\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_’s Unit 3 Lesson 3 Notes Three Classes of Rock

1. How are rocks classified?
   1. A combination of one or more minerals or organic matter is called rock.
   2. Scientists divide rock into three classes: igneous, sedimentary, and metamorphic. Each class can be further divided into more specific types of rock.
   3. To determine how to classify rocks, scientists observe their composition and texture.
   4. The minerals a rock contains determine the **composition**, or makeup, of that rock.
   5. The size, shape, and positions of the grains that make up a rock determine a rock’s **texture**.
   6. The rock may be coarse-grained or fine-grained, depending on whether the grains are visible with one’s eyes or with a hand lens or microscope.
2. What are two kinds of igneous rock?
   1. *Magma* is molten rock that forms in Earth’s crust. When magma cools and solidifies, it forms igneous rock in the crust.
   2. Magma that reaches Earth’s surface is called *lava*. Igneous rock also forms when lava cools and solidifies on Earth’s surface.
   3. When magma intrudes, or pushes into surrounding rock below Earth’s surface, and cools, it forms *intrusive igneous rock*.
   4. The magma usually cools very slowly, and the minerals form large, visible crystals.
   5. Therefore, intrusive igneous rock generally has a coarse-grained texture.
   6. Igneous rock that forms when lava erupts, or extrudes, onto Earth’s surface is called *extrusive igneous rock*.
   7. As lava cools quickly, there is little time for crystals to form, and extrusive igneous rocks have a fine-grained texture.
   8. Obsidian, often called *volcanic glass*, is an extrusive rock that cools so rapidly that no crystals form.
3. What are three types of sedimentary rock?
   1. Sedimentary rock is formed by processes that occur mainly at or near Earth’s surface.
   2. These processes include weathering, erosion, deposition, burial, and cementation.
   3. Based on the way that they form, scientists classify sedimentary rocks as clastic, chemical, and organic sedimentary rock.
   4. Clastic sedimentary rock forms when sediments are buried, compacted, and cemented together by calcite or quartz.
   5. The size of the sediment, or clasts, that makes up the rock is used to classify clastic sedimentary rocks as fine-, medium-, or coarse-grained.
   6. Chemical sedimentary rock forms when water, which usually contains dissolved minerals, evaporates.
   7. As water evaporates, the minerals in it become concentrated, precipitate out of solution, and crystallize.
   8. Organic sedimentary rock forms from the remains, or fossils, of once-living plants and animals.
   9. Over time, the skeletons of marine organisms, made of calcium carbonate, collect on the ocean floor.
   10. These animal remains, together with sediment, are eventually buried, compacted, and cemented together to form *fossiliferous* limestone.
4. What are two types of metamorphic rock?
   1. As a rock is exposed to high temperature and pressure, the crystal structures of the minerals in the rock change to form new minerals.
   2. This process results in the formation of metamorphic rock, with a foliated or nonfoliated texture.
   3. The metamorphic rock texture in which mineral grains are arranged in planes or bands is called *foliation.*
   4. Foliation occurs when pressure causes the mineral grains in a rock to realign to form parallel bands.
   5. Metamorphic rocks that do not have mineral grains that are aligned in planes or bands are called *nonfoliated*.
   6. Nonfoliated metamorphic rocks are commonly made of one or only a few minerals.
   7. During metamorphism, mineral grains or crystals may change in size or the mineral may change in composition.