# Microfossils teach us about ancient ecosystems

**Microfossils** are tiny fossils that can be found in sediment near larger fossils. Microfossils commonly include things as small as insect parts, pollen, seeds, small teeth, shell fragments and tiny bones. It's exciting when a paleontologist uncovers large bones. Much of the scientific work, however, involves finding and studying microfossils. Microfossils teach us what ancient ecosystems were like.

### What you'll need:

Every student should get a Meeka microscope, a pair of Tobey tweezers and a Petri dish.

### What you'll do:

1. Get a scoop of fossil sediment in a petri dish and take it back to your desk.

2. Identify, count and graph the microfossils that you find.

*This student is sorting through 20 million year old sediment discovering fossils.*

*This 20 million year old sediment contains lots of microfossils*

If you are using a STEMTaught fossil sediment sample, please do not keep the fossils. After the activity, return them to your teacher.  These fossils are very special samples for your school and scientific collections need to stay together!

# G3 Micro-fossil Sorting

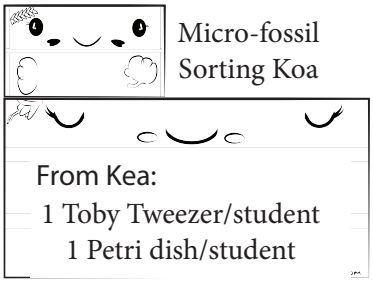
*Biological Evolution: Unity and Diversity 3-LS4-1.*
Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.

## Before Class Prep:


1

Get the microscopes

2




3

## Running the Lab (55 min):

1. **Show the in-class movie (5 min).**

2. **Talk about the special sediment (5 min) - Possible teacher script** - "We have a neat opportunity today to look through fossil rich sediment that no one has looked through before. We get to be real paleontologists and sort through a time during the tertiary period (20 million years ago) when the climate was different. See if you can tell what type of climatic conditions existed on the North American continent by looking through the material. You will get to put a little pile onto your paper and carefully sort through it to discover what the ecosystem was like at that time. As you discover different fossil remains we can identify them with the key on the smart-board. Sort them into the columns on your sheet, and look at them carefully under your microscope or a magnifying glass. If you find a really special fossil, remember to not take it. We need to preserve this piece of history for everyone.

3. **Talk about the lab tools (2 min)** - Show students how they will get a petri dish to scoop up some sediment to take to their desk and carefully dump out on their sheet. They also get a pair of tweezers to help them sort.

4. **Students get the fossil sediment and tools (3 min)** – Roll the sides on the fossil bag down and put the petri dishes and tweezers out for students to walk through and get them. I usually let them sort for a good 20 minutes before I bring out the microscopes but you can do the microscopes at any time you want.

5. **Collect data- tallying/identification skills (30 min)** - Students love discovering these ancient fossils. Enjoy going around and seeing all the wonder. You can remind them to sort the fossils into columns and to keep a tally at the bottom of the column. Collecting data and keeping an accurate count is part of the scientific method.

6. **Graph (5 min)** - Take a little time at the end to allow students to graph and talk about their data. Or if you have no time left do this activity later.

7. **Clean up (5 min)** - Take the bag around and let students return all their fossils.