 and 395 million years ago, and *Paradoxides* lived between 570 and 500 million years ago.

8Ge/6 Dating rocks (continued)

8 G e

1 Why do geologists need to find out how rocks were formed?

2 **a** Why do they need to compare the ages of rocks from different places?

b How do fossils help them to do this?

3 Look at the drawings of trilobites. If geologists were going to use these trilobites to date layers of rock, they would need to be able to tell them apart.

a Make a table to compare the five trilobites. The headings in your table should include the name of each species, and descriptions of each part of its body.

b Draw a branching key to help someone to identify the trilobites. (*Hint*: Your first question could be 'Head the same length as body?')

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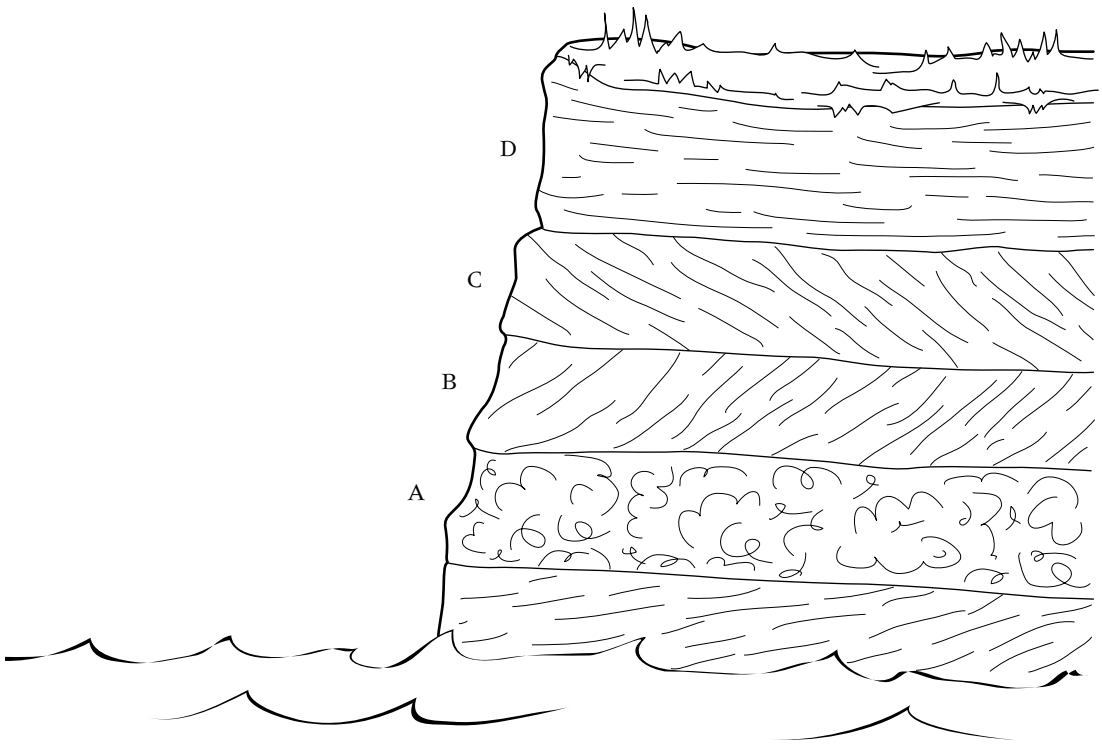

Trilobites have been found in layers A, B and C in this cliff.

a Which species do you think were found in layers A, B and C?

b Explain your answer to part **a**.

c What can you say about the age of layer D? Explain your answer.

5 The most famous fossils are probably the dinosaurs.

a Find out when the dinosaurs lived.

b Find out why scientists think that the dinosaurs became extinct (died out).

knowledge, literacy, research