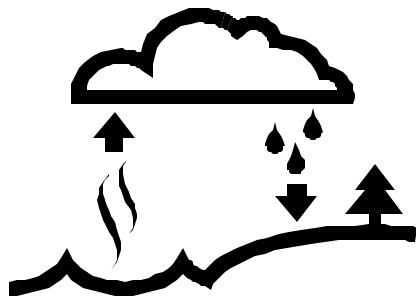


# All About Rain



Hillermann's  
Kids' Club

Everybody knows that rain comes from clouds. But where do clouds come from? And why does rain fall from them? Clouds are actually made up of trillions of tiny drops of water. Water is always in the air, in the form of an invisible gas we call water vapor. The warmer the air, the more water it can hold as vapor. The colder the air, the less water it can hold. Whenever there's more water in the air than the temperature will allow it to hold, the water vapor condenses: It changes from gas to very small droplets of water. Together, those droplets make a cloud. That's why you can see your breath in the winter when you breathe out, but not during the summer. On a cold day, the air can't hold all the water in your breath, so the vapor condenses and makes a little cloud.

The same thing is going on when clouds form in the sky. Have you noticed that there are usually more clouds over mountains and hills? That's because when air passes over mountains, it's swept upward. The higher it gets, the colder it gets. The air can't hold as much water. So the water condenses and creates clouds. The ocean is another place where you see a lot of clouds. That's because the air is so full of water from the sea that it condenses even when the air is quite warm.

Rain happens when water droplets in a cloud become heavy enough to fall. Sometimes enough cloud droplets bump into each other and stick together to make larger, heavier droplets that fall. That's usually the cause of short, hard showers during the summer or in tropical places. Long periods of rain or drizzle happen when the water vapor in very high, cold clouds sticks to ice particles and freezes, making heavier ice crystals and snowflakes. When the flakes drop down through warmer air, they melt and fall as rain. (Of course, in cold weather they don't melt, and drift to the ground as snow).

- It takes about nine days for water to evaporate from the oceans or the surface of the earth, condense as part of a cloud, and fall to earth again as rain or snow.
- There are about one million cloud droplets in one raindrop.
- The biggest raindrops measure about 1/4 of an inch across.
- Scientists estimate that 40 million gallons of water in the form of rain, snow, or freezing rain fall on the earth every second.
- One inch of rain over one square mile weighs about 72,000 tons.
- The wettest place in the world is Mount Waialeale, on the island of Kauai, Hawaii. It rains there an average of 335 days a year, and sometimes as often as 350 days. The total amount of rain each year averages 460 inches, or more than 38 feet!
- The driest places in the world are in Chile, South America. In Desierto de Atacama, virtually no rain fell for more than 400 years. In 1972, though, a downpour swept through and caused heavy flooding & mud slides. The village of Arica, in northern Chile, is almost always rainless. It gets an average of 3/100 of an inch of rain a year.

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# Let's Measure the Rain

## What You Need:

A container that you can see through, such as a small clear jar or glass beaker

A coat hanger or wire

Stapler

Small piece of wood (a wooden garden marker would work)

Waterproof marker



## What You Do:

1. Hold a ruler straight up inside of your container so that the end is touching the bottom. Use a waterproof pen to mark lines an inch apart on the outside. Write the numbers next to the lines on the outside.
2. Create a loop with the wire around the top of your container, leaving enough wire to bend down to attach to the small piece of wood (see picture.)
3. Attach the straight piece of wire to the wood with staples as Shown.

Since most rain showers are windy, you'll want to either sink the small piece of wood in the ground or attach it somewhere the wind won't blow it over. Some good places are fences, decks and even wooden swing sets.

To make sure you get a good reading of the rain that has fallen, Make sure nothing is over you rain gauge like trees, electric wires or the edge of a roof.