Relative Dating PowerPoint Notes

Evidence from geologic layers and radioactive dating indicates Earth is approximately 4.6 billion years old and that life on this planet has existed for more than 3 billion years.

Relative dating

Steno’s principles are used by geologists to determine the ______________ of fossils and rocks in a process called ______________. Relative dating is a method of ______________ events in the order they happened. When you use relative dating, you are not trying to determine the exact age of an object. Instead, you use clues to sequence the order of events that occurred around it. Then you determine the age of the object relative to the other objects or events in the sequence. This graphic illustrates three events: a footprint, a tire track, and snowfall. Sequencing these events in the correct ______________ is a form of relative dating.

Using relative dating to sequence fossils

Paleontologists, scientists who study ______________, use relative dating to determine the sequence of fossils in the order that each species existed. A cross section of sedimentary rock has many different layers. The oldest layers are found at the bottom and the newest at the top. Suppose fossils were found in the layers shown below. A paleontologist could ______________ the organisms found according to their location in the layers. The organisms found in the top layers appeared ______________ the organisms found in the layers below them.

Cross-cutting relationships

The idea of cross-cutting relationships states that a vein of rock that cuts across a rock’s layers is ______________ than the layers. The rock layers formed first. The vein formed in a crack in the original rock. The bottom layer is the oldest part of the rock formation and the vein is the newest. The middle and top layers formed after the bottom layer but before the vein.

Inclusions

Sometimes rock pieces called ______________ are found inside another rock. During the formation of a rock with inclusions, sediments or melted rock surrounded the inclusion and then solidified. Therefore, the inclusions are ______________ than the surrounding rock. A rock with inclusions is like a chocolate chip cookie. The chocolate chips (inclusions) are made first. Then they are added to the batter (melted rock or sediment) before being baked (hardened) into a cookie (rock).

Faunal Succession

______________ _______________ means that fossils can be used to identify the relative age of the layers of sedimentary rock. For example, dinosaur fossils are found in rock that is about 65 to 200 million years old because these animals lived that long ago. The fossils of modern human beings (Homo sapiens) are found in rock that is about 40,000 years old, but not in rock that is 65 to 251 million years old. And dinosaur fossils are not found in rock that is 40,000 years old. This means that human beings did not ______________ at the same time as the dinosaurs. How might you learn which plants and animals did live at the same time as the dinosaurs? ________________