

Edible Space Rocks

Previsit Activity for Solar System



courtesy NASA/JSC

Grades 4- 8

CDE Standards

Science: 1,4.1,4.4

Math: 5

Preparation and Materials

Estimated Preparation Time: 45 minutes

Estimated Activity Time: 45 minutes

Materials

Snack-size Ziploc baggies

Candy samples

Peanut brittle (chondrites)

Thick, solid chocolate bar (iron)

Three Musketeers bars (achondrite)

Brownies with chocolate chunks or nuts (carbonaceous chondrite)

Rocky Road candy (chondrite)

Nestle's Crunch bars (chondrite)

Chocolate Swirl—see recipe below (stony iron)

Paper or lab notebooks

Pencils

Rulers

Scales

Computer with Internet access and PowerPoint software

Learning Goals/Objectives

Students will

- Make observations of familiar items (candy) using scientific terminology
- Compare familiar items to several types of meteorites

Connections to *Space Odyssey*

Upon your arrival at *Space Odyssey*, ask a Museum Galaxy Guide about the Cratering and Meteorites Object Cart. The Museum Galaxy Guide will bring out a cart of our prized meteorite specimens for students to view and touch. Students will be able to make a variety of observations about the differences between meteorite types.

Advanced Preparation

1. This activity involves products that contain peanuts. Use precaution with students who may have allergies to peanuts.

2. Introduce students to the vocabulary necessary to be successful in this activity. Be sure to introduce the difference between meteors, meteorites, and meteoroids.
3. Prepare candy samples by cutting thin sections of the candy so that the inside is exposed. Chilling, but not freezing the samples will make the candy easier to cut. Place each sample into small Ziploc baggies. Save the remaining candy to share with students.

Achondrites	A meteorite whose composition is similar to terrestrial basalts; most of these meteorites are believed to have come from the Moon or Mars
Breccia	A type of rock that is made up of rough, angular pieces of older rocks
Carbonaceous Chondrites	A stony meteorite containing material associated with life (hydrocarbons, amino acids, microscopic fossils)
Chondrites	These meteorites are similar in composition to the mantles and crusts of terrestrial planets and contain chondrules—most meteorites fall into this category
Chondrules	Rounded granules found in meteoric stones
Irons	Meteorites composed primarily of iron and nickel
Meteor	A meteoroid that hits the Earth's atmosphere but burns up before it hits the surface
Meteorite	A meteoroid that reaches the surface of the Earth
Meteoroid	Small particles of rock found in the solar system
Regolith	The rocky debris that is thrown out of impact craters
Stony Irons	Meteorites that consist of a mixture of iron and stony materials

Classroom Activity

1. Inform students that they will be asked to make some important observations and they will be asked to sketch the samples and write about these observations in scientific terms.

2. Generate a list of important scientific terms that students should use in the descriptions of their samples. Some appropriate scientific terms to use might include crust, chondrules, layers, texture, interior, exterior, grams, centimeters, etc.
3. Have students choose a sample bag to observe and describe. Instruct students that they may not remove the sample until instructed to do so.
4. Have students make a detailed drawing of their sample. Instruct them that they should label the parts of their sketch, but should use scientific terms and no food terms (such as chocolate, nuts, etc.).
5. Then have students write at least three sentences describing the physical appearance of their samples. Again, they may not use food terms to describe the sample. Students should make their descriptions very clear. Inform them that they will be exchanging descriptions in a group and will be asked to identify samples based only on written descriptions of other students.
6. Students should weigh their samples and use rulers to measure pieces within their samples.
7. Have students meet in small groups. Place all the samples on a tray, and then have students exchange descriptions. Can students identify the samples from the descriptions?
8. To wrap up the activity, show students the PowerPoint presentation listed in the resources list below. Can they generalize their candy samples to match the pictures of meteorites in the Power Point?
9. Allow students to eat samples!

Variations/Extensions

1. Older students can identify their samples as meteorites given the list of vocabulary terms above. Can they match meteorite types with the candy samples?
2. Have students prepare edible space rocks of their own. Using edible ingredients, students will formulate recipes that will simulate the look of meteorites when sliced into thin sections.

Resources

Web sites

<http://www.ex.ac.uk/~ajbeer/museumweb/glossary.htm>

<http://www.crystalinks.com/meteors.html>

http://mac01.eps.pitt.edu/courses/GEO0870/0870_Meteors_Meteorites.ppt
t. (Power Point presentation)

Recipe

Chocolate Swirl

6 oz. milk chocolate

6 oz. dark chocolate

Melt both types of chocolate in different containers. Butter a small cake pan and pour in the milk chocolate. Then pour the dark chocolate into the pan, and swirl it in with the milk chocolate. DO NOT completely mix the chocolate. Allow to cool and cut into thin sections for samples.