**What is the fate of water?**

-Certain characteristics will determine whether not water will either seep into or become runoff

1. Vegetation
   1. Vegetation allows for loose soil
   2. Loose soil allows water to enter ground
   3. Gardeners do not pack their soil
2. Rate of precipitation
   1. Heavy:
      1. Soil clumps together closing pores
      2. Fills up ground to quickly and water becomes runoff
   2. Light:
      1. Allows water to gently slide through
      2. Less erosion
3. Soil Composition
   1. Effects the waters holding capacity
   2. Decayed organic matter (humus)
      1. Creates the pores in soil- Increases retain ability
   3. Minerals
      1. Clay- fine mineral which clump together
         1. Few spaces
      2. Sand- large pores
4. Slopes
   1. Steep: allows for high runoff & little absorption
   2. Little: low runoff and high absorption

**What is a watershed?**

-Water sheds:

Drainage basin

Land where all water drains into

-Divide

High land area the separate watersheds

**What is a Flood Plain?**

-Floods:

Water fills over the sides of a stream banks

Floodplain: broad flat area of land that extends out from streams for excess flooding

**What are the aquatic ecosystems?**

1. Freshwater
   1. Organisms are grouped by location and adaptations:
      1. Plankton- float near the surface of the water
      2. Nekton- free swimming (fish, turtles, whales)
      3. Benthos- bottom dwellers (mussels, worms, barnacles
   2. Lakes and Ponds
      1. Littoral zone
         1. Nutrient-rich area near shore
         2. Variety of plant and animal life
      2. Benthic zone
         1. Bottom of a pond or lake
         2. Inhabited by decomposers, insect larvae, and clams
      3. Eutrophication
         1. More nutrients=more plants=more decomposers using oxygen=less oxygen for other organisms
         2. Can be caused by runoff of sewage, fertilizers, animal waste
   3. Wetlands
      1. Marshes
         1. Contain non woody plants
      2. Swamps
         1. Contain woody plants or water-loving trees
   4. Rivers
      1. Swift moving
      2. Home to strong swimming fish and organisms with adaptations to cling to rocks
      3. Polluted
2. Marines Ecosystems
   1. Coastal Wetlands
      1. Costal areas covered by salt water at least part of the time
      2. Estuaries- where fresh river water and salty ocean water mix
         1. Constant source of fresh nutrients supplied by the river
         2. Nutrients fall to the bottom
         3. Provide harbors protected from open ocean- site of major ports
         4. May be used as dumping sites for sewage industrial waste, and agricultural runoff
      3. Salt marshes
         1. Develop in estuaries
         2. Found along the gulf coast
      4. Mangrove swamps
         1. Found along the coast in tropical and subtropical zones
         2. Dominated by mangrove trees
      5. Rocky and sandy shores
         1. Rocky shores have more plants and animals
         2. Barrier islands run parallel to the shore and protect the mainland and coastal wetlands
   2. Coral Reefs
      1. Limestone ridges made of the skeletons of animals called coral polyps
      2. Found in shallow, tropical seas with clear, warm salt water and lots of light
      3. Disappearing coral reefs:
         1. Damaged by oil spills, sewage, and runoff
         2. Overfishing
   3. Oceans
      1. Threats:
         1. Pollution from land activities
         2. Overfishing
      2. Arctic and Antarctic ecosystems:
         1. Nearly all food in the arctic ecosystems comes from the ocean; land is frozen, so plants don’t grow well.