

Name \_\_\_\_\_

## Fossil Clues - Student Worksheet

Fossils are the remains of living things that have been changed into rock.

The father of modern geology, James Hutton, said that we can interpret the nature of creatures from the past and the environment they live in by comparing their fossils with modern day things which look similar.



These fossil crinoids are about 350 to 250 million years old and were found near Gascoyne Junction, inland from Geraldton in Western Australia. The present landscape is of low-lying very dry and dusty plains with a few acacia trees and salt tolerant scrub which can survive very low rainfall.

Present day crinoids are from the same family as sea urchins and starfish. They are only found in oceans that are between 350 and 250 metres deep. They wave their long arms to trap plankton for food.

Name \_\_\_\_\_

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What is the present landscape inland from Geraldton?

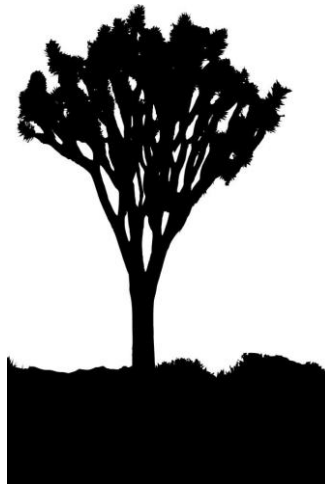
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What was the landscape at the time of the crinoids?

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Do we have data (information) that suggests the ancient landscape was very different from the present one?

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Both these trees can be found at present. One of them has a good shape for survival in a very cold climate where heavy snow has to be shed from its branches or they

will break and the tree will die. The other suits a hot desert climate where any rain that falls has to be channeled down to the long thin tap root below the trunk.



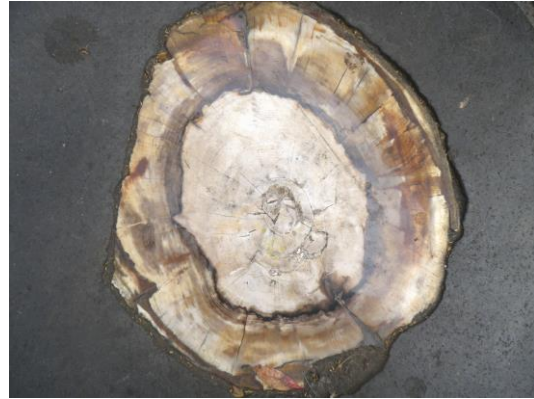
Name \_\_\_\_\_

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Which tree do you think suits the hot dry climate?

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This fossil tree trunk was found sticking out of the seabed in southern Victoria. It is only exposed when the tide is very low. Others lie deeper under the ocean. The trunks have a similar structure to the tree on the left above and yet they are almost 120 million years old.



From the fossil evidence, what two things have changed in this landscape over time?

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The fossil trunk in the previous photograph measures 35cm across. How could you use this information to estimate the height of trees in this ancient forest?

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*Fossilised leaves of glossopteris*

Fossil leaves and trunks of a long extinct tree called Glossopteris can be found in Western Australia, India, South Africa, South America and Antarctica. These trees grew in coastal tropical swamps between 300 and 200 million years ago. They are the source of many of Australia's coal deposits. How could a land tree be in so many different places separated by thousands of kilometers of ocean? Trees cannot swim and their seeds could not survive soaking in salt water?

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Name \_\_\_\_\_

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Why are no *Glossopteris* fossils found in Europe?

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### Fossilised Earth Processes

Weathering, erosion and sedimentary processes have been much the same during the 4.5 billion years since our planet formed.



What do you think created the pattern on the surface of this 1.8 billion year old rock? Can you recognise the pattern in modern sediment. It was found near the iron ore town Newman, in the northern centre of Western Australia.

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This rock was found close to the previous rock. What natural process 1.6 billion years ago made this pattern in the mudstone?

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What had the landscape of a shallow sea changed into?

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Why do you think my hammer was deliberately put in both photographs?

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