



# Fossil Hunt with Scope-On-A-Rope

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(Adapted from an activity by: Mignon Morgan)



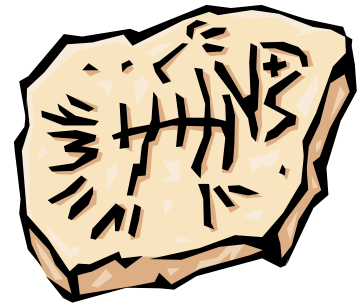
## OBJECTIVES

- To use Scope-On-A-Rope to heighten students' senses, hone their observation skills, and strengthen concepts such as magnification and scale.
- For students to gain an understanding of earth science concepts: properties of rocks and fossils; geological time and the history of life on Earth.

## BACKGROUND

The Earth is constantly changing, so we must study its history to truly understand the planet in which we live. The recorded history of man is measured in hundreds and thousands of years, but the history of Earth is measured in millions and billions of years. Its calendar is called the **geological time scale**.

Since the beginning of life on this planet, organisms have left behind traces of their existence in stone. We call these ancient remains of plants and animals **fossils**. Most fossils are found in sedimentary rock - as sand, silt, and mud is deposited, organisms and traces of organisms are sometimes buried in it. There are many types of fossils; they can be the actual remains of an organism (bones, teeth, shells, wood), its imprint, or what scientists call a trace fossil. This type of fossil wasn't ever part of an organism, but simply evidence that an organism was once there, such as footprints or burrows. An organism, imprint, or trace must be preserved in rock for at least 10,000 years to be considered a fossil - the oldest known fossils are 3.5 billion years old!



Scientists who study these remnants of past life are called **paleontologists**. These scientists keen and careful observers, dedicated to understanding the history of life on Earth. Most people think of dinosaurs when they think of fossils, but they only make up a small fraction of the millions of life forms that have lived on Earth throughout time. A great majority of fossils are very small and need to be identified with the aid of a microscope, but they are plentiful and can be found in gravel from your own backyard!

## MATERIALS NEEDED

Scope-On-A-Rope\*  
Gravel samples\*  
Forceps (tweezers)  
Petri dishes  
Clear tape  
Gray cards (index card size)  
Hand lenses, if desired  
Copies of "Fossils Worksheet" (attached)

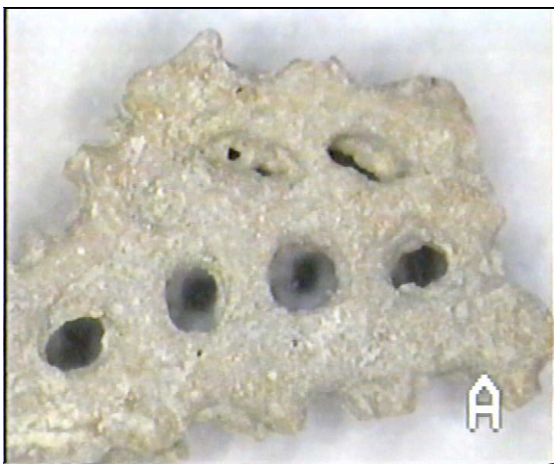
\*The Scope-On-A-Rope, gravel samples, and Petri dishes can be borrowed from LSU.

## ACTIVITY

1. Start by asking your students what a fossil is. You will most likely get answers such as dinosaurs and other extinct creatures. Explain to them that fossils are any remnants of past life, including plants and small animals such as insects and bacteria.
2. You can borrow gravel samples from LSU, but asking your students to collect their own gravel could be more meaningful. Finding fossils in gravel from the schoolyard, parking lots, or even their own driveway, will give students an appreciation of how paleontologists make discoveries. In case this is not feasible or practical, gravel can be ordered from science supply companies such as Ward's: <http://www.wardsci.com> (*Find-a-Fossil Lab Activity*, Item #50 V 0050)
3. Give each pair or group of students one teaspoon of gravel in a small Petri dish and a pair of forceps. Have students shake the dish to arrange gravel in a single layer.
4. Use a hand lens to look carefully at your sample. Look for unusual shapes and textures – objects that are clearly different from the rock around them (see box below). Remove possible fossils with forceps and place them on a gray card. A loop of tape can hold the microfossil in place. Be patient! Work slowly and carefully so you don't damage a valuable find.
5. Use the 1x and 30x lenses of Scope-On-A-Rope to get a close look at the possible fossils. [TIP: Use the "stand-and-view" set-up and remove the contact tip of the 30x lens to avoid crushing the fossils.]
6. Older students can research online databases to try to identify any microfossils they found. (One such site is included on the next page.)



A student finds a microfossil in a sample of gravel using 1x lens of SOAR.



Here is a view of that same fossil under 30x magnification. It's a sea urchin!

### How will you know when you've found a fossil?

This is a question not easily answered. Fossil shells are usually still recognizable as shells, but bone is bit trickier. Fossil bone can be soft or hard, dark or light, solid or brittle; the appearance of a fossilized bone depends on the environmental conditions and make-up of the surrounding soil. The best way to distinguish bone from surrounding rock/gravel is by looking for a difference in texture. Bone usually has a very smooth, almost glasslike surface, and many times it still looks like bone from recently dead animals.

## LOUISIANA GRADE LEVEL EXPECTATIONS

	K	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	8 <sup>th</sup>
Science As Inquiry	1, 2, 4, 10	1, 2, 5, 11	1, 2, 6, 12	1, 2, 6, 8, 15	1, 2, 7, 9, 17	1, 6, 29	1, 6, 29
Earth Science			36, 42	52	55	30, 38	18, 31

### ACTIVITY EXTENSIONS

**SCIENCE:** Collect samples of gravel from different locations and compare the types of fossils found (or lack thereof). Create a timeline of past life in Louisiana, tying in fossils found.

**Earth Science GLE's** = Gr. 2: 39; Gr. 3: 45; Gr. 4: 55; Gr. 5: 31, Gr. 8: 16, 18

**ELA:** Read a book to your class about the life of a dinosaur or other extinct creature. Have your students write a story about a microfossil they found and what its life might have been like.

**Writing GLE's** = K: 20, 24-25; Gr. 1: 26, 29; Gr. 2: 21, 24; Gr. 3: 22, 24; Gr. 4: 20, 23; Gr. 5: 18, 21

### Websites for additional information:

<http://education.usgs.gov/common/primary.htm#rocks> (US Geological Survey – great resource for information on all earth science topics!)

<http://www.fossils-facts-and-finds.com/index.html> (info for educators with coloring pages)

<http://www.sdnhm.org/exhibits/mystery/fieldguide.html> (fossil identification guide)



Microfossils are often found embedded in conglomerate rock, like these crinoid stems.  
Photo courtesy of Zarbeco, L.L.C.  
<http://www.zarbeco.com>

Name \_\_\_\_\_

Date \_\_\_\_\_

## Fossil Worksheet

Draw what your gravel sample looks like. How many different rocks and microfossils do you see?



Draw a close-up view of a microfossil you found magnified 30x with SOAR.



Where did this gravel come from? \_\_\_\_\_

What do you think this fossil is? What kind of animal or plant was it? Is it an organism, an imprint, or a trace? Describe your fossil in detail.

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