Rockin' Rocks

Students will have a rockin' good time discovering how rocks are different in size, weight, and color. Classes will also discover the difference between living and non-living things, and finish the lesson with a rockin' craft.

Grade Level: Kindergarten

Phenomena:
By studying rocks, we can learn their different characteristics and how they are unique.

Objectives:
- Students will identify characteristics of rocks and understand that all rocks have their own defining characteristics.
- Students will distinguish between living and non-living things and will be able to identify rocks as non-living.
- Students will illustrate different characteristics of rocks

Materials:
- Rock specimens that accurately depict different types of characteristics; examples: Jagged, smooth, dark color, bright color, heavy, light, etc… Make sure to have enough for each group of students to have 4-5 rocks.
- Paint to coat rocks.
- One painted rock per student.
- Rock formation pictures Appendix A-D
- Living/non-living pictures Appendix D-M

Time Considerations:
- Preparations: 20-30 minutes
- Activity 1: 10 minutes
- Activity 2: 5-10 minutes
- Activity 3: 10-15 minutes
- Activity 4: 5-10 minutes
- Activity 5: 5-10 minutes

Related Activities:

Nevada Outdoor School . org

Next Generation Science Standards

2-PS1-1 Matter and Its Interactions Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

Science and Engineering Practices (SEP):
Planning and Carrying out Investigations.

Disciplinary Core Ideas:
Structure and properties of matter.

Crosscutting Concepts:
Patterns

Excellence in Environmental Education Guidelines

Strand 1– Questioning, Analysis, and Interpretation Skills. *C) Collecting Information*– Learners are able to locate and collect information about the environment and environmental topics.

Background

The whole earth is made of rocks and minerals. Inside the earth there is a solid spinning core, a liquid mantle of molten rock, and on the outside there is a hard crust.

The crust is made up of rocks and minerals. Much of the crust is covered by water, sand, soil, and ice. If you dig deep enough, you will always hit rocks.

Rocks are constantly being formed, worn down and then formed again. This process is known as the Rock Cycle. This is similar to the Water Cycle, but a much longer and rigorous process. It can take thousands to millions of years for rocks to change. Rocks can be divided into three types and they are classified by how they are formed; the three types of rocks are igneous, sedimentary, and metamorphic.

Rocks are made of minerals. When the minerals are visible, they can be used to identify the rocks. However, many times you cannot easily distinguish minerals, but there are other ways to identify them. For example, obsidian or volcanic glass, is one of the few rocks that looks like glass. Obsidian is usually, but not always, a deep black color.

Sedimentary rocks are sometimes “gritty” or feel like sand.

In this lesson, the most important thing to portray to the students is that all rocks have characteristics, these characteristics are used to identify rocks. When scientists look at rocks, or other things like plants and animals, they use defining characteristics as a method in classifying them. Gather all materials: enough rocks for each group to have 4 or 5; rocks should demonstrate many different types of characteristics: Jagged, Smooth, light, heavy, dark, sharp, etc…

Preparation

Paint covered rocks will be used for the lesson’s craft project. Bring at least one rock per student for this activity.

Prior to lesson dip rocks in paint and let them dry over night.

Upon arriving to the classroom set up 5 group locations around the classroom. At each spot, place 4-5 different kinds of rocks. Each group’s rocks need to show as many different types of characteristics as possible students will study these rocks in activity 3.

Doing the Activity

Activity 1: Rock Introduction
Begin this lesson by describing a rock to the students. Example: “I’m thinking of an object that can be very large that may be found on a mountain or very small that is found on the playground. It’s hard and sometimes round …”

As you are doing so, have the students guess what you are describing.

Once they have guessed, explain to them that they will be studying rocks today just like scientists and they will be making some very interesting finds!

Activity 2: How Rocks Are Different Exploration
Brainstorm with the students how exactly rocks can be different from each other.

Based on their answers, show students different examples of rocks. Some descriptions may include different shapes, sizes, luster, sharpness, smoothness, how they are made, where they are found, etc…

Explain to the students that all rocks are different and that each person is going to get a chance to look at these differences today!

Tell students that in groups, they will study rocks like scientists. Explain that they are to identify as many different rock characteristics as possible.

Activity 3: Rock Examination
Organize the class into groups of 3-4 students

Lead each group to a location in the classroom that has 4-5 rocks set out. Tell them to begin studying their rocks. Repeat these same steps with the remaining groups.

Ask students to hold up rocks with different characteristics: IE: Hold up a rock that is shiny, rough, smooth, jagged, pointy, sparkly, etc…

Instructors: If your group is having trouble remaining focused, rotate groups so they must look for new characteristics.

If time permits, bring around a tub of water and quickly dip their rocks into the water. Ask students if they see any new characteristics.

Bring students back together as a large group and ask them if all rocks are the same? *No!*

Have students share some characteristics they found with their neighbors. Then ask 2-3 students to share their thoughts with the class.

Activity 4: Non-living vs. Living
Ask students if their rocks are living or non-living.

Brainstorm with students and list what living things need to live: an ability to breathe, grow, must eat food or create it’s own food, etc…. And it must be real.

Quickly decide with students that rocks cannot do any of these things, so therefore it is non-living.

Explain to the class that you are going to show them pictures of things that are either living or non-living. And as a class we need to decide which is which!

Instructors: organize these pictures so that the objects that match are grouped together—and has the living thing appearing first.

Start moving through the pictures. Students will have a hard time with the winter trees because they believe that the trees have not been watered and are dead, you must explain to them that they are dormant but are still eating the food they reserved for the winter , and corn in stalks explain that even these are alive because while in the stalks they are still taking in oxygen, food and are growing. Return back to the class list, that distinguishes what makes a things living and non-living.

Conclude this activity by asking students questions such as: take a deep breath, now let it out. Did your rock do what I asked? NO! How big were you when you were 2? Are you the same size now? NO! Can your rock grow big and tall like you? NO! When you wake up in the morning can you make yourself a bowl of cereal and eat it? YES! Can your rock do the same? NO! Return to rocks and have students tell you why rocks are considered non-living things.

Activity 5: Rock Craft

Review quickly with students everything they have covered thus far: rocks are different, rocks have many characteristics, and are non-living.

Explain to students that in a few moments they will each receive a rock and it is their job to give it rock characteristics!

Demonstrate the activity, before dismissing students back to their tables. Students will use crayons to draw characteristics onto their rock. For examples, a student might draw cracks on their rock

Dismiss students to their tables, but have each student tell you first a type of characteristic a rock could have.

Conclusion

Rockin' Review

When students are finished, have each person turn to their neighbor and share the rock with each other.

Ask 3-4 students to share a characteristic of their rock with the class.

Finish by asking students to name different characteristics rocks can have and whether or not rocks are living or non-living things.

If any student appears to be confused, return to the class list of what makes a living thing living.

Assessment

Assess students based on their class participation and contribution to class discussions and their feedback on living and non-living things.

Extensions

Have students share their rock craft with classmates, and list the different characteristics they made on their rocks.

Ask the students to write a story about their rock. In this story they should give the rock only characteristics that are found in living things, like the ones discussed in class.

The students can choose to read their stories to the rest of the class.

After they have written their stories, ask the students to list the characteristics that they used in their story in one column and characteristics that a rock really has in another column. Have them label the columns “Living” and “Non-living”.

Sedimentary Rock. http://mulch.cropsoil.uga.edu/soilsandhydrology.images/shale.jpg

Igenous Rocks http://library.thinkquest.org/05aug/00461/igneousprint.htm

Metamorphic Rock. http://www.thisoldearth.net/metamorphic/metamorphic.htm

Vocabulary

Characteristic- A typical quality or feature. IE: Hair, eyes, skin color etc.

Living- Is able to breathe, grow, and make or eat its own food.

Non-living- Is not now or has ever been alive.

Rock- The very hard mineral matter that forms an important part of the earth’s crust.

Sources

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- Thinkquest.com.(Aug2005). http://www.library.thinkquest.org/05aug/00461/igneous.htm
- Principles of soils and hydrology. (ND). Important rocks and minerals. http://www.mulch.capsoil.uga.edu/soilandhydrology
- Tvelia, Sean. (2006). Metamorphism and metamorphic rocks. http://thisoldearth/metamorphic.htm

Sedimentary Rock.
Bryce Canyon National Park Bryce, Utah.

Metamorphic Rock
Weaving Canyon Rd. Death Valley, CA


SPALDING
Official Game Ball
NBA


Crayola
Crayola
indigo
Crayola
green
Crayola
yellow-green
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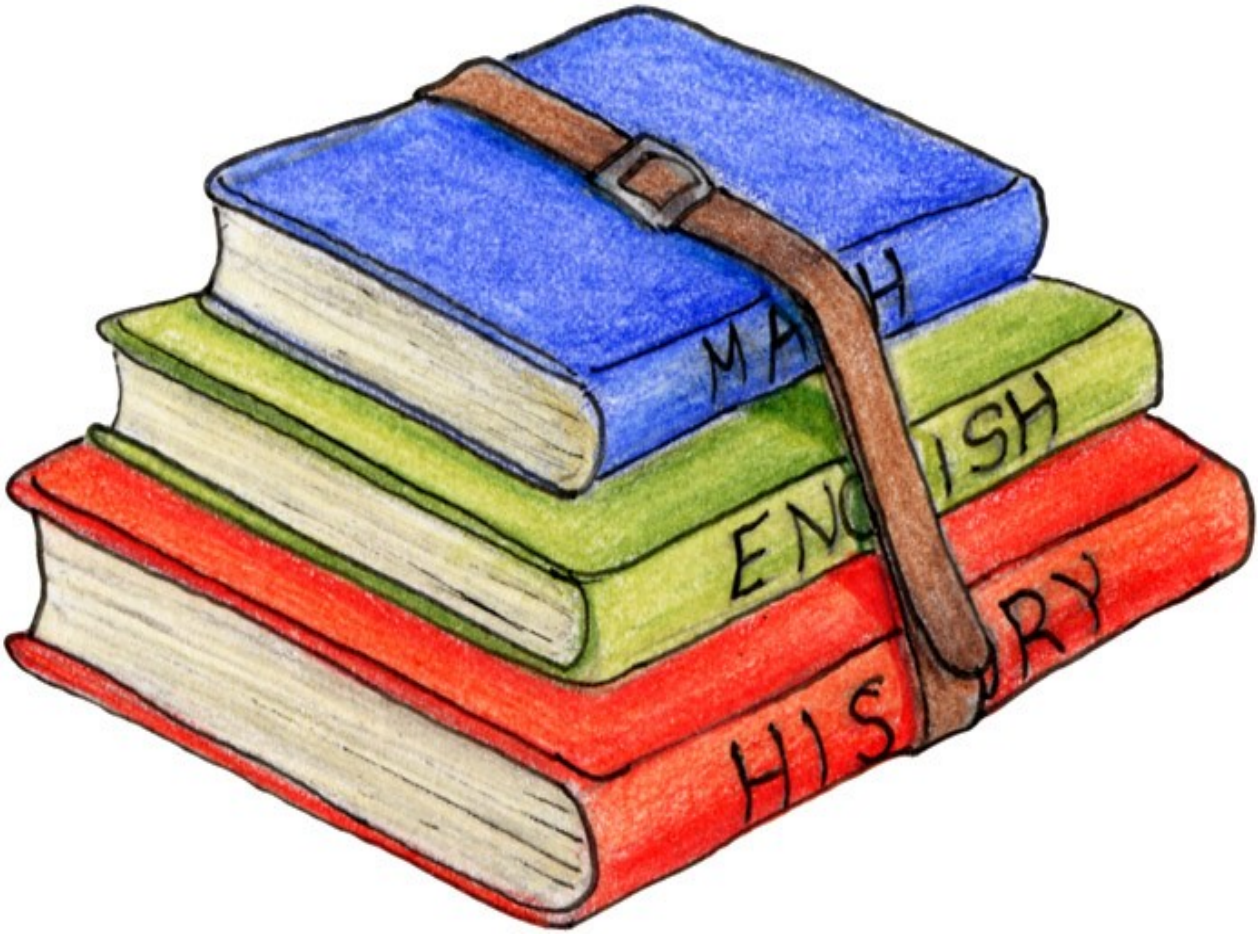
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Quality
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Fresh Cut
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CREAM STYLE
NO SALT ADDED


Gilliker's
Potomac Farms
Lowfat
Chocolate Milk
SCHOOL MEALS