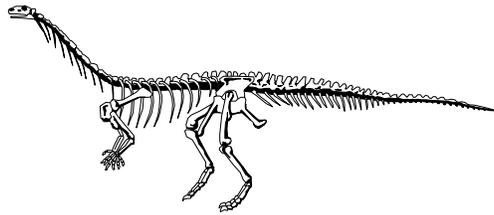
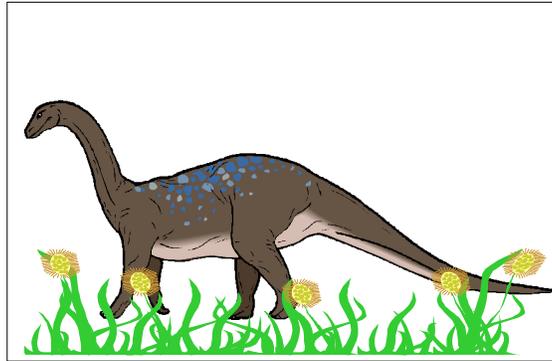


DINOSAURS ON EARTH: THEN AND NOW



CFE 3231V

OPEN CAPTIONED
NATIONAL GEOGRAPHIC
SOCIETY

1994

Grade Levels: 6-13+

25 minutes

DESCRIPTION

Do dinosaurs still live on earth? Begins with an animated look at the dinosaur eras. Paleontologists, recent fossil discoveries, and skeletal reconstructions reveal characteristics of different dinosaurs. Discover similarities between dinosaurs and today's animals by comparing their bones, shapes, and behaviors. Discusses *Tyrannosaurus rex*, *Utahraptor*, *Brachiosaurus*, and others.

INSTRUCTIONAL GOALS

- To present information about the evolution of life from one-celled animals to mammals.
- To show how the earth changed over billions of years.
- To show how some dinosaurs lived, how they defended themselves, and what they ate.
- To illustrate the formation of fossils.
- To explain how paleontologists study living animals to learn about dinosaurs.

BEFORE SHOWING

1. Preview the video to determine unfamiliar vocabulary and language concepts.
2. Present a basic time line showing the periods and major developments starting with 4.5 billion years ago.
3. Define *theory* and compare a theory to a fact.

DURING SHOWING

1. View the video more than once, with one showing uninterrupted.
2. Pause to add life form names to the time line.
3. Pause during Jim Kirkland's narrative about the *Utahraptor* to clarify the subtitles. Due to time constraints, the captions were not able to include all of the information.
 - a. The subtitle $1\text{ ft} = 30\text{ cm}$ refers to the length of the claw.

- b. The subtitle $5\text{ ft} = 1.5\text{ m}$ refers to how deep the claw could cut.

AFTER SHOWING

Discussion Items and Questions

1. List the order of development from single-celled animals to dinosaurs according to the evolution theory.
2. Discuss the idea that the evolution of life on earth as shown in the video is a theory and that other theories exist.
3. Why did the video only show one theory of the development of life?
4. Discuss and review the comparisons between dinosaurs and specific modern animals.
5. Comparing the weights, how many times heavier is the Utahraptor than a cassowary?
6. Why do paleontologists study bones of living animals?
7. How did paleontologists figure out that the *Brachiosaurus* lived in herds?
8. Why did Dave Weishample make a horn? What did he learn from it?
9. How are all the meat-eating dinosaurs like modern birds?
10. Explain some of the theories for why the dinosaurs became extinct.
11. Discuss the occupation of a paleontologist. Discuss personal feelings about that kind of work.

Applications and Activities

1. Research and present information about a specific dinosaur.
 - a. Make a chart of all the information presented.
 - b. Compare with another dinosaur.
2. Investigate various theories about the development of life on earth.
 - a. Compare the theories.
 - b. Choose sides and debate the theories.

3. Study the plate tectonic theory, and illustrate the movements of the continents over time.
4. Investigate and present information about the formation of fossils.
5. Measure and compare the sizes of some of the dinosaurs.
 - a. The *Eoraptor* was one meter long.
 - b. The *Dilophosaurus* was six meters long.
 - c. The *Brachiosaurus* was 25 meters long and 15 meters tall.
 - d. A *Sauropoda* track is three feet across and one foot deep.
6. Investigate famous dinosaur fossil sites.
 - a. Make a time line showing when specific dinosaurs were discovered.
 - b. Label a map to show the dinosaur fossil sites.
7. Make models of various dinosaurs.
8. Generate a list of possible fictional story ideas involving dinosaurs. Choose one and write a fictional story.
9. Measure objects commonly found in the classroom using customary and metric measurements. Figure the conversion formula for inches to centimeters, feet to meters, and pounds to kilograms.
10. Investigate famous paleontologists. Make a table or chart to show their discoveries.
11. Working in cooperative groups, make a dinosaur activity book for younger students. Include the following:
 - a. Line drawings of dinosaurs to color.
 - b. Basic dinosaur information, written at an appropriate reading level.
 - c. A word search.
 - d. A maze.
12. Read nonfiction or fictional stories involving dinosaurs. Tell the story to younger children.
13. Visit a natural history museum, or invite a paleontologist to make a presentation to the students.

14. For additional information and a schedule of presentations or for website information contact:
Dinamation International Society
550 Crossroads Court
Fruita, CO 81521
(<http://www.dinamation.org>.)

WEBSITES

Explore the Internet to discover sites related to this topic. Check the CFV website for related information (<http://www.cfv.org>).

SUMMARY

Animation shows the changes in the earth and the evolution of life from 4.5 billion years ago to the Triassic Period 228 million years ago. The continents were one big land mass called *Pangaea*. This was the beginning of the age of dinosaurs.

The Jurassic Period started about 200 million years ago. More dinosaur species existed, including the *Dilophosaurus*. During the late Jurassic Period, 150 million years ago, *Pangaea* was breaking apart and dinosaurs were dispersed all over the world. Some of the largest animals in history lived at this time, including *Brachiosaurus*.

During the Cretaceous Period, about 65 million years ago, the continents resembled their current arrangement. *Utahraptors*, *Triceratops*, and *Tyrannosaurus rex* lived during this last age of dinosaurs. All the dinosaurs disappeared, and by 50 million years ago, mammals became the dominant life form. Sediment in a pond may have buried a *Utahraptor* claw. It hardened into a fossil over millions of years and was covered by several kilometers of ground. Over time, erosion and earth movements will expose the fossilized claw.

In 1991, paleontologists discovered the fossilized *Utahraptor* claw in Utah. Paleontologist Jim Kirkland explains how this vicious 1,000-pound dinosaur used its

sharp claws to attack its prey. It was very intelligent with highly developed senses and sophisticated coordination.

Paleontologists study live animals to learn about dinosaurs. Paleontologist Robert Bakker studies birds because he believes they are related to dinosaurs. He compares the dangerous cassowary, a ground bird from New Guinea, to the Utahraptor. Both animals have claws on their hind legs.

In the lab, Jim Kirkland shows a skull of a newly discovered dinosaur. Paleontologists compare the bones of modern animals with dinosaur fossils to learn about dinosaur anatomy and how their body parts functioned. Bakker compares an African elephant's slow-moving legs to a *Brachiosaurus*. They form herds around their young to protect them from predators. In eastern Utah, herds of *Sauropoda* left such tracks.

Paleontologist Dave Weishample built a model of a hollow crest of a *Parasaurolophus*. Blowing through the model produces a sound similar to the sounds that dinosaur probably made. They used those sounds for warnings, mating calls, and communication with their young.

Tyrannosaurus rex was the last of the big predators. It had very wide, strong jaws, armor-piercing teeth, and could eat a ton of meat in one swallow. Bakker compares an African hornbill bird to the *Dilophosaurus* and speculates that they had colorful crests for advertising themselves. Nearly all the meat-eating dinosaurs had a birdlike foot, with three toes going forward and one toe going back, which helps paleontologists identify dinosaur tracks.

Bakker compares a *Tyrannosaurus rex* to an Indian rhino to prove that a multiton animal can run 35 miles per hour. Dinosaurs dominated the earth because they had the advantage of walking erect with their legs under their bodies.

Kirkland discusses several theories about why the dinosaurs became extinct 65 million years ago, including an asteroid, diseases, temperature changes,



and volcanoes. People continue to make new discoveries and learn more about dinosaurs.

