Edgenuity

Warm-Up | Changes of State

Lesson Question

Lesson Goals

Explore changes of _____.

Describe what happens during the different _____ of state.

Explain how _____ is related to changes of state.

Words to Know

Fill in this table as you work through the lesson. You may also use the glossary to help you.

	the part of total internal energy that can be transferred
	the process by which a solid becomes a liquid
	a change in one or more physical properties of a substance but not its identity
	the energy resulting from the motion of particles
	the process by which a solid becomes a gas

© Edgenuity, Inc.

Warm-Up | Changes of State

States of Matter

- Solid:
  - Atoms in [ ] position
  - [ ] shape and volume
- Liquid:
  - Atoms [ ] packed
  - [ ] shape, [ ] volume
- Gas:
  - Atoms [ ] to move
  - [ ] shape and volume

© Edgenuity, Inc.

Instruction | Changes of State

Slide 2

Changes of State

- [ ] change:
  - Substance does [ ] change
  - Arrangement of [ ] changes

Energy and Changes of State

- All matter is made up of particles that are in constant [ ].
- The motion of particles results in [ ] energy.
  - If energy is added, the particles move [ ].
  - If energy is removed, the particles move [ ].
- [ ] energy is the part of total internal energy that can be transferred.
- As temperature increases, the particles in a substance move faster and have greater [ ] and [ ] energy.

© Edgenuity, Inc.

Instruction | Changes of State

Slide 4

Solid to Liquid

- _____ is the process by which a solid becomes a liquid.
- Different substances have different _____ points.
  - Ice: _____ (32°F)
  - Butter: _____ (90–95°F)

Solid to Liquid

- As the temperature increases, the _____:
  - _____ energy.
  - vibrate _____.
  - break _____.
  - _____ past each other.

Slide 6

Solid to Gas

- _____ is the process by which a _____ becomes a gas.
  - Dry ice:−78.5 °C (−109.3 °F)

© Edgenuity, Inc.

Instruction | Changes of State

Slide 6

Solid to Gas

- Sublimation occurs with:
  - _____ air pressure.
  - _____ amounts of energy.
- Atoms overcome _____ forces.

Slide 9

Words to Know

Fill in this table as you work through the lesson. You may also use the glossary to help you.

	vaporization that occurs below the surface of a liquid and produces bubbles
	the process by which a gas becomes a solid
	the process by which a gas becomes a liquid
	the process by which a liquid becomes a solid
	the process by which a liquid becomes a gas
	vaporization that occurs at the surface of a liquid

© Edgenuity, Inc.

Instruction | Changes of State

Slide 9

Liquid to Solid: Freezing

- _____ is the process by which a liquid becomes a solid.
- The temperature at which a specific liquid becomes a solid is the _____.
  - Water: 0°C (32°F)
- Below the freezing/melting point, the substance is a _____.
- Above the freezing/melting point, the substance is a _____.

Liquid to Solid: Effect on Atoms

- As the temperature decreases, the atoms:
  - _____ energy.
  - move _____.
- Strong _____ among atoms cause the liquid to become a _____.

© Edgenuity, Inc.

Instruction | Changes of State

Slide 11

Liquid to Gas: Vaporization

- _____ is the process by which a liquid becomes a gas.
  - _____ occurs at the surface of a liquid.
    - Occurs at a range of temperatures.
- _____ takes place below the surface of a liquid.
  - Bubbling only occurs in boiling.
  - The boiling point is the temperature at which the liquid becomes a gas.

Liquid to Gas: Effect on Atoms

- Liquid absorbs _____ energy.
- Atoms _____ energy.
- Atoms move _____.
  - Evaporation – fastest molecules are able to overcome _____ forces.
  - Boiling – temperature increase causes atoms to _____ energy and move _____.
- Atoms escape from the _____ of a liquid.

© Edgenuity, Inc.

Instruction | Changes of State

Slide 14

Gas to Liquid: Condensation

- _____ is the process by which a gas becomes a liquid.
  - Occurs over a range of _____

Gas to Liquid: Effect on Atoms

- As the temperature _____, the atoms
  - _____ energy.
  - move _____.
- The attractions among atoms cause _____ to form.

16

Gas to Solid: Deposition

_____ is the process by which a gas becomes a solid.

Gas to Solid: Effect on Atoms

- Atoms:
  - lose large amounts of _____ energy.
  - slow down _____.
  - are held tightly by _____ attractions.

© Edgenuity, Inc.

Summary | Changes of State

Lesson Question

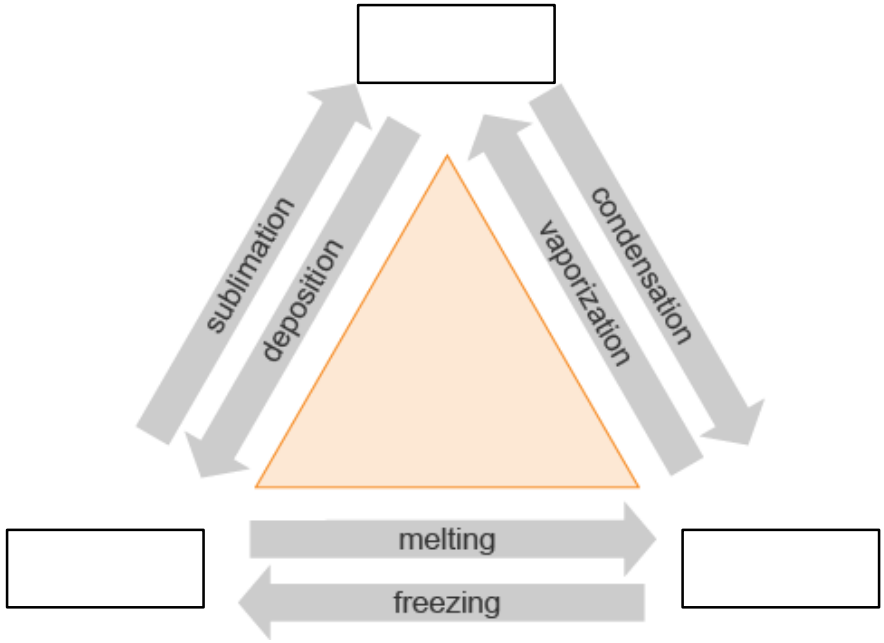
How does matter change from one state to another?

Answer

Slide 2

Review: Key Concepts

Label the diagram with the terms solid, liquid, *and* gas.



© Edgenuity, Inc.

Summary | Changes of State

Use this space to write any questions or thoughts about this lesson.

© Edgenuity, Inc.