

## Chapter 5 Section 2 Notes

### The Cycling of Matter

**The Carbon Cycle** – the process by which carbon is cycled between the atmosphere, land, water, and organisms

- Atmospheric carbon dioxide (CO<sub>2</sub>) is part of the carbon cycle.
  - Producers get their carbon from the atmosphere.
- Limestones are one of the largest carbon reservoirs on Earth

#### How Humans Affect the Carbon Cycle

- Fossil fuels are stored carbon from the remains of plants and animals that died millions of years ago.
- Fossil fuels are located: on the surface of the Earth, beneath the ocean floor, and deep within Earth.
  - Burning fossil fuels increases atmospheric carbon dioxide (CO<sub>2</sub>) which affects the balance of the carbon cycle

**The Nitrogen Cycle** – the process in which nitrogen is cycled between the atmosphere, bacteria and other organisms

- Atmospheric nitrogen (N<sub>2</sub>), nitrogen compounds in the soil, and nitrogen compounds in animal waste are all part of the nitrogen cycle
- Atmospheric nitrogen is a large reservoir of nitrogen that is unusable by most organisms.

**Nitrogen-fixing bacteria** – organisms that can transform unusable nitrogen in the atmosphere into chemical compounds containing nitrogen that can be used by other organisms

These bacteria are typically found on the roots of legumes

#### Decomposers and the Nitrogen Cycle

- **Decomposers** – break down decaying organisms and their wastes (ex. urine, dung, leaves, and decaying plants and animals) and return the nitrogen from these wastes to the soil.

**The Phosphorous Cycle** – the movement of phosphorus from the environment to organisms and then back to the environment

- Humans usually get the phosphorus that their bodies need from eating plants and animals that contain phosphorus

#### Fertilizers and the Nitrogen and Phosphorous Cycles

- Fertilizers contain both nitrogen and phosphorus.
- Algal blooms are evidence of excessive use of fertilizers