

Assignment 4: Cycles and soils

What makes a “**closed**” **system** closed? Is the Earth’s surface a closed system with respect to energy? to materials? Can the Earth’s surface be considered an “**isolated**” system with respect to either energy or materials? Why or why not?

Various **cycles** can be described: for instance, the hydrologic (water) cycle, or the carbon cycle. These types of cycles can be illustrated as “**box models**” in which there are “boxes” which are the various **reservoirs** of the material, and “arrows” which are the **processes** that move the material from one reservoir to another. To illustrate the point, draw the carbon cycle as a box model below. You must include at least these boxes: atmosphere, organisms, soil, rocks, ocean, and enough arrows to show the processes that occur between each (labeled with the name of the process, of course).

What is the **advantage** in considering various processes that occur on Earth as part of a cycle or system, rather than an isolated occurrence?

What's the **difference** between physical and chemical weathering?

Name at least two methods of **physical weathering**. Name at least two methods of **chemical weathering**.

List at least five **factors** that determine how and what kind of soil forms.

How are soils classified (hint: there is more than one correct answer to this question)? Give the name and characteristics of the soils in the North Seattle area, according to the **soil classification system** you have chosen.

What is **soil creep** and how can you tell it's happening?