Investigating Clouds

NASA scientists study clouds to better understand and predict how Earth's climate is changing. Community members can collect data about clouds and share it with scientists to help do this important research. In this activity, you will record cloud observations and learn how you can share data with researchers who collaborate with NASA!

Supplies:

- *Investigate Your Sky Today* activity sheet, or a blank piece of paper
- Book, clipboard, notebook, or other hard surface to write on
- Pencil

Instructions:

1. Investigate the sky! If you are able to, go outside or observe the sky from a window.
2. Notice and observe the shapes of the clouds you see. Are the clouds puffy with clear edges, thin and whipsy, or layered and sheet-like?
3. Then draw a detailed sketch of what you see. The sky is big. To make an accurate observation, it is helpful to orient yourself north, divide the sky into quadrants, and sketch what you see in each one. If there are no clouds today, that's
4. okay! That is real data too, so make a note.

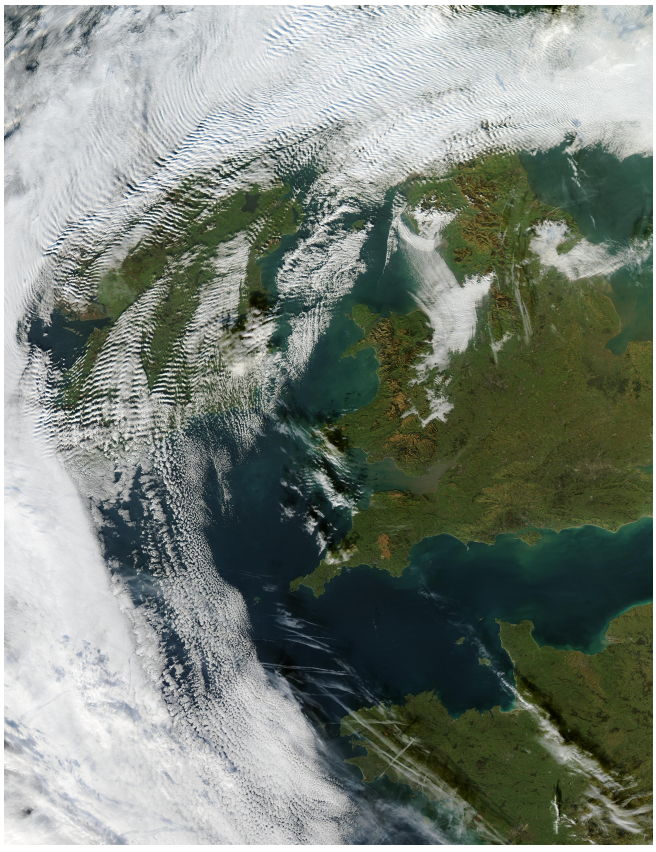
What is a cloud?

Clouds form when individual water molecules combine into droplets. Each water droplet usually forms around a tiny particle of dust or soot in the air. Huge groups of these droplets together are visible in the atmosphere as clouds.

Why study clouds?

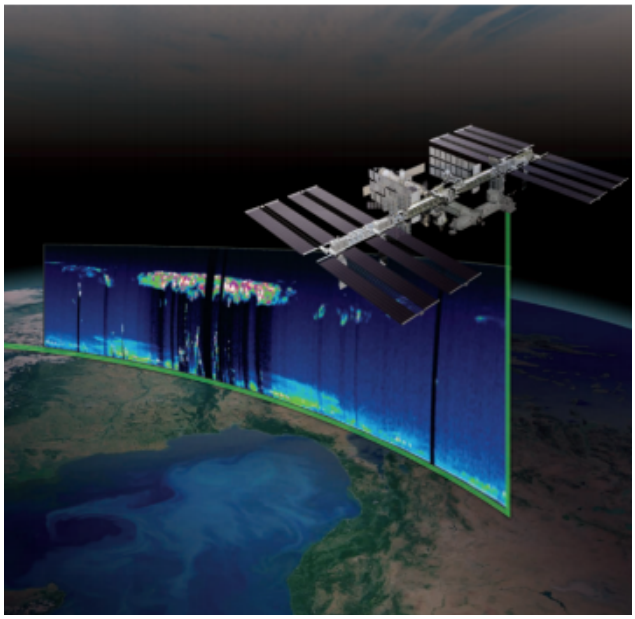
Clouds can keep our planet cooler by blocking and reflecting energy from the Sun, but they can also act like a blanket, absorbing and sending heat back to Earth. Studying cloud composition and behavior helps us predict day-to-day weather. Cloud research can also help us learn more about the Earth's climate, which is long-term trends and patterns in the atmosphere.

5. Now, estimate the cloud coverage. How full is the sky today? Make an estimation how much the sky is covered with clouds from 0-100%.
6. When you are finished sketching, go inside. Write down the date and time of day that you make your observations. Write down observations about the shape, size, color, and any features you noticed about the clouds next to your drawings. Try to use some of the scientific vocabulary below to classify the clouds you observed!
7. If you enjoyed observing the clouds, join a community of participants working with NASA to collect important scientific data about clouds. Learn more and download an app to contribute your cloud observations: observer.glove.gov.



How do scientists study clouds?

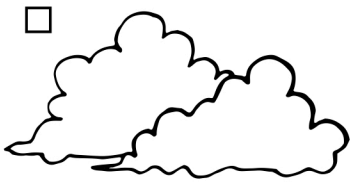
Scientists study clouds from below using the same classification techniques you use in this activity. Scientists also study clouds from above using satellites, like the International Space Station. For example, the Cloud-Aerosol Transport System (CATS) on the International Space Station uses lasers to measure clouds and other floating particles from space.



EXPLORE SCIENCE

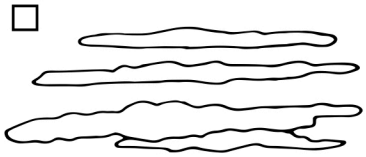
INVESTIGATE THE SKY TODAY!

1. What shape clouds do you see in the sky right now?



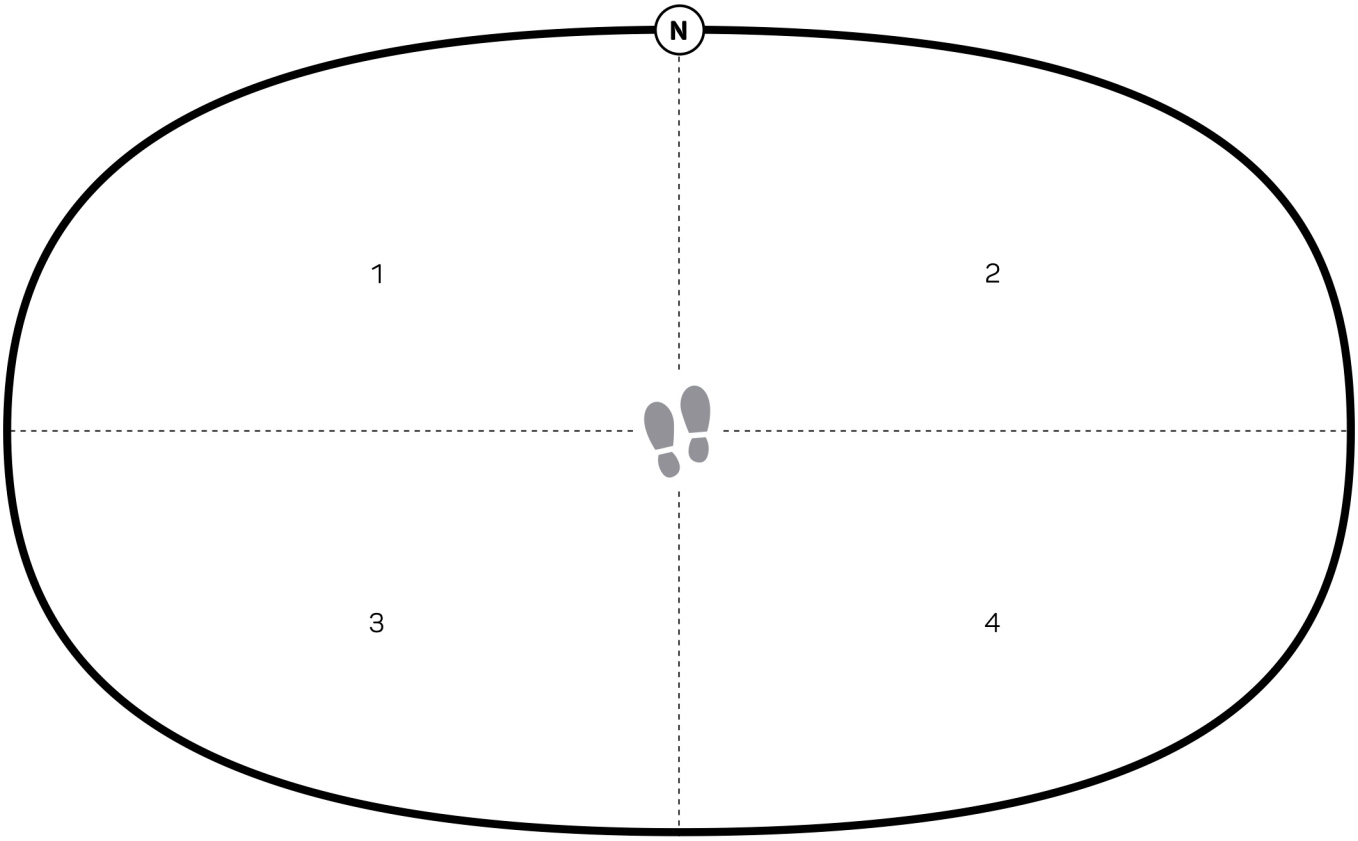
Cumulus
Heaped and puffy, clear edges

Cirrus
Thin, whispy

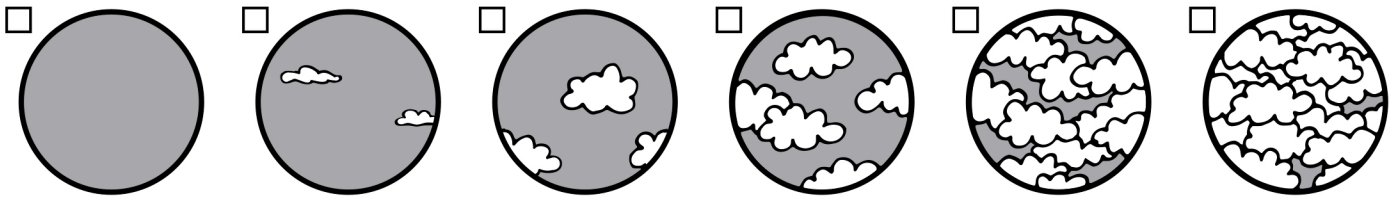


Stratus
Layered, sheet-like

2. Now try drawing all the clouds you can see. The sky is big. To make an accurate observation, it is helpful to orient yourself north, divide the sky into quadrants, and sketch what you see in each one. No clouds today? That's real data, too; so make a note.



3. How full is the sky today? Can you estimate cloud cover?



No clouds
0% coverage

Few
1-10% coverage

Isolated
10-25% coverage

Scattered
25-50% coverage

Broken
50-90% coverage

Overcast
90%-100% coverage

GLOBE Observer

Join a community of participants working with NASA to collect important scientific data about clouds. Learn more and download an app to contribute your cloud observations: **observer.globe.gov**

Scientists study clouds from above using satellites, and from below on Earth. From above, NASA's satellite instruments observe and collect information about clouds and various properties of Earth's atmosphere. From below, citizen scientists make observations and share their data with researchers collaborating with NASA.