

Name _____

The Magical Transformation: Why Does Water Evaporate?

Open-Ended Response Answer Key

1. Relative humidity measures the amount of moisture in the air compared to the maximum moisture the air can hold at a specific temperature. High relative humidity slows down evaporation, while low relative humidity accelerates it. Weather conditions and geographic locations can lead to variations in relative humidity, affecting the rate of evaporation accordingly.
2. Evaporation is a critical component of the water cycle, helping to recycle freshwater resources and maintain environmental balance. It replenishes clouds with water vapor, leading to precipitation, which provides essential freshwater for ecosystems, agriculture, and human use. It also plays a role in cooling the Earth's surface and regulating temperatures.
3. Other applications of evaporation include cooling systems in air conditioners, the distillation of liquids, and the preservation of food through dehydration. These processes are essential for comfort, industry, and food preservation, respectively.
4. Water scarcity poses significant challenges to ecosystems and human communities. Innovations such as solar desalination, which uses evaporation and condensation to produce freshwater from seawater, can provide solutions. Efficient water management, recycling, and sustainable practices are crucial in addressing water scarcity and conserving this precious resource.

