Print your name and the name of your school on the lines above.

The questions on this test measure your knowledge and understanding of science. The test has two parts. Both parts are contained in this test booklet.

**Part I** consists of 45 multiple-choice questions. Record your answers to these questions on the separate answer sheet. Use only a No. 2 pencil on your answer sheet.

**Part II** consists of 38 open-ended questions. Write your answers to these questions in the spaces provided in this test booklet.

You may use a calculator to answer the questions on the test if needed.

You will have two hours to answer the questions on this test.

**DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD TO DO SO.**
Part I

DIRECTIONS

There are 45 questions on Part I of the test. Each question is followed by three or four choices, numbered 1 through 4. Read each question carefully. Decide which choice is the best answer. On the separate answer sheet, mark your answer in the row of circles for each question by filling in the circle that has the same number as the answer you have chosen.

Read the sample question below.

Sample Question

Earth gets most of its light from
(1) the stars
(2) the Sun
(3) the Moon
(4) other planets

The correct answer is the Sun, which is choice number 2. On your answer sheet, look at the box showing the row of answer circles for the sample question. Since choice number 2 is the correct answer for the sample question, the circle with the number 2 has been filled in.

Answer all of the questions in Part I in the same way. Mark only one answer for each question. If you want to change an answer, be sure to erase your first mark completely. Then mark the answer you want.

You will not need scrap paper. You may use the pages of this test booklet to work out your answers to the questions.

You may use a calculator if needed.

When you are told to start working, turn the page and begin with question 1. Work carefully and answer all of the questions in Part I.

When you have finished Part I, go right on to Part II. Answer all of the questions in Part II.
Part I

1. The data table below shows apparent air temperature in degrees Fahrenheit (°F). Apparent air temperature is how hot the air feels at different air temperatures and different relative humidities.

<table>
<thead>
<tr>
<th>Air Temperature (°F)</th>
<th>Relative Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10%</td>
</tr>
<tr>
<td>100</td>
<td>95</td>
</tr>
<tr>
<td>95</td>
<td>90</td>
</tr>
<tr>
<td>90</td>
<td>85</td>
</tr>
<tr>
<td>85</td>
<td>80</td>
</tr>
<tr>
<td>80</td>
<td>75</td>
</tr>
<tr>
<td>75</td>
<td>70</td>
</tr>
<tr>
<td>70</td>
<td>65</td>
</tr>
</tbody>
</table>

If the air temperature is 90°F and the relative humidity is 70%, the apparent air temperature is
(1) 20°F  (3) 106°F
(2) 71°F  (4) 113°F

2. A student set up the experiment shown below to determine if radish seeds take in oxygen as they germinate. Methylene blue is a chemical that is blue when oxygen is present, but is colorless when oxygen is not present. Containers A and B each contained 200 mL of water and 10 drops of methylene blue. Ten radish seeds were added to container A. Container B had no radish seeds.

The purpose of container B in this experiment is to
(1) serve as the control container
(2) serve as the experimental container
(3) show that seeds do not give off oxygen
(4) show that seeds do not give off carbon dioxide
3 Which statement is an inference?
(1) A thermometer shows that the air temperature is 56°F.
(2) A mineral sample of galena produced a gray-black streak when tested.
(3) Based on previous data, ten hurricanes may occur in the year 2013.
(4) A weather vane indicates the wind is coming from the west.

4 The graph below shows a runner’s distance from the starting line during a 30-minute race. Distance was measured in meters (m). Time was measured in minutes (min).

![Distance vs. Time Graph]

During which time interval was the runner moving at the greatest average speed?
(1) 0–5 minutes  (3) 15–20 minutes
(2) 10–15 minutes  (4) 25–30 minutes

5 Which human organ system produces most of the hormones that regulate body functions?
(1) digestive  (3) muscular
(2) nervous  (4) endocrine

6 The fur of the snowshoe rabbit changes to a lighter color in the winter. This allows the rabbit to blend in with its surroundings. This change is an example of
(1) extinction
(2) competition
(3) biological adaptation
(4) ecological succession

7 The label below shows the nutrition facts for a snack food.

![Nutrition Facts]

How many grams of fat would be consumed if a person ate the entire box of snack food?
(1) 3 g  (3) 30 g
(2) 27 g  (4) 65 g

8 The diagram below shows a human organ system.

Which human organ system is shown?
(1) nervous  (3) circulatory
(2) digestive  (4) respiratory

9 In living things, traits are passed on from one generation to the next by the transfer of
(1) blood  (3) Calories
(2) minerals  (4) DNA
10 The diagram below shows part of the human excretory system.

The structures shown are primarily involved in
(1) transporting blood  (3) removing wastes
(2) producing sex cells  (4) breaking down food

11 Which health condition is an infectious disease?
(1) pneumonia caused by microorganisms
(2) heart problem caused by a high-fat diet
(3) lung cancer caused by smoking
(4) eye damage caused by ultraviolet light

12 A structure that carries a single unit of hereditary information is a
(1) gene  (3) sex cell
(2) tissue  (4) pedigree chart

13 Which pair of terms describes the usual location for fertilization and the first stages of development in human reproduction?
(1) external fertilization and external development
(2) external fertilization and internal development
(3) internal fertilization and external development
(4) internal fertilization and internal development

14 Abnormal cell division in humans may result in
(1) cancer
(2) fertilization
(3) asexual reproduction
(4) dynamic equilibrium

15 Which process involves choosing certain organisms to reproduce with one another in order to pass on specific, desirable traits to their offspring?
(1) selective breeding
(2) asexual reproduction
(3) resource acquisition
(4) natural selection

16 During which process do cells use oxygen to release stored energy?
(1) photosynthesis  (3) circulation
(2) respiration  (4) digestion

17 The basic life functions of an organism are carried on by
(1) cells  (3) atoms
(2) nutrients  (4) hormones

18 The sum of all chemical reactions that take place within an organism is known as
(1) evolution  (3) circulation
(2) metabolism  (4) reproduction

19 Which factor would most likely limit the number of mice living in an area?
(1) plentiful resources  (3) more predators
(2) stable climate  (4) less competition

20 The flowchart below represents the process of photosynthesis. One step in the process is labeled X.

Which activity occurs at X?
(1) Plants are eaten by animals for food.
(2) Carbon dioxide and water are used to make sugar.
(3) Plants release water into the soil.
(4) Animals breathe out carbon dioxide.
21 The diagram below shows a food chain.

Which organisms in this food chain are herbivores?
(1) green plants  (3) birds
(2) caterpillars   (4) snakes

22 The diagram below shows several different organisms found in an area.

The worms in the diagram represent
(1) a community  (3) a habitat
(2) an ecosystem  (4) a population
23 The diagram below shows how a plant community changed over 300 years.

Which process caused the gradual changes shown in this plant community?

(1) urban growth  (3) environmental pollution
(2) global warming  (4) ecological succession

24 Which diagram best represents light being reflected after striking the flat surface of a mirror?

25 The diagram below shows the positions of the Sun, Earth, and the Moon as seen from space.

Which event is caused by the Moon passing through Earth’s shadow?

(1) a meteor shower  (3) an eclipse
(2) a change of seasons  (4) an earthquake
26 A bright object with a long tail of glowing gases is in orbit around the Sun. This object is most likely
(1) a planet  (3) an asteroid
(2) a star    (4) a comet

27 The thin layer of rock on Earth’s surface is the
(1) atmosphere  (3) hydrosphere
(2) hemisphere (4) lithosphere

28 Under which conditions would a sugar cube dissolve most quickly when placed in a liter of water at room temperature?
(1) A whole sugar cube is added and the water is stirred.
(2) A whole sugar cube is added and the water is not stirred.
(3) A crushed sugar cube is added and the water is stirred.
(4) A crushed sugar cube is added and the water is not stirred.

29 All of the liquid from a test tube is poured into a beaker, as shown in the diagram below.

Compared to the liquid that was in the test tube, the liquid in the beaker has
(1) a different volume, but the same shape
(2) a different volume and a different shape
(3) the same volume, but a different shape
(4) the same volume and the same shape

30 Rocks are classified as sedimentary, metamorphic, or igneous on the basis of the
(1) age of the rocks
(2) way the rocks were formed
(3) types of fossils the rocks contain
(4) number of minerals found in the rocks

31 Which temperature and moisture conditions describe an air mass that originates over the Atlantic Ocean near the equator?
(1) warm and dry    (3) cool and dry
(2) warm and humid  (4) cool and humid

32 Which property of a substance indicates whether the substance is a liquid or a solid at room temperature?
(1) melting point
(2) electrical conductivity
(3) flexibility
(4) solubility

33 The photograph below shows a satellite image of a hurricane.

A satellite image of a hurricane helps weather forecasters to
(1) warn residents of hazardous weather conditions
(2) explain the effects of global warming on the ocean currents
(3) predict the times of high tide and low tide
(4) predict the total number of storms to occur in one year
Base your answers to questions 34 through 36 on the weather map below and on your knowledge of science. The center of a storm system (Low) over part of the United States and the frontal boundaries associated with this system are shown. Point A represents a location on the map.

34 The word Low on the map refers to

(1) air temperature (3) relative humidity
(2) air pressure (4) amount of cloud coverage

35 Precipitation is most likely occurring at A because it is located

(1) on a cold ocean surface (3) near the cold front
(2) on a warm land surface (4) near the warm front

36 In which compass direction will the storm center (Low) most likely move over the next few days if it follows a typical storm track?

(1) northeast (3) northwest
(2) southeast (4) southwest
37 The photograph below shows a phase of the Moon as seen by an observer in New York State.

Which phase is closest to what will be seen by the observer in New York State 1 month later?

(1)  
(2)  
(3)  
(4)  

Base your answers to questions 38 and 39 on the field map below, which shows average yearly snowfall in the state of Pennsylvania. The solid lines represent amounts of snowfall in inches. Point X represents a location on the map.

38 Approximately how much snow falls in an average year at location X?
(1) 39 inches  
(2) 40 inches  
(3) 41 inches  
(4) 42 inches

39 Which part of Pennsylvania has the greatest average yearly snowfall?
(1) northern  
(2) eastern  
(3) southern  
(4) western
40 Fossil fuels are considered **nonrenewable** because they
(1) produce pollution
(2) are no longer used by humans
(3) often contain microscopic animals
(4) take millions of years to form

41 The diagram below shows a cross section of a waterfall. Points A, B, C, and D represent locations in the stream.

At which location does the water have the greatest kinetic energy?
(1) A  (3) C
(2) B  (4) D

**Note that question 42 has only three choices.**

42 If the force used to push a shopping cart increases, the cart’s acceleration will
(1) decrease
(2) increase
(3) remain the same

43 Sound waves are *not* able to travel through
(1) a cloud (3) metal
(2) a vacuum (4) water

44 The diagram below shows two magnets.

If the magnets are brought closer together, they will
(1) attract each other with a stronger force
(2) attract each other with a weaker force
(3) repel each other with a stronger force
(4) repel each other with a weaker force

45 The diagram below shows a person using a simple machine to move a rock.

Which simple machine is the person using?
(1) pulley  (3) wheel and axle
(2) inclined plane  (4) lever
Part II

Directions (46–83): Record your answers in the space provided below each question.

Base your answers to questions 46 and 47 on the passage below and on your knowledge of science.

A student wondered if different types of plants would produce different amounts of oxygen. A pea plant, a fern, and a cactus were growing in equal-sized containers with equal amounts of soil. The student measured the amount of oxygen produced by each.

46 State one possible hypothesis for this experiment. [1]

______________________________________________________________________________________
______________________________________________________________________________________

47 Identify two conditions, other than the size of container and the amount of soil, that should be held constant in this experiment. [1]

(1) __________________________________________
(2) __________________________________________

______________________________________________________________________________________
Base your answers to questions 48 through 50 on the data table below and on your knowledge of science. The data table shows the number of Calories used per hour by a small dog while running at different speeds. Average running speed was recorded in kilometers per hour (km/h).

<table>
<thead>
<tr>
<th>Average Running Speed (km/h)</th>
<th>Calories Used per Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>6</td>
<td>36</td>
</tr>
<tr>
<td>8</td>
<td>45</td>
</tr>
</tbody>
</table>

48 If the trend shown in the data table continues, how many Calories per hour will be used by the dog when running at an average speed of 10 km/h?  

___________ Calories

49 Construct a line graph on the grid below. Use an X to plot the number of Calories per hour used by the dog for each average running speed recorded in the data table. Connect the Xs with a line.  

[Graph]

Calories Used by a Small Dog While Running

Average Running Speed (km/h)

Calories Used per Hour

0 6 12 18 24 30 36 42 48 54 60

2 3 4 5 6 7 8

Grade 8 Science — June '12
50 Describe the relationship between the dog's average running speed and the number of Calories used per hour.  [1]

Base your answers to questions 51 and 52 on the data table below and on your knowledge of science. The table shows some properties of five different minerals.

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Surface Color</th>
<th>Luster</th>
<th>Streak</th>
<th>Hardness</th>
<th>Density (g/cm³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>kaolinite</td>
<td>white</td>
<td>nonmetallic</td>
<td>white</td>
<td>soft</td>
<td>2.6</td>
</tr>
<tr>
<td>galena</td>
<td>silver to gray</td>
<td>metallic</td>
<td>gray black</td>
<td>soft</td>
<td>7.6</td>
</tr>
<tr>
<td>graphite</td>
<td>silver to gray</td>
<td>metallic</td>
<td>black</td>
<td>soft</td>
<td>2.3</td>
</tr>
<tr>
<td>magnetite</td>
<td>silver to black</td>
<td>metallic</td>
<td>black</td>
<td>hard</td>
<td>5.2</td>
</tr>
<tr>
<td>olivine</td>
<td>green</td>
<td>nonmetallic</td>
<td>white</td>
<td>hard</td>
<td>3.4</td>
</tr>
</tbody>
</table>

51 Identify the mineral that has the greatest difference between the color of its powder and the color of its outside surface.  [1]

52 Explain why a sample of magnetite will scratch a sample of galena.  [1]
Base your answers to questions 53 and 54 on the food web below and on your knowledge of science.

53 Which organism labeled in this food web provides energy, either directly or indirectly, to all of the other organisms?  [1]

____________________________________________

54 Explain why the amount of food available to the slug population might increase if the aphid population decreased.  [1]

____________________________________________________________________________________
____________________________________________________________________________________

55 Use the terms below to complete the sequence of the levels of organization in a multicellular organism.  [1]

organisms
organ systems
tissues
cells → __________________→ __________________→ __________________→ organism
Base your answers to questions 56 and 57 on the Punnett square below and on your knowledge of science. The Punnett square shows a cross between a mouse with black fur whose genetic makeup was $BB$, and a mouse with white fur whose genetic makeup was $bb$.

56 Explain why all of the offspring have black fur, even though each of them has a gene for white fur.  

______________________________________________________________________________________

______________________________________________________________________________________

57 A second cross was done using a different pair of mice. One parent was a mouse with white fur ($bb$). The other parent was a mouse with black fur. Some of the offspring produced from this cross had white fur. What genetic makeup did this parent with black fur have in order to produce some offspring with white fur?  

Genetic makeup: ____________

______________________________________________________________________________________
58 The chart below shows the major function of three different human organ systems. For each major function listed, identify the human organ system that performs the function. [2]

<table>
<thead>
<tr>
<th>Major Function</th>
<th>Human Organ System</th>
</tr>
</thead>
<tbody>
<tr>
<td>moves substances to and from all cells of the body</td>
<td>_____________________ system</td>
</tr>
<tr>
<td>creates sex cells and offspring</td>
<td>_____________________ system</td>
</tr>
<tr>
<td>breaks down food</td>
<td>_____________________ system</td>
</tr>
</tbody>
</table>

59 The data table below shows five hamster species and the number of chromosomes found in their body cells.

<table>
<thead>
<tr>
<th>Hamster Species</th>
<th>Number of Chromosomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syrian hamster</td>
<td>44</td>
</tr>
<tr>
<td>dwarf Campbell's Russian hamster</td>
<td>28</td>
</tr>
<tr>
<td>dwarf winter white Russian hamster</td>
<td>28</td>
</tr>
<tr>
<td>Chinese hamster</td>
<td>22</td>
</tr>
<tr>
<td>Roborovski hamster</td>
<td>34</td>
</tr>
</tbody>
</table>

These species all reproduce sexually. How many chromosomes would be in a sex cell of a Syrian hamster? [1] __________ chromosomes
Base your answers to questions 60 and 61 on the diagram below and on your knowledge of science. The diagram represents a cross section of several layers of sedimentary rock that have not been overturned. Each layer contains fossils.

60 Explain why the fossils in rock layer A are more likely to resemble life-forms that exist today. [1]

______________________________________________________________________________________
______________________________________________________________________________________

61 State one conclusion that many scientists have made about Earth's past by studying fossils. [1]

______________________________________________________________________________________
______________________________________________________________________________________

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Base your answers to questions 62 and 63 on the diagram below and on your knowledge of science. The diagram represents a model of sexual reproduction in humans. Two stages are labeled A and B.

![Diagram of sexual reproduction](image)

62 Identify each of the *two* cells represented at stage A. [1]

- [Cell A]
- [Cell B]

63 Describe *one* difference between sexual reproduction and asexual reproduction. [1]

______________________________________________________________________________________
______________________________________________________________________________________

64 Producers, consumers, and decomposers are three types of organisms that obtain nutrients in different ways. In the chart below, identify *each* organism as a producer, consumer, or decomposer based on its source of nutrients. [1]

<table>
<thead>
<tr>
<th>Organism</th>
<th>Source of Nutrients</th>
<th>Type of Organism</th>
</tr>
</thead>
<tbody>
<tr>
<td>mushroom</td>
<td>breaks down dead tree roots</td>
<td>decomposer</td>
</tr>
<tr>
<td>algae</td>
<td>makes its own food</td>
<td>producer</td>
</tr>
<tr>
<td>cow</td>
<td>eats plants</td>
<td>consumer</td>
</tr>
</tbody>
</table>
Base your answers to questions 65 and 66 on the information and diagram below and on your knowledge of science. The diagram represents the life cycle of a frog.

Frogs live most of their lives in and around water. During the tadpole stage, they live entirely underwater and get oxygen through their gills. As adults, frogs can live on land and breathe air.

65 Identify one structural change to this organism’s body that occurs during its life cycle. [1]

______________________________________________________________________________________

66 An environmental change causes a decrease in the amount of oxygen that is dissolved in the pond water. Explain why this change would have a greater effect on the frog during the tadpole stage than during the adult stage. [1]

______________________________________________________________________________________

______________________________________________________________________________________

______________________________________________________________________________________
Base your answers to questions 67 and 68 on the diagram below and on your knowledge of science. The diagram represents an enlarged view of a plant cell. Several cell structures have been labeled.

![Diagram of a plant cell with labeled structures: Chloroplast, Large vacuole, Cell wall, Cell membrane, Cytoplasm.]

67 Identify two labeled structures that identify this cell as a plant cell rather than an animal cell. [1]

(1) _______________________________

(2) _______________________________

68 Identify one other structure that could be found in this plant cell that is not labeled in the diagram. [1]

__________________________________

Base your answers to questions 69 and 70 on the information below and on your knowledge of science.

A student performed an experiment in which 10 mL of a strong acid was placed on a sample of limestone. Bubbles formed where the acid touched the limestone. After 20 minutes, the bubbling stopped and the surface of the limestone appeared unchanged.

69 Identify one observation that shows a chemical reaction occurred between the acid and the limestone. [1]

______________________________________________________________________________________

70 Explain why limestone buildings are weathered by acid rain even though the limestone sample in this experiment did not appear to be changed by the strong acid. [1]

______________________________________________________________________________________

______________________________________________________________________________________

______________________________________________________________________________________

______________________________________________________________________________________
71 The diagram below represents one position of Earth in its orbit. Points A and B represent locations on Earth’s surface. Location A is experiencing daylight while location B is experiencing darkness.

What Earth motion will bring location B into daylight in the next few hours? [1]

72 The model below shows latitude and longitude lines on Earth. Point A represents a location on Earth. The latitude lines shown are spaced 10° apart and the longitude lines are spaced 15° apart.

Determine the latitude and longitude of location A. [1]

Latitude: ___________________ ° N

Longitude: ___________________ ° W
Base your answers to questions 73 and 74 on the four maps below and on your knowledge of science. The maps show two streams, A and B, on two different dates. The arrows represent the direction of the streams’ flow.

Students studying erosion painted several rocks of similar size, shape, and density. On May 1, they put half of the rocks in stream A and half of the rocks in stream B. On July 1, the students recorded the locations of the painted rocks in each stream. The results are shown in the diagram below.

73 Explain how this experiment demonstrated erosion. [1]

_____________________________________________________________________________________
_____________________________________________________________________________________

74 State one possible reason why more rocks moved farther downstream in stream B than in stream A. [1]

_____________________________________________________________________________________
_____________________________________________________________________________________

Stream A

May 1

July 1

Stream B

May 1

July 1
The diagram below shows part of the water cycle. Some processes in the water cycle are represented by A, B, C, and D.

Complete the chart below by identifying the water cycle process represented by each letter in the diagram. [2]

<table>
<thead>
<tr>
<th>Letter</th>
<th>Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>
76 Describe the process that most likely caused the change in the positions of South America and Africa over the last 65 million years. [1]

______________________________________________________________________________________

77 State one piece of evidence to support the theory that South America and Africa were once connected. [1]

______________________________________________________________________________________

______________________________________________________________________________________
78 Diagrams A and B show models of how the molecules of the same substance are arranged in two different phases of matter.

![Diagrams A and B](image)

(Not drawn to scale)

Which phases of matter are represented by diagrams A and B? [1]

Diagram A: _____________________________ Diagram B: _____________________________

79 When a balloon is rubbed on a wool sweater, the balloon builds up a negative electrical charge. When a glass rod is rubbed on silk, the rod builds up a positive electrical charge. Explain why the charged balloon will be attracted to the charged glass rod. [1]

______________________________________________________________________________________

______________________________________________________________________________________
The diagram below shows a portion of the Periodic Table of the Elements. 

**Portion of the Periodic Table of the Elements**

<table>
<thead>
<tr>
<th>Key</th>
<th>approximate atomic mass</th>
<th>symbol</th>
<th>name</th>
<th>atomic number</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>Si</td>
<td>Silicon</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>14</td>
<td>Si</td>
<td>Silicon</td>
<td></td>
<td>14</td>
</tr>
</tbody>
</table>

**Groups**

<table>
<thead>
<tr>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>C</td>
<td>N</td>
<td>O</td>
<td>F</td>
</tr>
<tr>
<td>11</td>
<td>12</td>
<td>14</td>
<td>16</td>
<td>19</td>
</tr>
<tr>
<td>Boron</td>
<td>Carbon</td>
<td>Nitrogen</td>
<td>Oxygen</td>
<td>Fluorine</td>
</tr>
<tr>
<td>He</td>
<td>Ne</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>18</th>
<th>19</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Ne</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Fluorine</td>
<td>Neon</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

Identify one element that has chemical properties similar to the chemical properties of fluorine. [1]

_________________________________________
The diagram below shows the arrangement of atoms and the chemical composition of a water molecule. The table shows common elements and their chemical symbols.

**Table of Common Elements**

<table>
<thead>
<tr>
<th>Element</th>
<th>Chemical Symbol</th>
</tr>
</thead>
<tbody>
<tr>
<td>helium</td>
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What *two* elements make up the water molecule?  

_________________________________________ and ____________________________________
82 Explain why crushing the aluminum can is an example of a physical change and not a chemical change. [1]

______________________________________________________________________________________
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83 Making cans from newly mined aluminum ore uses a large amount of energy. Therefore, old aluminum cans are often recycled to make new ones. State one positive effect recycling aluminum has on the environment. [1]

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