

Water

Water in Santa Cruz County is everywhere.

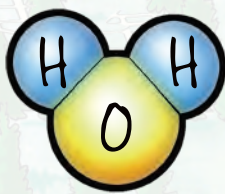
Water is a bobcat lapping at a spring, fog rolling in on an August afternoon, winter storm waters rolling giant logs down a swollen creek, redwood trees growing tall.

Water is used to make almost everything. Water brings us sweet juicy strawberries, pumpkins in the garden, grass for the soccer field, clean clothes, a warm shower, a bowl of noodles, water for the fire hose, a refreshing drink.

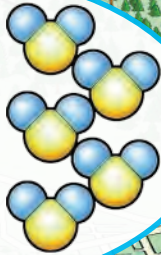
For millions of years water has traveled from clouds to the ground, into our creeks, lakes, and wetlands, and to the Pacific Ocean. Water shapes the land as it travels, creating the canyons, valleys, **lagoons** and **sloughs** of Santa Cruz County.

Every minute water is pumped out of the ground and rivers so we can use it. We use water for almost everything we do!

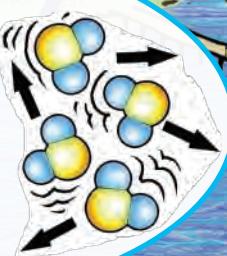
Water is two hydrogen (H) atoms and one oxygen (O) atom bonded together as one molecule — H_2O in scientific terms.



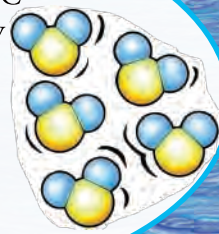
Solid (ice)
Below 0°C (Celsius) or 32°F (Fahrenheit) water molecules **bond** strongly to each other. These tight bonds make the water solid.



Gas
When sun or heat touches the surface of water molecules, they have too much heat energy to remain close together. Even at low temperatures they drift apart and become a gas. This is called evaporation.



Liquid
Between 0°C and 100°C water molecules are weakly bonded together. They move and bump like a class full of kids rushing out a door. When liquid water reaches 100°C (212°F) it boils and becomes a gas.



Santa Cruz County Water Fact

If there was no fog, there would be no redwood trees. Redwoods get 25-40% of their water needs from the fog. Fog condenses on redwood needles and drips to the ground to feed the trees' roots. Fog keeps these trees alive through the dry season.

The Water Cycle

Evaporation: Energy from the sun drives the Water Cycle. The sun heats the water and turns it to water vapor, a gas, which rises into the sky. A drop of water from a wet towel is made up of millions of water molecules of H_2O that separate from each other to rise up and then join **trillions** of other molecules in the air. These other molecules may have evaporated from the ocean, lettuce fields, streets, or maybe even from a dog's tongue.

Condensation: All that water vapor from the ocean, the towel, the lettuce, wet streets, and dogs' tongues cools and comes together on little dust particles, forming clouds and fog. Cool air causes water to condense.

Precipitation: The water droplets in the clouds grow bigger. When the clouds can't hold anymore water, the water is pulled by **gravity** and precipitates to the earth as rain. In Santa Cruz County, our precipitation comes in the form of fog and rain. If it is cold enough, the droplets become hail or snow.

Santa Cruz County Water Math

A full-grown 200-foot redwood tree uses about 400 gallons of water per day. How much does this water weigh?

400 gallons \times 8.34 pounds per gallon = _____ pounds

Try comparing this to the total weight of all the students in your class.

