

Unit 3 –Energy & States of Matter - Part 2 Objectives

<p>1. Relate observations regarding the addition of energy by warming to increased particle motion</p>	
<p>2. Describe the characteristics of solids, liquids and gases in terms of particles and their:</p> <ul style="list-style-type: none">• Arrangement: use particle diagrams to account for motion and density differences; describe the process of how the arrangement of matter particles changes during phase changes.• Attractions: infer the necessity of an attractive force between particles at close range from observations of differences in cohesiveness of the three phases;	
<p>3. Define energy; describe the ways in which it is stored in a system.</p>	

<p>4. Describe three ways in which energy is transferred between system and surroundings.</p>	
<p>5. Draw energy bar charts to account for energy storage and transfer in all sorts of changes. Make up a sample situation and sketch the bar chart.</p>	
<p>6. Given a heating/cooling curve for a substance, identify what phase(s) is/are present in the various portions of the curve, and what the melting and freezing temperatures for the substance are.</p>	
<p>7. Given a heating/cooling curve for a substance, identify which energy storage mode is changing for the various portions of the curve.</p>	

<p>8. Given a situation in which a substance at a given temperature undergoes a change (in temperature, phase or both), sketch a heating/cooling curve that represents the situation.</p>	
<p>9. State the physical meaning of the heat of fusion (H_f) and heat of vaporization (H_v) for a given substance. Use these factors to relate the mass of a substance to the energy absorbed or released during a phase change (at the melting or boiling temperature).</p>	
<p>10. State the physical meaning of the heat capacity (c) of a substance and use this factor to relate the mass and temperature changes to the energy absorbed or released during a change in temperature (with no phase change).</p>	