

## Ripple Effect #27

### **Follow That Drop!**

It may be hard to believe, but the water you drank this morning might have been the same water a dinosaur drank millions of years ago. Or it may be the same water some of your ancestors sailed on to get to North America. There is the same amount of water on Earth today as there has always been. The water keeps moving around in an endless cycle called **the water cycle**.

Water itself is the only substance that exists in liquid, gas and solid form - the keys to the water cycle. The water cycle describes the existence and movement of water on, in, and above the Earth. The Earth's water is always in movement and is always changing states, from liquid to vapor to ice and back again.

The United States Geological Survey can help us to understand the water cycle by following a water drop through the water cycle.

Following the drop could really begin anywhere along the cycle, but the ocean is the best place to start, since that is where we find most of the Earth's water. If the heat from the sun warms the drop, then it will be **evaporated** into water vapor. Water vapor droplets then rise into the air and continue rising until strong winds grab it and take it hundreds of miles until it is over land. There, warm updrafts coming from the heated land surface take the water vapor up even higher, where the air is quite cold.

When the vapor gets cold, it changes back into a liquid, this process is called **condensation**.

After a while, the drop can combine with other drops to form a bigger drop and fall to the earth as **precipitation**. Earth's gravity helps to pull it down to the surface. Once it starts falling, there are many places for water drops to go. It could land on a leaf in a tree, in which case it would probably evaporate and begin its process of heading for the clouds again.

The drop could land in a dry flat field where it might sink into the ground to begin its journey down into an underground **aquifer** as ground water. The drop will continue moving as **ground water**; but the journey might end up taking tens of thousands of years until it finds its way back out of the ground. The drop could be pumped out of the ground via a water well and be sprayed on crops. Or the well containing the drop could end up in a baby's bottle or be used to wash a car. From these places, it is back again either into the air, down sewers into rivers and eventually into the ocean, or back into the ground.

Plenty of precipitation ends up staying on the earth's surface to become a component of **surface water**. If the drop lands in an urban area it might go down the gutter, into your driveway and then to the curb. If an animal doesn't lap it up, it will run into a storm

sewer and end up in a small creek. The creek may flow into a larger river and the drop will begin its journey back towards the ocean.

With billions of people worldwide needing water for most everything, there is a good chance the drop will get used before it gets back to the sea. The possibilities for its use are endless, but eventually it will get back into the environment. From there it will again continue its cycle into and then out of the clouds. You never know where that water drop will end up, but you now know it has been around for a very long time!

Until the next Ripple Effect,

The Red River Basin Commission (RRBC)