Name _____

Melting, Freezing, Boiling, and Condensation: A Dance of Phase Changes

Open-Ended Response Answer Key

1. Answers may vary, but examples could include cooking pasta (boiling), freezing ice cream (freezing), taking a hot shower (condensation), and heating a piece of chocolate (melting).
2. In a solid, particles vibrate in place; in a liquid, they move past each other; in a gas, they move independently and rapidly. During melting, particles gain energy and move more freely, while during freezing, they lose energy and become more orderly.
3. Phase changes are important in meteorology for understanding weather patterns, in cooking for preparing food, and in industrial processes for manufacturing various products.
4. Changes in pressure can alter the boiling and freezing points of substances. For example, water boils at a lower temperature at higher altitudes due to lower atmospheric pressure, and it can freeze at a lower temperature when pressure is reduced, as in ice skating.