What exactly is a dinosaur?

Two dinosaurs wade through shallow waters to get to the vegetation on this island. The Mesozoic Era is the age of dinosaurs. These animals grew so large they dominated the planet. Dinosaurs were so dominant that it took a catastrophic, environment-changing event for mammals to be able to take over.

Mesozoic Era: The Age of Dinosaurs

The **Mesozoic Era** is literally the era of “middle life.” It is also known as the age of **dinosaurs**. It lasted from 245 to 65 million years ago and is divided into the three periods described in Figure below. The Mesozoic began with the supercontinent **Pangaea**. Then, during the era, Pangaea broke up and the continents drifted apart. The movement of continents changed climates. It also caused tremendous volcanic activity.
Mass extinctions occurred at the end of the Triassic and Cretaceous Periods. The first extinction paved the way for a dinosaur takeover. In the second extinction, the dinosaurs finally disappeared. At the link below, you can watch a video about these and other exciting events during the age of dinosaurs. [http://www.youtube.com/watch?v=watgb11LOHE](http://www.youtube.com/watch?v=watgb11LOHE)

### Triassic Period
(245–200 million years ago)
- The first dinosaurs branched off from the reptiles and colonized the land, air, and water.
- Huge seed ferns and conifers dominated the forests.
- Modern corals, fish, and insects evolved.
- Pangaea started to separate into Laurasia (today’s Northern Hemisphere continents) and Gondwanaland.

### Jurassic Period
(200–145 million years ago)
- The mass extinction that ended the Triassic allowed dinosaurs to flourish in the Jurassic. This was the golden age of dinosaurs.
- The earliest birds evolved from reptile ancestors.
- All the major groups of mammals evolved, but individual mammals were still small in size.
- Flowering plants appeared for the first time. New insects also evolved to pollinate the flowers.

### Cretaceous Period
(145–65 million years ago)
- Dinosaurs reached their peak in size and distributions. *Tyrannosaurus Rex*, pictured here, weighed at least 7 tons.
- By the end of the Cretaceous, the continents were close to their present locations. Earth’s overall climate was warm; even the poles lacked ice.
- The period ended with the dramatic extinction of the dinosaurs.

The Mesozoic Era consists of the three periods described here.

**The Triassic Period:** During the Triassic Period (245–200 million years ago), the first dinosaurs branched off from the reptiles and colonized the land, air, and water. Huge seed ferns and conifers dominated the forests, and modern corals, fish, and insects evolved. The supercontinent Pangaea started to separate into Laurasia (today’s Northern Hemisphere continents) and Gondwanaland (today’s Southern Hemisphere continents). The Triassic Period ended with a mass extinction.

**The Jurassic Period:** The next period, the Jurassic Period (200–145 million years ago), began after the mass extinction that ended the Triassic Period. This mass extinction allowed dinosaurs to flourish in the Jurassic Period. This was the golden age of dinosaurs. Also during the Jurassic, the earliest birds evolved from reptile ancestors, and all the major groups of mammals evolved, though individual mammals were still small in size. Flowering plants appeared for the first time, and new insects also evolved to pollinate the flowers. The continents continued to move apart, and volcanic activity was especially intense. The classic Steven Spielberg movie *Jurassic Park* realistically depicts some of the dinosaurs present during this period: [http://www.youtube.com/watch?v=Bim7RtKXv90](http://www.youtube.com/watch?v=Bim7RtKXv90).

**The Cretaceous Period:** During the Cretaceous Period (145–65 million years ago), dinosaurs reached their peak in size and distribution. *Tyrannosaurus Rex*, weighed at least 7 tons. By the end of the Cretaceous, the continents were close to their present locations. Earth’s overall climate was warm; even the poles lacked ice. The period ended with the dramatic extinction of the dinosaurs.

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What happened to the dinosaurs? Why did they go extinct at the end of the Cretaceous Period? Some scientists think a comet or asteroid may have collided with Earth, causing skies to darken, photosynthesis to shut down, and climates to change. A collision was probably at least a contributing factor. Without the dinosaurs, there were many opportunities for new organisms to exploit in the next era, the Cenozoic. Which living things do you think took over where the dinosaurs left off?

Summary

• The Mesozoic Era is the age of dinosaurs. They evolved from earlier reptiles to fill niches on land, in the water, and in the air.
• Mammals also evolved but were small in size.
• Flowering plants appeared for the first time.
• Dinosaurs went extinct at the end of the Mesozoic.

Explore More

Use the time slider in this resource to answer the questions that follow.

• Evolution at http://johnkyrk.com/evolution.swf.
  1. When did the Mesozoic Era begin?
  2. What was the predominant type of animal during this time period?
  3. When did placental mammals evolve? What were the first ones?
  4. Describe the significant event that occurred at the end of the Mesozoic Era.

Review

1. Describe how the continents shifted during the Mesozoic Era.
2. Create a timeline of major evolutionary events during the Mesozoic Era.
3. Explain why scientists believe dinosaurs went extinct.