

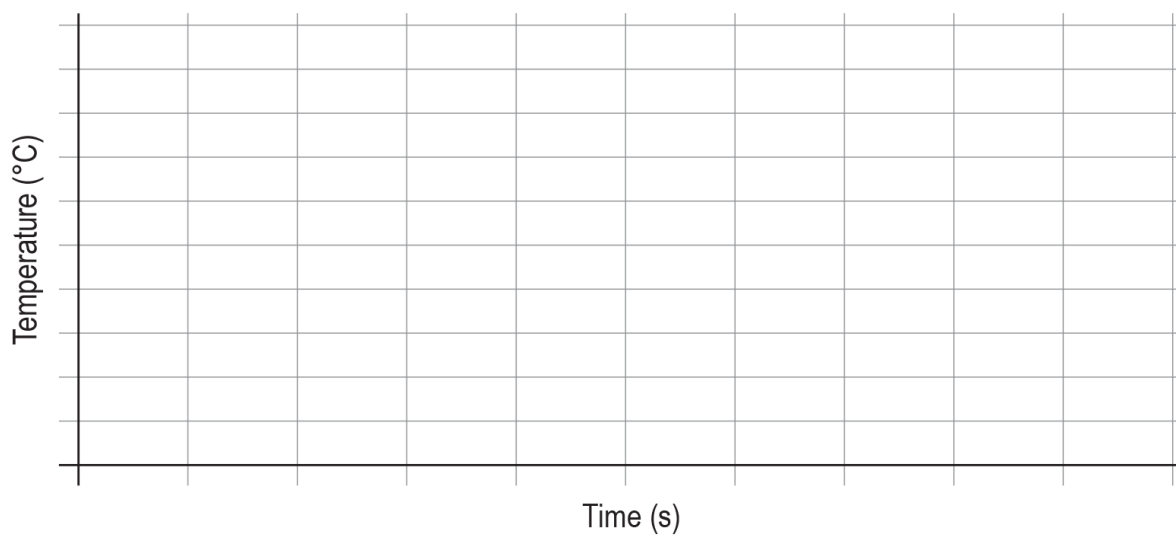
11B – STATE CHANGES

Analysis

Table 1 – Temperature and state

Time (min)	Temp (°C)	Phase	Time (min)	Temp (°C)	Phase	Time (min)	Temp (°C)	Phase
0.5			5.5			10.5		
1.0			6.0			11.0		
1.5			6.5			11.5		
2.0			7.0			12.0		
2.5			7.5			12.5		
3.0			8.0			13.0		
3.5			8.5			13.5		
4.0			9.0			14.0		
4.5			9.5			14.5		
5.0			10.0			15.0		

Graph 1 – Change in temperature

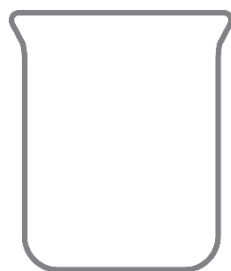


1. What is happening to the temperature as the ice is turning into a liquid?
2. What is happening to the temperature when there is only liquid in the beaker?
3. What is happening to the temperature when there is liquid and gas in the beaker?

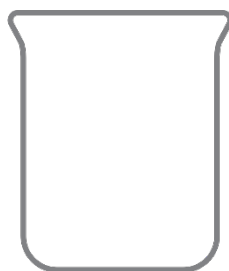
Questions

1. How do the particles in the ice behave before the heat is turned on?
2. Before the heat is turned on, do the particles of ice have energy? Explain your reasoning.
3. Was the change a physical or chemical change in this system? Explain your reasoning.
4. Did the system absorb or release energy? What evidence is present to support your answer?

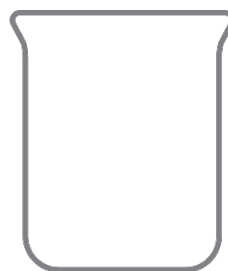
5. How did the graph compare to the graph that you predicted? What is similar, what is different?
6. For each region on your graph, identify the states of matter and describe how the energy added by the heater stirrer affected the kinetic and potential energy of the system.
7. Add particles inside the beakers to draw a model at the particle level, with at least 10 particles that show how the water molecules were behaving in each region of the graph.



solid and liquid



liquid



liquid and gas

8. How would your graph change if you had a different amount of ice? Support why you think this is.
9. What would the graph look like if you had a different substance?