Name _____

Mass Extinctions and Marking Boundaries in Geological Time

Earth is over 4.5 billion years old. That's a really long time! To help study Earth's long history, scientists divide it into different time periods. These periods are grouped into eons, eras, periods, and epochs. But how do scientists decide where one time period ends and another begins? One big clue comes from mass extinctions.

A mass extinction happens when a large number of species die out in a short amount of time. This can be caused by things like volcanic eruptions, climate change, or even a giant asteroid hitting Earth. When this happens, many animals and plants disappear, and new ones slowly take their place. These big changes help scientists know that the world entered a new stage in its history.

Scientists look at layers of rock to find these changes. Different kinds of fossils are found in different layers. If a certain fossil is found only below a layer but not above it, that might mean the species went extinct. For example, the dinosaurs disappeared about 66 million years ago during a mass extinction. After that, mammals became the most common large animals. That big shift marks the end of the Mesozoic Era and the start of the Cenozoic Era.

Each mass extinction changes life on Earth in major ways. That's why scientists use them as markers for dividing time. It's like putting chapter breaks in a book. Each "chapter" of Earth's history ends with a big event, and a new one begins.

Studying mass extinctions also helps scientists understand today's world. By learning what caused extinctions in the past, we can better protect life on Earth now. So, while mass extinctions are sad, they also teach us important lessons.