

Changes Of State (p. 84 – 88)

I. Energy & Changes Of State

1. When a change of state of matter occurs, what changes and does not change?

Changes : Energy of the substance

Does Not Change : Identity of the substance

2. Define the term heat.

Heat – transfer of energy

3. Match the following terms with the correct definitions.

- | | |
|---------------------------------|---|
| 1. <u>C.</u> Boiling Point | A. Temperature at which a gas becomes a liquid. |
| 2. <u>A.</u> Condensation Point | B. Temperature at which a solid becomes a liquid. |
| 3. <u>D.</u> Freezing Point | C. Temperature at which a liquid becomes a gas. |
| 4. <u>B.</u> Melting Point | D. Temperature at which a liquid becomes a solid. |

4. What is the freezing point and boiling point of water?

Freezing = 0 °C = 32 °F Boiling = 100 °C = 212 °F

5. List two types of phase changes that require energy to change states.

1. Evaporation 2. Sublimation

6. List two types of phase changes that releases energy to change states.

1. Condensation 2. Freezing

7. Match the following phase changes with the correct definitions.

- | | |
|---------------------------|---|
| 1. <u>F.</u> Condensation | A. Phase change from a solid to a gas. |
| 2. <u>E.</u> Deposition | B. Phase change from a liquid to a gas. |
| 3. <u>B.</u> Evaporation | C. Phase change from a solid to a liquid. |
| 4. <u>D.</u> Freezing | D. Phase change from a liquid to a solid. |
| 5. <u>C.</u> Melting | E. Phase change from a gas to a solid. |
| 6. <u>A.</u> Sublimation | F. Phase change from a gas to a liquid. |

Thermometers

Ghost
↓
Cold Spurt

Faster

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Dew →

Frost →

Fire Extinguisher →

Dry Ice →

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8. During a phase change, the temperature does not change.

Circle One :

True

False

(Thermal Energy increases.)

II. Conservation Of Mass & Energy

1. Mass is conserved for all physical and chemical changes.

Circle One :

True

False

2. What are the two fundamental laws of physical science?

1. Mass + energy are both conserved
2. Mass not energy can be created or destroyed

3. Define the Law Of Conservation Of Mass.

Law Of Conservation Of Mass – total mass of substances undergoing changes stays the same before + after the change
(mass cannot be created or destroyed)

4. List the reactants and products of burning a match.

Reactants = match, oxygen

Products = ash, smoke, gases

5. Define the Law Of Conservation Of Energy.

Law Of Conservation Of Energy – total amount of energy present before + after a change is the same
(energy cannot be created or destroyed)

6. How does starting a lawn mower NOT violate the Law Of Conservation Of Energy?

- Small energy to start

↳ Gasoline (stored energy) runs mower

↳ Gas energy transferred as heat

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