

Estimating Cloud Cover Activity Guide



Make simple models to practice estimating the percentage of cloud cover – one of the sky observations made with GLOBE Observer Clouds.

Introduction

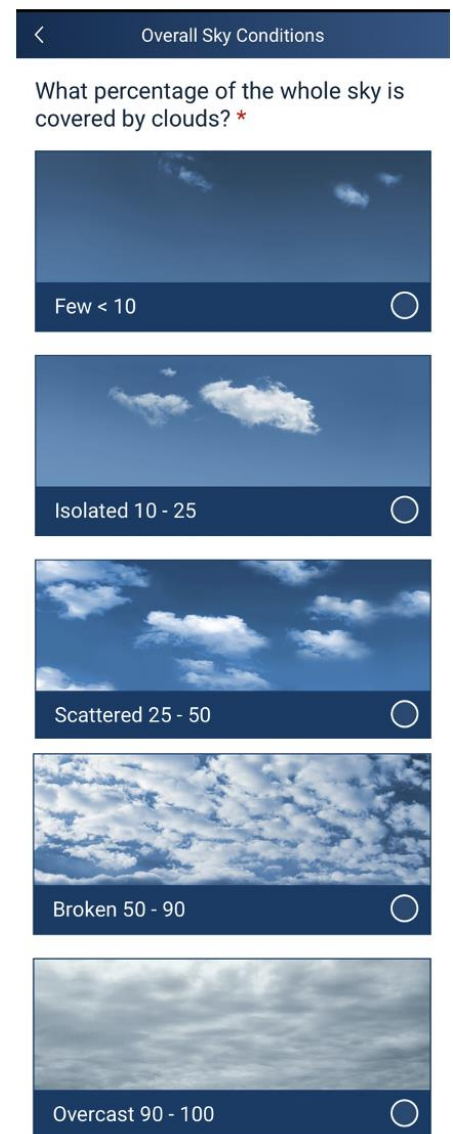
Estimating the percentage of the sky covered by clouds is subjective, but scientifically important data. Using the free GLOBE Observer mobile app, volunteers can report observations of sky conditions to NASA, including percentage of the sky covered by clouds. This activity could be the first step in learning how to make sky observations using GLOBE Observer Clouds.

Even experienced sky observers have difficulty estimating cloud cover. It can be tricky because not all clouds are the same shape nor are they evenly distributed in the sky. This seems to also be a result of our tendency to underestimate the open space between objects in comparison to the space occupied by the objects themselves, in this case the clouds.

In this activity, participants will make a cloud scene with paper. They use white paper to resemble clouds and glue them onto a piece of blue paper resembling the sky. This activity helps to visualize what different percentages of the sky could look like, and that the same percentage could look very different depending on several factors, including the kind and size of clouds and where they are in the sky.

Time

20 – 30 minutes, this activity can go longer depending on group size and discussion.



Materials

- White and blue paper (one sheet of each per person or group)
- Glue
- Pen or marker
- Scissors (optional, paper can also be torn rather than cut)

Ages

This activity can be done with school-aged children, families, teens, and adults. Prerequisite: some understanding of fractions and percentages.

Before the Program

- Watch the short video of Jessica Taylor, NASA LaRC, explaining how and why to do this activity that is posted at: <https://youtu.be/eJ7gSpsp5Gs>
- Assemble materials
- To save time, pre-divide white paper into percentage (e.g., 10 equal rectangles)
- Decide logistics (e.g., Will you display cloud scenes on a wall or table, or have participants line up with their cloud scenes? Will you also do sky observing outside and demonstrate how to use GLOBE Observer Clouds? If you have access to outdoors, consider having participants create a model of the sky they see.)

During the Program

Give a quick overview/demo of steps 1-4.

1. **Select a Coverage Amount to Display.** Participants will identify a percentage of cloud cover they want displayed. Participants may need help figuring out how to estimate percentages or 10ths of their paper. You can help participants fold their paper – example in half for 50%, again to make sections of 25%, or for fun challenge participants to make a piece of paper into 10ths.
2. **Make Clouds.** Participants will cut out the desired amount of white paper, and then shape pieces into “clouds.” The clouds can be any shape they want however they need to use all of the paper (so that the percentage is correct). They can tear up the paper or cut it.
3. **Put the Clouds in their Sky.** The new paper clouds then need to be glued onto the blue paper. Try not to let participants overlap the clouds. Otherwise, the clouds can be placed anywhere on the paper.
4. **Test Cloud Cover Estimation.** Have participants write on the back of their sky the amount of cloud coverage displayed, so they don’t forget. Participants can then display their art work and quiz each other on the amount of clouds in their scene. At the end the scenes can be organized and displayed, or participants line up with their scenes, from few to overcast skies.
5. **Regroup and lead a brief discussion** – What did they discover when comparing models? Were they surprised by anything? Would this change how they might do sky observations of cloud cover?

6. **Explain that they can make sky observations using GLOBE Observer.** Provide information for adults to create a GLOBE Observer account for their family to make cloud observations.

Examples of completed cloud scenes:



This activity is adapted from the GLOBE Learning Activity, *Estimating Cloud Cover: A Simulation* (<https://www.globe.gov/documents/348614/d58984c8-381c-4783-ad30-221fc381d619>)