Fieldwork investigations - Measuring cloud cover

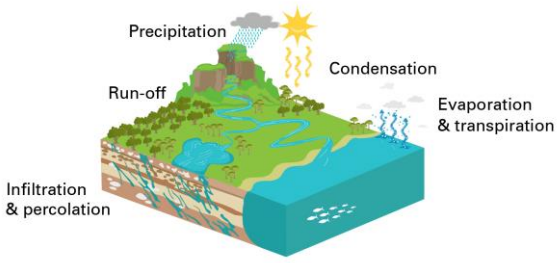
Fieldwork involves observing, measuring, collecting and recording information in the real world. Have you ever wondered how clouds form and why they are important in the water cycle? Learn how to measure cloud cover using either a mirror or clear slide.

What are clouds?

Clouds are made up of squillions of tiny water droplets.

When the sun heats the water on Earth, it evaporates turning from liquid to gas also known as water vapour.

As the water vapour rises into the atmosphere it cools turning back into tiny water droplets that form the clouds this is called condensation. This is part of the water cycle.



Natural water cycle

The natural water cycle moves water from the Earth to the atmosphere - and back again.

Why are clouds important?

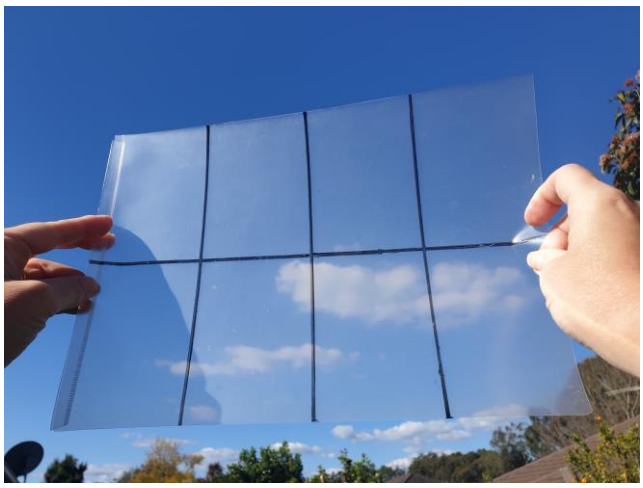
It's important to work out cloud cover for different reasons:

- Aviation require it to forecast visibility by looking at the amount of cloud, cloud types and weather elements.
- It helps in understanding and predicting weather. Not only does cloud cover impact sky conditions and inform precipitation predictions, it also helps regulate the temperature that occurs in a region.
- Clouds play an important role in both warming and cooling our planet. Clouds give us a cooler climate on Earth by reflecting some of the sun's energy.

What you'll need?

- Mirror or acetate/clear slide
- Marker (non-permanent)
- Camera (optional)


Clouds starting to cover blue sky


Measuring cloud cover

How to measure cloud cover?

Before beginning, find a clear open space to lie or sit down and have your equipment with you.

1. With your mirror or acetate divide it up into 8 squares with your marker. Place it in the correct position so you can see the clouds and see how many squares are covered by them.
2. Use your marker to shade in the squares.
3. Do this facing all directions N, S, E, W.

What are the different types of cloud cover?

They are clear, few/scattered clouds, partly cloudy, mostly cloudy, and overcast.

We use fractions or oktas to describe cloud coverage. Oktas means eighths of the sky dome covered by the cloud.

How would you describe the sky?

Describe the cloud cover such as clear, scattered, broken, or overcast.

You may also describe the clouds in terms of the type of clouds—i.e., cumulous, cirrus, stratus. To help identify clouds have a look at our Fieldwork investigations – Identifying clouds factsheet.

Symbol	Oktas	Fraction	Description
	0	0	Sky clear
	1	1/8	Few
	2	2/8	Few
	3	3/8	Scattered
	4	4/8	Scattered/Partly cloudy
	5	5/8	Broken/Partly cloudy
	6	6/8	Broken/ Mostly cloudy
	7	7/8	Broken/ Mostly cloudy
	8	8/8	Overcast

Results

- What are some of the limitations of measuring this way?
- Do all clouds bring with them rain? Why/Why not?
- What is the difference in how you described the sky before and how you describe it now?

Learn more on our Natural water cycle page.

Extension

1. Have you ever seen water disappear in front of your eyes? Try our Water evaporation experiment and explore how evaporation works and discover how water changes from liquid to gas.
2. Water continuously recycles from the Earth to the atmosphere and back again. Have fun creating a mini Earth with our Terrarium experiment and discover the water cycle in action.
3. Why not make it a long-term study? Record your cloud cover over a week, a fortnight or a month. Look at your results and identify any patterns over time.
   Ask yourself:
   a. What has influenced this pattern?
   b. What benefits do clouds bring to people, animals and the environment?

Want to know more?

There's lots to learn about water. Go to our education pages to discover the value of water for Primary school, High school and beyond.