



Learning Activities Supporting, Taking, and Understanding Measurements

[Observing, Describing, and Identifying Clouds](#)

Students begin to learn cloud types and their names.

[Estimating Cloud Cover: A Simulation](#)

Students practice estimating how much of the sky is covered by clouds.

[Cloud Watch](#)

Students monitor clouds and weather to begin to understand the connections between the two.

[Observing Visibility and Sky Color](#)

Students observe sky color and learn to associate color with the presence or absence of aerosols.

[Making a Sundial](#)

Students study the movement of the sun during the day by making quantitative observations of the direction and length of the shadow cast by a stick (known as a solar gnomon).

[Calculating Relative Air Mass](#)

Students are introduced to the concepts of solar elevation angle and relative air mass and learn how to determine relative air mass from measurements of solar elevation angle.

[Studying the Instrument Shelter](#)

Students explore how the placement and design of instrument shelters can influence temperature measurements taken from thermometers located inside them.

[Building a Thermometer](#)

Students construct simple thermometers to understand how and why liquid-in-glass thermometers work.

[Constructing a Model of Parts Per Billion of Surface Ozone](#)

Students construct and compare cubes of different volumes to gain insight into small concentrations such as a part per million and a part per billion.

Learning Activities Supporting the Use of Visualizations to Look at Data

[Making a Contour Map](#)

Students construct one or more contour maps using GLOBE data.

[Draw Your Own Visualization](#)

Students draw a visualization and learn about all the design choices involved and how these choices affect what is communicated by the visualization.

[Learning to Use Visualizations: An Example With Elevation and Temperature](#)

Students use visualizations to explore the relation between elevation and temperature and begin learning how to make important patterns evident in visualizations.

Learning Activities Supporting the Use of GLOBE Data

[GLOBE Data Exploration: Rainfall in the GLOBE Africa Region](#)

Through explorations of GLOBE rain depth data from Africa, students learn about seasonal patterns in locations affected by monsoons.

[GLOBEdata: Rainfall in the GLOBE Africa Region](#)

[GLOBEdata: Rainfall in the GLOBE Africa Region Solution](#)

[GLOBE Data Exploration: An Alaskan Spring Mystery](#)

Students learn about the timing of spring budburst, develop multiple working hypotheses about why timing differs year to year, and test hypotheses using environmental data collected by GLOBE students in Alaska to come to a conclusion about the factors that most impact timing of budburst on paper birch trees.

[GLOBEdata: An Alaskan Spring Mystery](#)

[GLOBEdata: An Alaskan Spring Mystery Solution](#)

[GLOBE Data Exploration: Data at Altitude](#)

Through explorations of GLOBE temperature data from two nearby locations in Germany, students learn how temperature varies with altitude.

[GLOBE Data Exploration: Climate and Latitude](#)

Students match GLOBE air temperature data with location given what they know about the relationship between latitude and seasonal temperature variations.

[GLOBE Data Exploration: Making a Climograph](#)

Students learn how to construct and interpret climographs and understand how climate differs from weather.

[GLOBE Data Exploration: Comparing Croatia Climates](#)

Through explorations of GLOBE atmosphere data from Croatia, students will build understanding of two climate zones.

[GLOBEdata: Comparing Croatia Climates](#)

[GLOBEdata: Comparing Croatia Climates Solution](#)

[GLOBE Data Exploration: Monsoons and Health](#)

Students learn about the relationship between three infectious diseases and rainfall in the country of Benin.

[GLOBE Data Exploration: Iowa's Highs and Lows](#)

Students interpret a frequency distribution of GLOBE temperature data to decide whether statements about the weather are accurate, citing the parts of the graph they used as the basis of their decision.

[GLOBE Data Exploration: Weather Tourists](#)

Students build geography skills while learning how to find data using the GLOBE Data Visualization tool, sharing what they have learned in a tourism poster for a GLOBE school location.