

Dinosaur Model



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**Do you need an idea for a scientific study?
Try out one of our ideas or make one of your own.**

Since dinosaurs no longer roam Earth, paleontologists must study the fossil record to create models of the dinosaurs. Take the following brief quiz to see how much you already know about dinosaurs and models. See the bottom of page 4 to check your answers.

- How many toes were on each hind leg of a *Stegosaurus*?
 - 2
 - 3
 - 4
 - 5
- Feathers were present as the outer covering on many dinosaurs.
 - true
 - false
- The same water molecules you drink now were also probably drunk by the dinosaurs millions of years ago.
 - true
 - false
- The *Stegosaurus* dinosaur was one of the main food sources of the *Tyrannosaurus rex*.
 - true
 - false



- About how often is a new species of dinosaur currently being identified?
 - once every ten years
 - once every three years
 - once every year
 - once every week

Making a Zat Model

Researchers create models by compiling empirical evidence and making conclusions about how things they can't see actually appear. In this activity, you'll create a drawing of a fictitious animal that lived in the past called a zat. You'll also predict the environment and niche of the organism based on the evidence and your drawing. Get ready to go back in time to create your model of the zat.

Materials Required

- 1- sheet of copy paper
- 1- 30-cm ruler
- 1- set of coloring pencils

Procedure

1. Review the fossilized evidence below about the fictitious organism called a "zat."
2. On the sheet of copy paper, create a colorized drawing of the zat.

Empirical Evidence

- a. The triangular shaped skull of the zat is 4 centimeters long and 2 centimeters wide at its widest point.
- b. The skull has two jaws, one upper and one lower jaw. Each jaw has 10 teeth that were flat and not pointed.
- c. The hot dog shaped body of the zat is 10 centimeters long and 4 centimeters wide.
- d. The pencil-thin tail of the zat is 8 centimeters long and can grasp branches.
- e. Two legs each about 2 centimeters long are attached to each side of the body. One leg is attached near the head, the other leg attached near the start of the tail.
- f. The front legs have 5 finger-like appendages that can grasp small branches. The rear legs are flat and have no appendages.

Questions

1. Based on the evidence and your drawing, where do you think the zat lived? Provide evidence to support your answer.
2. What type of food did the zat most likely eat? Provide evidence to support your answer.
3. Describe why you chose the color scheme and pattern for your zat model?

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Interpreting the Fossil Record

Scientists have found the remains of some past living organisms relatively intact because they were located in ice, permafrost, encased in tree resin, or preserved in dry desert caves. However, bacteria and other decomposers have removed or destroyed the organic matter associated with most organism remains. What typically is left after the decomposers do their work are brittle, porous bones. Over time, water dissolves some of the mineral salts in the bones. This process creates bones that are more rock-like than bone-like, and these are the fossils that appear in many dinosaur museums across the world.

The likelihood of finding one complete and intact fossilized skeleton of an organism is rare. Predators feeding behaviors and erosion cause bones from a single organism to be scattered over a wide area. Even if one complete fossil is located, this alone does not provide a complete picture of the organism. Imagine that all humans disappeared from Earth at the same time and only one human fossil remained. Would that one fossil provide a complete picture of all humans? Would a future paleontologist think humans only had one gender because of the single fossil? What if the fossilized human had a skeletal abnormality that led those researchers in the future to believe that a deformed arthritic spine was present in all people?

The fossil record is highly incomplete due to the differences in the locations where the organisms lived. Few fossils are found in humid rainforest due to the rapid decomposition of remains in that area. Deep ocean water and high mountains are locations with lower oxygen levels. The lack of oxygen in these areas slows down the rapid decomposition of organisms and increases the chances of the formation of stable fossils.



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Answers: 1) b, 2) a, 3) a, 4) b, 5) d. **Page 3 Making a Zat Model Answers:** 1) The zat most likely lived in trees since it was capable of grasping branches with its tail and front legs. 2) The zat most likely ate vegetation since its teeth were grinding and not tearing teeth. 3) The zat would probably be green or brown colored to blend in with the vegetation and protect it from predators.

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