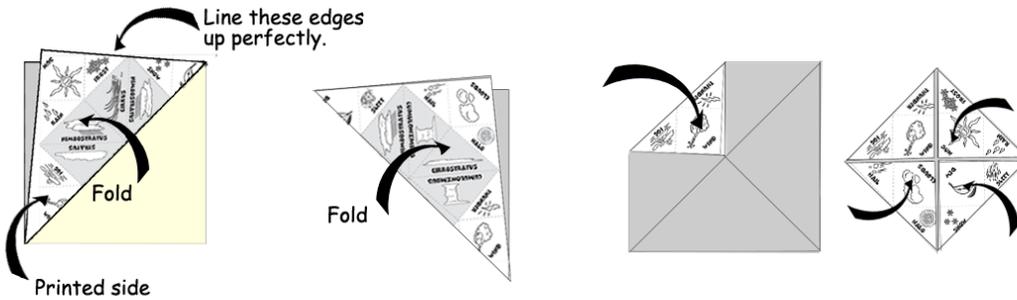# Make a Cloud Finder

Make a "Cloud Finder." The pattern is included here. Learn the names of the beautiful clouds that may appear in the sky where you live. Color your Cloud Finder, and cut it out on the solid lines. Then fold it like this:
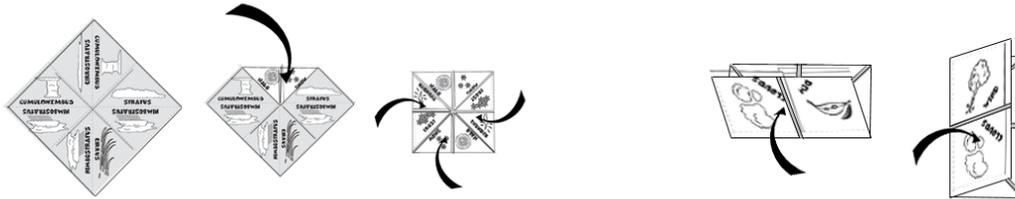
How to Fold the Cloud Finder:

Line these edges up perfectly.

Fold

Printed side

1. Fold paper diagonally.

Fold

2. Fold the other two corners together.

3. Fold each corner point into the center.

4. Flip the square over, then fold all four of its corners into the center.

5. Fold in half one way, then unfold, and fold in half the other way.

Play the Weather Word Game:

1. Stick your thumbs and first two fingers into the four pockets on the bottom of the Cloud Finder.

2. Ask another person to choose one of the top four squares. Then, open and close the Cloud Finder (open up and down, then close, then open side to side, then close, and so on). Do this once for each letter to spell the word they picked. For example, if the word is "WIND," open and close the Cloud Finder four times: W–I–N–D.
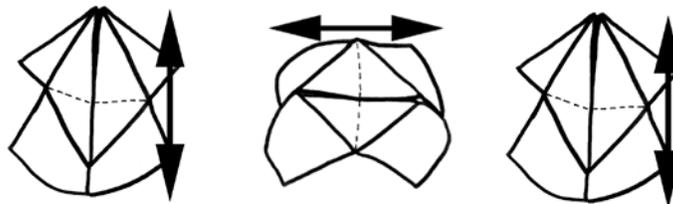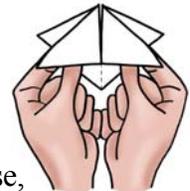
3. Then, ask the other person to look inside the Cloud Finder and pick one of the four weather words that show on the inside. Once again, open and close the Cloud Finder to spell out the word they picked. For example, if they picked "FOG," you would open and close the Cloud Finder 3 times, F-O-G..

4. Ask them again to pick one of the four kinds of weather they see inside the Cloud Finder. Then, open the triangle and see what kind of cloud makes that kind of weather.

Which Clouds Make Which Weather?

Go outside and look for the kind of cloud you picked on the Cloud Finder. Or, see if you can find any of the other cloud types we talk about below.

Some clouds are wispy thin. Other clouds look so solid you might imagine lying down on them as if you were lying on a fluffy feather bed. What are clouds anyway? And why do they look so different from one another?

Clouds are all made of water. Sometimes they are made of tiny drops, far apart, and held up by the wind. Other times they are made of big drops, close together, held up for a while by very strong upward and downward winds inside the cloud. In this kind of cloud, the drops become too heavy to stay up, so they fall to Earth as rain. Or, if it's cold enough, they fall to Earth as snow or hail or sleet.

The picture below shows some of the different kinds of clouds, ones you will see in your Cloud Finder. Their names come from four words:

Stratus, which means "layer," and describes a sheet-like cloud.

Cumulus, which means "heap," and describes a puffy cloud.

Cirrus, which means "curl of hair," and describes a wispy cloud.

Nimbus, which means "rain," and describes a cloud with lots of water in it.
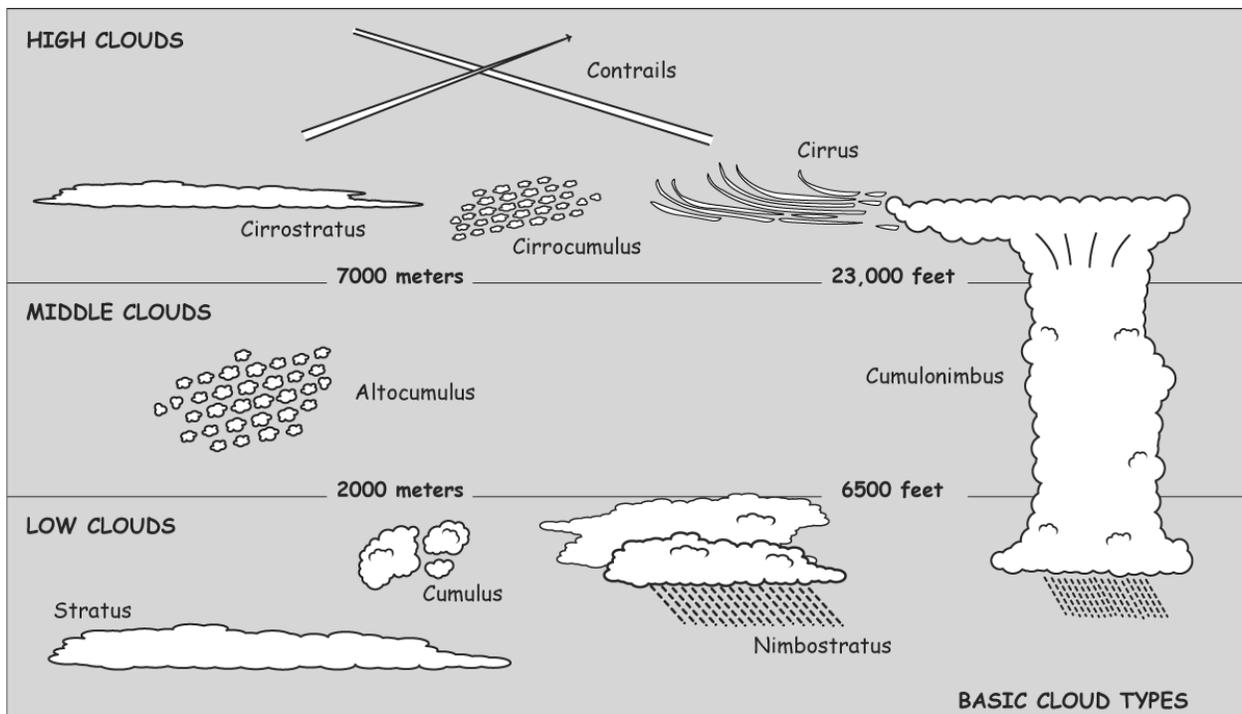
BASIC CLOUD TYPES

High Clouds ...

Cirrus clouds are ice clouds. They can look like delicate white feathers or streamers. They are always more than three miles up where the temperature is below freezing, even in summer. Wind currents twist and spread the ice crystals into wispy strands. Contails are similar to cirrus clouds (see below).

Cirrostratus clouds are thin, sheet-like clouds that cover the whole sky. They are also made of ice crystals. Sometimes they make the Sun appear to have a halo around it.

Cirrocumulus clouds are small, rounded white puffs that may appear in long rows. Sometimes they seem to have a rippled texture, like fish scales. Thus this type of cloud is sometimes called a "mackerel sky."

Contrails are "clouds" left by airplanes. The particles in the exhaust from the planes' jet engines mix with the water vapor in the air, leaving long, white trails across the sky.

Mid-level Clouds ...

Altocumulus clouds have white or gray patches or layers, and seem to be made up of round shapes. They are lower than cirrus clouds, but still quite high. They are made of liquid water, but seldom make rain.

Low-level Clouds ...

Cumulus clouds are the fluffy, white cotton ball or cauliflower-looking clouds with sharp outlines. They are "fair weather clouds" and they are fun to watch as they grow and change in shape and size. Cumulus clouds make beautiful sunsets.

Stratus clouds often look like thin, white sheets covering the whole sky. Since they are so thin, they seldom produce much rain or snow. Sometimes, in the mountains or hills, these clouds appear to be fog.

Nimbostratus clouds are dark and wet looking. They create widespread and steady rain and snow.

Clouds that Grow Tall . . .

Cumulonimbus clouds are a sure sign of bad weather to come—at least bad if you don't like rain and hail! These clouds grow on hot days when warm, wet air rises very high into the sky. Up and down winds within the cloud may push water droplets up to very cold parts of the atmosphere, where they freeze. When the ice drops come back down, they get another coating of water and are pushed back up to freeze again. Finally, they get too heavy to stay in the cloud and fall to the Earth as hail stones.

Why are Clouds Important?
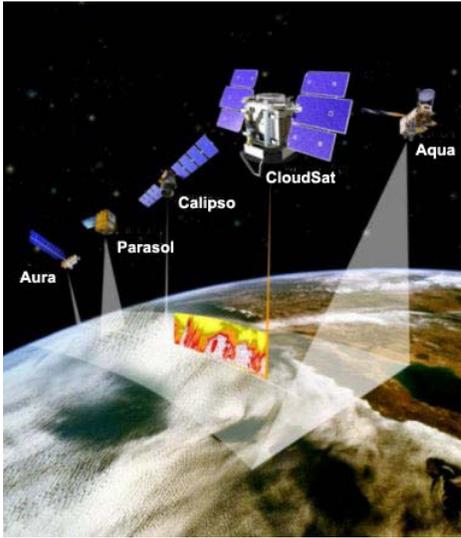
Clouds are nature's way of moving fresh, pure water from place to place on Earth. Clouds play a very important part in maintaining Earth's temperature. Scientists need to understand better how clouds affect climate.

CloudSat is a NASA space satellite mission that will study clouds. It will be launched in 2004. CloudSat will orbit Earth 438 miles up, flying in formation with four other satellites that take cloud measurements using different kinds of instruments. The GOES satellites also orbit high above them at 22,300 miles up, watching clouds over the entire western hemisphere to help weather forecasters predict storms. CloudSat will measure how much liquid water and ice are in the clouds at what heights. It will help scientists understand how clouds reflect the sun's energy back into space or trap the sun's energy in Earth's atmosphere. Data collected by all these satellites will be combined to give a better understanding than we have ever had before of how clouds work and how they affect climate all over Earth.

To Find Out More About Clouds . . .

Books:

The Weather Wizard's Cloud Book: How You Can Forecast the Weather Accurately and Easily by Reading the Clouds by Louis D. Rubin, Sr. and Jim Duncan. Algonquin Books, ISBN: 0912697105, 1989.

Clouds and Storms (National Audubon Society Pocket Guides). Knopf, ISBN: 067977999X, 1995.

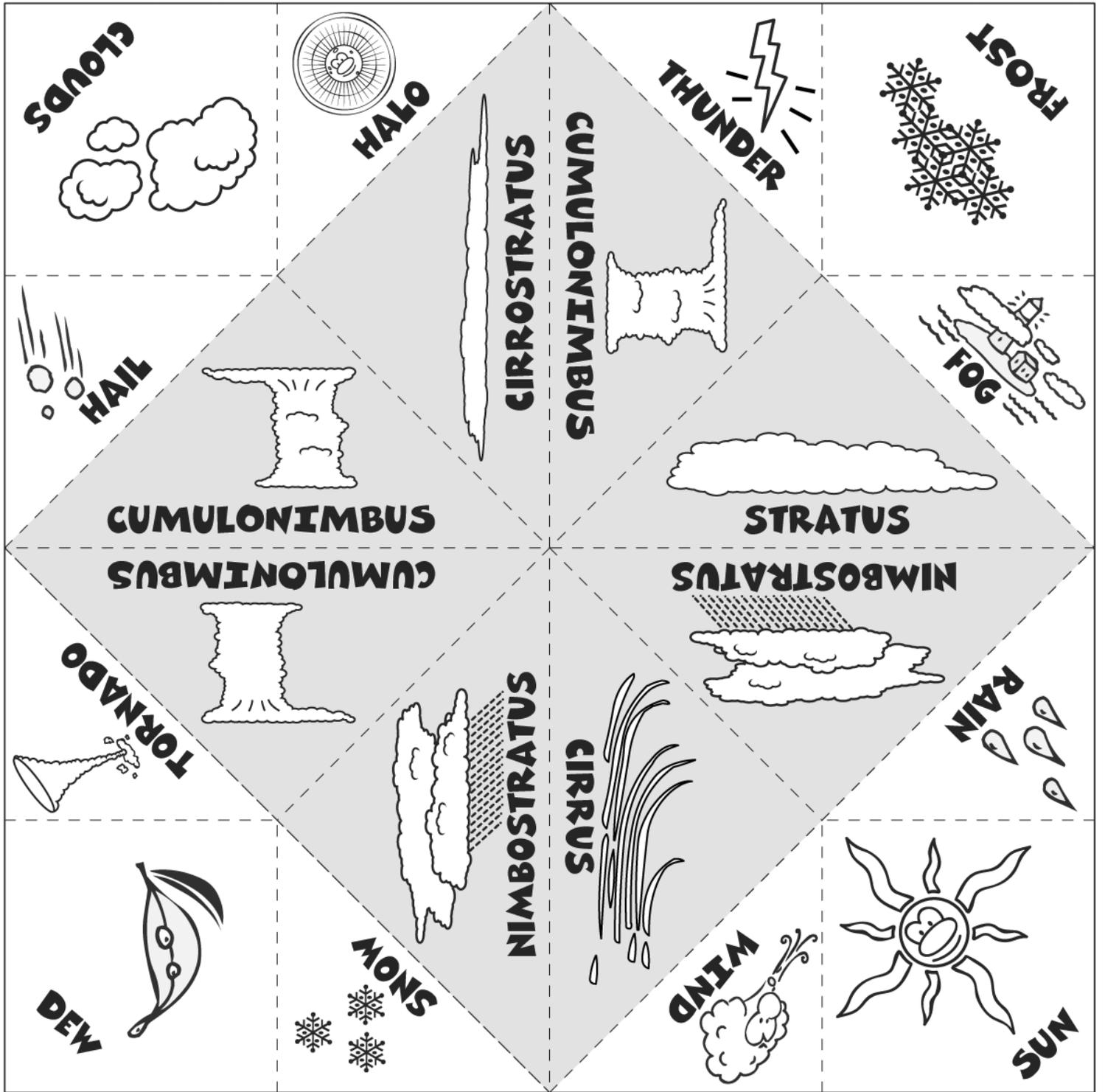*The Cloud Book.* Tomie de Paola. Holiday House, ISBN: 0823405311, 1985. Ages 4-8.

Web sites:

Unscramble the cloud picture puzzles at ***The Space Place***,
http://**spaceplace.nasa.gov/cloudsat_puz.htm**.

See pictures of different cloud types and take a cloud quiz (a Web site of GLOBE: Global Learning and Observations to Benefit the Environment):
http://**globe.ngdc.noaa.gov/cgi-bin/m2h?gl/clouds.men,,,**

For some very strange and beautiful photos of clouds, go to
http://**www.photolib.noaa.gov/search.html**, and enter "clouds" into the Search field.

WW2010™ University of Illinois' excellent Online Guide to Clouds and Precipitation:
http://**ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/cld/home.rxml**

CLOUDS

HALO

THUNDER

FROST

HAIL

CIRROSTRATUS

CUMULONIMBUS

FOG

CUMULONIMBUS

STRATUS

TORNADO

CUMULONIMBUS

NIMBOSTRATUS

RAIN

DEW

NIMBOSTRATUS

CIRRUS

SNOW

WIND

SUN

Cut here