

Name _____

The Three Faces of Water: Unique Properties of Ice, Liquid Water, and Water Vapor

Open-Ended Response Answer Key

1. In a world where ice was denser than liquid water, bodies of water would freeze from the bottom up, making it challenging for aquatic life to survive during cold periods. This would also impact climate patterns, as ice-covered bodies of water would have a different effect on local and regional climates.
2. (Possible answer) Understanding water's unique properties is essential in the food industry, where it is used for cooking, freezing, and preserving food. Water's high heat capacity and its ability to exist in different states are crucial for food preparation and storage.
3. Scientists study water's properties and states to understand how changes in temperature and climate affect precipitation patterns, the availability of freshwater, and the behavior of water in the atmosphere. This knowledge helps predict and mitigate the impacts of climate change.
4. To demonstrate water's high surface tension, you can fill a small container with water and gently place a paperclip or small coin on the water's surface. The paperclip will float on the surface due to surface tension. To demonstrate the hexagonal structure of ice, you can show pictures of snowflakes or discuss how ice floats on water because it's less dense.

