Cause and Effect in the Rock Cycle

S6E5. Students will investigate the scientific view of how the earth’s surface is formed.

c. Classify rocks by their process of formation.
d. Describe processes that change rocks and the surface of the earth.

Learning Target: I can explain how the three main types of rock are related to one another and how changes to rocks happen in a recurring sequence is the rock cycle.

Rocks

Rocks are naturally occurring combinations of _________________. Most consist of two or more different minerals.

Rocks are classified according to how they were formed & mineral composition.

All rocks fit into one of three classifications. (___________________)

- Igneous – formed from _______________ or _______________.
- Sedimentary – formed from _______________ or _______________.
- Metamorphic – formed by _______________ and _______________.

The Rock Cycle

Rock families _______________ because of different _______________. (eg: weathering; cementation; heat and pressure; and melting.)

- New rocks are constantly being formed by old rock material.
- This continuous change is called the _______________.

Types of Changes (___________________) These changes can take place in various order and combinations.

- Weathering and Erosion
- Compaction and Cementation
- Cooling
- Melting
- Heat and Pressure

Fill in the blanks as you travel through the PowerPoint.

3. _______________
4. _______________
5. _______________

Watch the study jam video and take the quiz at the end record your score __________%.

How is the rock cycle like recycling? _______________

Begin with igneous rock and explain how it could change through two more steps in the rock cycle. _______________
Rock Cycle

Earth’s rocks are not as unchanging as they seem. Forces inside Earth and at the surface produce a rock cycle that builds, destroys, and changes the rocks in the crust. The rock cycle is a series of processes on Earth’s surface and inside the planet that slowly change rocks from one kind to another. Earth’s constructive and destructive forces move rocks through the rock cycle. Igneous, sedimentary, and metamorphic rocks change continuously through the rock cycle. Rocks can follow many different pathways through the cycle.

The rock of Stone Mountain in Georgia has followed one of the pathways of the rock cycle. First, millions of years ago the igneous rock granite formed beneath Earth’s surface. Then the forces of mountain building slowly pushed the granite upwards to become the dome that forms Stone Mountain. Over millions of years, water and weather began to wear away the mountain’s granite. Today, quartz particles of granite still break off the mountain and become sand. Streams carry the sand to the ocean. Over millions of years, layers of sand will build up. The processes of compaction and cementation will eventually form the quartz particles into sandstone, a sedimentary rock.

As more and more sediment piles up on the sandstone, pressure on the rock will increase. The rock will become hot. After millions of years, the heat and pressure will change the sandstone into the metamorphic rock quartzite. The quartzite will also eventually change as it moves through one of the many pathways that make up the rock cycle. Both igneous and sedimentary rock can change into metamorphic rock. Both igneous and metamorphic rock can change into sedimentary rock. In addition, both sedimentary rock and metamorphic rock can change into igneous rock.

The changes in the rock cycle are closely related to plate tectonics. Plate movements drive the rock cycle by pushing rocks back into the Mantle, where they melt and become magma again. Plate movements also cause the folding, faulting, and uplift of the crust that move rocks through the rock cycle. Subducting ocean plates advance the rock cycle by returning rock to the mantle. There, it melts and forms magma, which eventually becomes igneous rock.

Collisions between continental plates can also move rocks through the rock cycle. For example, such a collision between plates could change the sedimentary sandstone into the metamorphic quartzite. Eventually, the collision could form a mountain range or plateau. Then, as the mountains or plateaus containing quartzite are worn away, the rock cycle continues.

Describe pathways through the rock cycle. In your description, tell how igneous rock changes to metamorphic rock, which then changes to sedimentary rock.

All About the Rock Cycle – Find the Missing & Hidden Words!

Read the sentences below. Visit our Easy Geography for Kids page Rock Cycle to find the missing words.
Write them in the empty spaces and find these hidden words in the puzzle!

A. Humans use ______ for many different things in particular roofing and building materials.
B. Rocks go through a continuous ______ of change.
C. ______ rocks are made when lava or magma hardens into rock.
D. When the rocks are exposed to air ______ begins.
E. The sediment becomes ______ rock. This rock is often buried beneath the Earth’s surface, where it may become ______
F. If the metamorphic rock is near ______, it may ______ to become igneous rock. This process is known as the rock cycle.
G. ______ is a liquid rock at or above the Earth’s surface.
H. ______ are particles of eroded rock or plant and animal debris.

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