Days 3 & 4

Student Investigation: Evaporation

BACKGROUND INFORMATION

Water can change from solid to liquid to gas—all states of matter that occur in the water cycle. When it evaporates, the liquid water in a lake, a stream, or the ocean changes to water vapor and rises into the air. Depending on temperature and other weather conditions, the water vapor will eventually condense into clouds and fall again to Earth as a liquid (rain), a solid (snow, sleet, or hail), or it may condense on surfaces as dew.

Several different factors can affect the rate of evaporation, including heat, wind, relative humidity, and surface area. The rate of evaporation increases as the heat from the Sun increases, the wind strengthens, the relative humidity decreases, and the surface area expands.

THE BIG IDEA

Water moves continuously through evaporation, condensation, and precipitation as heat is added or taken away.

OVERVIEW OF ACTIVITY (2 class periods)

Students conduct an experiment to explore changes in the rate of evaporation using a measured amount of water and paper towels. They test variables that may affect the rate of evaporation and relate these variables to weather conditions.

SCIENCE STANDARD

3.b. Students know when liquid water evaporates, it turns into water vapor in the air and can reappear as a liquid when cooled or as a solid if cooled below the freezing point of water.

PERFORMANCE OBJECTIVES

Students will be able to:

1. identify independent, dependent, and controlled variables in an investigation.
2. predict an outcome of an evaporation experiment.
3. explain that the rate of evaporation is affected by a number of different variables, including the intensity of heat and strength of the wind.