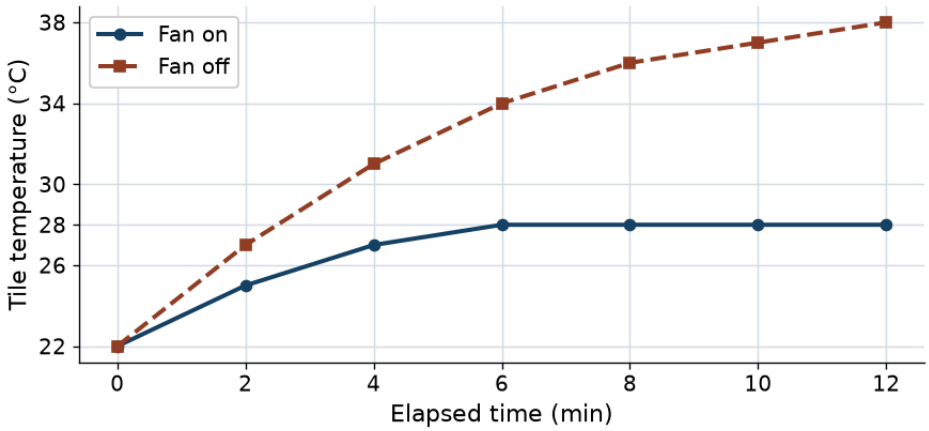
Reading a Steady Temperature in a Heating Model

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

A class heats two identical model tiles. Each heater transfers energy into its tile at 20 J per minute. In one run a fan moves cooler air over the tile. In the other run the fan is off. The tiles stay solid, and the graph shows their temperatures.



Tile temperature with the fan on and with the fan off.

1 Which statement fits the readings from 8 to 12 minutes?

(1) Both temperatures stay constant.

(2) Only the fan-on temperature stays constant.

(3) Only the fan-off temperature stays constant.

(4) The fan-on temperature falls.

2 Estimate the energy transferred from the fan-on tile to its surroundings from minute 8 to minute 12. Use the steady temperature and stated input rate. [1]

Answer and work

After minute 12 the class switches off the fan-on tile’s heater. The fan keeps moving cooler air over the tile.

3 Predict what happens to the tile’s temperature just after the heater switches off. Explain using the energy transfers. [1]

Answer and work

4 A student calls the earlier level region a melting plateau. What observation given in the case rules out that interpretation? [1]

Answer and work