

Unit Topic or Theme: Earth Science

Grade: 4

Lesson Topic or Theme: Rock classification

Objective: Students will be able to classify metamorphic, igneous, and sedimentary rocks based on their grain size, texture, and rock type.

Big Idea 6: Earth Structures

Humans continue to explore the composition and structure of the surface of the Earth. External sources of energy have continuously altered the features of Earth by means of both constructive and destructive forces. All life, including human civilization, is dependent on Earth's water and natural resources.

SC.4.E.6.1: *Identify the three categories of rocks: igneous, (formed from molten rock); sedimentary (pieces of other rocks and fossilized organisms); and metamorphic (formed from heat and pressure).*

SC.4.E.6.2: *Identify the physical properties of common earth-forming minerals, including hardness, color, luster, cleavage, and streak color, and recognize the role of minerals in the formation of rocks.*

Instructional Technique: Initial instruction by the teacher, Group Work (partners), Individual work on computers

Instructional Materials: Interactive website to be done individually

<https://www.wiley.com/college/strahler/0471669695/interactivities/flash/mineralogy/mineralogy.htm>

Theoretical Perspective: This information is important to teach because students will be able to take this and apply it outside of the classroom. When in the world students will have the ability to look at rock and rock structures and be able to identify them. This could serve a few purposes for them, such as being able to identify dangerous rocks and rock structures and correctly talk and discuss rocks.

Procedure: (As a teacher, what will you and the students do.)

A. Introductory Activity

- Students would have already had an introduction to the three categories of rocks and had some practice with them.
- The teacher will hand out the worksheets to each student and provide instruction that students will be completing the worksheet by classifying the different rocks as pictured.

B. Step-by-step (descriptive outline)

- The teacher will demonstrate to students how to log onto The Virtual Rock Lab website.
- The teacher will also hand out the The Virtual Rock Lab worksheet.
- The teacher will instruct students to go through the igneous, sedimentary, and metamorphic “rock drawers” on the website and click on the corresponding rock picture that is on the worksheet
- The teacher will further instruct students that after clicking on each picture, they will record their answers in the corresponding section of their worksheet.
- Students will complete their worksheets individually or with a partner.

C. Closure

- The teacher will lead discussion based on students Virtual Rock Lab worksheets
- Students will state their responses, and as needed will scaffold students to explain correct answers
- The teacher will clarify any questions or confusions students may have.

D. Students who have issues focusing or paying attention may find it beneficial to work with someone else. Those who have difficulty with computer skills will be able to work with a partner as well. For ELL students- the worksheets could be translated for them, and they would have a para or one-on-one to work with them. Tactile learners will be given the option of having actual rocks to feel and use during the lesson. This will help them become familiar with the concepts being taught. Other adaptations that could made are as followed-

- having the website projected onto the screen for whole class
- students drawing out explanations and coloring if they prefer that over writing (have issues with writing)
- teacher could record self reading worksheet for students to listen to (comprehension/communication issues)

E. Students will be given an assignment (worksheet) where they will be asked to find examples of these rocks in and around their own home. This will allow them to realize that these rocks can be found right in their backyard.They will research/write about where the rocks were found and draw the rocks they find and will then share them in class the next day.

Evaluation:

A. How/ when will you determine if you have met your objectives?

- **Objective:** Students will be able to classify metamorphic, igneous, and sedimentary rocks by classifying them based on their grain size, texture, and rock type.
- We will know if students have met this objective by collecting the Virtual Rock worksheets and assessing if they are able to complete the worksheet and get at least 85% of the classifications right on their first try.

B. Concerns or questions you have about teaching this lesson?

- If students work with a partner, one student may be doing more work than the other/ or providing most of the answers.

On the website, click on the different types of rocks as seen in the pictures on this worksheet.
Try your best to classify them, and record your answers here.

Igneous:



Grain Size

Guess 1:
Guess 2 (if used):
Guess 3 (if used):

Texture

Guess 1:
Guess 2 (if used):
Guess 3 (if used):

Rock Type

Guess 1:
Guess 2 (if used):
Guess 3 (if used):



Grain Size

Guess 1:
Guess 2 (if used):
Guess 3 (if used):

Texture

Guess 1:
Guess 2 (if used):
Guess 3 (if used):

Rock Type

Guess 1:
Guess 2 (if used):
Guess 3 (if used):

Metamorphic:



Grain Size

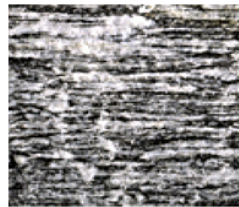
Guess 1:
Guess 2 (if used):
Guess 3 (if used):

Texture

Guess 1:
Guess 2 (if used):
Guess 3 (if used):

Rock Type

Guess 1:
Guess 2 (if used):
Guess 3 (if used):



Grain Size

Guess 1:
Guess 2 (if used):
Guess 3 (if used):

Texture

Guess 1:
Guess 2 (if used):
Guess 3 (if used):

Rock Type

Guess 1:
Guess 2 (if used):
Guess 3 (if used):

Sedimentary:



Grain Size

Guess 1:
Guess 2 (if used):
Guess 3 (if used):

Texture

Guess 1:
Guess 2 (if used):
Guess 3 (if used):

Rock Type

Guess 1:
Guess 2 (if used):
Guess 3 (if used):



Grain Size

Guess 1:
Guess 2 (if used):
Guess 3 (if used):

Texture

Guess 1:
Guess 2 (if used):
Guess 3 (if used):

Rock Type

Guess 1:
Guess 2 (if used):
Guess 3 (if used):