

Rocks and Minerals

Vocabulary:

Crystalline – The rock or substance has crystals.

- Sand has crystals – sandstone is crystalline.
- Glass is not crystalline. Obsidian is nature's formed glass from molten lava and is not crystalline.
- Gemstones such as topaz, diamonds, rubies, sapphires, emeralds are crystalline. Quartz and other crystals are crystalline.

Geology – The study of the earth's history, to include rocks and layers of soil

Geologist – The scientist who studies the earth's history.

Heterogeneous – made up of many things.

Homogeneous – made up of one thing.

Inorganic – not living. Salt is inorganic, it forms naturally.

Organic – living or lived at one time. Sugar is organic because it comes from plants.

Text book Vocabulary: (These questions come directly from end of the year test)

Table of Contents – list of chapters and/or sections in a book showing what page the section starts on.

Glossary – Page or pages in the back of the book giving the definitions of difficult words in the text.

Index – An alphabetical list of names, subjects, etc., listing the pages where they can be found. Found at the end of a book.

Title Page - A page at the beginning of a book giving its title, the names of the author and publisher, and other publication information.

Minerals

5 Properties of a Mineral:

1. Minerals occur naturally – Not man-made.
2. Minerals are inorganic – they are not made from anything that is or was living.
3. Minerals are a solid and not a gas or liquid.
4. Minerals are homogeneous, that is, they are made up of one compound or substance. They are the ingredients of a rock.
5. Minerals have a definite pattern. These repeating patterns are called crystals.

Mineral Tests:

Color – The least reliable test, but does provide some clues.

Texture – How does the sample feel – rough, waxy, smooth

Streak – This shows the color of the mineral when ground to a powder

Luster – Does it shine? Is there a metallic look or crystal-like sparkle?

Hardness – This is the most reliable test. The Mohr's Hardness scale was developed to test the hardness of a mineral going from 1 to 10, 10 being the hardest – a diamond.

Transparency – Transparent – see through, Translucent – light shines through,

Opaque – cannot see anything through it.

Rocks:

Rocks are heterogeneous – made up of many things.

Rocks are organic. Dead plants and animals often get mixed up in the mixture as the rocks are formed. Fossils are also found in sedimentary rocks.

State Rock: Coal

- It is a sedimentary rock because it is made up of layers of dead plants and animals pressed together over time.
- Coal tells us that there was an ancient swamp in the area.

The Rock Cycle – The process of the forming, constant changing, and reforming of rock. Every type of rock is in the process of becoming a new rock.

Sedimentary Rock:

Key word – Pressure (ONLY!!!!)

Starts with –

Weathering – the breaking up of rock. This can be accomplished by:

1. Seeds getting inside cracks. The plants grow and the roots break up the rock.
2. Water fills up the crack and freezes. The ice expands and breaks up the rock.
3. Heat expansion of the materials in the rock crack and break up the rock.

Erosion – the movement of weathered materials. Erosion moves earth and materials downward.

Examples are:

1. Wind blowing loose sediments from the rock and down the hill.
2. Rain or river water washing rocks and soil down the mountain.
3. Broken rock rolling down a hill.
4. Glacier slowly moving a rock down the hill.

Sediments are pieces of rock and soil that are layered and pressed together over time or glued together and pressed into rock.

Examples:

Sandstone – layers of sand pressed together

Limestone – Layers of calcite and crushed sea shells

Shale – Layers of mud pressed together

Conglomerate – sediments and small pebbles glued together. Pebbles are round in shape.

Breccia – sediments and small pebbles glued together. Pebbles are sharper and uneven in shape

Igneous Rock:

Key Word – Heat (ONLY!!!)

Starts with – Molten magma or lava is cooled into hard rock.

Magma – melted molten rock found in underground chambers.

Lava – melted molten rock found above ground.

Examples:

Obsidian - formed from cooled lava on the surface. Nature's glass – not crystalline.

Pumice – formed from the cooling foam on the mouth of a volcano. It has many air pockets and very light - the only rock to float.

Scoria – formed from quick cooling lava above ground. It has many air pockets. It is a type of glass and is therefore not crystalline. Scoria is used in many barbeques as it holds the heat well without losing form.

Granite – is made from magma slowly cooling underground making it strong and durable. Mica, feldspar, and quartz are common minerals found in it.

Metamorphic Rock:

Key Words – Heat AND pressure (and chemical change created by the heat and pressure)

Starts with – any rock that has heat, pressure, and/or chemical change applied to it.

Examples:

Gneiss – Formed from granite – an igneous rock

Schist – Formed from gneiss – a metamorphic rock

Slate – formed shale – a sedimentary rock

Marble – formed from limestone – a sedimentary rock

Fossils – due to the way each rock is made, fossils will only be found in sedimentary rock. The heat required to form igneous rock will melt the fossil and there would be nothing left. The heat, pressure, and chemical change will melt, crush, and change the fossil into another form and destroy the fossil – nothing would be left.

What do rocks tell us about the history of the area they are found in:

Sedimentary – there was ancient flooding or lake in the area.

Igneous – there was a volcano in the area.

Metamorphic - There was intense earth movement through earthquakes and pressure building that pushes up or down the layers of rock. This intense pressure creates a heat of its own that can melt or chemically change the rock.

Coal – There was an ancient swamp in the area.