

What Are Rocks and the Rock Cycle?

Name: _____

Date: _____

What Are Rocks?

- _____ are materials that are made up of two or more minerals.
- _____ is a rock made up mostly of quartz, feldspar, mica, and hornblende.

Igneous Rocks

- _____ **rocks** form when molten rock cools and hardens.
- Igneous rocks are identified by their composition and _____.
- _____ refers to the size of the mineral grains or the way in which they are arranged in any type of rock.
- Words used to describe the size of the grains include fine (small) and _____ (larger).

Ingenious Rocks: Intrusive Rocks

- Igneous rock formed from the _____ of _____ rock below Earth's surface is called *intrusive igneous rock*.
- These rocks have _____ mineral crystals that can be seen with your unaided eye.
- The _____ of cooling allows the mineral crystals to grow fairly large.
- Igneous rocks that have large crystals have _____ - _____ texture.

Ingenious Rocks: Extrusive Rocks

- Igneous rock formed from lava, molten rock that reaches the Earth's surface and cools, is called _____ *igneous rock*.
- Extrusive igneous rocks have _____ mineral crystals.
- These rocks cool and harden _____, leaving little time for crystals to grow.
- Extrusive igneous rocks have _____ -grained texture.

Ingenious Rocks: Extrusive Rocks

- When lava cools and hardens quickly, and there is no time for crystals to grow, the texture of an igneous rock is _____.

- The extrusive igneous rock pumice has played a foundational role over _____.
- This rock results when lava cools _____ with multitudes of air pockets in it, making it so light that many pumice rocks actually float.
- Pacific Islanders on Easter Island carved huge _____ from pumice for monuments.
- Its light weight makes it popular as a decorative _____ stone.
- When ground to a powder, pumice is used as an abrasive in polish compounds and in some _____.

Sedimentary Rocks

- _____ **rocks** form when pieces of existing rocks, called *sediment*, are compacted and cemented together.
- Most sedimentary rocks form in _____, but some form on land.
- There are _____ main types of sedimentary rocks: clastic rocks, chemical rocks, and organic rocks.
- _____ Sedimentary Rock
 - Clasts range in size from clay to _____
 - Named by size and shape of clast
- _____ Sedimentary Rock
 - Form when water _____ or when water is supersaturated with dissolved ions
- _____ Sedimentary Rock
 - Form from compacted and cemented _____ material

Metamorphic Rock

- _____ **rocks** form when existing rocks are changed by high heat, high pressure, and/or very hot fluids.
- Metamorphic rocks can form when _____ comes into contact with existing rocks.
- This type of metamorphism is called _____ *metamorphism*.
- Metamorphic rocks can also form where Earth's tectonic plates _____.
- This type of metamorphism takes place over very large areas, or regions called _____ *metamorphism*.

Metamorphic Rock: Foliated Rocks

- _____ *metamorphic rocks* form when high pressure squeezes existing rocks from opposite sides.
- What does this do to the minerals in the rocks?

- In extreme, cases, the minerals line up and form alternating _____ - and _____ -colored bands.
- Most foliated rocks form in areas of _____ metamorphism.

Metamorphic Rock: Non-foliated Rock

- _____ *metamorphic* rocks usually form when high heat and/or fluids come into contact with existing rocks.
- Non-foliated rocks are _____ layered or banded.
- Instead, non-foliated rocks usually appear to have _____ color and interlocking crystals.
- Most non-foliated rocks form as the result of _____ metamorphism.

Metamorphic Rock: Parent Rocks

- The rocks that existed before metamorphism occurred are called _____ *rocks*.
- Parent rocks can be sedimentary, _____, or metamorphic rocks.

Some Common Rocks

- Recall that even though more than 3,500 minerals have been identified on Earth, only about 12 are _____.
- Likewise, there are about _____ different rocks on Earth, but only 20 are common.

Name of Common Rock	Example of What Type of Rock
	Igneous
Diorite	
Gabbro	
	Igneous
	Igneous
Obsidian	
	Sedimentary
Sandstone	

Shale	
	Sedimentary
	Sedimentary
Chert	
Bituminous Coal	
	Sedimentary
	Metamorphic
	Metamorphic
Gneiss	
Marble	
	Metamorphic
	Metamorphic

Scripture Spotlight

- *What do **Exodus 17:5-6** and **Deuteronomy 8:15** say about a rock?*

How Rocks Change

- Rocks may seem permanent, but they are _____ changing.
- These changes may happen _____ or over a long period of time.
- Some of the changes take place at or near the Earth's _____.

- Other changes take place deep _____ Earth's surface.
- The natural processes that change rocks make up the _____.
- Like most natural cycles, the rock cycle has no beginning or end. Let's start with the processes that take place at or very close to the Earth's surface.
- _____ is any process that breaks rocks into smaller pieces.
- Recall that these pieces of Earth materials are called _____.
- _____ is the carrying of sediment from one place to another.
- Water, wind, and ice, are common _____ of erosion.
- When these agents slow down or stop, they _____ the sediment they are carrying.
- _____ is the dropping or laying down of loose Earth materials.
- Once sediment is deposited, it is slowly _____, or squeezed, and *cemented*, or bound together.
- These processes form _____ rocks.
- Rock cycle processes that take place deep within Earth result in the formation of _____ igneous rocks or metamorphic rocks.
- Melting rock deep within Earth produces _____.
- As magma slowly cools, minerals _____.
- These minerals make up _____ igneous rocks.
- If the magma rises to the surface, it becomes _____.
- Lava crystallizes and forms _____ igneous rocks.
- If rocks are changed by heat, pressure, and/or hot fluids, but they do not melt, then _____ rocks form.
- High temperature and hot fluids usually produce _____ rocks.
- High _____ usually produces foliated rocks.

Scripture Spotlight

- **Matthew 7:24-25** describes a house that was strong enough to withstand a storm. Why was the house so strong? What point do you think Jesus was trying to make with this story?