

Lesson 1: Particles in Motion

1. How does the food coloring moves through the liquid even though the water is not moving?



✓ The movement of the water particles pushes the food coloring particles around. The food coloring spreads out or diffuses.

2. Food coloring is added to two beakers, one with cold water and the other with hot water.

a) Which beaker has hot water? **B**

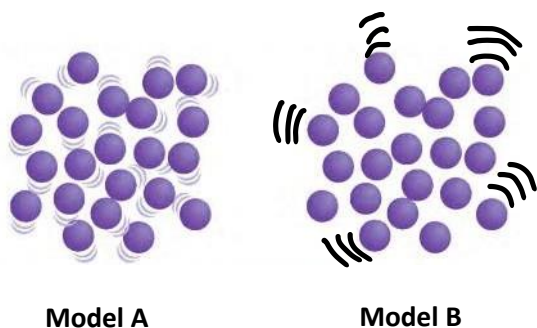
b) Which beaker has cold water? **A**

c) Explain your answers.



When thermal energy is added to a substance, the motion energy increase. The faster the particles move; the faster diffusion occurs.

3. (a) **Add** motion lines to the liquid particles model on the right to show they are moving faster than the liquid particles on the left.


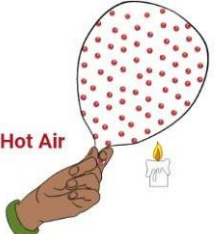


(b) The energy of moving particles is called the **Kinetic** energy.

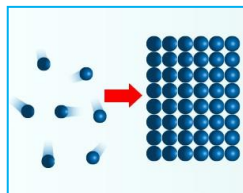
(c) Which model has more kinetic energy? **B**

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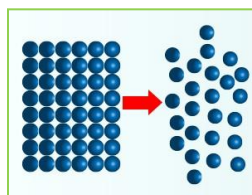
4. Complete the table below using the words given in.

	Temperature of the Air (High/Low)	Speed of the particles (Fast/Slow)	Kinetic energy of particles (High/Low)	Space between the particles (Large/Small)	Volume of the Air (Increased/ Decreased)
	<u>Low</u>	<u>Slow</u>	<u>Low</u>	<u>Small</u>	<u>Decreased</u>
	<u>High</u>	<u>Fast</u>	<u>High</u>	<u>Large</u>	<u>Increased</u>

5. State whether the matter **Contract** or **Expand**?



Contract



Expand

6. "Jar with a tight lid can be opened if you are running it under hot water." Explain why.

If temperature increases, the particles Kinetic energy increase move faster, move farther apart and take up more space (expand).

