**Water Cycle, Clouds, Precipitation**

**Water Cycle**

* **Water Cycle is the continuous movement of water from sources on Earth’s surface into the air, onto and over land, into the ground, and back to the surface.**

**Condensation**

* **Condensation occurs when water vapor cools and changes from a gas to a liquid.**
* **Clouds form by this process.**
* **Condensation occurs when saturated air cools.**

**Precipitation**

* **Precipitation occurs when rain, snow, sleet, or hail falls from the clouds onto Earth’s surface.**

**Runoff**

* **Runoff is water, usually from precipitation, that flows across land and collects in rivers, streams, and eventually the ocean.**

**Evaporation**

* **Evaporation occurs when liquid water changes into water vapor, which is a gas.**

**Clouds**

* **A cloud is a collection of millions of tiny water droplets or ice crystals.**
* **Clouds form as warm air rises and cools.**
* **The air cools and becomes saturated so the water vapor changes from a gas to a liquid.**

**Cloud Types**

* **Clouds are classified by their form and altitude**
* **Cumulus Clouds**
  + **Puffy, white clouds that tend to have flat bottoms.**
  + **Form when warm air rises.**
  + **Generally indicate fair weather, but when they get larger they produce thunderstorms.**
* **Cumulonimbus**
  + **The type of cumulus cloud that produces thunderstorms.**
  + **Clouds that have names that include –nimbus or nimbo- are likely to produce precipitation.**

**Cloud Types (cont.)**

* **Stratus Clouds**
  + **Form in layers.**
  + **Cover large areas of the sky and often block the sun.**
  + **Caused by a gentle lifting of a large body of air into the atmosphere.**
  + **Fog is a stratus cloud that has formed near the ground.**
* **Nimbostratus clouds**
  + **Dark stratus clouds that usually produce light to heavy, continuous rain.**
* **Cirrus Clouds**
  + **Thin, feathery, white clouds found at high altitudes.**
  + **Form when the wind is strong.**
* **Clouds can also be classified by the altitude at which they form.**
  + **The prefix cirro- is used to describe clouds that form at high altitudes.**
  + **The prefix alto- is used to describe clouds that form at middle altitudes.**

**Precipitation**

* **There are 4 main types of precipitation: rain, snow, sleet and hail.**

**Rain**

* **Most common form of precipitation.**
* **A cloud produces rain when the water drops in the cloud become large enough to fall.**

**Sleet and Snow**

* **Sleet forms when rain falls through a layer of freezing air creating falling ice.**
* **Snow forms when temperatures are so cold that water vapor changes directly to a solid.**
* **Snow can fall as a single crystal or join to create snowflakes.**

**Hail**

* **Balls or lumps of ice that fall from clouds.**
* **When updrafts of air in the clouds carry raindrops high in the clouds, the raindrops freeze and hail forms.**