

## GEOL 10 EXTENDED NOTES 3 MINERALS & ROCKS

### Minerals (LT Chapter 1)

A **mineral** is a *naturally occurring, inorganic solid with a definite chemical structure*.

Minerals consist of *atoms of elements* bonded together, and have distinctive properties.

Most of the crust consists of silicates, which are built around Si and O.

Minerals are **non-renewable resources**; ores are economically worthwhile mineral reserves.

### Rock Types (LT Chapter 2)

**Igneous rocks** form when **magma** cools and crystallizes.

**volcanic rocks** cool quickly, on the surface, and are finer-grained

**plutonic rocks** cool slowly, underground, and are coarser-grained

**Sedimentary rocks** accumulate as **sediment** at the Earth's surface.

**Detrital** sedimentary rocks consist of broken pieces of other rocks (e.g., sandstone, shale).

**Chemical** sedimentary rocks are precipitates from solution (e.g., halite (salt), limestone).

Sedimentary rocks contain **fossils** and other features that indicate their environment of formation.

Sedimentary rocks contain **fossil fuels** such as coal, oil, and natural gas, which take millions of years to form from fossil organic matter.

**Metamorphic rocks** (“change form”) are changed from another rock by **pressure** and **heat**.  
**foliated** metamorphic rocks look banded or layered, and are produced by pressure

### **The Rock Cycle**

Explains the interrelation of all three rock types, plus the following concepts:  
**pressure and heat**, which metamorphose rocks

**sediment**, produced by **weathering** of rocks

**magma**, produced when rocks melt

### **BE ABLE TO**

Explain the difference between a mineral and a rock.

Explain how the rock cycle works, and how one rock can become or produce another rock.

**The following question will be on the next exam:** Applying your knowledge of the rock cycle, propose a reasonable history that explains how the following four rocks could be derived from one another *in the specific sequence given* [I will then give you four rocks from the following list: sandstone shale basalt andesite granite schist gneiss.]

Your answer should focus not only on the rock types, but also on the processes or steps involved in changing one type to another type.