



Dinosaurs

READING LESSON

Featured Book

A Dinosaur Named Sue by Fay Robinson.

ISBN: 0-439-09983-8

Objective

The students will read about dinosaurs and learn about the amazing discovery of a 67 million year old Tyrannosaurus rex, which is the largest and most complete fossil ever found.

Science Background

The earth is made of several layers of sedimentary rock, which is formed from layers of mud and sand that slowly harden over time. These layers tell the history of what plants and animals lived on the earth millions and millions of years ago. One of the largest and most amazing discovery were the dinosaurs!

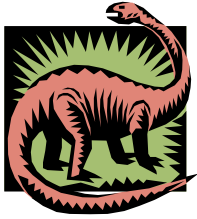
Reading Standards (see appendix A)

Standard 1 - Students read and understand a variety of materials.

Standard 6 - Students read and recognize literature as a record of human experience.

Key Points

- Dinosaurs existed approximately 67 million years ago during the Cretaceous period.
- The Tyrannosaurus Rex is a species of North American dinosaur.
- Dinosaurs were a species of reptiles.
- Animal or plant remains must be buried quickly in order to become fossils.



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READING LESSON - Question Review

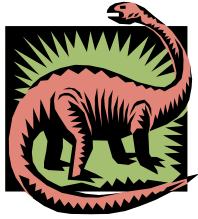
Answer the questions below to help you review what was read in A Dinosaur Named Sue by Fay Robinson.

1. What state in North America is one of the best places in the world to find fossils such as dinosaur bones?
 - a. South Dakota
 - b. South Carolina
 - c. North Dakota

2. Who is Susan Hendrickson?
 - a. A student studying to be a geologist
 - b. A fossil hunter who camped out in western South Dakota with her dog *Gypsy* and a group of people from the Black Hill Institute in the summer of 1990.
 - c. A scientist from a nearby city

3. What is the first thing, fossil hunters do when they're looking for bones in cliffs?
 - a. Walk around the bottom to look for bones that might have fallen downhill.
 - b. Sweep the ground for signs of bones
 - c. Look at the top of the cliff to see if bones are sticking out

4. After fifteen minutes of walking around the bottom of the cliff, Susan found a couple of two-inch pieces of bone and a bunch of little broken bone pieces. What did Susan see eight feet above the bones she found on the ground?
 - a. An airplane
 - b. More bones that jutted out of the cliff
 - c. Nothing



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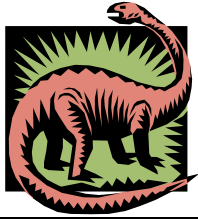
READING LESSON - Question Review (continued)

5. What kind of dinosaur did the hollow bones that Sue found belong to?
 - a. Tyrannosaurus rex
 - b. Parasaurolophus
 - c. Edmontosaurus

6. Put a check next to the following statements that were true about the Tyrannosaurus rex:
 - Was bigger than a city bus.
 - Weighed anywhere from 2 to 7 tons
 - Had a huge head and heavy tail to keep its balance
 - Its arms were as long as human adult arms
 - Its jaws were full of 58 long teeth

7. Sue's bones were found in a type of rock called "sandstone" what is sandstone formed from?
 - a. Volcanic ash
 - b. Clay
 - c. Sand

8. Which of the following caused Sue's bones to become discovered?
 - a. The wearing away of rock caused by forces inside the Earth that moved the land
 - b. Formation of mountains, enormous earthquakes and volcanoes
 - c. Cooling weather and rain
 - d. All of the above



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READING LESSON - Vocabulary

Below are several words that may be new to your vocabulary that you read in A Dinosaur Named Sue, by Fay Robinson. Fill in each blank with the correct word.

Carnivore	Flesh	Tyrant Lizard King
Herbivore	Preserve	Specimen
Sediment	Species	Scientist
Edmontosaurus	Vertebrae	Ton
Tyrant	Fossils	

1. _____ are bones that form the spine.
2. Remains of an animal or plant that are left in a rock are called _____.
3. A _____ is equal to 2,000 pounds.
4. Plant-eating animals are called _____ and meat-eating animals are called _____.
5. The rock that is formed at the bottom of the sea and rivers is called _____.
6. _____ is the soft part of the body that covers the bones.
7. A _____ is a sample which is selected for study or exhibition
8. A person who studies science is called a _____.
9. An _____ is a duck-billed dinosaurs.
10. A group of plants or animals that are very similar and can breed together are called _____.
11. _____ is another word for cruel.
12. The name "Tyrannosaurus Rex" came from the words _____.



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ACTIVITY LESSON

Featured Science Activity

Excavating Dinosaur Bones

Objective

The students will experience what it's like to be a paleontologist by excavating and identifying their own plastic dinosaur fossils by chipping away at a block of stone.

Science Standards

Standard 4.1: Students know and understand the composition of Earth, its history, and the natural processes that shape it. In grades K-4, what students know and are able to do includes: describing different types and uses of Earth materials (for example, rocks, soil, minerals, etc.); recognizing that fossils are evidence of past life.

Science Background

Paleontologist are scientists that study fossils of plants and animals that lived long ago. Fossils are found within the earth's different layers of sedimentary rock, which is formed from layers of mud and sand that slowly harden over time. Paleontologists must be very careful when they dig up fossils, especially dinosaur bones!

Materials

- "I Dig Dinosaurs Excavation Kit" (Includes: Dinostone, Student Safety Glasses, Chisel, Hammer, Paint, Paint Brush)
- Newspaper
- Masking Tape
- Scissors
- Toothpick
- Adult Safety Glasses for the Tutor



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ACTIVITY LESSON (continued)

Safety Rules

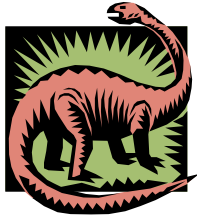
- You **must** wear your safety glasses the entire time you are excavating.
- The chisel and hammer are made of heavy metal and must be handled carefully. These are **NOT** toys and you must be cautious when using them. Never hammer towards yourself or towards another person. The sand used in this kit is non-toxic and can be disposed of safely in your garden or garbage. Do not dump the sand down the sink, it will clog up the drain.

Note: **This activity may take two CLOUT sessions to finish.**

Procedure

1. Spread newspaper on the entire surface of your work area and use the masking tape to keep it in place. (This will help catch all of the sand once you start excavating.)
2. Put on your safety glasses so sand doesn't fly into your eyes.
3. Place the Dinostone on the newspaper in the center of your work area and cut the plastic off the Dinostone with your scissors.
4. Hold the chisel at an angle with the sharp end touching the top of the Dinostone block.
5. Tap the blunt end of the chisel with your hammer firmly. Do **not** hit the Dinostone so hard it breaks away in large blocks. Doing this may cause damage to the bones you're excavating. **Note:** If you are right handed the hammer should be in the right hand with the chisel in the left. If you are left handed, the hammer should be in the left hand with the chisel in the right. This will give you better control over the tools so you don't whack your hand with the hammer.
6. Chisel away one layer at a time and take turns with your tutor so your arms don't get tired. This excavation process takes a long time so be sure not to rush.





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ACTIVITY LESSON (continued)

7. Once a bone is exposed, brush the loose sand grains away from the bone and continue to chisel around the area aiming **away** from the bone. (Brush the loose sand away from the bone every so often to keep a good view of the area.)



8. Excavate the dinosaur bones by alternating the use of the brush and chisel until the bones are fully exposed. You may need to rotate the Dinostone in order to uncover the bones.
9. Scrape near the bone to expose the edges but do **NOT** pry the bones free. This can break the bones.
10. Once all of the bones have been removed, brush off any loose particles of sand from the skeleton.
11. Take the wooden toothpick and dig the grains of sand out of the small holes and grooves.
12. Take out the assembly instructions from the kit and follow the instructions to snap together the dinosaur that you have excavated.
13. If you want to make a base for your dinosaur to stand on, empty all the sand into the dinosaur box. The instructions to make the mold are included in the kit and can be completed at home.
14. There are also instructions on painting the dinosaur. The paints and brush are provided in the kit and can be completed at home.



Congratulations on your successful excavation!

