

## Intermediate Glossary

(Disclaimer - some rocks have more than one chemical formula we are presenting only one for each rock sample)

**Abrasion** - “The grinding and scraping of a rock surface by the friction and impact of rock particles carried by water, wind or ice.” Rocks having a hardness of 6 - 10 are particularly effective.

**Acid Rain** - All rain water is slightly acidic. Carbon dioxide dissolved in water as rain falls through the atmosphere and from decaying living things in the soil forms a weak acid called carbonic acid ( $H_2CO_3$ ). Stronger and more damaging acids can be formed from the burning of fossil fuels and volcanic eruptions (both sulfuric and nitric acid can be formed).

**Andesite** - An igneous medium grained (medium sized crystals) rock formed in lava flows and shallow intrusions often under water in a chain of volcanic arc mountains along a plate boundary like the Andes Mountains. It is made of plagioclase feldspar, amphibole, pyroxene, biotite and a small amount of quartz.

**Basalt** - Extrusive fine grained igneous rock containing feldspar, pyroxene and olivine

**Biological Activity** - Can cause the mechanical weathering of rocks into sediments. For example: root pry, animals burrowing and human activity such as tunneling, mining and road building.

**Catalysts** - Chemical solutions that speeds up or slows down a chemical change without being changed or used up in the reaction.

**Cementing** - The process by which sediments are held together by calcium carbonate, silica or iron oxide.

**Chemical Activity** - Hydrothermal solutions (hot chemically rich water) that help speed up the changes in the formation of metamorphic rock

**Chemical Weathering** - The decomposition of rock into one or more new compounds

**Chert** - Fine grained quartz formed from the dissolved shells of marine animals

**Coarse Grained** - Containing crystal sizes larger than the size of a grain of rice

**Compaction** - The squeezing together of a layer of sediments.

**Conglomerate** - Sedimentary rock made of pebbles cemented together by calcium carbonate, iron oxide or silica

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**Contact Metamorphism** - A process by which existing rock is heated but not melted by a nearby source of magma and changed into a different rock- like baking

**Cooling** - Lowering the temperature of the minerals in the lava.

**Crystals** - An orderly pattern or arrangement of atoms in a solid formed from a liquid or a gas

**Extrusive** - Formed on or above the surface of the earth.

**Fault Zone Metamorphism** - Rare in nature, the movement of some rocks along fault lines can cause heat by friction and pressure to crush and change existing rock into either fault breccias or rocks with elongated minerals called mylonites. Sometimes called cataclastic metamorphism.

**Fine Grained** - Containing crystals that require magnification to be seen

**Foliated** - Minerals in stripe, bands, ribbons or obvious layers.

**Frost Wedging** - A series of freezing and thawing events that can cause an object to break into pieces

**Gabbro** - Intrusive coarse grained igneous rock made of feldspar, pyroxene and olivine

**Gneiss** - Metamorphic granite that has had its mica and hornblende lengthened into ribbon like bands

**Granite** - Intrusive igneous rock made of coarse crystals of quartz, feldspar and minerals.

**Graywacke** - Sedimentary rock formed of sand, rocks, silt and clay in a submarine environment

**Heat** - The transfer of energy from friction, magma, decaying radioactive elements or an extraterrestrial impact

**Hornfels** - Dark colored sedimentary rock that has gone through the metamorphic process

**Hydrothermal Solutions** - “Hot watery solutions that escape from a mass of magma during the latter stages of crystallization. Such solutions can change the surrounding rock during the metamorphic process and can cause the formation of a variety of ores.”

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**Igneous** - Volcanic rocks formed by the cooling of melted rock

**Intrusive** - Formed under the surface of the earth.

**Lava** - Melted rock on the surface of the earth- extrusive

**Limestone** - Sedimentary rock formed by the secretion of calcium carbonate from seashells or from dissolved minerals in ocean water

**Litification** - The process by which sediments are turned into sedimentary rock

**Magma** - Rock melted under the surface of the earth- intrusive

**Marble** - Limestone that has gone through the metamorphic process

**Mechanical Weathering** - The physical disintegration of rocks. Big rocks break apart into smaller pieces of the same rock.

**Medium Grained** - Containing crystals the size of a grain of sand to the size of a grain of rice.

**Melting** - Change in the physical state of an object from a solid to a liquid

**Metamorphic Rock** - Already formed rocks that are changed by heat, pressure and sometimes chemical activity deep in the earth without melting.

**Mudstone** - Sedimentary rock formed from compacted clay and silt

**Obsidian** - Extrusive igneous glass that cooled too fast to form crystals

**Oxidation** - A chemical weathering process in which one or more electrons is removed from an atom. The weathered elements often combine with oxygen like in the case of iron and oxygen dissolved in water forming rust or iron oxide.

**Peridotite** - Intrusive medium grained igneous rock made of olivine and pyroxene

**Pressure** - A force applied from surrounding layers of existing rock and newly deposited sediments

**Pumice** - Abrasive glassy extrusive porous igneous rock

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**Quartz** -  $\text{SiO}_2$ - A mineral found in igneous, sedimentary and metamorphic rocks. It can come in clear as well as a wide range of colors and is used in the making of glass, computer chips and as a gemstone; Quartz has a hardness of 7 and can scratch glass.

**Quartzite** - Metamorphic sandstone

**Regional-Metamorphism** - A process by which existing rock surrounded by a mountain is heated and held under pressure to change the existing rock into a new rock – like being wrapped up in a big heavy blanket

**Rhyolite** - Extrusive fine grained igneous rock made of quartz, feldspar and other dark minerals

**Rock Cycle** - A dynamic model that explains the interrelationships of how igneous, sedimentary and metamorphic rocks are formed.

**Root Pry** - One type of biological activity that can cause the breaking apart of rock into smaller pieces. The roots of a tree grow into cracks in existing bedrock and as the roots grow they break the rocks apart

**Sandstone** - Sedimentary rock made of grains of sand cemented together

**Schist** - Metamorphic foliated shale

**Scoria** - Extrusive basalt containing vesicles

**Sediments** - Unconsolidated particles formed by weathering and erosion of rock

**Sedimentary Rocks** - Rocks made of sediments either solid or in solution that have been lithified

**Selenite** - Sedimentary rock made of clear crystals of gypsum

**Shale** - Sedimentary rock formed of clay and sand

**Slate** - Shale that has gone through the metamorphic process

**Solidification** - The forming of crystals in molten or melted rock

**Tektites** - Metamorphic glass formed in a high velocity impact

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**Unconsolidated** - Not held together, separate, free to move as individual pieces

**Unloading**- A weathering process that involves the lessening of pressure on confined rock, causes sheets to break off. Most commonly due to erosion of the exposed layers of granite mountains but also a danger in underground mines or tunnels.

**Volcanic Breccia** - An extrusive igneous rock formed when volcanic glass cools quickly around rock, ash and glass fragments

**Volcanic glass** - Melted rock that cools too rapidly to form crystals