

**Name:** \_\_\_\_\_

# Rocks & Minerals

## Notes

# Minerals

## *KEY CONCEPT #1:*

What is a mineral?

It is a \_\_\_\_\_, \_\_\_\_\_ substance which has a  
\_\_\_\_\_

What would be the opposite of this?

## *KEY CONCEPT #2:*

What causes minerals to have different physical properties?

Give an example of two minerals which have the same chemical composition but different physical properties.

## *KEY CONCEPT #3:*

### *The Main Physical Properties Used to Identify Minerals*

1. Color \_\_\_\_\_  
\_\_\_\_\_

2. Streak \_\_\_\_\_  
\_\_\_\_\_

3. Luster \_\_\_\_\_  
\_\_\_\_\_

metallic: \_\_\_\_\_

nonmetallic: \_\_\_\_\_

4. Cleavage

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5. Fracture

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6. Hardness

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**MOH'S SCALE OF HARDNESS**

<i>Hardness</i>	<i>Mineral</i>	<i>Hardness</i>	<i>Mineral</i>
<b>1 (softest)</b>		<b>6</b>	
<b>2</b>		<b>7</b>	
<b>3</b>		<b>8</b>	
<b>4</b>		<b>9</b>	
<b>5</b>		<b>10 (hardest)</b>	

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# Mineral Composition

**KEY CONCEPT #4:** *Minerals have a definite chemical composition*

What two elements, by mass, make up the greatest percentage of the Earth's crust?

a. \_\_\_\_\_

b. \_\_\_\_\_

These two elements combine to form compounds called \_\_\_\_\_.

They combine in a specific structure called a:

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Draw this structure below.

# Rocks

MONO-MINERALIC

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POLY-MINERALIC

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MOST ROCKS ARE \_\_\_\_\_ - MINERALIC

THREE CLASSIFICATIONS OF ROCKS ARE:

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*Draw the rock cycle below.*

# Sedimentary Rocks

**Key Concept #1:** Most sedimentary rocks are made of pieces ( ) of other rocks.

**Key Concept #2:** Name two processes that form sedimentary rocks.

a. \_\_\_\_\_  
\_\_\_\_\_

b. \_\_\_\_\_  
\_\_\_\_\_

**Key Concept #3:** In what type of environment are most sedimentary rocks formed?

\_\_\_\_\_

**Key Concept #4:** Key Identifying Features of Sedimentary Rocks

a. Strata \_\_\_\_\_  
\_\_\_\_\_

b. Clasts \_\_\_\_\_  
\_\_\_\_\_

c. Fossils \_\_\_\_\_  
\_\_\_\_\_

## Sedimentary Rock ESRT Questions

1. \_\_\_\_\_ Name a non-clastic sedimentary rock which is composed of calcite.
2. \_\_\_\_\_ Name a clastic sedimentary rock which has mixed, angular particle sizes.
3. \_\_\_\_\_ Name a non-clastic sedimentary rock composed of marine shell fragments.
4. \_\_\_\_\_ Name a dark-colored, organically formed sedimentary rock composed mostly of carbon.
5. \_\_\_\_\_ Name the sedimentary rock formed by the process of evaporation and composed mostly of gypsum.

# Sedimentary Rock Questions

1. According to the Earth Science Reference Tables, which characteristic determines whether a rock is classified as a shale, a siltstone, a sandstone, or a conglomerate?
  - (a) the mineral composition of the sediments within the rock
  - (b) the density of the sediments in the rock
  - (c) the absolute age of the sediments within the rock
  - (d) the particle size of the sediments within in the rock
2. According to the Earth Science Reference Tables, some sedimentary rocks form as the direct result of
  - (a) freezing of the material
  - (b) cementation of rock fragments
  - (c) melting of minerals
  - (d) solidification of molten magma
3. According to the Earth Science Reference Tables, which is a sedimentary rock that forms as a result of precipitation from seawater?
  - (a) shale
  - (b) basalt
  - (c) conglomerate
  - (d) gypsum
4. Which property best describes a rock which has formed from sediments?
  - (a) distorted structure
  - (b) crystalline structure
  - (c) banding or zoning of minerals
  - (d) fragmented particles arranged in layers
5. Which is most likely a nonsedimentary rock?
  - (a) a rock composed of layers of gravel cemented together
  - (b) a rock consisting of large intergrown crystals
  - (c) a rock containing fossil shells
  - (d) a rock showing ripple marks and mud cracks

# Igneous Rocks

**Key Concept #1:** How are igneous rocks formed?

**Key Concept #2:** Name two places where igneous rocks form.

a. \_\_\_\_\_

b. \_\_\_\_\_

**Key Concept #3:** What determines the crystal size in igneous rocks? \_\_\_\_\_



Large crystals indicate a \_\_\_\_\_

Small crystals indicate a \_\_\_\_\_

**Key Concept #4:** What is the difference between extrusive and intrusive igneous rocks?

**Key Concept #5:** *Characteristics used to classify igneous rocks.*

a. **Texture**

\_\_\_\_\_ }  
\_\_\_\_\_ }

\_\_\_\_\_ }  
\_\_\_\_\_ }

b. **Color** \_\_\_\_\_ or \_\_\_\_\_

c. **Density** for its size, \_\_\_\_\_ or \_\_\_\_\_ mass

d. **Composition** \_\_\_\_\_ -----contains Fe and Mg

\_\_\_\_\_ -----contains Al

**Key Concept #6:** *Key Identifying Features of Igneous Rocks*

a. **Glassy texture:** \_\_\_\_\_

b. **Interlocked grains:** \_\_\_\_\_  
\_\_\_\_\_

***Igneous Rock ESRT Questions***

1. \_\_\_\_\_ An extrusive, dark-colored, glassy textured igneous rock composed mostly of pyroxene.
2. \_\_\_\_\_ A coarse-grained, felsic igneous rock, composed of 50% quartz, 25% potassium feldspar, and 25% plagioclase feldspar.
3. \_\_\_\_\_ A fine-grained igneous rock containing 25% olivine.

# Igneous Rock Questions

1. What observation about an igneous rock would support the inference that the rock cooled slowly underground?
  - a. The rock is light in color and low in density
  - b. The rock is about 50% plagioclase feldspar.
  - c. The rock has large crystals.
  - d. The rock has fossils.
2. Which two igneous rocks could have the same mineral composition?
  - a. pumice and scoria
  - b. peridotite and andesite
  - c. rhyolite and diorite
  - d. gabbro and basalt
3. Rhyolite and granite are alike in that they both are:
  - a. fine grained
  - b. mafic
  - c. felsic
  - d. dark-colored
4. Most igneous rocks contain
  - a. fossils
  - b. sediments
  - c. intergrown crystals
  - d. recrystallized minerals
5. An igneous rock that has a glassy texture, mostly likely solidified
  - a. quickly on/near the Earth's surface
  - b. quickly deep under the Earth's surface
  - c. slowly on/near the Earth's surface
  - d. slowly deep under the Earth's surface
6. Most igneous rocks form by which processes?
  - a. heat and pressure
  - b. melting and solidification
  - c. erosion and deposition
  - d. compaction and cementation

# Metamorphic Rocks

**Key Concept #1:** How are metamorphic rocks formed?

**Key Concept #2:** Melting **DOES NOT** occur.

If melting does occur, it is classified as a(n) \_\_\_\_\_ rock.

**Key Concept #3:** What is the difference between Regional and Contact Metamorphism?

**REGIONAL:**

**CONTACT:**

**Key Concept #4:** *Key Identifying Features of Metamorphic Rocks*

**a. Foliation:**

\_\_\_\_\_  
\_\_\_\_\_

**b. Distorted Structure:**

\_\_\_\_\_  
\_\_\_\_\_

**c. Key Identifier Minerals:**

\_\_\_\_\_ **Dark Red Color**

\_\_\_\_\_ **Shiny, flaky mineral**

# Metamorphic Rock ESRT Questions

1. \_\_\_\_\_ A foliated, coarse-grained metamorphic rock with distinct banding.
2. \_\_\_\_\_ A non-foliated metamorphic rock formed from the metamorphism of quartz.
3. Identify the sedimentary rock each of the following metamorphic rocks started as:

Metamorphic Rock Name	Sedimentary Rock Formed From
Quartzite	
Slate	
Marble	