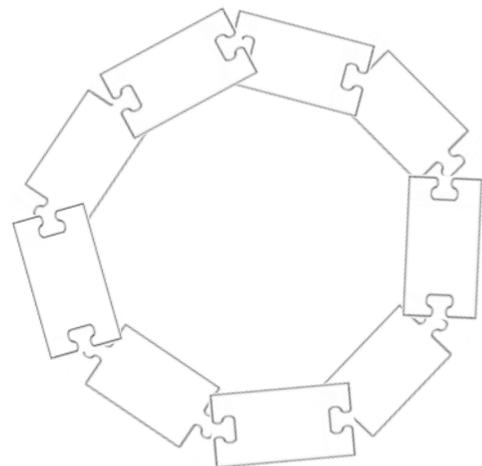
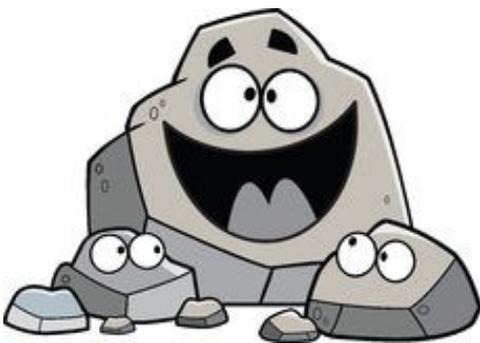


PRE-VISIT ACTIVITY

Name: _____ Date: _____

Rock Cycle

Arrange your 9 puzzle pieces in a way that demonstrates one way a rock can go through the rock cycle. Use all your pieces and make sure to arrange them in a circle because, after all, it's a cycle!



Melting

Igneous Rock

**Heat &
Pressure**

**Compaction &
Cementation**

Magma

**Weathering
& Erosion**

**Metamorphic
Rock**

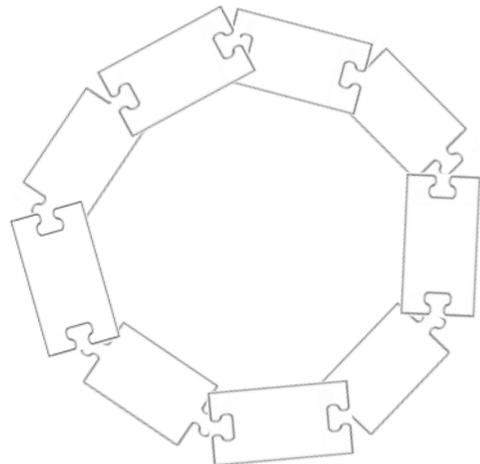
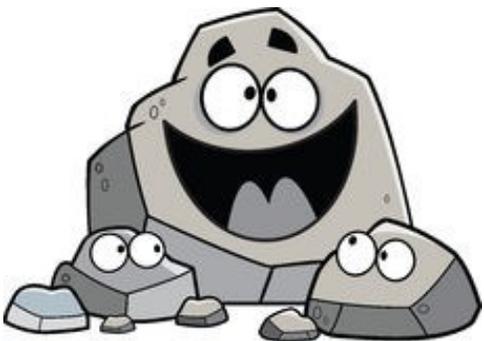
Cooling

**Sedimentary
Rock**

PRE-VISIT ACTIVITY

Rock Cycle

→ Igneous → Weathering & Erosion → Compaction & Cementation → Sedimentary Rock → Heat & Pressure → Metamorphic Rock → Melting → Magma → Cooling



AFTER-VISIT ACTIVITY

Name: _____

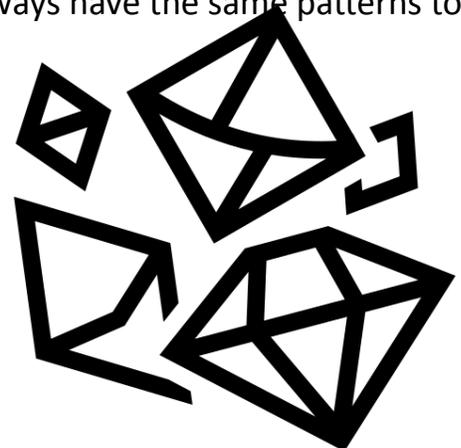
Date: _____

What are Minerals?

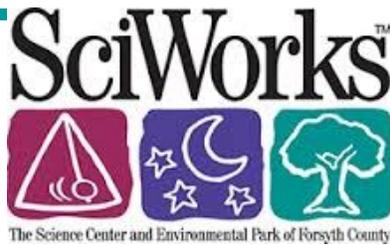
In order for something to be a **mineral**, it must meet the five standards below:

1. First, all minerals are **solid**. So, while a liquid may contain minerals, a liquid itself is not considered a mineral.
2. Minerals are all **naturally occurring**. This means they can't be manufactured in a lab. Fake or artificial gems, like cubic zirconia, are not considered minerals.
3. All minerals have their own, specific, **chemical composition**. This is like the DNA of the mineral - it's what makes the mineral different from other minerals.
4. Minerals are **inorganic**, meaning they do not come from a source of living things like plants or animals.
5. Lastly, all minerals have a **crystal structure**. Minerals are some of the most beautiful things on Earth, because their atoms are always arranged in a geometric pattern. Minerals of the same type always have the same patterns to their atoms.

Use the rules above to help you fill out the chart on page 2.



Vulcan Quarry Visit



5-9

AFTER-VISIT ACTIVITY

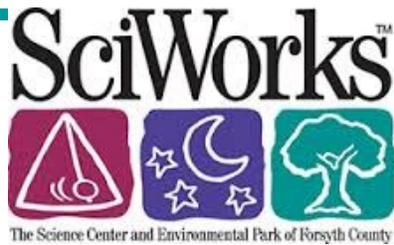
Name: _____

Date: _____

Mineral or Nonmineral?

mineral characteristics	rubber ball	quartz	coal	water	diamond
Naturally occurring	NO				
Inorganic	YES				
Solid	YES				
Crystal Structure	NO				
Definite chemical composition	YES				
Mineral or nonmineral	NON-MINERAL				

Vulcan Quarry Visit



Teacher
Copy

AFTER-VISIT ACTIVITY

Name: _____

Date: _____

Mineral or Nonmineral?

mineral characteristics	rubber ball	quartz	coal	water	diamond
Naturally occurring	NO	YES	YES	YES	YES
Inorganic	YES	YES	NO	NO	YES
Solid	YES	YES	YES	NO	YES
Crystal Structure	NO	YES	YES	NO	YES
Definite chemical composition	YES	YES	YES	YES	YES
Mineral or nonmineral	NON-MINERAL	MINERAL	NON-MINERAL	NON-MINERAL	MINERAL

AFTER-VISIT ACTIVITY

Name: _____ Date: _____

Sedimentary, Metamorphic, or Igneous?

Sedimentary

Sedimentary rocks are formed from particles of sand, shells, pebbles, or other small pieces of material. Together, all these pieces are called sediment. The sediment builds up in layers and over a long period of time hardens into rock. This hardening process is called compaction and cementation. Many times sedimentary rocks are softer than other rocks and may break apart or crumble easily. You can often see sand, pebbles, or stones in the rock, and is usually the only type of rock that contains fossils.

Metamorphic

Metamorphic rocks are formed deep under the surface of the earth from the metamorphosis (change) that occurs due to intense heat and pressure (squeezing). The rocks that result from this often have ribbon-like layers.

Igneous

Igneous rocks are formed when magma (molten rock deep within the earth) cools and hardens. Sometimes the magma cools inside the earth, and other times it erupts onto the surface from volcanoes or other openings in the Earth's surface. When lava cools very quickly, no crystals form and the rock looks shiny and glasslike. Sometimes gas bubbles are trapped in the rock during the cooling process, leaving tiny holes and spaces in the rock.

AFTER-VISIT ACTIVITY

Sedimentary, Metamorphic, or Igneous?

I am made up of bits and pieces from a few different metamorphic and igneous rocks.

I just flew out of a volcano and cooled down.

I was sediment but now I am under a lot of heat and pressure, and a lot stronger now, too.

I was formed deep inside the Earth.

I am formed as a result of weathering and erosion, and then deposition and compaction.

I am much more likely to have fossils in me than the other rocks.

I have many ribbon-like layers.

What type of rock do you think you took home from the mine? (Use the descriptions above to help.) Explain why you picked the answer you did.

AFTER-VISIT ACTIVITY

Sedimentary, Metamorphic, or Igneous?

I am made up of bits and pieces from a few different metamorphic and igneous rocks.

Sedimentary

I just flew out of a volcano and cooled down.

Igneous

I was sediment but now I am under a lot of heat and pressure, and a lot stronger now, too.

Metamorphic

I was formed deep inside the Earth.

Metamorphic

I am formed as a result of weathering and erosion, and then deposition and compaction.

Sedimentary

I am much more likely to have fossils in me than the other rocks.

Sedimentary

I have many ribbon-like layers.

Metamorphic

What type of rock do you think you took home from the mine? (Use the descriptions above to help.) Explain why you picked the answer you did.

Students should pick one of the three categories of rocks and then support their choice with evidence from that rock's description. Many correct answers
