

Heat and Temperature Experiments

I. Kinetic Theory

Observe the ipad simulation to answer the following questions.

1. What happens as more particles of air are added to the space?
2. How does an increase in temperature affect the motion of the particles?
3. How does a decrease in temperature affect the motion of the particles?
3. How does a decrease in space affect the motion of the particles?

II. Heat

Heat 50 mL of water in an aluminum can using a hot plate. Wear goggles and be very careful not to spill the hot water. Measure the temperature of the water before and after heating. Pour the water into a beaker. Place one small drop of dye at the bottom of the beaker in the center. Observe the movement of the small drop of dye in the hot water. Repeat this in a beaker of cold water and observe the difference in motion of the drop.

1. Calculate the change in thermal energy of the water.
2. Calculate the change in thermal energy of the aluminum. (Assume that the temperature is the same as the water)
3. Describe what happens to the drop of dye in the water heated to above 60°C.
4. Describe what happens to the drop of dye in the water of less than 10°C

III. Mixing temperatures

1. Describe what you think the resulting temperature will be when 50°C water is mixed with 10°C water.
2. What was the resulting temperature when the two were mixed?
3. Describe why you think this happened?