Information for the Educator

NATIONAL MUSEUM of NATURAL HISTORY

The following lesson was developed to support your students in their exploration of different colors, textures, and patterns found in minerals and/or in nature.

The lesson has 5 main components:

1. Listen: Students will listen to an educator and Pinky make observations of different minerals in the museum's collection.
2. Look: Students will make observations of images of minerals.
3. Talk: Students will engage in sharing their observations and ideas about what they think the minerals might look or feel like.
4. Classify & Sort: Students will practice classifying and sorting the minerals based on features they choose as a class.
5. Create: Students will create their own rainbow inspired by different textures, colors, and patterns found in minerals and in nature.

The images used throughout the lesson are from the Smithsonian's digital assets collection and can be used for this educational purpose.

Mineral Rainbow

Lesson Plan

NATIONAL MUSEUM of NATURAL HISTORY

Our planet is not only home to colorful animals and plants, but it's also home to (and creates) beautiful minerals! Minerals come in many different shapes, sizes, and colors! They also have different textures, too. Some are smooth and shiny while others are bumpy, round, or even pokey. In this lesson, students will practice making and sharing observations of different minerals, classify and sort minerals, and create their own rainbow inspired by colors and textures found in nature.

OUTCOMES

After participating in this lesson, students will be better able to make observations, classify or sort, and describe natural objects like minerals.

OBJECTIVES

During this lesson, students will:

- Make and share observations about different minerals
- Answer close-looking questions such as "What, How, and Why?"
- Practice sorting and classifying minerals based on features and using categories decided on by the class
- Create their own rainbow inspired by colors, patterns, and textures in nature

ELOF STANDARD

This lesson supports the following ELOF standards:

Goal P-SCI 1: Child observes and describes observable phenomena (objects, materials, organisms, and events).

Goal P-SCI 2: Child engages in scientific talk.

Goal P-SCI 3: Child compares and categorizes observable phenomena.

MATERIALS

- Magnifying glasses (optional, can also create tools using cardboard paper)
- Printed and pre-cut paper mineral specimens
- Minerals (optional)
- Pre-cut rainbows on cardboard or cardstock
- Glue
- Various art supplies that will provide different textures, patterns, or colors (markers, crayons, paper shapes, foam, felt, paint, fabric, pipe cleaners, string, yarn etc.)

SET UP

Have the images of the specimens printed and ready to share with students.
If available, gather actual minerals available for your students to make observations of.
Pre-cut rainbow shapes for students to create their own collage.
Gather various art supplies for collaging.

LESSON

1. **Listen.** Students will listen to a short clip of an educator and Pinky making observations of different minerals in the museum's collection.
2. **Look.** Pass one mineral or image of a mineral out to each student. Invite students to look closely at the mineral, reminding them that observations can be made using our senses. For the images, they will use their sense of sight to see features of the minerals. In the video, Pinky and Katie were able to use their sense of sight, touch, hearing, and even smell!
3. **Talk.** Invite students to share their observations. Sample questions and responses can be the following:
    1. "What do you see/notice/think/wonder about your mineral?"
    2. "How do you think this mineral would feel if you touched it?"
    3. "What do you think it might sound like if you dropped it or tapped something against it?"
    4. "Tell me more." or "What makes you say that?"– This can be used to encourage a student to provide more detail to any response.
4. **Classify & Sort.** Scientists can classify and sort minerals in different ways. One way they can classify is based on the minerals' features. Ask your students what ways they might classify or sort the set of minerals in the picture and choose a few different ways to classify and sort. Invite the students to place them into different categories (ex. Color, Texture, Lighter vs. Darker), and then reset to sort again. You can also use this time to invite the students to compare the different minerals.

5. **Create.** Prepare materials ahead of time by gathering different colors of supplies (paper, string, yarn, felt, fabric, etc). Pre-cut rainbow shapes out of cardboard or cardstock to provide the artmaking surface for your students. Share with students that the many different colors and textures found in nature inspire artists everyday to create! Now is their chance to create using the various materials of different textures, pattens, and colors! Invite them to get creative and experiment with the different materials as they add them to their rainbows.

Minerals for observations and sorting

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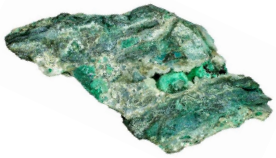
Sulfur	Malachite 	Azurite	Amethyst
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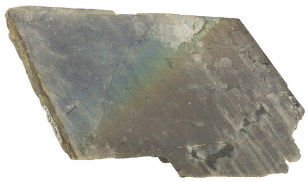
Labradorite 	Barite	Goethite	Muscovite
Calcite	Stibnite	Malachite	Calcite
Dioptase	Wulfenite	Fluorite	Pyrite

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