

Mass Extinctions - CLASS SET

1. Write this vocabulary on your Evolution and Natural Selection page.
2. Read the article and fill in the chart.

extinct - no longer in existence. In this unit, we are using talking about a species of life.

mass - a large number or quantity

species - members of a group (life) that have similar characteristics that can breed to produce offspring that can then have offspring itself.

99% of all species that have ever lived on Earth are extinct. Most of the time, a species of plant or animal becomes extinct slowly over time. A new animal or plant moves in or the climate changes. Sometimes it can happen very quickly and affect lots of species of plants and animals. These are called mass extinctions. Though these mass extinctions are deadly events, they open up the planet for new life-forms to emerge. Dinosaurs appeared after one of the biggest mass extinction events on Earth, the **Permian-Triassic extinction** (250 mya). The most famous, between the **Cretaceous and Tertiary** (65 mya), killed off the dinosaurs and made room for mammals to take over.

The causes of these mass extinction events are like **unsolved mysteries**. Sometimes, volcanic eruptions or impacts from space are suspected. An impact from space is most closely linked to the **Cretaceous -Tertiary extinction event(5)**. A huge crater off Mexico's Yucatán Peninsula is dated to about 65 million years ago. Global warming because of volcanic eruptions in India may also have made the problem worse or already have been putting stress on populations of organisms. 75% of all species on the planet, went extinct. Although birds are the descendants of smaller dinosaurs, all of the larger ones went extinct.

Massive floods of lava erupting about 200 million years ago may explain the **Triassic-Jurassic extinction (4)**. This is during the time that the supercontinent Pangea was breaking apart. The volcanic eruptions that were happening led to large amounts of CO₂ being released. This caused global warming and changes to the oceans. About 20 % of all marine families went extinct, as well as most mammal-like creatures and many large amphibians. An asteroid impact is another possible cause of the extinction, though a crater has yet to be found.

The **Permian-Triassic extinction event (3)** about 250 million years ago was the deadliest: In 'the great dying', 70% of land species and 95 % of ocean species perished. Many scientists believe an asteroid or comet triggered the massive die-off, but, again, no crater has been found. Another strong contender is flood volcanism from the Siberian Traps, a large igneous province in Russia. This also with a possible release of methane gas from the oceans led to a warming of the climate. Pangea

was also one big supercontinent bringing desert like conditions to most of the land and minimal coastline.

Starting about 360 million years ago, a longer event, the **Devonian extinction (2)** eliminated about 70% of all marine species from Earth over a span of about 20 million years. Pulses, each lasting 100,000 to 300,000 years were likely caused by a drop in global temperature.

The **Ordovician-Silurian extinction (1)** happened in two pulses a million years apart about 440 million years ago. More than 60% of plant and animal species went extinct. This was likely caused by climate change with another theory being a gamma ray burst. The first pulse happened as the supercontinent Gondwana moved into the south polar region and glaciers started forming causing an ice age. Sea levels dropped worldwide. A second pulse about a millions years later was thought to have happened when the Earth began to warm.

Happening Now?

Increased CO₂? Methane gas being released? Climate all out of whack? Species dying out at incredible numbers? Sound familiar? Many scientists think the evidence indicates a **sixth mass extinction (6)** is under way. The blame for this one, perhaps the fastest in Earth's history, falls firmly on the shoulders of humans. By the year 2100, human activities such as pollution, land clearing, and overfishing may have driven more than half of the world's marine and land species to extinction.