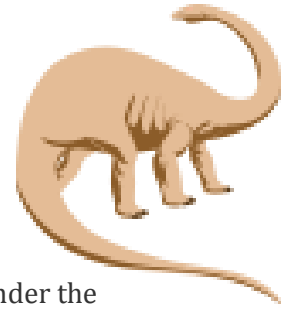


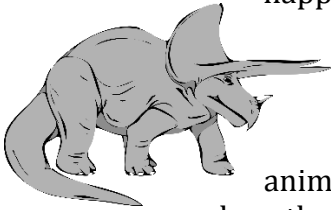
What Happened to the Dinosaurs?

Vocabulary

- **asteroid** – a small planet made of metal and rock
- **climate** – the usual weather in a certain place
- **dinosaurs** – types of reptiles that lived millions of years ago
- **extinct** – no longer living
- **fossil** – remains of ancient life that have been saved in layers of the earth
- **iridium** – a rare metal found in asteroids and in melted rock under the earth's crust
- **volcano** – a mountain that sometimes sends out an explosion of rocks, ash, dust, and lava



What happened to the **dinosaurs**? Why did they become **extinct**? Until 65 million years ago, dinosaurs ruled the earth. In fact, they ruled it for 180 million years. What happened to them? Why did other living things keep living? Turtles, crocodiles, frogs, birds, starfish, other animals, and many plants lived on to the present. Scientists have some ideas. They study layers of rock that form the earth's surface. These rocks show some of the history of the earth. **Fossils** in the rocks show what plants and animals lived during each time period. They can give other clues, too. Some show that dinosaurs disappeared slowly. Others show that it was sudden. However, scientists still do not know for sure. Here are some of their ideas:



Idea 1: Asteroid Crash

Many scientists think that a giant **asteroid** crashed on Earth. If this happened, thick clouds of dust would block sunlight. The loss of sunlight would mean more darkness and colder temperatures. Plants would die, which would cause the deaths of animals. After the dust settled, gases from the crash would trap heat close to the earth. It would become very hot. The change from very cold to very hot would kill many living things. Most animals and plants would die, including dinosaurs. Scientists found a crater, or huge hole, in Mexico. They think it was created by an asteroid about 30 kilometers wide. That is more than six miles! The asteroid was traveling very fast, about 67,000 miles an hour. That is 150 times faster than a jet airplane! It hit very hard. It made a hole that was nearly 100 miles wide.

The crash melted rock. It sent pieces from the crash through the air almost 100 miles away. Some of the pieces were a type of metal, called **iridium**. This metal is usually not found on Earth's surface. It is found in asteroids. They also found broken quartz crystals. These crystals show that they broke in a large explosion. Scientists found these things in the layer of earth formed when the dinosaurs disappeared.

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Idea 2: Volcanoes

Some scientists think **volcanoes** caused the end of dinosaurs. Between 65 and 70 million years ago, volcanoes were very active. Volcanoes are caused by a crack in the earth's crust. When pressure builds up, hot melted rock, called lava, pours out of the earth. When this melted rock cools, it is often in the form of a mountain. Pressure can build under the same crack many times. Each time, the volcano erupts. Each time, it throws lava, gas, ash, and dust into the air.



There are giant beds of ancient lava all around the world. One bed is almost as big as the state of Texas! It is more than a mile deep! Millions of years ago, volcanoes erupted all the time. Ash and dust from the volcanoes blocked the sunlight. Just as with a crash from an asteroid, these eruptions changed the environment. There was darkness and freezing temperatures. Many plants and animals died. Some scientists think this was the end of dinosaurs. The rock layer from this time shows the metal **iridium**. It also shows broken crystals. Iridium is in asteroids. It is also in the melted rock under the earth's surface. It was part of the eruptions. This is also how the crystals were broken.

Idea 3: Mammals

Mammals are animals that make milk for their babies. There used to be more dinosaurs than mammals. Then mammals began to take over. Some scientists think that there was not enough food, water, and places to live for both dinosaurs and mammals. Mammals also ate dinosaur eggs. This may be the reason dinosaurs died out. They did not die suddenly. They died out over time. This idea explains why there are still mammals. It explains why they now rule the earth.

Idea 4: Continental Drift



Continental drift is another idea. Huge plates of rock make up the earth's crust. These plates float on very hot melted rock. The continents shift as the plates move. Some other things help this movement. Earthquakes and volcanoes help the continents move. Big changes in **climate** also help. Scientists think our continents move about two inches a year. They move toward each other. They move away from each other. This movement keeps happening. It takes millions of years to see much movement. One enormous continent was Rodinia. It was formed about a billion years ago. Then it broke into smaller continents. They joined again. This time, they made Pangaea. That was 300

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million years ago. Then the land broke up again. These pieces are the continents we have today.

How did this affect dinosaurs? Volcanoes and earthquakes changed the shapes of the land. Drifting also changed the land shapes. The climate became cooler and drier. It was hard for dinosaurs to find food. Fossils give scientists another clue. They show that oceans used to be thousands of feet higher than they are now. Suddenly, these levels fell. This was during the time the dinosaurs disappeared. This would make more dry land. These things might explain why the dinosaurs disappeared.



Idea 5: More Than One Cause

Some scientists think there is more than one answer. They think several things could have happened about the same time. These events together could explain why dinosaurs are extinct. However, no one knows for sure. For now, scientists will keep working to find the answer to this puzzle.

Sources:

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