

Teacher _____ Date _____ Class _____
 Period(s) _____

Grade: 3 Course: Science Lesson Topic: Rocks and Minerals Matter

Objectives		Correlation to State Documents		
The student should be able to:		COS	SAT 9	AHSGE/EXIT
1) Describe states of matter		3: 10		
2) Recognize that matter occupies space and has mass		3: 11		
3) Classify rocks and minerals by characteristics		3: 32		
3) Identify questions that can be answered through scientific investigation		3: 1		
4) Use appropriate skills to design and conduct a scientific investigation		3: 4		
Activities/Methods		Resource Materials		Assessment
1. Introduce the topic of matter. (Use <i>Teacher Cheat Sheet</i> if needed)			Textbook	Check homework
2. Divide class into teams of four: writer, examiner, experimenter, and organizer. (Class of 24= 6 groups of 4)			Overhead Masters	Test/Quiz
3. Give each teams 1 sedimentary, 1 igneous, 1 metamorphic rock, and 1 mineral. Give each group a measuring cup, a ruler, pencils, a "Rocks and Minerals Matter" sheet, 2 "gem bags," and 1 magnifying glass.		X	Workbook/Handouts	Project
4. Ask the "writer" to write names of group members on the "Rocks and Minerals Matter" sheet.			Multimedia Materials	X Participation
5. Ask "Organizer" to select one of the rocks they have been given.		X	Hands-On Materials	Class work
6. Ask "Writer" to write the name of the rock down on paper.		X	Reference Materials	Review
7. Ask "Experimenter" to "weigh" the rock using the "gem bags," a pencil and counter balance (crayons, paper clips, etc.). Team members may need to help balance the bags.			Other Supplies	Presentation
8. Ask the "examiner" to describe the rock for the "writer." List color, shape, texture, length, etc. "Experimenter" and "Organizer" may help.				X Oral Responses
9. Ask the "Organizer" to place the rock in water to see if it floats.				X Teacher Observation
10. Ask "Organizer" to select the 2 nd rock. Repeat steps 6-9.				Other
11. Ask "Organizer" to select 3 rd rock. Repeat steps 6-8.				
12. Ask "Organizer" to select the unnamed mineral they have been given. Repeat steps 7-9. Do not float mineral!				
13. Ask "Writer" to read descriptions of minerals from the "Rocks and Minerals Matter" sheet. Team will use the descriptions of minerals to identify the mineral they have been given.				
14. Ask team to identify rocks 1-3 as sedimentary, igneous, or metamorphic using the "Rocks and Minerals Matter" sheet				
	Accommodations	Initials	Remediation Activities	
Comments:	Extended Time			
Set up includes: distributing materials to each group	Preferential Seating			
Materials to distribute include: Rock sets, "Rocks and Minerals Matter" hand-out, "gem bags," magnifying glass, measuring cup, and ruler	Testing Accommodation			
	Segmented Assignments			
	Copy of Teacher Notes		Enrichment Activities	
Extend activity:	Assignment Length		Cooperative learning	
Allow teams to swap their rock sets.	Communication		Character Education	
	Assignment Notebook		Respect for environment	
	Peer Tutor			
Homework:	Other: Copy of chart			

Rocks and Minerals Matter

Name of the writer: _____

Your job is to write things down.

Name of the organizer: _____

This job is to select the order to examine rocks. You will also test if rocks float and assist team members.

Name of the experimenter: _____

This job is to weigh rocks and assist team members

Name of the examiner: _____

This job is to describe rocks and assist team members.

ACTIVITY CHART

Rock	1	2	3	Mineral
Weight				
Length				
Color				
Texture				
Shape				
Does it float?				Smell it instead of floating it.

Rocks and Minerals Matter

MINERALS

Use the descriptions to identify your team's mineral.

Mineral	Color	Texture	Shape	Cool Facts
Amethysts	Purple	Smooth sides but sharp points	Crystals	
Icelandic Spar	Clear to white	Smooth sides but sharp points	Rectangular crystal	Icelandic spar doubles letters if placed on words!
Hematite	Dark brown to black with yellow or rust spots	Rough but spots may rub off	Lumpy spheres but sometimes long rectangular	Hematite is the scientific name for iron ore.
Mica	Clear to brown or black	Flaky	Rectangular	Mica is used in glitter.
Pyrite	Gold	Smooth sides to sharp corners	Cubes and rectangles	Pyrite is the scientific name for Fools Gold.
Sulfur	Yellow to yellowish green	Found on rocks its rough looking	Flat yellow film on rocks	Sulfur smells when rubbed!

CLASSIFY

Circle the name of the rocks your team studied.

Sedimentary Rocks

Conglomerate

Limestone

Sandstone

Metamorphic Rocks

Schist

Marble

Quartzite

Igneous Rocks

Lava Rock

Obsidian

Pumice

Rocks and Minerals MATTER

“Teacher Cheat Sheet”

Set Up:

Divide class into teams of 4. Maximum 24 students.
If group has 3 members give 1 person 2 tasks.

Assign each student a role as the “writer,” “organizer,” “examiner,” or “experimenter.”

Distribute rock sets. Each set includes one sedimentary rock, one metamorphic rock, one igneous rock and one mineral.

Distribute measuring cup, water, ruler, magnifying glass, 2 “gem bags,” and pencils.

Distribute “Rocks and Minerals Matter” hand-outs.

After talking to class...allow teams to examine rocks and minerals to complete the activity.

Experiment:

Rocks can look alike at first glance but when examined closely they can be very different.

Teacher guides teams for examination of the 1st rock. Rocks can be identified by their numbers and the corresponding name list.

1. The “organizer” in each group will pick a rock and reads name to “writer.” It doesn’t matter which rock is first but the first rock selected will become rock 1 for the exercise.
2. “Organizer” gives Rock 1 to “experimenter” who will weigh the rock by placing it in a bag then placing paper clips or crayons, etc. in the other bag until the two bags balance on a pencil. The weight is how many paper clips or crayons, etc. it takes to balance the bags. The “experimenter” will provide the “weight” for the “writer” to record.
3. “Experimenter” gives Rock 1 to the “examiner” who will measure the length with a ruler and describe the color, texture, and shape for the “writer” to record.
4. “Organizer” will place Rock 1 in the measuring cup full of water to see if it floats.
5. **Repeat steps 1-4 for Rock 2 and 3.**

Mineral Tests.

1. “Writer” will read descriptions of minerals to the team. Team will identify their mineral from the descriptions.
2. “Writer” records description of their mineral and writes the name above the word mineral on activity chart.
3. Repeat for rocks 2 and 3.

Let groups share their information with each other as you summarize activity.

Directing discussions:

Rocks: There are 3 basic rocks: igneous, sedimentary, and metamorphic.

Igneous is from volcanoes. Examples of igneous: obsidian, lava rock, and pumice.

Sedimentary forms as layers of dirt, decaying material or other rocks join together in a solid mass. Fossils occur when decaying materials such as trees or dinosaurs become part of the layers. Examples of sedimentary: fossils, limestone, and sandstone.

Metamorphic forms as igneous or sedimentary rock changes. Heat and pressure often cause this change. Examples: sandstone changes to metamorphic quartzite and limestone changes to metamorphic marble.

Rocks are made up of many different materials. Minerals, however, are made of one or two different things. For instance, conglomerates are made of many different rocks.

Activity: Rocks are made in different ways and, therefore can look very different. Your task today is to work as teams to describe 3 different rocks. Everyone will have a job to do. Every job is important to the team.

Once you are in your teams, work together to answer this question, “How are these rocks different?”