Wind and clouds

What Are Clouds?

A cloud is a large collection of very tiny droplets of water or ice crystals. The droplets are so small and light that they can float in the air.

How are clouds formed?

All air contains water, but near the ground it is usually in the form of an invisible gas called water vapor. When warm air rises, it expands and cools. Cool air can't hold as much water vapor as warm air, so some of the vapor condenses onto tiny pieces of dust that are floating in the air and forms a tiny droplet around each dust particle. When billions of these droplets come together they become a visible cloud.

Why are clouds white?

Since light travels as waves of different lengths, each color has its very own unique wavelength. Clouds are white because their water droplets or ice crystals are large enough to scatter the light of the seven wavelengths (red, orange, yellow, green, blue, indigo, and violet), which combine to produce white light.

How Clouds Make Rain

When water droplets and ice crystals continue to collect in a cloud, they get heavier and heavier. They will eventually become too heavy to float on the air. Water droplets will fall to the earth as rain.

Types of Cloud

Clouds are divided into four main types.

Cirrus-the highest of the cloud family

Cumulus-the clouds like soft white cushions that we know best of all

Stratus-the lowest of the cloud family

Nimbus are clouds that bring us rain and snow.

See document with pictures and descriptions.

Activity: Cloud Experiment

Materials:
shaving cream (use the foam kind, not gel)
a jar
water
food coloring.

Fill the jar almost to the top with water.

Cover the top with a “cloud” of shaving cream.

Drop food coloring into the cloud until the color starts “raining” into the water below. Explain that this is how rain works too. The water collects in the cloud until there is too much, and then it leaks through, forming rain.

What is wind?

Wind is air in motion. It is produced by the uneven heating of the earth’s surface by the sun. Since the earth’s surface is made of various land and water formations, it absorbs the sun’s heat unevenly. Two factors are necessary to specify wind: speed and direction.

What causes the wind to blow?

As the sun warms the Earth's surface, the atmosphere warms too. Some parts of the Earth receive direct rays from the sun all year and are always warm. Other places receive indirect rays, so the climate is colder. Warm air, which weighs less than cold air, rises. Then cool air moves in and replaces the rising warm air. This movement of air is what makes the wind blow.

Activity: Go outside and draw the different shapes and colors of the clouds that you see.

Activity: Go outside and blow bubbles. Will the wind affect the bubbles? Blow bubbles from different heights, such as lying on the ground and standing on a bench or chair. Do you see a difference?