

## **Overview**

Students learn about weather phenomena and the methods used for weather study. They learn to measure temperatures, wind speed and direction, the amounts of rain and snow, and the amount of cloud cover. In studying causes and patterns of air movements, students learn about the effects of uneven heating and cooling and discover the same patterns of air movement in indoor environments as are found outdoors. They also learn about human actions that can affect weather and climate and study the design and testing of clothing used as protection against the weather.

## **General Learner Expectations**

*Students will:*

**5–8 Observe, describe and interpret weather phenomena; and relate weather to the heating and cooling of Earth’s surface.**

**5–9 Investigate relationships between weather phenomena and human activity.**

## **Specific Learner Expectations**

*Students will:*

1. Predict where, within a given indoor or outdoor environment, one is likely to find the warmest and coolest temperatures.
2. Describe patterns of air movement, in indoor and outdoor environments, that result when one area is warm and another area is cool.
3. Describe and demonstrate methods for measuring wind speed and for finding wind direction.
4. Describe evidence that air contains moisture and that dew and other forms of precipitation come from moisture in the air.
5. Describe and measure different forms of precipitation, in particular, rain, hail, sleet, snow.
6. Measure at least four different kinds of weather phenomena. Either student-constructed or standard instruments may be used.
7. Record weather over a period of time.
8. Identify some common types of clouds, and relate them to weather patterns.
9. Describe the effects of the Sun’s energy on daily and seasonal changes in temperature—24-hour and yearly cycles of change.
10. Recognize that weather systems are generated because different surfaces on the face of Earth retain and release heat at different rates.
11. Understand that climate refers to long term weather trends in a particular region and that climate varies throughout the world.
12. Recognize that human actions can affect climate, and identify human actions that have been linked to the greenhouse effect.
13. Appreciate how important it is to be able to forecast weather and to have suitable clothing or shelter to endure various types of weather.
14. Test fabrics and clothing designs to choose those with characteristics that most effectively meet the challenges of particular weather conditions; e.g., water resistance, wind resistance, protection from cold.