



Ciclo De Las Rocas

Class description: Students will explore the rock cycle. They will specifically look at the sandstone rock cycle discussing erosion and weathering.

Location: Classroom

Duration: 1 hour

Standards Addressed:

Earth Systems Science

GLE 3.1 Earth's Materials can be broken down and/ or combined into different materials such as rocks, minerals, rock cycle, formations of soil, and sand- some of which are usable resources for human activity

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Theme:

The rock cycle is an endless cycle. The earth is constantly changing.

Major Concepts:

- Cycles
- Erosion
- Weathering
- How rocks are formed

Objectives:

- Students will be able to identify one or two ways that rocks can be broken down and/or combined
- Students will be able to describe the rock cycle of the sandstone

Learning Target: (to be written on board)

I can describe and draw the rock cycle of sedimentary rock.

Puedo describir y dibujar el ciclo de la roca sedimentaria.

Inquiry Questions:

What is the rock cycle? **¿Qué es el ciclo de la roca?**

How are rocks formed? **¿Cómo se forman las rocas?**

Vocabulary:

sedimentary - sedimentario, rock cycle- **ciclo de la roca**, erosion- **erosion**, weathering- (**Desgaste de las rocas por la acción atmosférica**), compact-**compactar**, cement- **cimentar**, sandstone-**arenisca**

Materials: blind folds, lots of rock samples of all three types of rocks, 12-14 sandstone rocks, foldable -8 x 8 piece of paper, a frozen water bottle and a water bottle filled with the same amount of water at room temperature, pictures of weathering and erosion from monument if possible

Class Outline

Opening:

KWL Chart- put the KWL chart up again as a review and intro to rock cycle.

Ask- What have we learned about rocks? **¿Qué hemos aprendido sobre rocas?**

What do you know about the rock cycle? **¿Qué sabes sobre el ciclo de las rocas?**

What do you want to know about the rock cycle? **¿Qué es lo que quieres saber sobre el ciclo de la roca?**

Inquiry Activity: (This is meant as a review and intro to today's activity)

Have at least enough rocks of all three types so that each pair is able to get one rock.

Pair students and sit in large circle if possible, and blindfold one student in each pair. Ask blindfolded students to remain seated. Put all rock samples in a pile, and have the students without blindfolds each choose one rock and take it to their partner. Have the blindfolded students feel their rocks. (No peeking!) Ask them to feel for shape, size, weight, and texture. When done, ask them to hand the rocks back to their partners, who return the rocks to the pile. When all rocks are returned, have the blindfolded students remove their blindfolds and each try to determine which rock they felt. Ask how they recognized their rocks. Ask what type of rock they felt. Discuss that geologists distinguish kinds of rock by asking similar questions. How heavy is it? **¿Cuanto pesa?** Is it hard or soft? **¿Es duro o blando?** How does it break? **¿Cómo se rompe?** What color is it? **¿Que color es?** Have partners switch roles and repeat activity.

Collect all the rocks and pass out just the sandstone.

Discussion and Activity:

Each child will need an 8 x 8 piece of paper. Have the kids fold the paper in fourths then unfold paper. Then have them fold each corner into center of paper. Have them glue and hole punch onto page in their journal. It may be easier for them to take page out of journal to work on it. Have the kids look at the sandstone.

What type of rock is this? **¿Qué tipo de roca es?**

How do you think it was formed? **¿Cómo crees que se formó?**

Have the students draw a sandstone rock on the first panel of their foldable and have them write a sentence about the picture.

At this time, talk about weathering and erosion. Discuss and show if possible different pictures or models of weathering. Weathering causes rock to break down. **Desgaste de las rocas por la accion atmosferica causa las rocas a romper.** For example, show a plastic water bottle with water that is frozen and one that is not. And ask – What happens to water when it freezes? **¿Qué sucede al agua cuando se congela?** Relate this to rain and freezing with the rocks, and how the rocks break down. Show a picture of a tree growing in the rocks and discuss how the roots-(**raíces**) can break apart rocks. What is happening to the rock as this tree grows? **¿Qué está pasando con la roca mientras este árbol se crece?**

Then discuss erosion and show pictures of how the forces of wind (**viento**), running water (**agua moviendo**), flash flood (**riada**), and gravity (**gravedad**), can then move the fragments or sediments to other locations. Have them draw a picture of weathering and erosion on the next panel of their foldable. Then have them draw the sediments and sand on the next panel. Have them write a sentence about each picture.

Then go into compaction and cementation. Look at your sedimentary rock. What do you see? **Que ves?** Layers? **Capas?** How are the layers formed? **Como se forman las capas?** Sedimentary rocks form when sediments are deposited by water or wind on the surface of the earth, then hardened over time, as they are buried and cemented. **Las rocas sedimentarias se forman cuando los sedimentos son depositados por viento o el agua en la superficie de la tierra, luego se endurecieron con el tiempo, ya que se enteran y cementan.** The hardening occurs when the weight of overlying rocks compacts the sediments and water flowing through the sediments deposits minerals, or cement, between the sand grains.

El endurecimiento ocurre cuando el peso de las rocas encima comprime los sedimentos y el agua que fluye a través de los sedimentos deposita minerales, o cemento, entre los granos de arena. Have kids draw a picture of compaction and cementation on the last panel. Have them write a sentence about their picture.

Wrap Up:

Have the kids turn and talk to a partner about what they learned today. With their partner, have them talk about how the metamorphic rock and the igneous rock fits into the cycle. **Que aprendiste hoy? ¿Cómo encaja la rocas metamórficas y rocas ígneas en el ciclo de rocas?**

KWL Chart

K What do you know? ¿Qué sabes?	W What do you want to know? ¿Qué quieres saber?	L What have you learned? ¿Qué has aprendido?