

1 A student observes actions that occurred in four different eggs. Which action describes only a chemical change?

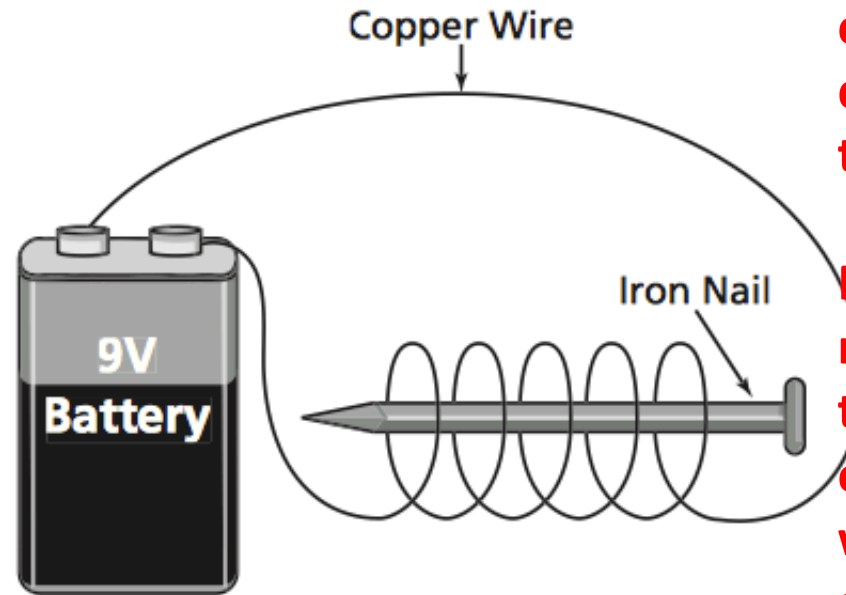
- A** a cut up egg
- B** a stirred egg
- C** a rotting egg
- D** a dropped egg

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

- 2** The parts of an electromagnet are shown below.



The strength of the magnet will be increased by

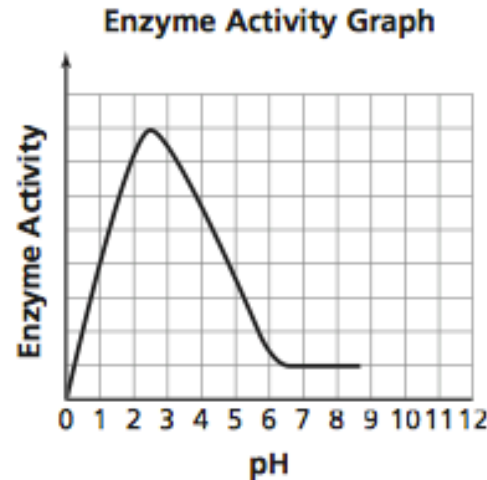
- F** using more nails.
- G** adding a switch.
- H** making more loops with the wire.
- J** placing the battery closer to the nail.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

3 The activity of an enzyme at different pH levels is shown in the graph.



You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Which table best represents the data in the graph?

Use the index of your book to help you.

Enzyme Activity

A

Activity Level	pH Level
Highest	Strong acid, 2.5
Lowest	Weak acid, 6.4

Enzyme Activity

C

Activity Level	pH Level
Highest	Strong acid, 2.0
Lowest	Weak acid, 6.0

Enzyme Activity

B

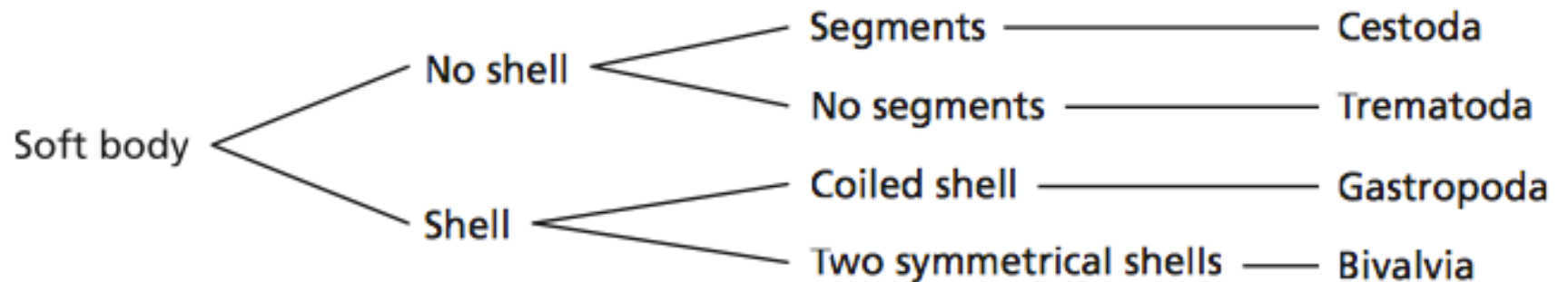
Activity Level	pH Level
Highest	Strong acid, 1.0
Lowest	Weak acid, 5.0

Enzyme Activity

D

Activity Level	pH Level
Highest	Strong acid, 3.5
Lowest	Weak acid, 6.9

4 A classification key for an organism is shown below.



To what class does the organism belong?

- F** Cestoda
- G** Gastropoda
- H** Trematoda
- J** Bivalvia

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

5 The clearing of rain forests for agricultural use has led to a decrease in biodiversity in many areas. One potential consequence of deforestation is

- A** an increase in the amount of atmospheric oxygen.
- B** the loss of plants with potential medicinal uses.
- C** a decrease in soil erosion.
- D** improved habitat for wildlife.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

6

Two fossils that appear to be from the same type of organism are found in two different layers of rock. The layers of rock are shown below.



You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

Which can be determined from the location of the fossils?

- F** the prey of the organisms
- G** the predators of the organism
- H** the cause of death for each organism
- J** the relative age of each organism

- 7** The table shows the percentage of individuals in a population of insects that is resistant to certain types of insecticides.

Insecticide Resistant Insect Populations

Population	Insecticide 1	Insecticide 2	Insecticide 3
1	12.8%	48.5%	1.8%
2	52.5%	2%	9.3%
3	28.6%	9.2%	34.8%
4	0%	0%	10.1%
5	2.8%	66.6%	3.5%
6	3.6%	78.5%	48.2%

Which two populations would be most affected by a widespread use of Insecticide 2 ?

- A** 2 and 4
- B** 1 and 6
- C** 3 and 5
- D** 4 and 6

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

8 A student applies heat to a solid substance. Which indicates that a chemical change occurred?

F The substance becomes a liquid but solidifies when cooled.

G The substance changes color and stays that color when cooled.

H The substance goes from liquid to gas very quickly.

J The substance expands but stays the same color.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

9

Which option contains only compounds?

A H_2O , H_2O_2 , H_3O , CO_2

B Na, NaCl, Pb, $\text{C}_6\text{H}_{12}\text{O}_6$

C NH_3 , KNO_3 , Hg, Ne

D Au, Ni, Cu, Fe

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

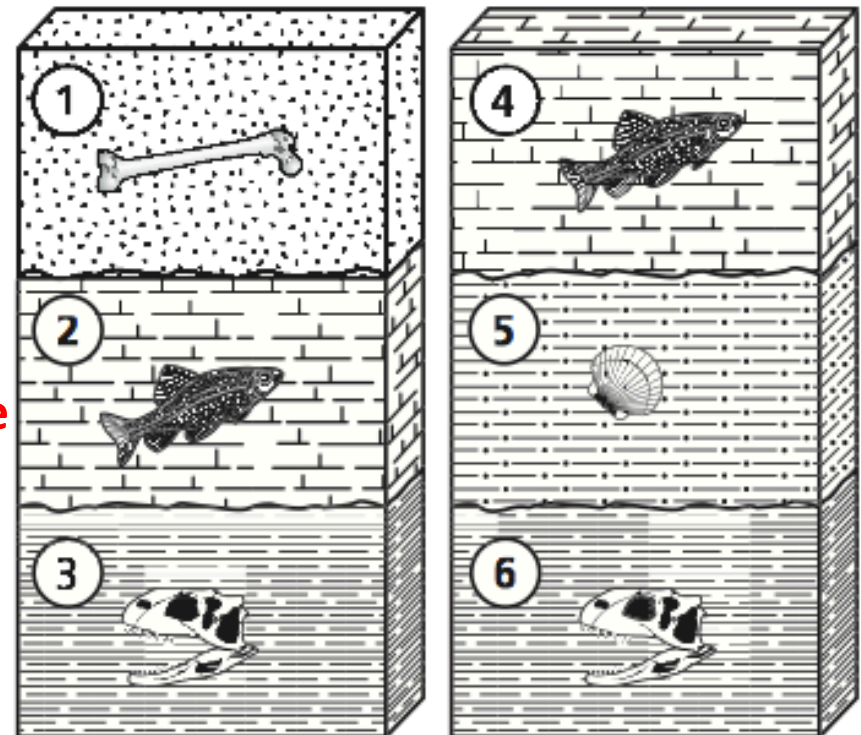
Use the index of your book to help you.

10 Compare the fossil layers shown below.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.



Which organisms are most likely to be the same approximate age?

- F** 1 and 3
- G** 3 and 5
- H** 2 and 4
- J** 5 and 6

11 The Arctic environment has temperatures that range between -22°C and 6°C with snow covering some of the area. Which adaptation would most likely help a population of organisms survive this environment?

- A** long necks and tall legs
- B** large shell and leathery skin
- C** light colored fur and layers of blubber
- D** brightly colored feathers and webbed feet

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

12

The table below shows the average rainfall amounts and number of grazing animals in an area over a 30-year period.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

	Millimeters of Rain	Number of Grazing Animals
1975	780	1500
1980	525	2000
1985	600	1500
1990	575	2500
1995	300	1500
2000	850	1000
2005	300	1500

Which is the best conclusion based on the data?

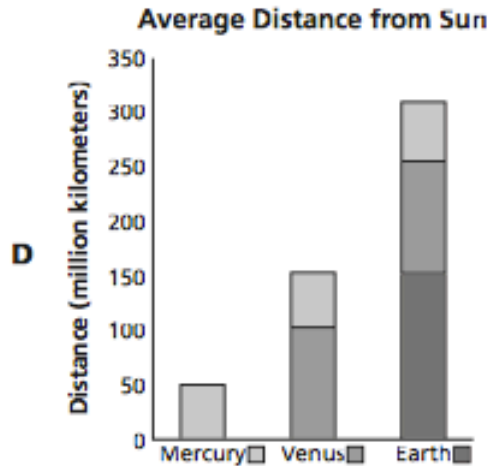
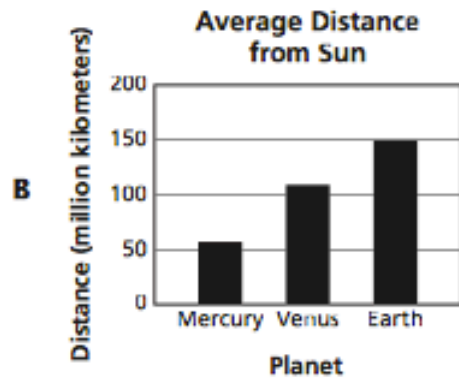
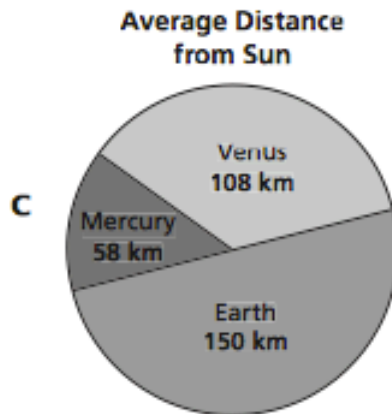
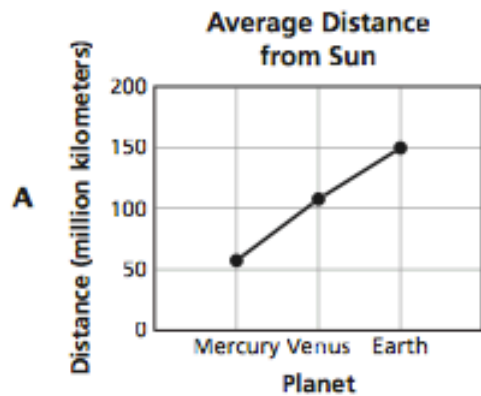
- F** The number of grazing animals increases approximately every 5 years.
- G** The number of grazing animals supported by rainfall cannot exceed 2000.
- H** The number of grazing animals is not affected by the amount of rainfall.
- J** The number of grazing animals increases after years of increased rainfall.

13 The table shows the average distance from the sun to the planets Mercury, Venus, and Earth.

Average Distance from Sun

Planet	Millions of Kilometers (km)
Mercury	58
Venus	108
Earth	150

Which graph best compares the distances from the sun for these three planets?



You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

14 An engineering company is testing a new weather-forecasting program. Which procedure would best verify that the program is making accurate predictions?

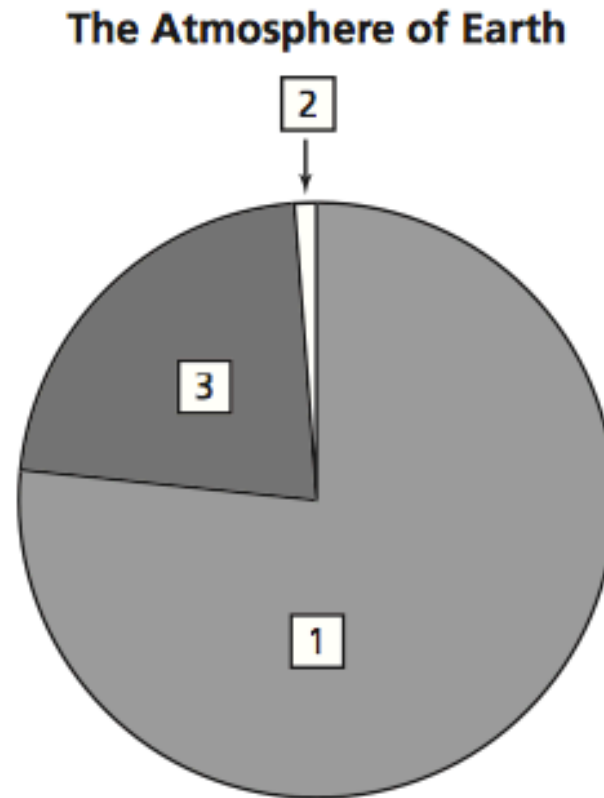
- F** comparing the predictions of the program to the actual weather
- G** comparing the predictions of the program to other predictions
- H** using the program to verify events not related to weather
- J** using the program to verify past weather-related events

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

15 The following graph represents the percentages of gases that make up the atmosphere of Earth.



You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

Which gas is represented in the portion labeled 1 on the graph?

- A** argon
- B** hydrogen
- C** nitrogen
- D** oxygen

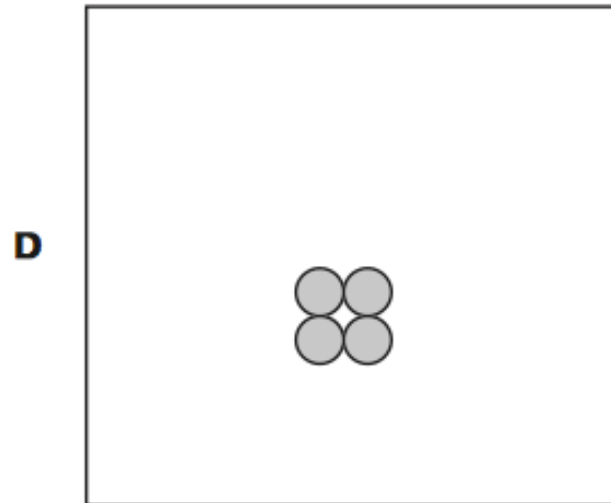
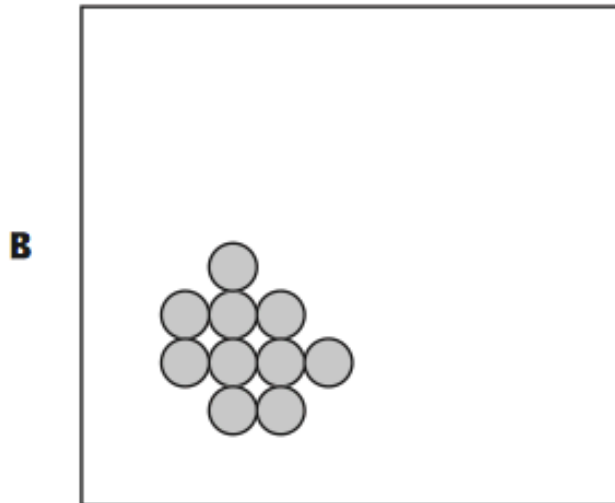
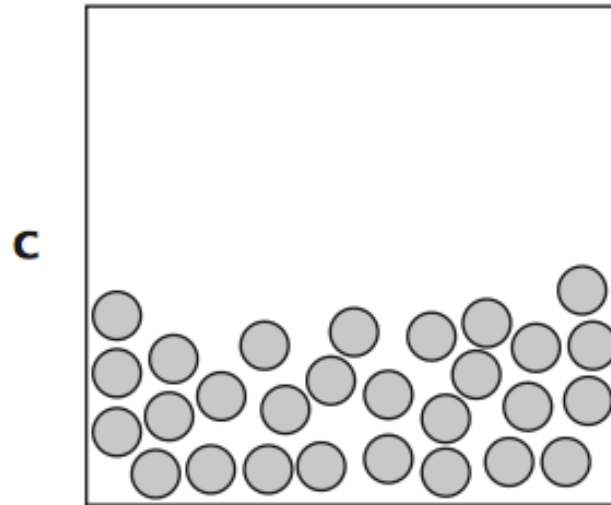
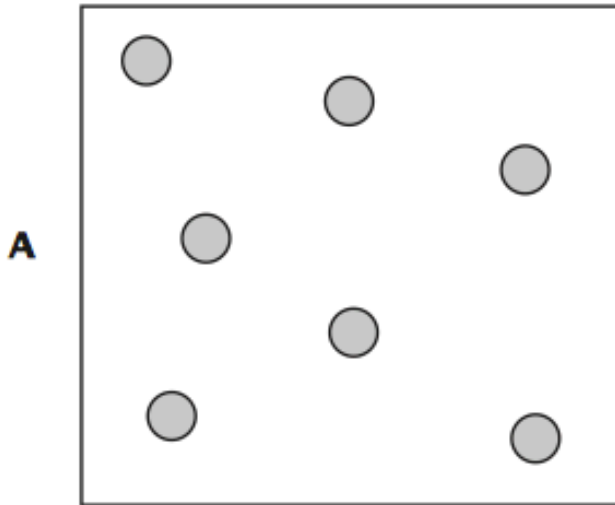
You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

- 16** A company is designing a dam with a floodgate to keep houses safe during the rainy season. The company is reviewing several possible designs that have worked in the past and is trying to develop a plan for implementing one design. Which is the next step in this process?
- F** pick several dams to use in a consumer survey
 - G** test each dam model during a different flood season
 - H** analyze the dam designs and pick one based on local needs
 - J** redesign the past dams based on what the company feels will work best

17 Which diagram best shows the type of particle arrangement associated with a gas?



You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

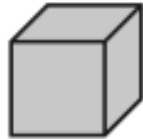
Use the index of your book to help you.

18 The equation for density is shown below.

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$
$$D = \frac{m}{V}$$

Which block has the greatest density?

F



Mass = 9 grams

Volume = 9 cubic centimeters

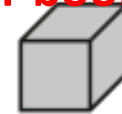
G



Mass = 10 grams

Volume = 12 cubic centimeters

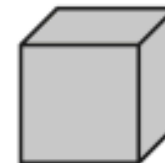
H



Mass = 11 grams

Volume = 4 cubic centimeters

J



Mass = 12 grams

Volume = 15 cubic centimeters

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

19 Which statement best describes the difference between a mixture and a compound?

- A** Compounds are pure elements.
- B** Compounds contain elements bonded together.
- C** Compounds can be easily separated into distinct parts.
- D** Compounds have multiple boiling points.

20

A student is trying to determine the density of a cube using the formula shown below.

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

$$D = \frac{m}{V}$$

What is the density of the cube if it has a mass of 2 grams and a volume of 1 cubic centimeter?

- F** 3.0 grams/cubic centimeter
- G** 2.0 grams/cubic centimeter
- H** 1.0 gram/cubic centimeter
- J** 0.5 gram/cubic centimeter

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

21

The main biofuel on the market today is ethanol, a fuel made from corn. Which type of bioengineered product is ethanol?

- A** adaptive
- B** assistive
- C** resistant
- D** manipulated

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

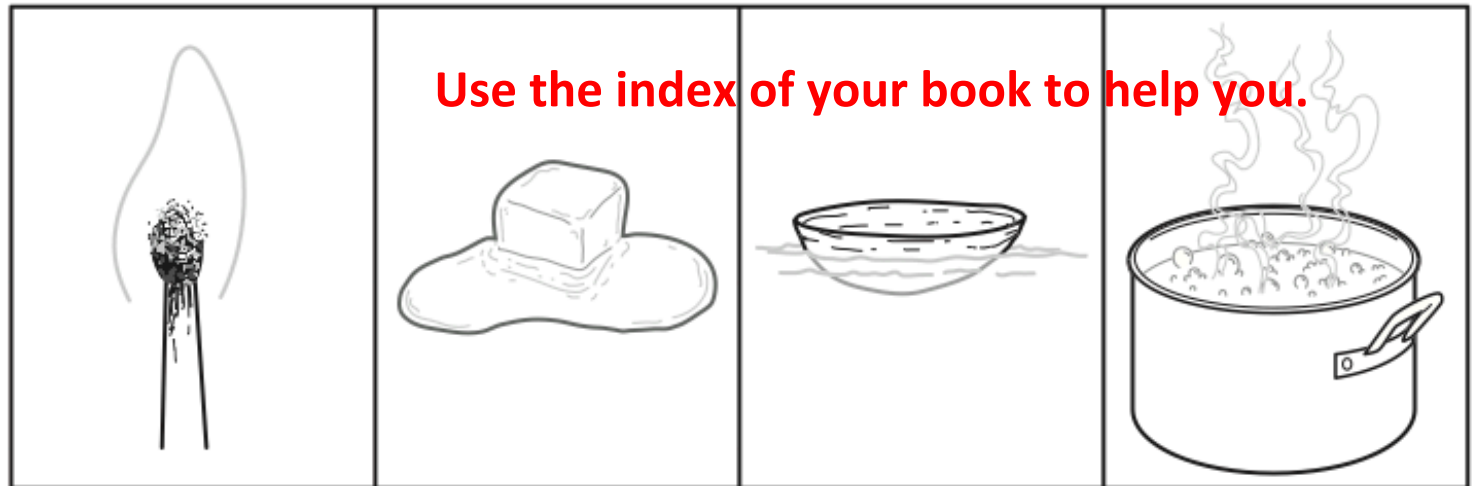
Use the index of your book to help you.

22

Four changes are shown below.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.



Which of these represents a chemical change?

- F** A match is lit, creating a yellow-orange flame.
- G** A small piece of ice melts, changing from a solid to a liquid.
- H** A ball of clay sinks in water, and floats when reshaped.
- J** A pot of water is heated to boiling, and evaporation occurs.

23 The periodic table of elements is shown below.

H																		He
Li	Be											B	C	N	O	F	Ne	
Na	Mg											Al	Si	P	S	Cl	Ar	
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe	
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	
Fr	Ra	Ac	Unq	Unp	Unh	Uns	Uno	Une	Uun									

Which statement best describes the reactivity of the shaded elements nitrogen (N), oxygen (O), and fluorine (F)?

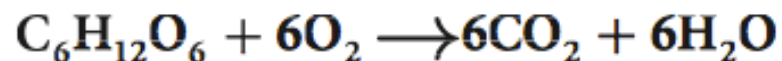
- A** The nonmetals increase in reactivity from right to left in the same period.
- B** Oxygen is the most reactive of all the elements listed.
- C** The nonmetals decrease in reactivity from right to left in the same period.
- D** Fluorine is the least reactive of all the shaded elements.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

24 A chemical equation is shown below.



What are the products of the reaction?

- F** H₂O and O₂
- G** C₆H₁₂O₆ and CO₂
- H** CO₂ and H₂O
- J** O₂ and C₆H₁₂O₆

25

The procedure below is designed to test how water temperature affects the rate at which sugar dissolves.

- Measure 150 milliliters of water into each beaker.
- Heat water to three different temperatures.
- Put 5 grams of sugar into each of the beakers at the same time.
- Stir and record the time it takes for the sugar to completely dissolve.

Which additional step will most improve the investigation?

- A** Use 200 milliliters of water in each beaker.
- B** Record the initial and final temperatures of the water.
- C** Stir at different rates for each beaker.
- D** Record the times when sugar is half dissolved.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

26 The table below shows researchers' data from an investigation designed to determine which sponge shape absorbs the greatest volume of water.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

Sponge Table

Sponge Shape	Mass of Wet Sponge
Round	5.50 grams
Square	5.70 grams
Irregular	6.00 grams
Oval	5.53 grams

Based on the data, the researchers stated that the irregular-shaped sponge absorbed the greatest volume of water. Researchers plan to market the irregular-shaped sponge as “super absorbent.” What is wrong with the researchers' interpretation of the data?

- F** The researchers should have tested the sponges in different types of liquids.
- G** The researchers should have tested more types of sponges.
- H** The researchers did not record the dry mass or volume of each sponge.
- J** The researchers did not freeze each sponge before massing it.

27 An iron block had an initial mass of 100 grams. As the block rusted, its mass increased. Which best explains why the mass increased?

- A** Oxygen combines with iron when rust is formed.
- B** Rust grows as it absorbs energy from the block.
- C** Water is absorbed as rust forms on the iron block.
- D** Rust releases heat and makes the iron expand.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

28 Which procedure best represents the law of conservation of mass?

- F** evaporating salt water leaves 5 grams of salt
- G** burning 2 kilograms of wood leaves 0.4 kilogram of ash
- H** using filter paper to separate 2 grams of solid from 10 grams of water
- J** combining 2 grams of copper and 4 grams of sulfur to produce 6 grams of copper sulfate

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

29

An unknown substance will be classified as an acid if the substance

- A** has a pH of 3.0.
- B** is slippery to the touch.
- C** turns red litmus paper blue.
- D** releases hydroxide ions in water.

30 Which is best used with a bar magnet to produce an electric current?

F metal coins

G silver pins

H paper clips

J wire coil

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

31 A student is to determine how much salt will dissolve in 50 milliliters of water. Which tool is best for measuring the volume of water to be used?

- A** 100-milliliter graduated cylinder
- B** thermometer
- C** spring scale
- D** 25-milliliter beaker

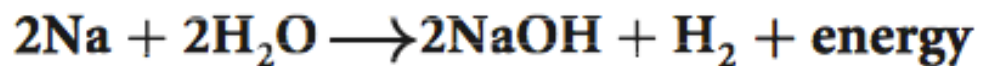
You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

32

The equation below represents a chemical reaction that releases energy.



Which part of the equation is a reactant?

F 2NaOH

G H₂

H 2H₂O

J energy

You must explain why your answer is correct by using a direct quote from the book.

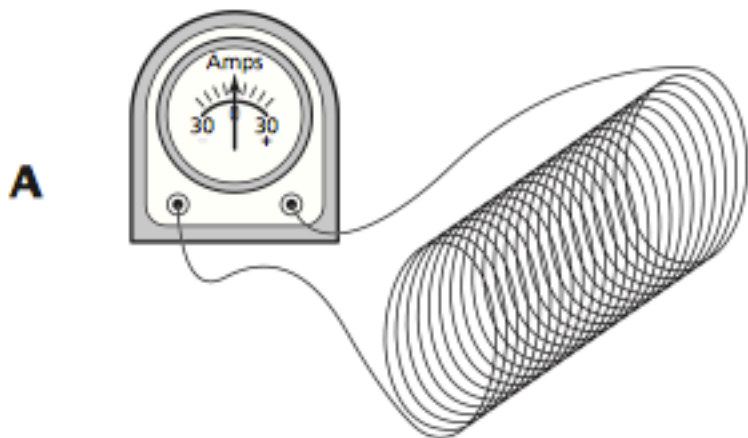
Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

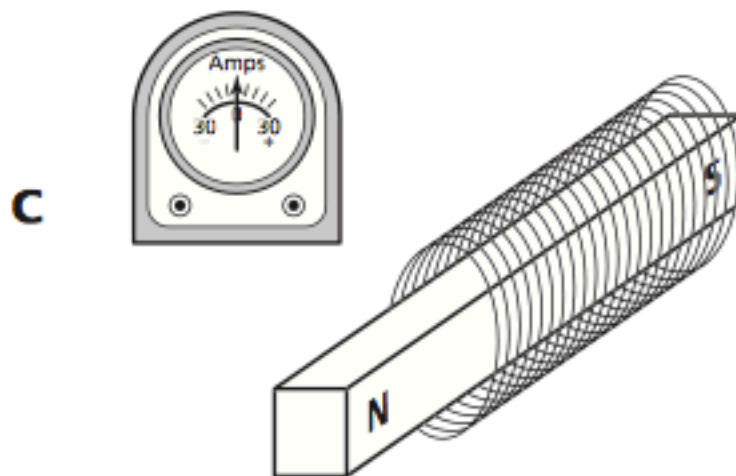
33

Which diagram shows an apparatus that is correctly set up to produce and measure electricity?

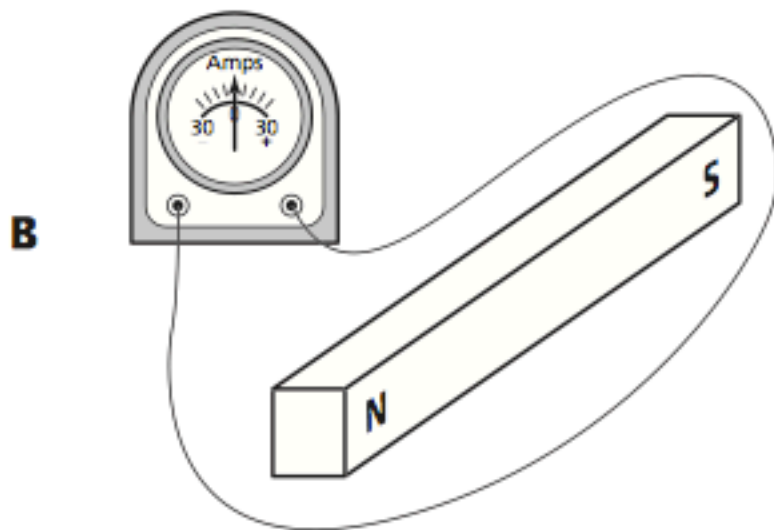
Microammeter



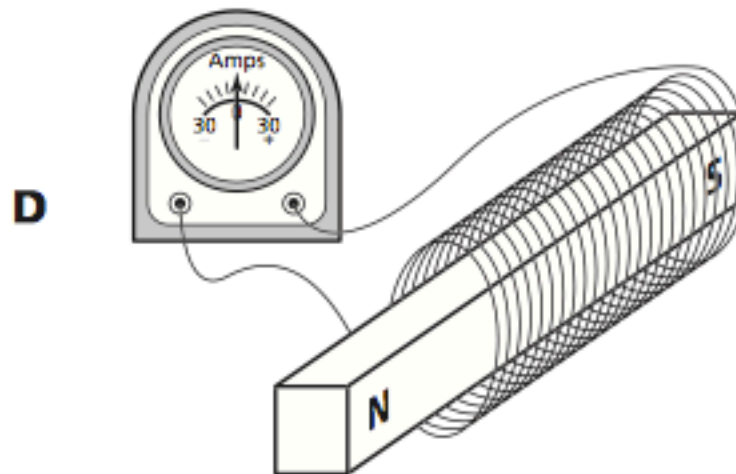
Microammeter



Microammeter



Microammeter



You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

- 34** The construction of an electromagnet would be best completed by introducing a current into loops of wire wrapped around
- F** a sandstone rock.
 - G** a glass square.
 - H** a plastic rod.
 - J** an iron nail.

35 A factory is producing a new machine designed to reduce the amount of air pollution in houses. The machine was produced and sold to the public. After several months, reports show the machine is not working correctly. Which of these most likely caused this outcome?

- A** The proper cost analysis was not performed.
- B** The prototype was not tested before use by the public.
- C** The designers did not test other types of machines.
- D** The manufacturing of the machine was done over several months.

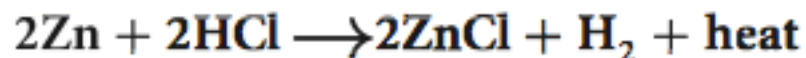
You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

36

A chemical equation is shown below.



The element zinc (Zn) can best be described as a

- F** compound.
- G** mixture.
- H** gas.
- J** reactant.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

37 In order to prolong the shelf life of fruits and vegetables, companies expose some types of fruits and vegetables to X-rays in order to kill bacteria. Which best describes irradiated fruits and vegetables?

- A** adaptive products
- B** assistive products
- C** synthetic products
- D** natural products

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

38

A student asks why the ashes from a fire have a much lower mass than the wood that was burned. Which is the correct answer to the student's question?

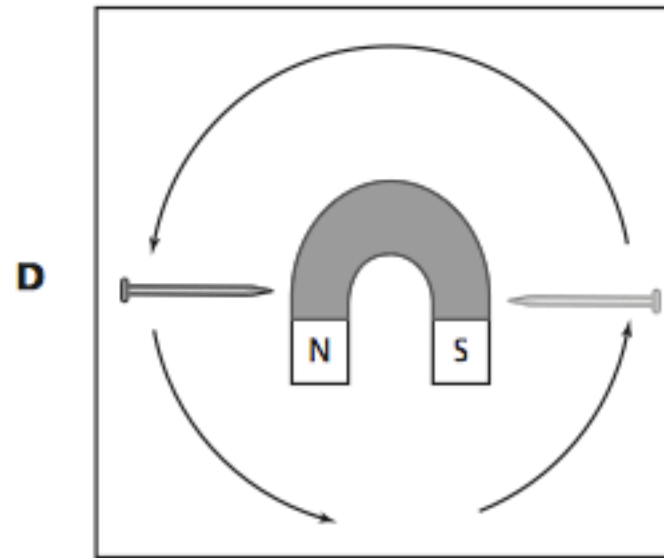
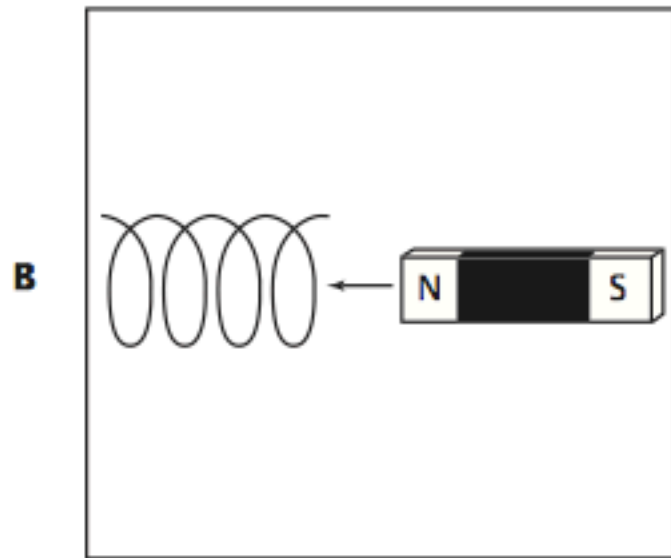
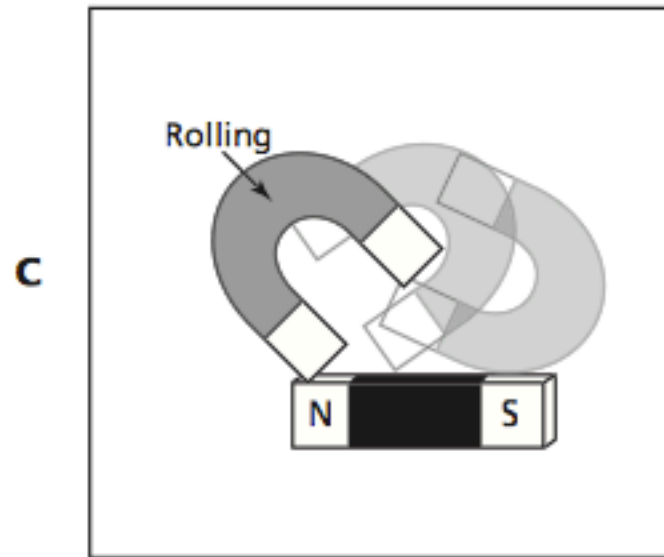
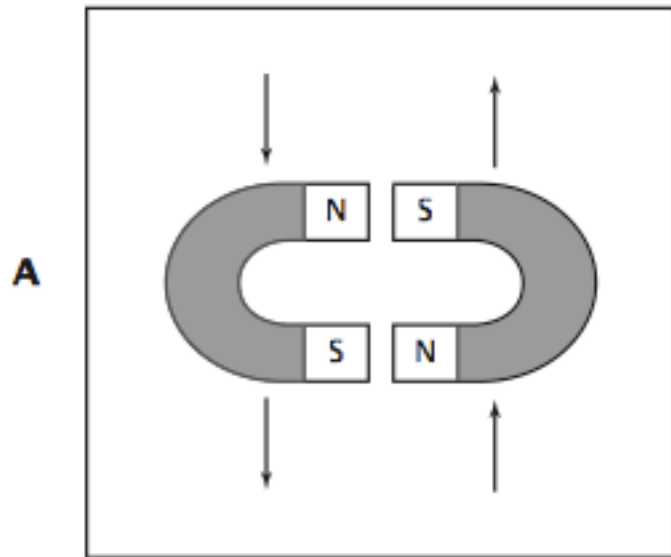
- F** Atoms in the wood are destroyed.
- G** Gases are released into the air.
- H** Water inside the wood solidifies.
- J** Heat causes molecules to lose density.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

39 Which diagram represents a magnet creating an electric current?



You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

40

The sun is much larger than the moon. Which of these best explains why the moon, despite its smaller size, has a greater effect on ocean tides than the sun does?

- F** The moon is much closer to Earth.
- G** The moon produces less light than the sun.
- H** The moon and Earth have the same composition.
- J** The moon has a lower surface temperature.

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

41 Which two items are best to use to determine the combined volume of three small rocks?

- A** electric scale and ruler
- B** graduated cylinder and water
- C** hot plate and beaker
- D** meter stick and eye dropper

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

42

Which properties most likely indicate that a substance is a base?

- F** releases hydrogen gas and reacts with metals
- G** turns red litmus blue and conducts an electric current
- H** turns blue litmus red and conducts an electric current
- J** has a pH below seven and corrodes a nail

You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

You must explain why your answer is correct by using a direct quote from the book.

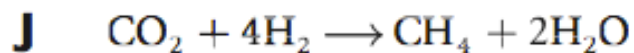
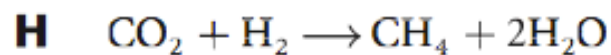
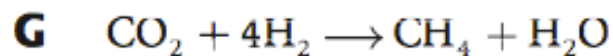
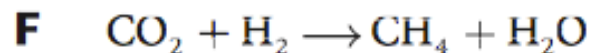
Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

43 Wire coils spinning between two magnets will produce

- A** cold.
- B** electricity.
- C** steam.
- D** chemicals.

44 A scientist wants to study what happens when carbon dioxide (CO_2) reacts with hydrogen (H_2). The scientist discovers that this reaction produces methane (CH_4) and water (H_2O). Which equation correctly represents this reaction?



You must explain why your answer is correct by using a direct quote from the book.

Please type the page number in your book that supports your explanation and write the EXACT sentence that supports your answer.

Use the index of your book to help you.

45

The table provides information about different worms.

Worm Characteristics

Type of Worm	Segmented	Bilateral Symmetry	Sexual Reproduction	Body Cavity	Example
Segmented worms	Yes	Yes	Yes	Yes	Earthworms and leeches
Flatworms	No	Yes	Yes	No	Planaria and tapeworms
Roundworms	No	Yes	Yes	Modified	Hookworms and <i>Ascaris</i>

Which is an example of a nonsegmented worm with no body cavity?

- A** Earthworms
- B** leeches
- C** *Ascaris*
- D** tapeworms