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Observing and Describing Rocks

Grade Level	4th, but can be adapted to higher levels
Subject Areas	Geoscience, general science (making observations)
Skills	Observation and classification of rocks, writing skills, drawing, oral presentation, group work
Duration	45 – 60 minutes
Setting	classroom and school yard
Vocabulary	Rock classification, observations
Standards Addressed	MT 2.2 – classify objects based on physical characteristics
Objectives	**Students will:** **● Be able to describe their rock using drawings and a written description** **● Be able to group their rock with other students' rocks based on physical properties** **● Describe how and why they grouped their rocks the way they did and see that there are many different ways to group rocks.**
Materials	**● Rock hammer (if available)** **● Safety goggles (for person with rock hammer)** **● Hand lens/ magnifying glasses for students** **● Paper or notebook for drawing and recording description** **● Pencil and colored pencils**
Background	This activity aids students in being able to coherently describe rocks and to group the rock based on its physical characteristics. Start by asking the kids "What is science?" and probe them to come up wit the scientific method—we **make observations** of the world around us, **hypothesize** (make our best guesses) of why they happen and how they might have been in the past or will be in the future, and **test our hypotheses with experiments or by collecting data**. We then **analyze our data** and **draw conclusions.**
Procedure	Explain that you are a scientist who studies rocks and ask if anyone knows what scientists who study rocks are called -- geologists Why is geology important to our everyday life? How do we use rocks? "If we don't grow it, we mine it"

Ask if anyone knows the difference between rocks and minerals? -- rocks are a mixture of a bunch of different minerals—like how you combine ingredients to make oatmeal raisin chocolate chip cookies.

Ask: what are some ways that we study the world around us?
-- sight, smell, taste, touch, listen -- if they need help with this, "how did you know if you needed a rain jacket this morning or whether or not to wear a long sleeved shirt?"
Do we taste or eat any rocks? Well, geologists do too- this helps them determine rock types and grain sizes, or the size of the little pieces that are glued together to make a rock.

Explain that in order to share your observations with others, it's important that you describe them well.
Ask: what are two main ways you might describe your observations?
--drawing and words

Rock Collection:
Have students go out to the school yard and find ONE rock they find interesting—it should be about the size of a potato or smaller. Once they choose a rock they will bring it back inside and describe it by writing words and drawing a picture of it. For instance, think of how many different ways they can describe the feel of their rock.

→ take students outside and have them find a rock

→ bring kids back in and have them draw and describe their rock (5-10 min?)

→ when they're done, have ~5 students share their drawings and observations—list observations on the board (e.g. texture, color, size, hardness, shiny/dull, sediment size, spots/stripes?)

Explain: another part of a scientist's job is to make comparisons and to group observations and data into categories; this helps scientists to organize their observations and to hypothesize and draw conclusions about what they see.

Group students into small groups (~ 5 students per group) and explain that you want them to group their rock samples into different groups in whatever way they think is best. Tell them to be sure to listen to their groupmates to hear their ideas about grouping your rocks. They can use characteristics that were listed on the board or if they have other characteristics, use those—be creative!

→ Group students and give them ~5 min to group their rocks… maybe plant some new rocks they hadn't seen into their collection

→ Have each group describe how they grouped their rocks and why

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Assessment	Students should be able to describe their rocks through pictures and words and to relay this information orally to their classmates. They should also be able to group a collection of rocks and explain their rationale for how the rocks are grouped. This activity is used as a background or introduction to grouping rocks by rock type (sedimentary, igneous, metamorphic) and in general science (making observations and recording information).