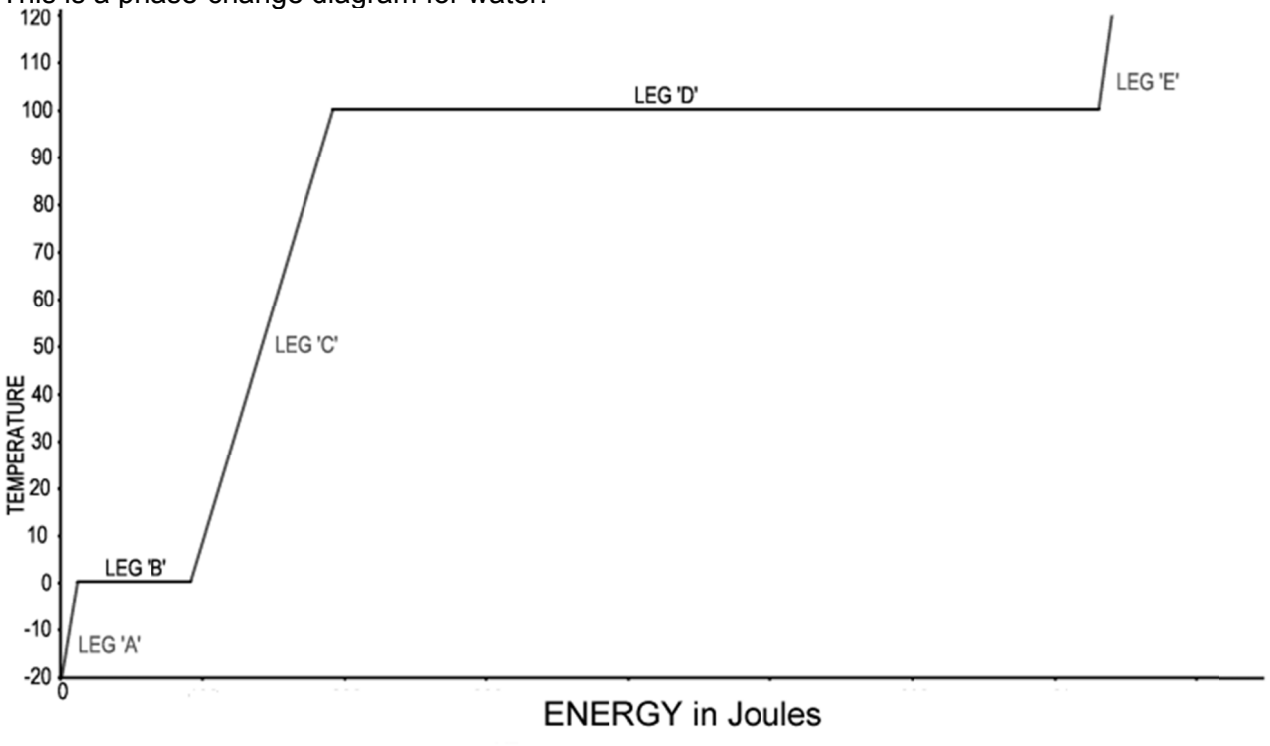
PHASE DIAGRAMS

This is a phase-change diagram for water.



1. Along LEG ‘A’ water exists as a solid (ice), and the temperature increases as energy is absorbed.

2. At 0 °C a phase change begins:
   a) Moving from left to right along LEG ‘B’, ice is *melting* to form liquid water
   b) Moving from right to left along LEG ‘B’, liquid water is *freezing* to form ice
   c) The distance of LEG ‘B’ along the Energy axis (x-axis) is known as the *Heat of Fusion*
   d) *Note that temperature remains constant during a phase change*!

3. Once ice has completely melted, the temperature begins to increase again (LEG ‘C’), as the energy absorbed by water is no longer going toward changing the phase of the substance.

4. At 100 °C, a second phase change begins:
   a) Moving from left to right along LEG ‘D’, water is *boiling* to form water vapor
   b) Moving from right to left along LEG ‘D’, water vapor is undergoing *condensation* to form liquid water
   c) The distance of LEG ‘D’ along the Energy axis (x-axis) is known as the *Heat of Vaporization*
   d) *Note that temperature remains constant during a phase change*!

5. Once all of the liquid water has vaporized, the temperature begins to increase again (LEG ‘E’), as the energy absorbed by water is no longer going toward changing the phase of the substance.