



SCIENCE
Fusion Physical Science
HOLT McDOUGAL

PowerNotes

Unit 2 Lesson 2 Temperature

Particle Party

What is the kinetic theory of matter?

- The **kinetic theory of matter** states that all of the particles that make up matter are constantly in motion.
- Because the particles are in motion, they have kinetic energy.
- The faster they move, the more kinetic energy they have.



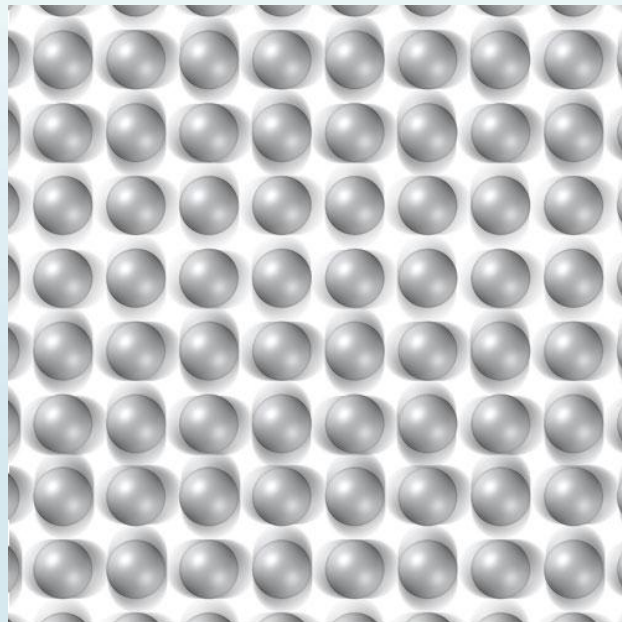
What is the kinetic theory of matter?

- The motion of the particles is random.
- The individual particles have different amounts of kinetic energy, but their average kinetic energy takes into account their different random motions.
- Solids, liquids, and gases have different average kinetic energies.



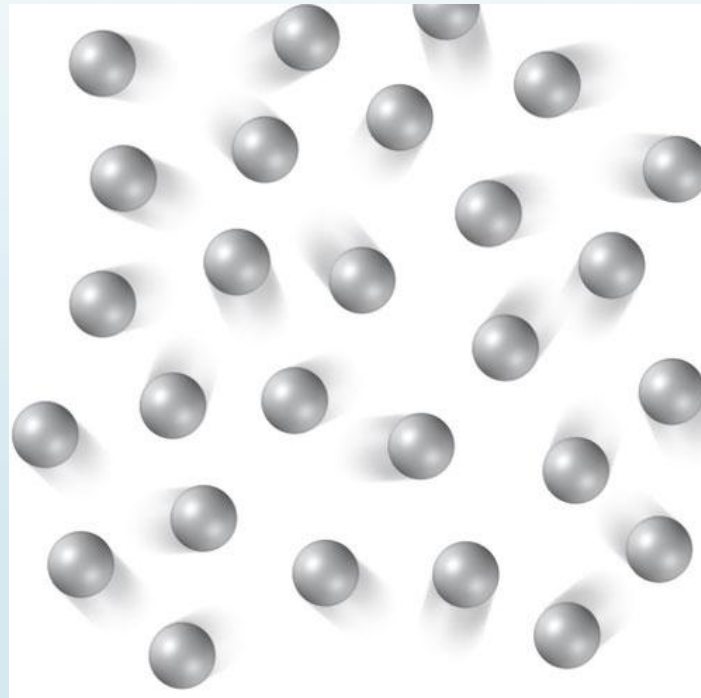
How do particles move in solids, liquids, and gases?

- The kinetic theory of matter explains the motion of particles in solids, liquids, and gases.
- The particles in a solid do not move around much.



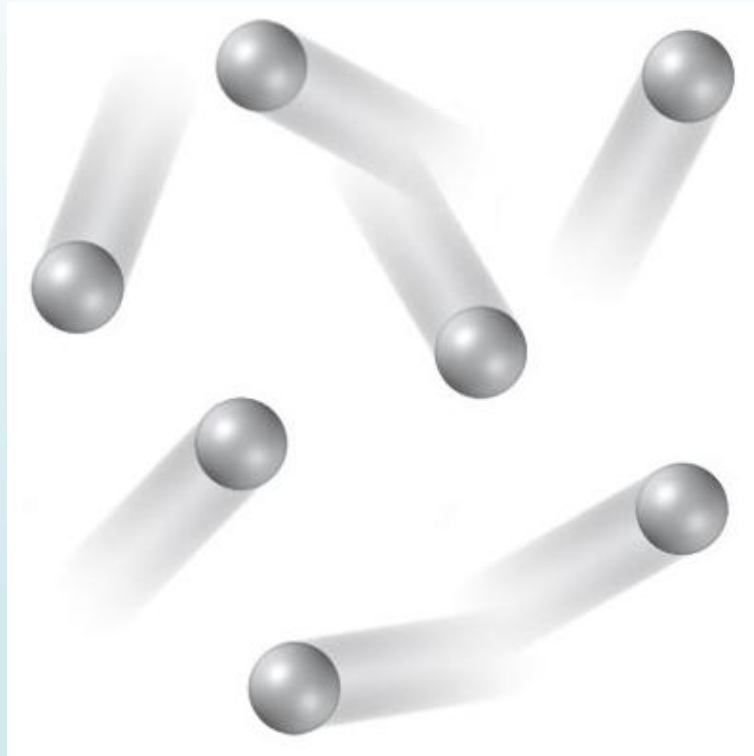
How do particles move in solids, liquids, and gases?

- The particles in a liquid move much more freely than the particles in a solid. They slide past and tumble over each other.



How do particles move in solids, liquids, and gases?

- The particles in a gas are far apart, move at high speeds, and collide with one another.



Mercury Rising

How does temperature relate to kinetic energy?

- **Temperature** is a measure of the average kinetic energy of all the particles in an object.
- The warmer a substance is, the faster its particles move.



How is temperature measured?

- There are three common temperature scales.
- They all measure the average kinetic energy of particles.
- The scales are called Celsius, Fahrenheit, and Kelvin.



How is temperature measured?

- In the Celsius and Fahrenheit scales, temperature is measured in units called degrees.
- **Degrees** ($^{\circ}$) are equally spaced units between two points. The space between degrees can vary from one scale to another.
- In the Kelvin scale, no degree sign is used. The unit is just called a kelvin.
- Temperature is measured with a **thermometer**.



How is temperature measured?

- The Celsius scale is the temperature scale most commonly used around the world.



How is temperature measured?

- The Fahrenheit scale is used most commonly in the United States.



How is temperature measured?

- The Kelvin scale is used most commonly by physicists.

