GET OUT! Kids' Club

Cloud Watching

All Ages

Clouds are just waiting for us to pause, look up and notice them. They have much to tell us about the weather. Learning to read the clouds is a life skill worth having.

Clouds look fluffy and soft, like a cotton ball, but are really made of itty-bitty drops of water. Water vapor in the air forms droplets that attach to particles of dust, (pollen, smoke, pollution etc.). When billions of millions of these droplets join together, a cloud forms. The droplets are so small they float in the air. As long as the air inside the cloud is warmer than the air around it, the water droplets in the cloud float.

Make a Cloud — (Adult supervision for use of hot water and matches)

Supplies:

◊ Large jar with lid
◊ Very hot water (warm moist air)
◊ Several ice cubes (cold air)
◊ A match (smoke particles)

Steps:

1. Fill jar 1/3 full with hot water.
2. Turn lid upside down and place on top of the jar opening.
3. Put a few ice cubes on the lid and let it cool for a minute or so.
4. Lift the lid and carefully hold the lit match in the jar for a few seconds. Drop the match in the water and quickly replace the lid.
5. Watch a cloud form, a flashlight may help to illuminate your cloud.
6. After a few minutes lift the lid. What happens to the cloud?

Expand the learning— take a moment to hold your palm just above the ice in the lid, then hold your palm just below the ice-filled lid. Where do you feel the cool air? Does cold air rise or sink? Try the same experiment with the cup of hot water. Does warm air rise or fall? You've just discover which direction warm air moves when clouds form! Now, what makes the air warm?

Clouds have different shapes (and sometimes colors). The shapes and colors can help us predict the weather. We have an entire system in place for classifying clouds based on their shape and height in the sky. (Classification is a key scientific skill, so classifying clouds is a great science activity.)

Creating a **3D Cloud Chart** is a fun way to explore clouds and recognize their differences.

Spend a bit of time studying clouds to learn more about them. Read books, look online, and make observations outside. See the cloud diagram on pg 3 and try a **Cloud Matching** activity on pg 4 to get started.

Tip: Watch this reading of **Clouds by Anne Rockwell**, a very fine book. Your local library will have all sorts of books about clouds and weather to help your research.

3D Cloud Chart

Use the information you have gathered about clouds and the supplies listed here to recreate various clouds on your chart. You can make this chart as detailed as you wish or just focus on the 3 basic cloud types: Cirrus, Cumulus, and Stratus.

Supplies:

- Blue construction paper— 30cm X 45cm
- White crayon, chalk or craft paint
- Glue
- Cotton balls
- Grey or black craft paint or markers to colour the storm and rain clouds
- Glitter, markers, crayons for rain and lightning
- Picture books, internet images, your own photo of clouds or the chart on page 3

Steps:

1. Fold or draw lines to divide the construction paper into three panels like a brochure (see photo).
2. Label each panel for a cloud type—*Cirrus, Cumulus* and *Stratus*. For more detailed chart, label the left margin with heights—*High (Cirrus), Middle (Alto),* and *Low (Stratus).*
3. Make a 3D image of each cloud with cotton balls, glue, markers, etc.
   Cirrus clouds - thin, wispy, white — they can be tricky to make with glue and cotton balls, try painting or drawing these clouds
   Cumulus clouds - puffy, flat –bottomed, most are white, Cumulonimbus is dark on the bottom (this is a storm cloud—use the glitter for lightening!)
   Stratus clouds - thin, flat, gray clouds with a layered look rather than puffy
4. Label each cloud, you could also note what type of weather is associated with each cloud. (Cirrus; a change in the weather is coming, Cumulus—fair weather, Stratus; grey days, light rain and so on.)

⇒ While working on your cloud project, create sentences with a beat to help you remember the different clouds. For example: To the tune of "Twinkle, twinkle little star" - "Thick cloud, Rain Cloud, Stratus you are." - "Puffy, fluffy are the cumulus." Make rhymes about the clouds and the weather they forecast. For example; 'When clouds turn black, to home, run back!"

⇒ At the bottom of each panel write a poem about a type of cloud in that panel. Try to include one or two facts about the cloud in each poem.

⇒ "Those clouds looks like a . . ." Try creating a cloud creature using at least three different types of clouds. Use the same supplies as you did for your cloud chart. Share your cloud creature with someone else and tell them about the clouds you used for the different body parts.

Weather Tracker Cloud Calendar

Keep a cloud calendar and use it to practice predicting the weather. Use the blank calendar template on pg. 5 or make your own. Review the kind of weather that is associated with each type of cloud (see pg. 3). Go outside and make the following observations/predictions and note them in the calendar space for that day:

A. Draw or note the types of clouds that are in the sky.
B. Estimate the percentage of sky that is covered by the clouds. Meteorologists look to see how much of the sky is covered by clouds, for example, 100% would be that the sky is completely covered by clouds, and 0% would be a clear sky.
C. Note the current weather conditions.
D. Make a prediction about the coming weather.

Each day check the forecast you made the previous day and compare it with the current weather conditions. Repeat this every day for several days or a few weeks. Does your accuracy improve with practice?   Do you notice any trends or patterns in the weather? Expand your observations. Do you notice changes in nature before a change in the weather? For example; swallows swooping low, close to the ground to catch insects. The insects stay close to the ground when rain is coming. Pine cones in a basket on the balcony or porch will open on hot dry days and close up tight on damp days. The weather certainly gives us much to talk about!

Looking at clouds helps us make sense of the weather. Meteorologists, people who study the weather, put together words to describe clouds. Layered clouds are called **stratus**. Puffy one are **Cumulus.** Wispy clouds are called **Cirrus,** and **Nimbus** clouds are rain clouds. Here are what the different clouds look like.

High clouds

1. **Cirrus clouds** are the most common clouds that you see way high up in the sky. Winds blow them into long wisps called *mares' tails.* They are a sign that good weather will follow.

2. **Cirrocumulus clouds** are small, rounded puffs of clouds. They seem to ripple across the sky in rows, like fish scales. That is why they are called a *mackerel sky*.

3. **Cirrostratus clouds** are thin sheets of high clouds that spread across the whole sky. They are so thin that they often just look like a hazy sky and there can be enough sun to form shadows on the ground. Cirrostratus can show a ring or halo around the sun or moon.

Middle clouds

1. **Altostratus clouds** are huge sheets of grayish clouds that fill the sky. Only a dim outline of the sun shows through (called a *watery sun*). No shadows show on the ground. These clouds are often pushed in front of a snow or rainstorm on the way.

2. **Altocumulus clouds** are gray and puffy. They can spread across the sky in little rising masses called *little castles*. They are the clouds that, on a hot, sticky summer day, grow into thunderheads.
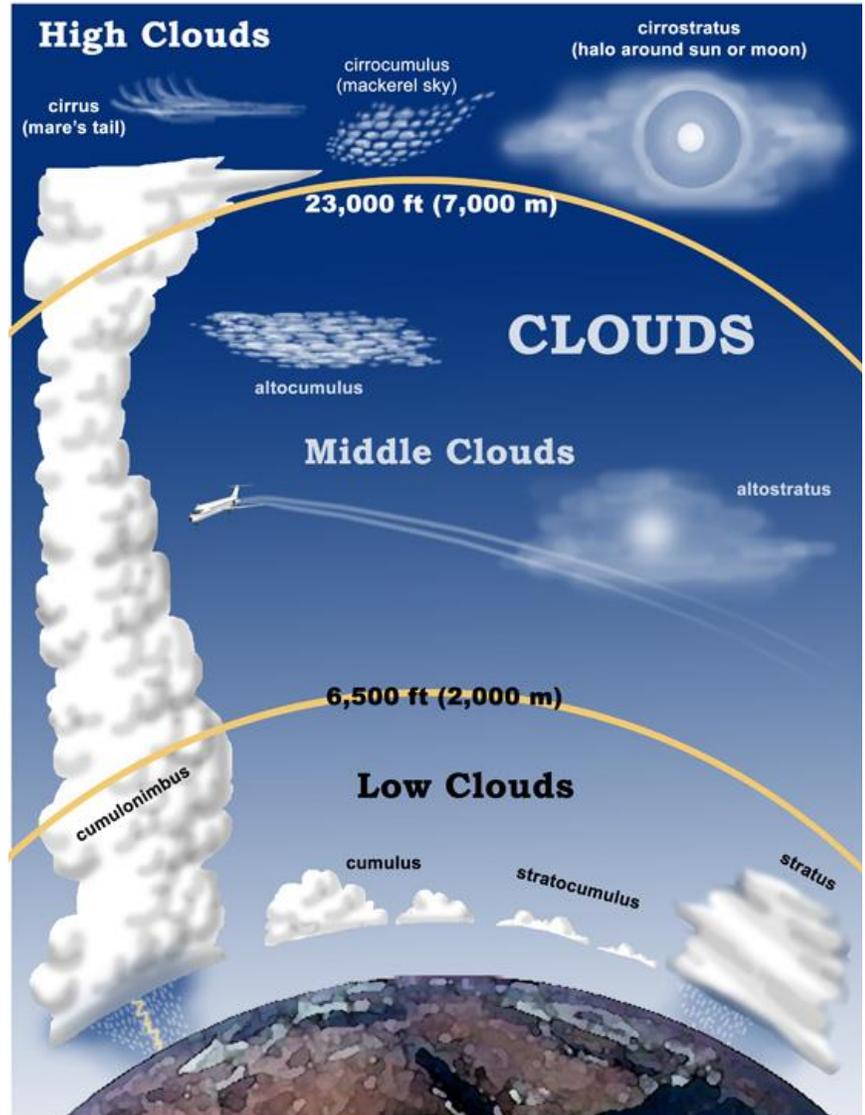
Low clouds

1. **Stratus clouds** form a low, solid grey layer across the sky. They look like a fog bank that hasn't reached the ground. They sometimes spit mist and light rain.

2. **Stratocumulus clouds**, low bunches of gray clouds, often form at sunset after a storm. They are not a solid band. Blue sky can be seen around them. Sunlight will stream down between them, looking like a spotlight.

3. **Nimbostratus clouds** are dark, wet cloud layers. They bring light to moderate rain. You cannot see the sun through nimbostratus clouds, no shadows form on the ground. They make for a very gray day. They can form another low, ragged layer of clouds that speed by in the wind, called scud clouds.

Clouds that Grow and Rise

1. **Cumulus clouds** are the most well-known clouds. Thees are the cottony puffs that form shapes in a blue sky. They have flat bottoms that are darker than the rounded tops. They are fair weather clouds. Cumulus clouds can build and rise into giant clouds called towering cumulus.

2. **Cumulonimbus clouds** are the thunderheads. These are low clouds with dark bottoms that rise into giant rounded tops. These could have rain, snow, hail, lightning and sometimes spawn tornadoes.

Airplanes can form clouds. **Contrails** are trails of clouds that follow high-flying planes across the sky.

High Clouds

cirrus (mare's tail)

cirrocumulus (mackerel sky)

cirrostratus (halo around sun or moon)

23,000 ft (7,000 m)

CLOUDS

altocumulus

Middle Clouds

altostratus

6,500 ft (2,000 m)

Low Clouds

cumulonimbus

cumulus

stratocumulus

stratus

Know Your Clouds

*Match the clouds to their descriptions by writing their number in their box.*
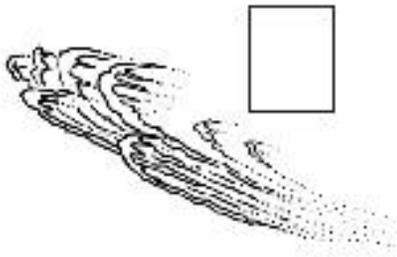
1. **Altostratus** are huge sheets of grayish clouds that fill the sky. Only a dim outline of the sun (watery sun) shows through and casts no shadows on the ground. They are often pushed in front of rain.
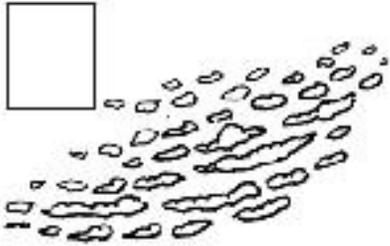
2. **Cumulonimbus** are thunderheads with low-lying dark bottoms that rise into giant rounded tops and an anvil-shape. They could have rain, snow, hail, and lightning.

3. **Cirrostratus** are thin sheets of high clouds that spread across the whole sky creating a *hazy sky*. They form a ring around the sun but still cast shadows on the ground.
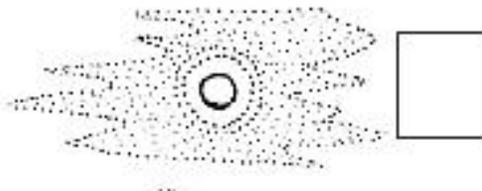
4. **Cumulus** are the cottony puffs that form shapes as they rise in a blue sky. They have darker, flat bottoms and rounded tops and are fair weather clouds.

5. **Cirrocumulus** clouds are small, rounded puffs of clouds that seem to ripple across the sky in rows, like fish scales. That is why they are called a *mackerel sky*.
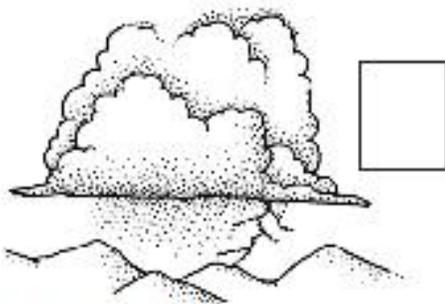
6. **Cirrus** are seen high up in the sky. where the wind blows them into long wisps called, *mares' tails*. They are a sign that good weather will follow.

Answers: top to bottom—6, 5, 4, 3, 1, 2.

My Weather Tracker Cloud Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday