Activity 7
Cookie Excavation

Students perform a "fossil" dig for chocolate chips. This activity has been adapted from the Badlands National Park activity.

Guiding Questions: How do you dig up a fossil?
Critical Content: Fossils are imbedded in rocks. What are the techniques for excavating a fossil from rock?
Grades: 3-6
Duration: 60 minutes
Group size: individuals
Setting: classroom

Background: Paleontology, like archaeology, involves fieldwork, including excavation -- the digging of fossils and ancient artifacts from the ground. The work is very painstaking and detailed, requiring patience, skill, and the ability to focus in on a small area for a long period of time.

Paleontologists typically use dental tools, like metal picks and scrapers, and brushes for their excavation work. They also use trowels when they are sure there are no small objects in an area that could be damaged. They may work years or even decades excavating a single site. Archaeologists have worked on a single site in Egypt since 1928 and they are still finding new information.

Materials:

Cookies - one of each type for each student:
- Hard chocolate chip cookie
- Soft chocolate chip cookie
- Hard raisin cookie
- Soft raisin cookie

Paper towels, 2 for each student

Toothpicks, 6 for each student

Vocabulary:

Paleontology
Fossil
Excavation

Procedures:

1. Give each student one of each type of cookie, two paper towels, and six toothpicks.
2. Start the students excavating in the hard cookies to extract the chocolate chips or raisins using only the toothpicks. If they break a toothpick so that it is no longer sharp, they can no longer use it. It must be discarded.
3. After 3 to 5 minutes, stop and find out if anyone was successful in extracting anything. As a class, review the Discussion Questions, below.
4. Have them excavate with the soft cookies using the same rules.
5. After 3 to 5 minutes, stop and find out if the students were more or less successful in extracting chips or raisins. Review the Discussion Questions again. How did the results differ between the hard and the soft cookies?

Discussion Questions:

1. What is the condition of the chips and raisins extracted? Were they whole or broken? Are there bits of cookies still clinging to them or are they relatively clean?
2. What was it like trying to remove the raisins and/or chips from the extremely firm cookie?
3. Did students get different results from the chips versus the raisins?
4. Has anyone used up all their toothpicks already?

Extension: Excavating raisins or chocolate chips from a cookie is similar to the work paleontologists do in the field, but working in a classroom is much different from excavating fossils on your hands and knees in the hot sun. To give your students a more realistic feel for paleontology fieldwork, bury some items in a school garden or other area where digging is acceptable, and have them excavate the items. This time, instead of toothpicks, provide them with screwdrivers and a garden trowel.