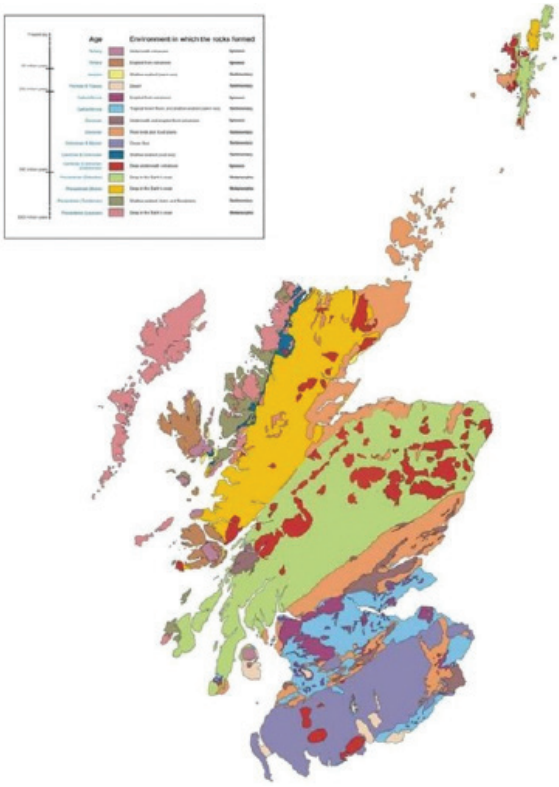
University of St Andrews

Scotland's Climate



Name:.....

Class: .....

Date: .....

Scotland's Climate

Geologists use the rock record to piece together information about past natural environments, including climate.

By looking at the different rocks we find accross Scotland, we can put together the evidence for the different climate environments that have existed over geological time.

Sedimentary Rocks

If we look at environments present on Earth today, we can find characteristics in the modern sediment which is unique to each environment. If we find those same characteristics in sedimentary rocks, it allows us to interpret the environment of the past.

When sediment is transported and deposited, it leaves clues to the mode of transport and deposition. Grain size and the sorting of grains gives the resulting sediment texture. Thus, we can use the texture of the resulting deposits to give us clues to the past environment.

Fossils

A fossil is the remains or impressions of a once living organism which has been preserved in the rock.

Animals and plants rely on the the environment around them to survive and thus being able to identify what organism is present in the rock we are able to interpret the past environment.

Scotland's Climate

Described the sedimentary rocks below and determine which environment they would have formed in.

Rock A - ***Red Sandstone***

Colour: ***Red/Rust Red***

Sediment Size/Shape: ***medium/fine grained. Well rounded***

Sorting: ***well sorted***

Any other features:

.....

Interpretation: ***The red colour of this rock is due to the oxidation of iron (Fe) contained in the sandstone - suggesting it has been exposed to oxygen.***

Well rounded grains which are fine/ medium are typical of wind blown deposits.

Environment represented is - Drought/Dessert

Warm Swamp **Warm Ocean**

Drought/Dessert **Lake**

Scotland's Climate

Described the sedimentary rocks below and determine which environment they would have formed in.

Rock B - ***Shelly Limestone***

Colour: ***Creamy white/Baige***

Sediment Size/Shape: ***Fine Grained***

Sorting: N/A

Any other features: ***Contains fossils of shells and corals***

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Interpretation: ***Fossils suggest a warm shallow ocean environment. If coral is present can discuss where we find coral today.***

Warm Swamp **Warm Ocean**

Drought/Dessert **Lake**

Scotland's Climate

Sketch the fossil in the box below and identify it to determine which environment the organism would have lived in.

Fossil A: ***Plant Fossil/Coal - Lepidodendron/Stigmaria Fossils***

Interpretation: ***Carboniferous plants (Lepidodendron) grow large very fast - plants need warm wet climates to achieve this - warm swamps***

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Warm Swamp **Warm Ocean**

Drought/Dessert **Lake**

Sketch the fossil in the box below and identify it to determine which environment the organism would have lived in.

Fossil B - ***Fish within mudstone - Caithness Flagstone***

Interpretation: ***Rock is very fine grained with parralell laminations - suggested calm environment. Fish are fresh water - suggests Lake environement.***

Warm Swamp **Warm Ocean**

Drought/Dessert **Lake**

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