



# Drawing Clouds Inside the Lines

## UCAR Science Activity

### DIRECTIONS ►

- 1. Introduction:** Ask students how they think that clouds will change over a day or week. Write student questions and hypotheses on the board. Remind students that there can be many different factors that affect how clouds change over time.
- Instruct students to look out the window and find a piece of the sky that they'd like to study over several days, then trace a rectangle on the window with the dry-erase marker using the sheet of paper as a template. Have them write their name just outside the box so that they can come back to it for repeated observations. (Dry-erase marker will come off the window with a whiteboard eraser.)
- Have students draw on their paper what the clouds look like in their rectangle and label their drawings with the date, time, and their names. Remind students to take note of the amount of area covered by clouds and the cloud shapes. If students have learned about different cloud types, ask them to identify the clouds in their rectangles.
- Students return to their rectangles each day to repeat observations. Make sure they label each drawing with the date and time.
- Guide students through an analysis using their drawings as data.
  - Comparing different students' observations from different rectangles can be used to examine a question about whether the sky is similar or different in different areas on the same day.
  - Comparing students' observations over several days can be used to examine a question about clouds change over time.
- 6. Wrap up:** revisit the questions and hypotheses on the board. Ask students which were addressed through this activity and what other questions they have generated during the investigation.

### Variations and extensions:

- If clouds are moving quickly due to wind, have students make observations every few minutes instead of once a day.
- The GLOBE Program's Estimating Cloud Cover activity is a great lead into this activity (Note: requires understanding of percentages).
- To examine how other weather characteristics relate to clouds, have students compare daily cloud observations to data about winds, pressure, or temperature from a weather station near you.

### Assessment:

Have students share their results graphically through a bar chart or graphic organizer. A bar chart can be used for displaying the amount of clouds in the sky over time. A graphic organizer, like a timeline of the drawings demonstrating how the sky changes over time, is one way that the data could be represented.

### Background information

Clouds change over time as the wind blows due to changes in air pressure and temperature, and as a front passes through. If you are planning to do this activity, check the 10-day forecast. If a weather change is in the forecast, cloud changes are most likely.

### FOR TEACHERS

#### Student Learning Objective

- Students will learn to collect and represent data in a graphical display in order to investigate a question about patterns of clouds over time.

#### Time

- Introduction: 20 minutes
- Observations: Several, about 15 minutes each
- Assessment: 30 minutes

#### Materials

For each student:

- A dry-erase marker
- Sheets of white paper
- Window with a sky view
- Pencil

#### Grade Level

Elementary School

#### Science Standards

NGSS ESS2.D

NGSS Science and Engineering Practices: collect data, analyze data, represent data in a graphical display

Common Core ELA: W.3.8 Common Core Math:3. MD.A.2 3.MD.B.3

National Geography Standards: 4 Physical Characteristics of Places