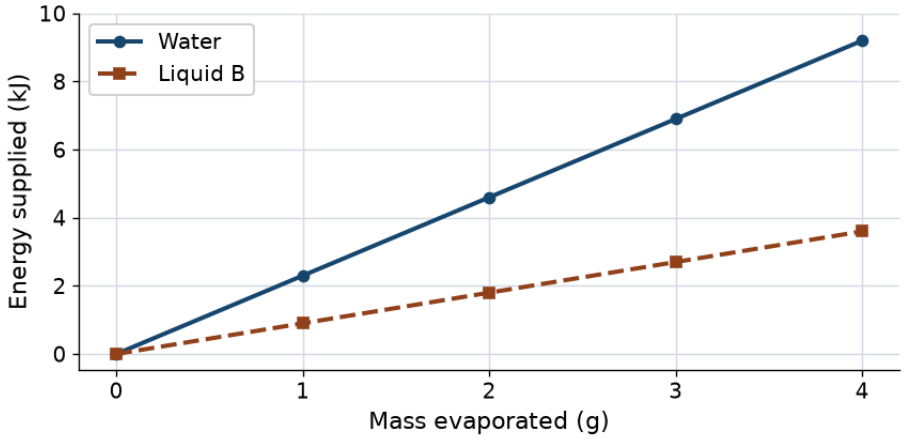
Comparing Energy Costs of Evaporation

Base your answers on the information provided and your knowledge of chemistry. Use the 2025 Chemistry Reference Tables as needed.

A class models two shallow samples held at their own constant test temperatures. The heater in each model supplies only the energy that goes into evaporation. The graph shows how much energy goes into evaporating different masses of water and of liquid B.



Energy entering each model sample during evaporation.

1 Which comparison is supported for equal masses evaporated?

(1) Water takes more energy.

(2) Liquid B takes more energy.

(3) The two liquids take the same energy.

(4) The graph does not compare equal masses.

2 Use the graph to calculate how much more energy it takes to evaporate 3.0 g of water than 3.0 g of liquid B. [1]

Answer and work

In a repeat test the heater can supply only 1.8 kJ to each liquid. Each sample starts at the same test temperature used for that liquid in the graph.

3 Use the proportional relationships in the graph to estimate how many grams evaporate from each sample with that energy. [1]

Answer and work

4 A student says the heater cannot be transferring energy because the temperatures stay constant. Explain what the supplied energy does. [1]

Answer and work