Name: Date: Score: / 8

Particles and Heat: Learn and Practice

How thermal energy changes particle motion

Read each question. Circle the best answer.

💡 Particles in Motion

- All matter is made of tiny particles that are always moving.
- Adding thermal energy makes particles move faster and spread apart.
- Removing thermal energy slows them down, which can cause freezing or condensing.
- heat ice: particles speed up: water melts

1 Food coloring spreads faster in hot water than in cold water. Why?

A. Cold water is heavier B. Color likes heat

C. Hot water particles move faster

D. Hot water has less water

2 Are the particles in a solid moving?

A. Only in the dark B. Only when you touch them

C. No, they are perfectly still

D. Yes, they vibrate in place

3 What happens to particles when a liquid freezes?

A. They split into atoms

B. They slow and lock into place

C. They speed up and spread

D. They turn into gas

4 What does temperature measure?

A. The color of particles

B. Average motion energy of particles

C. The number of particles

D. The size of particles

5 🔥 What happens to particles when a substance is heated?

A. They move faster B. They move slower

C. They disappear D. They stop

6 🎈 Why does a balloon shrink when put in a freezer?

A. Gas particles slow and move closer

B. Cold air squeezes it hard

C. It leaks through a hole D. The rubber melts

7 In which state are particles farthest apart?

A. Gas B. Crystal C. Liquid D. Solid

8 🪟 Water vapour touches a cold window. What happens?

A. It condenses into droplets B. It turns into rock

C. It melts D. It boils

✏️ Explain it! Write two facts you learned about particles and heat.

ANSWER KEY

Particles and Heat: Learn and Practice (answers)

How thermal energy changes particle motion

Read each question. Circle the best answer.

1 Food coloring spreads faster in hot water than in cold water. Why?

A. Cold water is heavier B. Color likes heat

C. Hot water particles move faster

D. Hot water has less water

Faster particles bump the coloring around more, so it spreads quickly.

2 Are the particles in a solid moving?

A. Only in the dark B. Only when you touch them

C. No, they are perfectly still

D. Yes, they vibrate in place

Even in a solid, particles jiggle back and forth in fixed spots.

3 What happens to particles when a liquid freezes?

A. They split into atoms

B. They slow and lock into place

C. They speed up and spread

D. They turn into gas

Losing thermal energy slows particles until they settle into a fixed pattern.

4 What does temperature measure?

A. The color of particles

B. Average motion energy of particles

C. The number of particles

D. The size of particles

Temperature tells how fast, on average, the particles are moving.

5 🔥 What happens to particles when a substance is heated?

A. They move faster B. They move slower

C. They disappear D. They stop

Adding thermal energy gives particles more energy, so they speed up.

6 🎈 Why does a balloon shrink when put in a freezer?

A. Gas particles slow and move closer

B. Cold air squeezes it hard

C. It leaks through a hole D. The rubber melts

Colder particles move slower and hit the balloon wall less, so it gets smaller.

7 In which state are particles farthest apart?

A. Gas B. Crystal C. Liquid D. Solid

Gas particles zoom around with lots of space between them.

8 🪟 Water vapour touches a cold window. What happens?

A. It condenses into droplets

B. It turns into rock C. It melts D. It boils

The cold glass slows the vapour particles, so they come together as liquid drops.