Chicago (and the rest of the Earth!) Rocks

"Solid earth materials" – the materials that make up the solid earth beneath our feet – include **rocks**, **minerals**, **sediments**, and **soil**.

Soil is a complex system that contains organic components as well as inorganic (mineral/sediment); as the interface with the earth's *biosphere*, soil has a somewhat separate context than the other, *inorganic* materials.

Sediments are the weathering products from other rocks: the "broken pieces" and products of dissolved materials that are created as the earth's ***atmosphere*** and ***hydrosphere*** interact with the solid earth (the ***geosphere***). Sediments are fairly ubiquitous, particularly when considering earth's surface environments: they are the link between rocks and soil; they are the materials transported by moving water, ice, and wind at the earth's surface; and they represent important components of certain rocks.

Minerals are naturally-occurring, inorganic solids with a definite chemical composition and an ordered atomic structure (this is the definition of a *crystalline* substance; the atoms are arranged in a definite pattern throughout the material). Most – but not all! – rocks are made of minerals.

Rocks are grouped into three general classes, based on how they are formed:

- **Igneous Rocks** form through the solidification of molten rock material (*magma* or *lava*).
- **Sedimentary Rocks** form from accumulations of sediments that become cemented together.
- **Metamorphic Rocks** form through a number of processes, involving elevated temperature and/or pressure, that change pre-existing rocks *without* melting them.

If we look around us, in the earth's surface environments, we can actually watch the processes of some types of rocks and minerals being formed. Other rocks and minerals form deep within the earth, well out of our sight. The type of environment in which different earth materials are formed (and the physical and chemical characteristics of that environment) determines the properties and appearance of specific rocks and minerals.

READ the following sections of the ***Good Earth*** website about solid earth materials:

1. Igneous Rocks http://www.mhhe.com/earthsci/geology/mcconnell/ram/ig.htm
2. Sedimentary Rocks http://www.mhhe.com/earthsci/geology/mcconnell/ram/sed.htm
3. Metamorphic Rocks http://www.mhhe.com/earthsci/geology/mcconnell/ram/meta.htm