

Unit 2 –Energy & States of Matter – Part 1 – Study Guide

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| <p>1. Relate observations of diffusion to particle motion and collision in the gas and liquid phases.</p> | |
| <p>2. Relate observations regarding the addition of energy by warming to increased particle motion.</p> | |
| <p>3. Describe the characteristics of solids, liquids and gases in terms of particles and their arrangement: use particle diagrams to account for motion and density differences; describe the process of how the arrangement of particles changes during phase changes.</p> | |
| <p>4. Relate temperature to the thermal energy (E_{th}) of particles in motion.</p> | |
| <p>5. Explain, at the particle level, how a thermometer measures the temperature of the system.</p> | |

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| <p>6. Explain the basis for the Celsius temperature scale.</p> | |
| <p>7. State the basic tenets of the Kinetic Molecular Theory (KMT).</p> | |
| <p>8. The 3 variables P, V and T are interrelated. Any factor that affects the number of collisions has an effect on the pressure. You should be able to:</p> <ul style="list-style-type: none"> • Predict the effect of changing P, V or T on any of the other variables. $P \propto \frac{1}{V} \quad P \propto T \quad V \propto T$ • Explain (in terms of the collisions of particles) <i>why</i> the change has the effect you predicted. • Explain the basis for the Kelvin scale. Use the absolute temperature scale to solve gas problems. • Use factors to calculate the new P, V or T. Make a decision as to how the change affects the variable you are looking for. | |