



**CLOUD**, a formation in the atmosphere originating from water vapor. The atmosphere contains a great deal of water vapor that is drawn from water surfaces, such as the sea, by the heat of the sun. So dependent on the sun are clouds, in fact, that when the sun cannot replenish their water supply, as at night, they sometimes die of thirst. Once water vapor is a part of the atmosphere, it is carried hither and yon by the winds.

You may have watched a cloud being formed and may not have realized it. When hot bath water is run into the tub in a slightly chilly bathroom, the steam that you see is actually a cloud. The warm, moist air over the hot water loses some of its water as steam when the warm air mixes with the colder air around it.

This is one way that clouds are formed outdoors. The cold air of a cold front mixes with warm, moist air, and the warm air loses some of its water to form clouds. Clouds are also formed when air moves northward across the colder surface of the earth. And when warm air rises, it cools. The cooler air, since it can carry much less water with it, leaves its burden of water behind as clouds. That is why mountains are often hidden in mantles of cloud: Air is cooled as it rises over a mountain barrier. Air is also forced to rise as an air current when it is heated by the sun. And, once again, the rising air reaches colder and higher regions of the atmosphere, cools, and casts off its burden of water as clouds.

In a "cloudy" bathroom, the mirror over the sink will often gather moisture. This shows that moisture needs something to condense on. And, in fact, before clouds can form, something also must be present in the air for water to gather, or condense, on. These tiny "mirrors" are furnished by the countless particles of smoke, sea salt, and dust that are always present in the air.

Clouds are useful signposts for the weatherman. He can sometimes predict what the next day's weather may bring if he observes the clouds.

How do clouds form?

What does warm and cool air have to do with the formation of a cloud?

How can you form a cloud in your bathroom?

**ATMOSPHERIC CONDENSATION** is the creation of particles of water or ice from water vapor in the atmosphere. Without atmospheric condensation, the water on the earth would all be contained in oceans and lakes. The continents would be as dry as the driest desert. Hail, dew, frost, sleet, and mist are all the result of atmospheric condensation.

All air can carry water vapor. As air passes over bodies of water (or even areas of snow and ice) it picks up tiny particles of water as vapor. Warm air collects more water vapor than cold air. At most, the air might be composed of 3 percent water vapor. But a very important 3 percent this is, since it has such a significant effect on the weather that surrounds us.

The atmosphere is very restless. Never satisfied where it is, it moves continually. Water vapor is carried by winds across continents. It is carried from the surface of oceans by air currents until it is high overhead. Meanwhile, the air that carries water vapor is always changing temperature. It encounters objects that are cold or hot. It swirls into airmasses that are different in temperature. It rises higher and higher and becomes colder and colder. When warm air becomes colder, it can no longer carry so much water vapor. It seeks to drop some of the water it carries. But the water must find some place to rest. It collects on grass and trees as dew or frost. It collects on dust or smoke particles in the air until these become so heavy that they fall and carry water back to the earth as rain. If the particles do not become quite so heavy, however, they may hover in the sky for a long time as clouds.

Meteorologists, of course, are interested in atmospheric condensation. They measure the amount of water in the air by means of hygrometers. They also plot the movements of warm, moist airmasses and cold, dry airmasses to predict if and where atmospheric condensation will take place.

Why do you need dust (or smoke or sea salt) to make a cloud form?

describe atmospheric condensation