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NEXT GENERATION SCIENCE STANDARDS For States, By States

New Vision International School

interactive SCIENCE

WORKBOOK

Grade 8

SEMESTER 2

Name: _____

Class: _____

Teacher: _____

PEARSON

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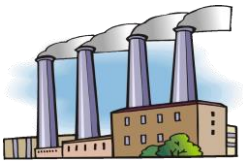
Chapter 3

Lesson 1: Fossil Fuels (use with pages 80 – 87)

Fill in the blank(s) to complete each statement.



1. A fuel is a substance that provides _____.

2. _____ is a solid fossil fuel that forms from plant remains.

3. Petroleum is another name for the fossil fuel _____.

4. A factory in which crude oil is heated and separated into fuels and other products is called a _____.

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ *1. Chemical compounds that contain carbon and hydrogen atoms are called **petrochemicals**.*

_____ *2. **Fossil fuels** are the energy-rich substances formed from the remains of long-dead organisms.*

_____ *3. The three major fossil fuels are coal, oil, and **petroleum**.*

_____ *4. **Oil** is the most plentiful fossil fuel in the United States.*

_____ *5. **Natural gas** forms from some of the same organisms as oil.*

_____ *6. Because fossil fuels are formed over hundreds of millions of years, they are considered **renewable** resources.*

Understanding Main Ideas: Answer the following questions.

1. What are the three major fossil fuels?

_____

_____

_____

_____

2. How do fossil fuels form?

_____

_____

_____

_____

3. How is energy produced from fossil fuels?

_____

_____

_____

_____

4. Why are fossil fuels considered nonrenewable?

_____

_____

_____

_____

Name: _____ Date: ___/____/_____

Chapter 3

Lesson 2: Renewable Sources of Energy (use with pages 88 – 97)

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ 1. *Sunlight, water, wind, nuclear power, biomass fuels, geothermal energy, and hydrogen are all **nonrenewable** energy sources.*

_____ 2. *The fastest-growing energy source in the world is **wind energy**.*

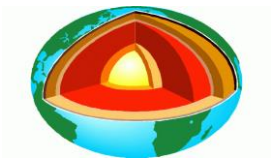
_____ 3. *In order to harness **geothermal** energy, cool water is pumped down into deep wells.*

_____ 4. *Inside a nuclear power plant, nuclear fission takes place within the **heat exchanger**.*

_____ 5. *The radioactive wastes produced by nuclear fission remain dangerous for **dozens** of years.*

Fill in the blank to complete each statement.

1. *Energy from the sun is called_____.*
2. _____ *is electricity produced by flowing water.*
3. _____ *can also be converted into other fuels, such as gasohol, which is formedby adding alcohol to gasoline.*
4. *The intense heat from Earth's interior that warms the magma is called_____.*



5. _____*is the splitting of an atom's nucleus into two nuclei.*

Answer the following questions.

1. *Some sources of energy are called alternative sources. To what sources of energy are they analternative?*

_____

_____

_____

_____

2. *Name five alternative sources of energy.*

_____

_____

_____

_____

3. *Explain how wind and flowing water can be used to produce electricity.*

_____

_____

_____

_____

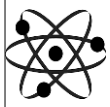
4. *Describe how electricity is produced inside a nuclear plant.*

_____

_____

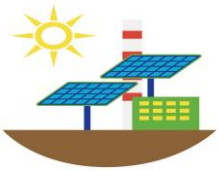
_____

_____



Building Vocabulary: Match each term with its definition by writing the letter of the correct definition in theright column on the line beside the term in the left column.

_____1. solar energy	a. a fuel made from a mix of alcohol and gasoline
_____2. nuclear fission	b. the uranium rods inside a nuclear reactor that produce fission
_____3. hydroelectric power	c. a group of fuels made from living things
_____4. gasohol	d. intense heat from Earth's interior that warms magma
_____5. reactor vessel	e. the splitting of an atom's nucleus into two nuclei
_____6. fuel rods	f. energy from the sun
_____7. biomass fuels	g. the cadmium rids inside a nuclear reactor that slow the reactions
_____8. geothermal energy	h. the part of a nuclear reactor in which nuclear fission occurs
_____9. control rods	i. electricity produced by flowing water



Name: _____ Date: ___/____/_____

Chapter 3

Lesson 3: Energy Use and Conservation (use with pages 98 – 103)

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ 1. *For most of human history, people **burned wood** for light, heat, and energy.*

_____ 2. *In addition, people harnessed the power of renewable resources such as **wind and water**.*

_____ 3. *In the mid-twentieth century, **wood and water** joined coal as the dominant fuels.*

_____ 4. *As fossil fuel supplies decrease, interest has increased in looking for **nonrenewable** energy sources.*

_____ 5. ***Insulation** is the percentage of energy that is actually used to perform work.*

_____ 6. ***Energy conservation** means reducing energy use.*

Fill in the blank(s) to complete each statement.

1. *Only recently have_____ become the main energy source in the U.S.*
2. *In the nineteenth century, with the westward expansion of railroads, _____ gained in popularity as a fuel.*

3. *One way to preserve our current energy resources is to increase the _____ of our energy use.*
4. *Another way to preserve those resources is to_____ energy whenever possible.*

Answer the following questions.

1. *Until the nineteenth century, what were the three main sources of energy in the United States?*

_____

_____

_____

_____

2. In the last two hundred years, what fuels have people used most?

_____

_____

_____

_____

3. Why are scientists looking for new fuels to replace fossil fuels?

_____

_____

_____

_____

4. What is energy efficiency, and why is increasing it important?

_____

_____

_____

_____

5. Why is a compact fluorescent light bulb more efficient than an incandescent bulb?

_____

_____

_____

_____

6. How can insulation in a building save energy?

_____

_____

_____

_____

Name: _____ **Date:** ___/____/_____

Chapter 4

Lesson 1: Introduction to Environmental Issues (use with pages 118 – 123)

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ 1. *Because the three types of environmental issues are interconnected, they are **easy** to resolve.*

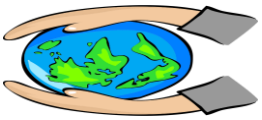
_____ 2. *Air pollution in Los Angeles is a **nonpoint** source.*

_____ 3. *A(n) **environmental resource** occurs naturally in the environment and is used by people.*

_____ 4. *The **condition** of Earth's land, water, or air is called pollution.*

_____ 5. *Decisions about how to protect Earth's atmosphere are made on a **local** level.*

_____ 6. *Data provided by environmental scientists are **part of** what decision- makers consider when resolving an environmental issue.*



Fill in the blank to complete each statement.

1. *When a population grows, the demand for resources_____.*
2. *Three general categories of environmental issues are related to pollution, resource use,and_____.*
3. _____ *of an environmental proposal are often economic.*
4. _____*can be grouped in two categories, point source and nonpoint source.*

Understanding Main Ideas: Decision–makers use a Costs-and-Benefits table to organize the positives and negatives of a proposal. Use the table to answer the question below. Consider both short-term and long-term costsand benefits.

COSTS	BENEFITS

Answer the following questions.

Suppose a town wants to buy a polluted marsh on an abandoned factory's land, clean up the marsh, and use the area as a nature center for the town. What are two costs and two benefits ofthe town's proposal?

_____

_____

_____

_____

_____

_____

Building Vocabulary: Answer the following questions in the spaces provided.

1. *Give three examples of natural resources.*

_____

_____

_____

2. *Define environmental science. Use your own words.*

_____

_____

_____

Name: _____ **Date:** ___/____/_____

Chapter 4

Lesson 2: Introduction to Natural Resources (use with pages 124 – 129)

Circle the letter of the correct answer.

1. Natural resources include _____.

a. fresh water *c. ovens*
b. television *d. computers*

2. Humans depend on natural resources for _____.

a. health and welfare *c. survival and development*
b. art and leisure *d. growth and maturity*

3. Globally, fuels are used for _____.

a. power and trade *c. research and development*
b. weapons and travel *d. cooking and heating*

4. Ecological footprints are measured in _____.

a. square miles *c. square meters*
b. global hectares *d. English units*

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ *1. Resource conservation can make resources last **forever**.*

_____ *2. A high level of resource use makes a **larger** ecological footprint.*

_____ *3. Sustainable use means using a resource in ways that maintain the resource at a certain quality for a **generation**.*

_____ *4. Some renewable resources are renewable only if they are replaced **a little more slowly than** they are used.*

_____ *5. Oil and coal were formed over **hundreds** of years.*

_____ *6. **Not all** resources are available equally in all parts of the world.*

Answer the following questions.

1. Explain how renewable resources and non-renewable resources are different. Give two examplesof each.

_____

_____

_____

_____

2. What is similar and different about how natural resources are used in different parts of the world?

_____

_____

_____

_____

Building Vocabulary: Match each term with its definition by writing the letter of the correct definition in theright column on the line beside the term in the left column.

_____*1. sustainable use*	*a. wind*
_____*2. natural resource*	*b. allows you to maintain a resource at a certain quality over a certain period of time*
_____*3. ecological footprint*	*c. amount of land and water individuals use*
_____*4. nonrenewable resource*	*d. managing resource use so that resources last longer*
_____*5. conservation*	*e. occurs naturally in the environment and is used by people*
_____*6. renewable resource*	*f. coal*

Name: _____ **Date:** ___/____/_____

Chapter 4

Lesson 3: Conserving Land and Soil (use with pages 130 – 135)

Building Vocabulary: Match each term below by writing the letter of the correct definition.

a. litter	***b. topsoil***	***c. subsoil***	***d. bedrock***
e. erosion	***f. nutrient depletion***	***g. fertilizer***	***h. desertification***
i. drought	***j. land reclamation***		

_____ *1. Material that includes nutrients that help crops grow better.*

_____ *2. Layer of soil in which water and nutrient are absorbed by plant roots*

_____ *3. A period when less rain than normal falls in an area*

_____ *4. A process in which soil becomes less fertile*

_____ *5.The rock that makes up Earth's crust*

_____ *6. Top layer of soil containing dead leaves and grass*

_____ *7. Restoring an area of land to a more productive state*

_____ *8. Layer of soil above bedrock*

_____ *9. Areas that were fertile*

_____ *10. The process by which water, wind or ice moves soil or particles of rocks.*

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ *1. **Less than a quarter** of Earth's surface is dry, ice-free land.*

_____ *2. Because it can take **one year** to form just a few centimeters of new soil, it is important to protect Earth's soil.*

_____ *3. If a farmer plants a field with **different crops** each year, the soil becomes less fertile, a situation called nutrient depletion.*

_____ *4. Without **soil**, most life on land could not exist.*

Answer the following questions.

1. *Explain three ways that people use and change land.*

_____

_____

_____

_____

2. *Describe the structure of fertile soil.*

_____

_____

_____

_____

3. *Why is soil so important to human beings?*

_____

_____

_____

_____

4. *How do erosion, nutrient depletion, and desertification damage or destroy soil?*

_____

_____

_____

_____

Name: _____ **Date:** ___/____/_____

Chapter 4

Lesson 4: Waste Disposal and Recycling (use with pages 136 – 143)

Building Vocabulary: Write the definitions to the following words in the space provided.

1. *biodegradable*

_____

_____

2. *pollutant*

_____

_____

3. *sanitary landfill*

_____

_____

4. *municipal solid waste*

_____

_____

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ 1. *Materials that can be broken down and recycled by bacteria and other decomposers are **biodegradable**.*

_____ 2. ***Recycling** conserves resources and saves energy.*

_____ 3. ***Solid waste** is any material that can be harmful to human health or to the environment.*

_____ 4. *When rainwater filters down through a dump and dissolves chemicals in the waste, the polluted result is called **run-off**.*

_____ 5. *Most recycling focuses on four major categories of products: metal, glass, paper, and **rubber**.*

_____ 6. *A person can be exposed to **hazardous wastes** by breathing, eating, drinking, or touching them.*

Answer the following questions.

1. *What are three methods for the disposal of solid waste?*

_____

_____

_____

_____

2. *What are three advantages and three disadvantages of incinerators?*

_____

_____

_____

3. *What is leachate and what major problem does it cause?*

_____

_____

_____

4. *What are the four major categories of materials that can be recycled?*

_____

_____

_____

_____

5. *How can exposure to hazardous wastes affect human health?*

_____

_____

_____

6. *Identify four methods for disposing of hazardous wastes.*

_____

_____

_____

_____

Name: _____ ***Date:*** ___/____/_____

Chapter 4

Lesson 5: Air Pollution and Solutions (use with pages 144 – 153)

Building Vocabulary: Write the definitions to the following words in the space provided.

1. *emissions*

_____

_____

2. *photochemical smog*

_____

_____

3. *acid rain*

_____

_____

4. *radon*

_____

_____

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ 1. *A large percentage of emissions resulting in air pollution today comes from* ***motor vehicles.***

_____ 2. ***Radon*** *is a thick, brownish haze formed when certain gases in the air react with sunlight.*

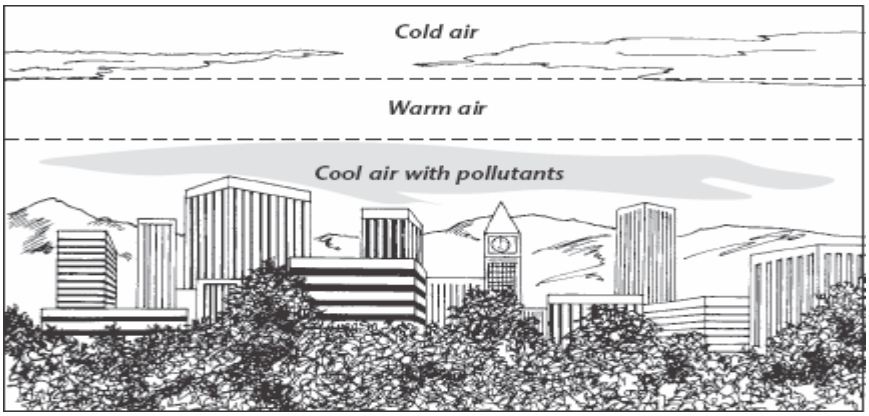
_____ 3. *In a(n)* ***ozone layer,*** *a layer of warm air prevents rising air from escaping and traps pollutants near Earth's surface.*

_____ 4. *The key to reducing air pollution is to control* ***emissions.***

_____ 5. ***Carbon monoxide*** *damages plants, waterways, and metals and stones.*

_____ 6. *CFCs once used in many household products contributed to the creation of a(n)* ***ozone hole.***

Answer the following questions.



1. *What condition is shown in the figure above? Why is this condition dangerous to people?*

_____

_____

_____

2. *How is photochemical smog formed?*

_____

_____

_____

3. *How is acid rain formed?*

_____

_____

_____

4. *What are two effects of acid rain?*

_____

_____

_____

5. *Why is carbon monoxide such a dangerous form of indoor air pollution?*

_____

_____

6. *How does walking instead of driving a car help reduce air pollution?*

_____

_____

Name: _____ **Date:** ___/____/_____

Chapter 4

Lesson 6: Water Pollution and Solutions (use with pages 154 – 161)

Building Vocabulary: Fill in the blank to complete each statement.

1. *Water that is stored in layers of soil and rock beneath Earth's surface is called* _____.
2. *The water and human wastes that are washed down sinks, toilets, and showers are called* _____.
3. *Chemicals that kill crop-destroying organisms are known as* _____.
4. *Water that causes erosion picks up* _____, *or particles of rock and sand.*

Modified True or False: If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____ 1. *Most water pollution is the result of* ***natural processes.***

_____ 2. ***Industry*** *washes agricultural wastes, including animal wastes, fertilizers, and pesticides, into ponds, causing algae to grow.*

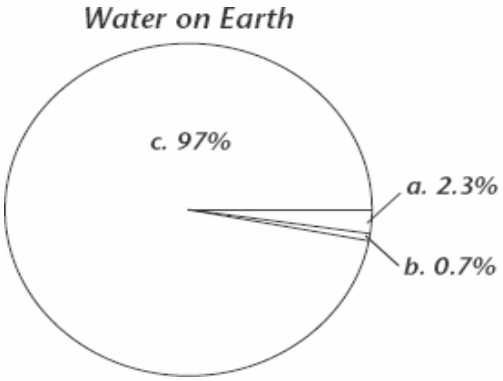
_____ 3. *Wastes produced by agriculture, households, industry, mining, and other human activities can end up in* ***water.***

_____ 4. ***Fresh liquid water*** *is stored in soil and rock beneath Earth's surface.*

_____ 5. ***Keeping water clean*** *requires effective cleanup of oil and gasoline spills, proper sewage treatment, and reduction of pollutants.*

_____ 6. *Most communities treat* ***groundwater*** *before returning it to the environment.*

Answer the following questions.



1. *Which section of the circle graph above represents Earth's salt water? Which section represents ice? Which section represents usable fresh water?*

_____

_____

_____

2. *How does the water cycle purify Earth's water?*

_____

_____

_____

3. *What is sewage? Why is it important to treat sewage?*

_____

_____

_____

4. *How can farm chemicals pollute water? Why is it hard to keep these chemicals from getting into nearby water?*

_____

_____

_____

5. *What are the keys to keeping water clean?*

_____

_____

_____

Name: _____ Date: ___/____/_____

Chapter 5

Lesson 1: What Is Energy (use with pages 174 – 179)

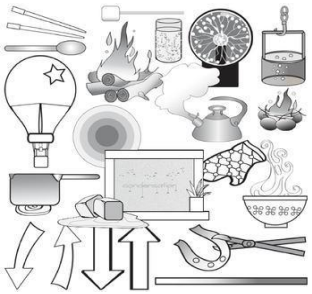
Circle the letter of the correct answer.

1. The kinetic energy of an object is equal to one half its mass multiplied by its speed.

a. squared *c. to the fourth power*

b. cubed *d. to the fifth power*

2. The gravitational potential energy of an object is equal to its weight multiplied by its _____.



a. depth *c. volume*

b. height *d. diameter*

3. Energy is the ability to do work or cause _____.

a. events *c. diameter*

b. change *d. explosions*

4. Energy and work are measured in _____.

a. newtons *c. hertz*

b. joules *d. kilograms*

Fill in the blank to complete each statement.

1. When you do work on an object, some of your energy is _____ to that object.

2. Power is the rate at which energy is _____.

3. Potential energy results from the _____or position of an object.

4. A stretched rubber band has _____ energy.

5. A change in an object's speed has a(n) _____ effect on its kinetic energy than a change in its mass.

6. A mountain climber at the peak has _____ energy.

Answer the following questions in the space provided.

1. *How are work and energy related?*

_____

_____

_____

2. *How is power related to energy?*

_____

_____

_____

3. *What are the two basic kinds of energy?*

_____

_____

_____

4. *A girl weighs 30 kg is inline in skating at a speed of 5 m/s. What is the girl's kinetic energy?*

_____

_____

_____

5. *A hat that weighs 5N is hanging from a hook 1.5 meters above the floor. How much gravitational potential energy does the hat have?*

_____

_____

_____

Name: _____ Date: ___/____/_____

Chapter 5

Lesson 2: Forms of Energy (use with pages 180 – 185)

Circle the letter of the correct answer.

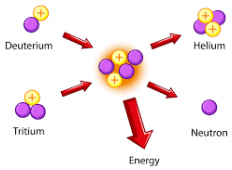
1. To find an object's mechanical energy, you add its _____.

a. kinetic and potential energy
c. potential and thermal energy
b. kinetic and thermal energy
d. kinetic and chemical energy

2. A form of energy NOT associated with the particles of objects is _____.

a. thermal energy
c. nuclear energy
b. mechanical energy
d. chemical energy

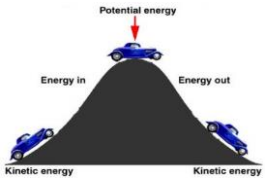
3. Nuclear fusion reactions occur in _____.



a. nuclear power plants
c. a match that is struck
b. a microwave oven
d. the sun

4. The total potential and kinetic energy of the particles of an object is the object's _____.

a. nuclear energy
c. thermal energy
b. electromagnetic energy
d. mechanical energy



Fill in the blank to complete each statement.

1. Mechanical energy is associated with the motion, position, or _____ of an object.

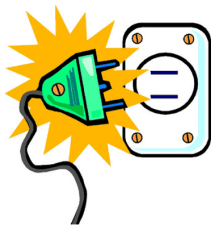
2. Electromagnetic energy travels through space in the form of _____.

3. Lightning is a form of _____energy.

4. The breaking of _____bonds in food releases energy for your body to use.

5. The _____the temperature of an object, the lower its thermal energy.

6. Electrical energy is the energy of _____.



Match each illustration with the correct form(s) of energy by writing the letter or letters of the form(s) of energy in the box.

a. mechanical energy ***d. nuclear energy***

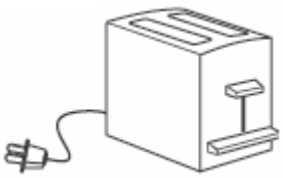
b. electrical energy ***e. chemical energy***

c. thermal energy ***f. electromagnetic energy***

1.

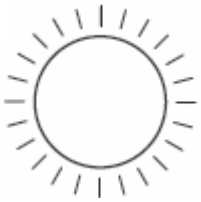
2.

3.



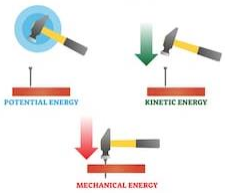
4.

5.



6.

Apply It. Answer the following questions in the space provided.



1. How can you determine an object's mechanical energy?

_____

_____

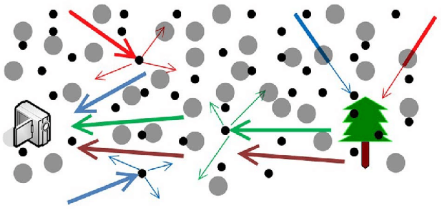
_____

2. Name two forms of energy associated with the particles that make up objects.

_____

_____

_____



Name: _____ **Date:** ___/____/_____

Chapter 5

Lesson 3: Energy Transformations and Conservation (use with pages 186 – 191)

Fill in the blank to complete each statement.

1. *All forms of energy can be _____ into other forms of energy.*

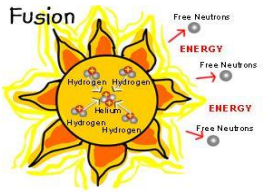
2. *A change from one form of energy to another is called a(n) _____.*

3. *When you use a match to light a candle, multiple _____ of energy occur.*

4. *The law of _____ of energy tells how much energy is present after electromagnetic energy changes to sound.*

5. *Whenever a moving object experiences friction, some of its kinetic energy is changed into _____ energy.*

6. *Your body changes chemical energy into _____energy when you walk upstairs.*



Circle the letter of the correct answer.

1. Fusion reactions in the sun change nuclear energy into _____.

a. mechanical energy *c. electromagnetic energy*

b. chemical energy *d. potential energy*

2. In a pendulum, a continuous change occurs between kinetic energy and _____.

a. potential energy *c. thermal energy*

b. electromagnetic energy *d. mechanical energy*

3. A baseball in play has its lowest gravitational potential energy _____.

a. when it is at its highest point *c. when the bat contacts it*

b. before it hits the ground *d. after it hits the ground*

4. Energy can be neither destroyed nor _____.

a. created *c. changed*

b. transformed *d. transferred*

Understanding Main Ideas

Study the illustration below and then read the following statements. If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

_____*1. An energy transformation is occurring **only at point 3.***

_____*2. In this example, the law of conservation of energy says that **the ball never loses kinetic energy**.*

_____*3. As the ball rises from point 1 to point 3, it **slows down**.*

_____*4. The ball has the most potential energy at **point 3**.*

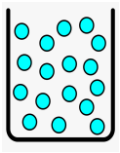
_____*5. The ball has the most kinetic energy as it leaves **point 2**.*

Name: _____ **Date:** ___/____/_____

Chapter 6

Lesson 1: Temperature, Thermal Energy and Heat (use with pages 204 - 207)

If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.



_____ 1. At ***the freezing point***, *the particles in an object have no kinetic energy.*

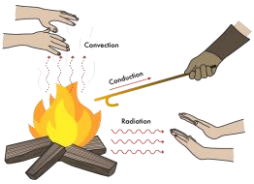
_____ 2. *On the* ***Celsius*** *temperature scale, there are no negative numbers.*

_____ 3. *The more particles an object has at a given temperature, the* ***more thermal energy*** *it has.*

_____ 4. *Object A is much larger than Object B, but both are made of the same material. If both objects are at the same temperature, the thermal energy of Object A is* ***the same as*** *the thermal energy of Object B.*

_____ 5. *When heat is absorbed by an object, the speed of the particles in the object* ***is unchanged****.*

Fill in the blank to complete each statement.



6. *The transfer of thermal energy from a warmer object to a cooler object is called* _____.

7. _____*is a measure of the average kinetic energy of the individual particles in an object.*

8. *Most of the world uses the* _____*temperature scale.*

9. *On the* _____*temperature scale, water boils at 212°.*

10. *The amount of thermal energy in an object depends on its* _____, *the number of particles in it, and how those particles are arranged.*

Apply It. Answer the following questions in the space provided.

1. Two glasses of water have the same thermal energy. Must they have the same temperature? Explain.

_____

_____

_____

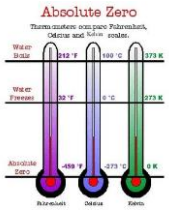
_____

2. Describe what is meant by absolute zero.

_____

_____

_____



3. List the three things that determine thermal energy.

_____

_____

_____

_____

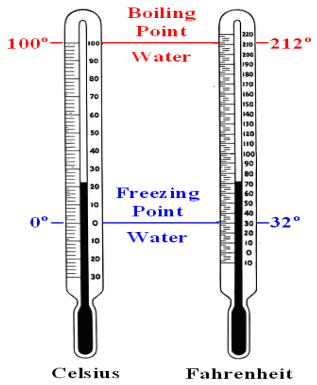
4. Compare the freezing point of water on the Celsius and the Fahrenheit temperature scales.

_____

_____

_____

_____



Name: _____ Date: ___/____/_____

Chapter 6

Lesson 2: The Transfer of Heat (use with pages 208 – 211)

Circle the letter of the correct answer.

1. ***Water bubbles up through a hot spring at Yellowstone National Park. What method of heat transfer is this?***

   a. conduction *c. radiation*

   b. convection *d. specific heat*

2. ***On a sunny day, you return to your car after a ball game. The inside of the car is very hot. How did the car get so warm?***

   a. conduction *c. radiation*

   b. convection *d. specific heat*

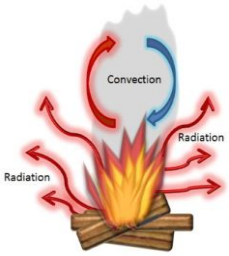
3. ***The inside window pane in your house feels very cold to touch on a winter night. Why does it feel cold?***

   a. The cold from the outside is flowing in by convection.

   b. The warm from the inside is flowing out by convection.

   c. The cold from the outside is being conducted to the inside.

   d. The warm from the inside is being conducted to the outside.



4. ***Malia burned herself when she picked up a hot iron skillet from the stove. What method of heat transfer caused the burn?***

   a. conduction *c. radiation*

   b. convection *d. specific heat*

Fill in the blank to complete each statement.

1. *Heat is transferred directly from one particle of matter to another by the process of _____.*

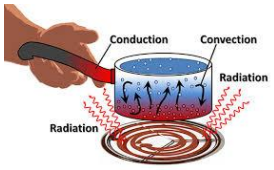
2. *A circular flow of warmer fluid and cooler fluid is called a(n) _____.*

3. *Heat is always transferred from _____ areas.*

4. *_____ is the transfer of energy by electromagnetic waves.*

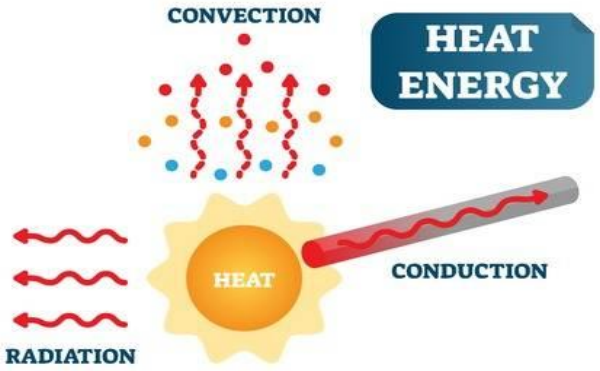
5. *Heat that is transferred by the movement of currents within a fluid is called _____.*

6. *The only form of heat transfer that does not require matter is _____.*



Understanding Main Ideas. Fill in the spaces in the table below by writing whether the heat is transferred by convection, radiation, or conduction.

Heat Transfer Example	*Method of Heat Transfer*
1. *An entire lake is heated by water from a hot spring at the bottom of the lake.*	_____
2. *Sunlight melts a wax crayon left outside.*	_____
3. *A burner on a stove heats the bottom of a pan.*	_____
4. *The inside frame of your front door feels cold during winter.*	_____
5. *A kite rises high above a hot, sandy beach.*	_____
6. *You feel the warm glow of a bonfire.*	_____



Name: _____ **Date:** ___/____/_____

Chapter 6

Lesson 3: Thermal Properties (use with pages 212 – 215)

Fill in the blank to complete each statement.

1. *A material with a(n) _____ specific heat can absorb a great deal of thermal energy without a great change in temperature.*

2. *As the thermal energy of matter _____, its particles usually spread out.*

3. *If two objects of the same mass require different amounts of heat to raise their temperatures 10 kelvin, the objects have different _____.*

4. *To keep food warm or cool, coolers are made out of materials that _____*

5. *Water has a specific heat of 4,186 J/(kg·K). To raise the temperature of a bathtub of water (220 kg) by 3 kelvin, it takes _____ Joules of energy.*

If the statement is true, write true. If the statement is false, change the underlined word or words to make the statement true.

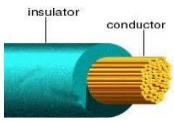
_____1. *Specific heat is measured in **joules.***

_____2. *Most metals are good **conductors** of heat.*

_____3. *The amount of energy required to raise 1 kg of material by 1 kelvin is called **thermal energy.***

_____4. *On a hot summer day, a metal door in a wood frame may stick and be hard to open due to **specific heat.***

_____5. ***Insulators** do not conduct heat well.*



Understanding Main Ideas. Answer the following questions in the space provided.

1. *Use your knowledge of insulators and conductors to explain why cooking pots are usually made of metal with some sort of plastic handle.*

_____

_____

_____

_____

2. *Listed are the specific heats of different substances, in J/(kg·K): **Air** is 1,005; **glass** is 840; and **silver** is 233. Explain which of the three substances is the best insulator and why.*

_____

_____

_____

_____

3. *Five kilograms of Substance A requires 500 J of energy to raise its temperature by 2 degrees. Five kilograms of Substance B requires 1,000 J of energy to raise its temperature by 2 degrees. How do the specific heats of the two substances compare?*

_____

_____

_____

4. *Gold has a specific heat of 126 J/(kg·K). A sculptor increased the temperature of a 0.5 kg block of gold by 10°C. How much energy did the sculptor add to the gold?*

_____

_____

_____