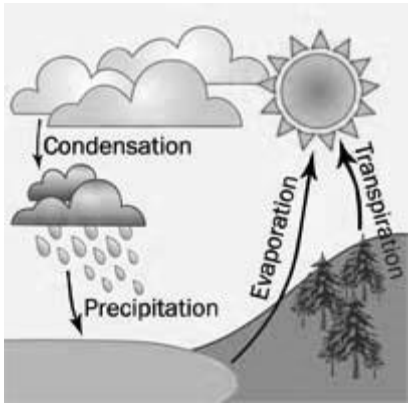
Name: _____ Science/*Water Cycle*



The Water Cycle (Part 1):

There are six important processes that make up the water cycle. This diagram doesn't show them all—only the first four (evaporation, transpiration, condensation, precipitation). Let's take a closer look at all six.

Evaporation:

Evaporation is the process in which a liquid, in this case water, changes from its liquid state to a gaseous state. Liquid water becomes water vapor.

During the water cycle some of the water in oceans, lakes and rivers is warmed by the sun and evaporates. During the process of evaporation, the salt and other impurities in the water are left behind. As a result, the water that goes into the atmosphere is cleaner than it was on Earth.

Ocean water is salty because mineral salt is continually being dumped into the ocean by rivers. The water in the rivers starts out fresh, but picks up minerals on the way to sea. Then, when the water evaporates from the ocean, it evaporates as pure water and leaves its mineral salts behind. This has been going on for millions of years.

Transpiration:

Most water enters the atmosphere through evaporation from large bodies of water, but this isn't the only way that water vapor gets into the air. As plants absorb water from the soil, the water moves from the roots, through the stems, and into the leaves. Once the water reaches the leaves, some of it evaporates from the leaves, adding to the amount of water vapor in the air. This process of evaporation through plant leaves is called *transpiration*. In a large forest, an enormous amount of water will transpire through the leaves of plants and trees. About 10% ($^1/_{10}$) of the water vapor in the atmosphere comes from transpiration.

Condensation:

Clouds are made up of millions of the tiny water droplets that form when water vapor in the atmosphere condenses (changes to a liquid). Water vapor rises in the sky because it is lighter than air. It cools as it rises because the atmosphere gets thinner and colder the higher up you go. When the water vapor gets cold enough, it can condense into tiny water droplets, but *only* if there are small dust particles present for the droplets to form around.

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Precipitation:

If conditions are right, the small droplets of water in clouds join together and form larger droplets. When the droplets get large and heavy enough, precipitation occurs; gravity causes the large, heavy droplets to fall to Earth.

As a result of *evaporation*, *transpiration*, *condensation*, and *precipitation*, water travels from the surface of the Earth goes into the atmosphere, and returns to Earth again. This continuous process is called the *water cycle*.

(*to be continued…*)

1. What is transpiration?

   How does water get into the leaves of plants?

   What fraction of water in the atmosphere comes from transpiration?

2. What is condensation?

   What causes water vapor to condense to a liquid?

   What *must* be present for water vapor in the atmosphere to condense into water droplets?

3. What is a cloud?

   What is fog?

4. When tiny water droplets in a cloud bump into one another, they form larger droplets. When they get large enough precipitation occurs. WHY?