

Name: _____

Topic 11: Earth Materials – Minerals, Rocks, and Mineral Resources

The solid surface of the Earth that we live on is called the _____ and is made up of _____ and _____.

MINERALS (p.190-194)

Minerals have characteristic _____ and _____ properties. List some of seven of these properties.

Define **mineral**:

What does it mean to be **inorganic**?

What does **crystalline** mean?

All minerals are rocks, but not all rocks made of minerals. Explain how a rock could not be made of minerals.

Figure 11-2., shows that only a small number of minerals are commonly found in rocks. 90% of Earth's crust by weight is composed of eight minerals or groups of minerals all known as _____. Because they contain the element silicon and oxygen.

Another phrase for crystal structure is _____.

What is the name of the structural unit of silicates?

Draw one:

Minerals can form in two ways:

#1.

#2.

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The mineral corundum can have a ruby red color, sapphire blue color or be colorless. Explain how?

Why is color often not useful for mineral identification?

Define **streak**:

Why is streak more reliable than color for mineral identification?

What are the two broad groups of mineral **luster**?

Define **hardness**:

How does Moh's scale work?

Define mineral **cleavage**:

If a mineral doesn't cleave when it breaks, it will demonstrate uneven breaking or _____.

What is conchoidal fracture? What common silicate mineral shows conchoidal fracture?

Which minerals or rocks react with acid? What kind of reaction occurs?

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ROCKS (p.195-207)

Rocks can be made of a single mineral or can be mixtures of _____

The three categories of rocks are _____, _____, and _____.

Rocks are distinguished and identified by their _____ and _____.

Define **texture** (as it relates to rocks):

Sedimentary Rocks

How do sedimentary rocks form? _____

Define **clasts**:

Why do most sedimentary rocks form at the bottom of lakes, seas, and oceans?

List the four methods of formation for sedimentary rocks:

What three minerals are commonly the “glue” that cements clastic sedimentary rocks together?

Shale and coal are formed solely by _____. But, most clastic sedimentary rocks form from a combination of _____ and _____.

Evaporites are formed by the process _____.

Define **Organic**:

Why are the clasts that make up sedimentary rocks often rounded?

Define **Fossil**:

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What is the difference between **Conglomerate** and **Breccia**?

Bioclastic limestone is composed of CaCO_3 , so it will _____ in acid.

Igneous Rocks

Rocks that form when natural molten rock-forming material cools and turns into a solid are _____

This process is known as **Solidification**.

Define **magma**:

How is **lava** different from **magma**? _____

When magma solidifies it forms rocks called _____.

Batholith, stock, laccolith, sill, and dike are all types of _____.

When lava solidifies on or above Earth's solid surface, the result is _____.

When does crystallization occur?

Why is glass non-crystalline?

What conditions are necessary for a rock to have large coarse crystals easily visible to the human eye?
(Think time frame) _____

If lava cools quickly, fine-grained rocks form. Fine-grained rocks have _____ crystals that are not easily seen with the unaided human eye. If the cooling is very fast a _____ rock with no or few mineral crystals form.

What controls the texture of igneous rocks?

If a rock has rounded openings that were caused by lava solidifying around trapped expanding gases it has a _____ texture.

Identification of igneous rocks is based on what two things?

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Metamorphic Rocks

Rocks that form from changes in previously existing rocks due to _____, _____, and/or _____ *without weathering or melting* are **Metamorphic rocks**.

Metamorphism usually occurs where?

Layering of mineral crystals is called _____. (This is an important term!)

What is recrystallization?

When older rocks come in contact with the magma of an intrusion or lava of an extrusion, the heat and mineral fluids of the liquid rock alter the older rock in a process called _____.

Regional Metamorphism occurs in the lithosphere when _____

Look at figure 11-14 on p.201.

Sandstone is the parent rock of _____. Dolostone is the parent rock of _____

Limestone is the parent rock of _____.

Shale is the parent rock of _____, _____, _____, and _____

Siltstone is the parent rock of _____.

Metamorphic rocks are classified and identified based on _____ and _____.

Environment of Rock Formation

Salt beds in western NYS lead to the inference that ...

The distorted rock structures of the metamorphic rocks exposed in the Adirondacks indicate that ...

Large silicate mineral crystals in an igneous rock indicate ...

