FLORIDA

SAMPLER

Integrated Grade 7 Statewide Science Assessment Workbook

SAVVAS SCIENCE EXPLORATIONS

SAVVAS

FLORIDA

Grade 7 Statewide Science Assessment Workbook

SAVVAS SCIENCE EXPLORATIONS

SAVVAS
LEARNING COMPANY

Cover: High-speed train. Scanrail/iStock/Getty Images; blank notes and papers, Marinello/DigitalVision Vectors/Getty Images

SAVVAS
LEARNING COMPANY

Table of Contents

TEST-TAKING STRATEGIES

PRACTICE PROBLEMS

The *Grade 7 Statewide Science Assessment Workbook* prepares students for the Statewide Science Assessment in Grade 8. The workbook consists of test taking strategies and grade 6 and 7 practice problems. Separate answer keys are provided for the teacher **on Savvas Realize** that list the Standard codes for each item.

To ensure that this product will successfully prepare your students for the Florida Statewide Science Assessment, we partnered with the nationally recognized organization **WestEd** to conduct an evaluation of the alignment of the grade-level test items to the grade level benchmarks measured by the Florida NGSSS/Florida's Academic Standards for Science and Statewide Science Assessments. The WestEd report found that:

- The **grade level tests** contain items aligned to the corresponding grade level benchmarks.
- The **practice tests** on Savvas Realize include all the benchmarks assessed in the Florida test specifications.
- The distribution of items by cognitive complexity in the **practice tests** falls within the range of percentages indicated in the Florida test specifications.
- The percentage of items associated with each reporting category in the **practice tests** is closely aligned with the percentages indicated in the Florida test specifications.

To view the full report from WestEd, please visit the Getting Started section of your Savvas Realize course at www.savvasrealize.com.

Test-Taking Strategies

STRATEGY Using a Benchmark

Benchmarks are a useful comparison tool that can be used to narrow down options in a test. The process of using a benchmark involves reading the first option and deciding if it sounds correct or not based on your knowledge of the content. If it sounds correct, that option can be used as a benchmark to compare to the other options. If it does not sound correct, the same process is completed with the next option. The benchmark that you end up with after reading each option should be identified as the correct answer.

Carefully read the question and use one option as a benchmark. Read through each option and compare it to the benchmark option. After reading each option, identify the benchmark that you end up with as the correct answer.

Sample Question

1. A food chain in a grassland ecosystem is represented as:

Grass → grasshopper → mouse → snake → hawk

Pollution has caused a decrease in the number of snakes in the ecosystem.

What is **ONE** way this disruption will affect the food chain?

Ⓐ There will be a decrease in the mouse population.

Ⓑ There will be a decrease in the hawk population.

Ⓒ There will be an increase in the grasshopper population.

Ⓓ There will be an increase in the hawk population.

Option **A** is incorrect because with a decrease in snakes, the mouse population would increase, since snakes feed on mice. It makes sense that the hawk population would decrease since hawks feed on snakes, so option **B** is a good benchmark. Option **C** is incorrect because a decrease in the snake population would cause an increase in the mouse population and therefore a decrease, not increase, in the grasshopper population. Option **D** is incorrect because hawks feed on snakes, so the hawk population would decrease, not increase. Therefore, option **B** remains as our benchmark and is the correct answer.

STRATEGY Validating Information

Sometimes options contain both information that is valid, or true, and information that is invalid, or false. When taking a test, it is important to read each option carefully to determine if all the information in the option is valid. To validate information, read each option and determine if all of the information in the option is correct. Are there two unrelated pieces of information in one option? If so, this option can be eliminated. Continue to validate or invalidate information in each option to arrive at the correct answer.

Read the question and the options carefully. Do any of the options contain invalid information? Are each definition and all parts of the definition correct? Eliminate any options that have invalid information to find the correct answer.

Sample Question

2. What is the function of the cell membrane in a cell?

Ⓐ The cell membrane prevents oxygen produced during photosynthesis from being released.

Ⓑ The cell membrane maintains the overall shape of the organism.

Ⓒ The cell membrane regulates the materials that pass into and out of the cell.

Ⓓ The cell membrane produces the energy the cell needs to perform its normal activities.

Option **A** indicates that oxygen is produced during photosynthesis, which is valid, but not all cells perform photosynthesis. Also, the cell membrane does not prevent oxygen from being released. Option **B** contains invalid information because at the cellular level, the cell membrane does not maintain a shape. Option **C** contains all valid information: the cell membrane regulates the materials that pass into and out of the cell. Still, read the last option to make sure it is invalid. Option **D** indicates that the cell membrane produces energy, which is not valid. Option **C** is therefore the correct answer.

STRATEGY Reading All the Answer Choices

When taking a test, it is important to read each option carefully before deciding the correct answer. By reading through all the answer choices, it may be possible to eliminate one or more options that are clearly incorrect. This strategy is useful for questions that are challenging and require more complex analysis.

Read the question and think about what it is asking. Then, read each of the options carefully. Do any of the options stand out as incorrect? Do not decide on the correct answer until each option is carefully read.

Sample Question

3. Global patterns of atmospheric movement can cause changes to local weather. As air masses move around, they collide with each other, creating fronts. Fronts can be warm or cold, depending upon the type of air being moved.

What type of weather occurs after a cold front has moved through an area?

Ⓐ Colder, wetter air

Ⓑ Long periods of rain and clouds

Ⓒ Light rain or snow

Ⓓ Colder, drier air

Option **A** partially describes what happens after a cold front passes through an area but read the option carefully. The air after a cold front passes through is drier, not wetter, so this option is wrong. Option **B** identifies long periods of rain and clouds. Since precipitation does not occur after a cold front passes, this is incorrect. Similarly, option **C** indicates that light rain or snow falls after a cold front passes, which is incorrect. Read option **D**. The air that follows a cold front is cold and dry, so option **D** is correct.

STRATEGY Making Predictions

When taking a test, you can often predict the answer before even reading the options. If you recall the content that you learned and evaluate the question, it will be easier to answer the question. Making predictions involves reading the question carefully and using your knowledge to predict what the correct answer will be before reading the options. What is the question asking and what information do you already know about the topic? Read the options and keep your prediction in mind. Do any of the options closely match your prediction? That option will most likely be the correct answer.

Read the question and pause for a few moments to predict the correct answer. After you make a prediction, read the options to see if you can find an option that matches it. Identify that option as the correct answer.

Sample Question

4. The chemical equation for photosynthesis is:

$6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$

How does this equation support the conservation of mass?

Ⓐ The products have more energy than the reactants.

Ⓑ Six molecules of water produce six molecules of oxygen.

Ⓒ There are two reactants and two products in the reaction.

Ⓓ There are the same number of atoms in the reactants and the products.

The question is about conservation of mass. Since the conservation of mass states that in a chemical reaction, mass is neither created nor destroyed, we can predict that the answer will indicate that the mass is the same in both the reactants and products. Option **A** only references energy, not mass, so this does not match our prediction. Also, it indicates that the products have more energy than the reactants, and we are looking for equal amounts. Option **B** references equal amounts of reactants and products but only references some of the molecules in the equation. This is close to our prediction but does not directly match it. Option **C** references an equal number of reactants and products but does not reference the number of *atoms*, making it different from our prediction. Finally, option **D** refers to the same number of atoms in the reactants and products, which means that the mass is the same. Option **D** matches our prediction and is therefore the correct answer.

STRATEGY Interpreting Data Tables

Sometimes test questions present information in a data table. Data can consist of numbers or words. Data tables usually contain titles, row headings, and column headings. The title tells us the bigger picture of what the data table is showing. The column or row headings show us different categories. The values or words contained under or across each heading indicate the data that relates to that particular category. Tables make data easy to see so you can identify patterns and make comparisons. In some cases, the table has empty cells. This usually means that you will have to use the patterns or relationships you found to complete the empty cells. By organizing and interpreting information in data tables, knowledge can be gathered before even reading the question and options.

Read the table's title, columns, and row headings to figure out what information the table is communicating. Then, read the data and look for patterns or relationships in the data. Once you have interpreted the data, read the question and choose the answer that matches your data interpretation.

Sample Question

5. Four objects with different masses and applied forces are moving with different accelerations. The data are shown in the table.

Object	Mass (kg)	Acceleration (m/s^2)	Applied Force ($kg \cdot m/s^2$)
1	25	34	850
2	14	2	28
3	9	65	585
4	20	50	1000

What is the relationship between the variables in the data table?

Ⓐ The greater the mass, the greater the force, regardless of the acceleration.

Ⓑ The greater the acceleration, the greater the force, regardless of the mass.

Ⓒ The sum of the mass and the acceleration equals the force.

Ⓓ The product of the mass and the acceleration equals the force.

The table's title and column headings show us that the data include the object, the mass, the acceleration of the object, and the applied force on the object. The question is about finding a relationship in the data. Look at the values in the table and search for a trend. Notice that when you look at the data for each object, the applied force column is the product of the mass and acceleration columns. This indicates that option **D** is the correct answer. Option **A** is incorrect since object 1 has the greatest mass but not the greatest force. Option **B** is incorrect since object 3 has the greatest acceleration but not the greatest force. Option **C** is incorrect because we can see in the data table that the sum of the mass and acceleration does not equal the force. So, option **D** is the correct answer.

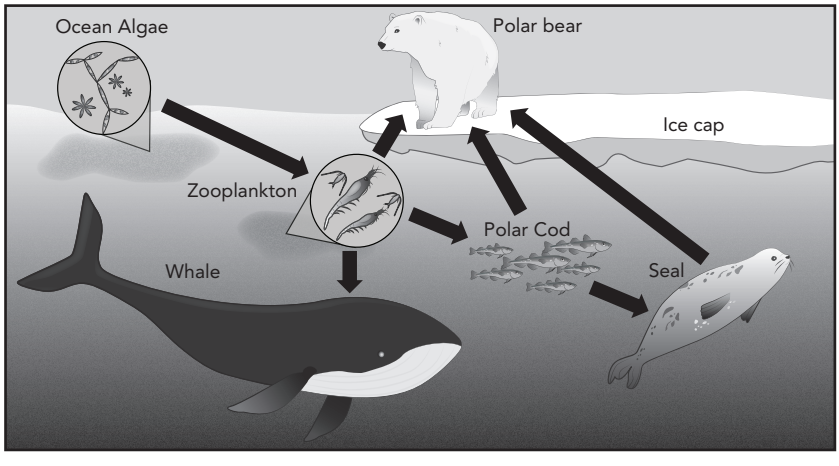
STRATEGY **Interpreting Diagrams**

Diagrams communicate information in a visual format using images, headings, labels, keys, legends, and units. Titles and headings give us an overall understanding of the diagram. Labels identify each part of a diagram. Keys tell us what particular symbols or lines in the diagram represent so the information can be interpreted. Some diagrams explain a process or a relationship between things. Identifying similarities and differences within or between diagrams also provides the test-taker with important information that will help answer the question.

Identify labels and directional arrows that show the relationships between organisms. Relate the diagram to the question by searching the question for terms and descriptions that match features in the diagram. See how these pieces of information relate to the main ideas presented in the diagram. Once the diagram is interpreted, use your knowledge to answer the question.

Sample Question

6. A food web of an arctic ecosystem is shown.



Which population is **MOST DIRECTLY** affected by a decrease in zooplankton?

Ⓐ Ocean Algae

Ⓑ Whale

Ⓒ Polar Bear

Ⓓ Seal

The arrows in the food web diagram show the direction of energy flow between organisms in an aquatic ecosystem. We can relate the diagram to the question by observing where zooplankton are in the diagram. Zooplankton consume ocean algae and are consumed by polar bears, polar cod, and whales. They are also the **only** source of food for whales and polar cod in this diagram. Option **A** is the source of food for zooplankton so is not the best answer. The polar bear, option **C**, and the seal, option **D**, have multiple sources of food, so they would not be most affected. The whale is the only option that matches our diagram interpretation. So, option **B** is the correct choice.

STRATEGY Breaking Up the Question

Breaking up the question provides a test-taker with the opportunity to process the question in pieces, rather than trying to understand all the components at once. Smaller pieces of information can be more easily understood and then pieced together to create a clearer, bigger picture of the scenario. Applying this strategy involves reading the question and breaking it up into at least two parts. If the question involves confirming that multiple things are true, read through each option and confirm that the option is true for both parts of the question.

Read the entire question and look for ways that the question can be broken down into smaller pieces of information. Are there multiple pieces of information that need to be confirmed? Most likely, each piece will provide a portion of the correct answer.

Sample Question

7. A geologist performs multiple tests on a sample of an element. The element is determined to be solid and an excellent conductor of both electricity and heat.

Based on the tests conducted, the element is **MOST LIKELY** part of which element group?

Ⓐ Noble gases

Ⓑ Metalloids

Ⓒ Nonmetals

Ⓓ Metals

This question can be broken up into two parts because it is asking to confirm two different pieces of information. First, the element must be solid. This means that option **A** can be eliminated. Second, the element must be an excellent conductor of both electricity and heat. Metalloids and nonmetals, options **B** and **C**, do not meet this condition. Therefore, the only option that includes solid elements that are excellent conductors of heat **and** electricity is option **D**, metals. Option **D** is the correct answer.

STRATEGY Underlining Key Terms

Underlining key terms helps test-takers focus on important concepts covered in the question. This strategy is especially helpful when you are unsure of the answer. Key terms include scientific terms, ordering or sequencing terms, as well as relational terms. Sometimes key terms in a question are similar to, or synonyms of, words in the options. Defining key terms in a question can help lead the test-taker to the answer, since the correct answer will most likely depend on those definitions.

Underline key terms in the question and define those terms. Read the question again and replace the key terms with the definitions that you wrote down for them. Now, the question should be much easier to answer as you read through the options. Choose the option that makes sense based on your definitions.

Sample Question

8. Organisms depend on both biotic factors and abiotic factors for survival. When resources are limited, populations that share the same ecosystem must compete.

Which **ABIOTIC** resource are all populations competing for in a desert environment?

Ⓐ Sunlight

Ⓑ Plants

Ⓒ Water

Ⓓ Animals

Key terms to underline in the passage are **biotic factors** and **abiotic factors**. We know that the term **abiotic** means not derived from living organisms. We also know that **biotic** means derived from living or once-living organisms. Since the question calls for an **abiotic** resource, we know that the correct option should not be derived from living organisms. This automatically eliminates options **B** and **D** because plants and animals are **biotic** factors or derived from living or once-living organisms. The question also calls for an **abiotic** resource that all populations compete for. Sunlight, option **A**, is **abiotic**, but only plants compete for sunlight. Therefore, option **C**, water, is the only **abiotic** resource that all populations compete for in a desert environment.

STRATEGY Making Inferences

Making an inference means drawing conclusions based on information that is implied rather than directly stated. Evidence is provided in the passage, but reasoning is also needed to make an inference. Previous knowledge of the content helps test-takers reason to make correct inferences. Making an inference is a useful strategy for questions that are long and complex.

Determine what the focus of the question is. After identifying the focus, search for clues within the text or question stem. List the details that are relevant to the topic. Compare the clues in the text to make an inference. Compare your inference to the options to help identify the correct answer.

Sample Question

9. Researchers are studying ferns growing in a forest ecosystem. At the beginning of the study, the researchers identify fifteen fern species. Later, a flood occurs, and researchers return to the area to find only two fern species and a damaged ecosystem. Over time, more fern species and organisms populate the area.

What conclusion can the researchers make based on their study?

Ⓐ Primary succession occurred, and biodiversity decreased over time.

Ⓑ Secondary succession occurred, and biodiversity increased over time.

Ⓒ Primary succession occurred, and biodiversity increased over time.

Ⓓ Secondary succession occurred, and biodiversity decreased over time.

The focus of the question is that after a flood occurs, the number of fern species decreases and then over time, increases. We know that secondary succession occurs after an ecosystem is damaged but still contains soil and organisms. Since there are still fern species remaining after the flood, we can infer that secondary succession occurred in this ecosystem. We can also infer that biodiversity increased over time, because the question indicates that fern species increased and organisms repopulated the area. Our inference automatically eliminates options **A** and **C**. Although option **D** identifies secondary succession, it does not match our inference and indicates that biodiversity decreased over time. Option **B** is the correct answer and matches our inference.

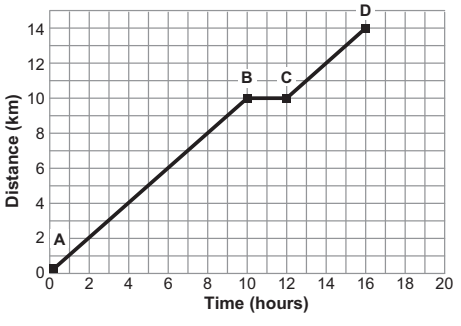
STRATEGY Interpreting Line Graphs

Line graphs provide a visual way to analyze patterns, trends, or relationships in data and make predictions. Identifying titles, scales, *x*- and *y*-axes labels, and units will help the test-taker understand what type of data the graph is presenting. The slope of the graph tells us important information about the relationship between the *x*- and *y*-axes. If the coordinates of the *x*- and *y*-axes are both increasing, the factors have a direct relationship, where an increase in one factor results in an increase in the other factor. If the coordinates of one axis are decreasing as the coordinates of the other axis are increasing, the factors have an indirect relationship. If you interpret a line graph before reading the question, you will be prepared to answer the question.

Look closely at the title of the graph, scale, as well as any additional labels like the *x*- and *y*-axes, and see how they relate to the line graph. Locate the coordinates of points on the graph. Then, think about what trends the graph is showing us. Determine if there is a pattern in the line graph that aligns with the question that is being asked. Once the graph is interpreted, read the question and choose the option that matches your interpretation.

Sample Question

10. The line graph illustrates the motion of an object.



Which of the following **BEST** describes the movement of the object between points **C** and **D**?

Ⓐ The object stopped moving.

Ⓑ The object moved north.

Ⓒ The object accelerated.

Ⓓ The object moved at a constant speed.

The *x*-axis labels the time in hours and the *y*-axis labels the distance in kilometers. The graph shows the distance the object travels and the time it takes to travel that distance. The question asks about points **C** and **D**. We can see that the point **C** coordinate is (12, 10) and the point **D** coordinate is (16, 14). Between points **C** and **D**, the line trends upward in a straight line. So, time and distance are increasing at the same rate (constantly), which means the object is moving at a constant speed. This is indicated in option **D**. The graph does not account for direction, so option **B** cannot be determined. If the object was accelerating, the graph would not show a straight line; the line would be curved. We can eliminate option **C** for this reason. Option **A** indicates that the object stayed in the same place, which would be represented by a horizontal line in the graph, like point **B** to point **C**. Option **D** is therefore the correct answer.

STRATEGY Interpreting Experiments

Interpreting experiments involves collecting as much information as possible about an experiment, such as the goal of the experiment, materials used, and the variables involved. An experiment has an independent variable, a control variable, and a dependent variable. Control variables are not changed in an experiment. The independent variable is changed during the experiment and the dependent variable is measured to see how it responds. Phrases such as "depend on" may identify the dependent variable, and words like "change" or "different" may identify the independent variable in the experiment.

Read the experiment carefully and identify the goal of the experiment and the materials used. Also identify the independent, dependent, and control variables in the experiment. If there are data provided, study the data carefully to determine what is being tested and what the results are. Chances are that the question is related to data from the experiment. Once the experiment is interpreted, read the question and choose the best answer based on your interpretation.

Sample Question

11. Students are investigating how the acceleration of an object depends on the net force applied to it. They push a box with a net force of 15 N and calculate the acceleration of the box as 3 m/s^2. In a second trial, the students push the same box with a different net force of 30 N and calculate the acceleration as 6 m/s^2.

What must the students do next if they want to further increase the acceleration of the same box?

Ⓐ Decrease the net force of the push.

Ⓑ Increase the mass of the box.

Ⓒ Decrease the mass of the box.

Ⓓ Increase the net force of the push.

The purpose of the experiment is to find out how acceleration **depends on** mass and force. Students are using a single box and pushing it across a surface in the experiment. The dependent variable is acceleration, which must be calculated each time the independent variable changes. Since the two trials were conducted with the same box but the applied force is changed, the mass of the box is the control variable, which must be held constant throughout the experiment, and the force of the push is the independent variable. We also see the word **different** connected with "net force", so we know that net force is the independent variable. Options **B** and **C** involve a change in the control variable, which is incorrect. The acceleration of the box is directly proportional to the force applied to it. Option **A** introduces decreasing the force, but if the force is proportional to the acceleration, this would result in a slower acceleration. Option **A** is therefore incorrect. Since the acceleration of the box is directly proportional to the force applied to it, when the force on the box increases, the object's acceleration also increases. Therefore, option **D** is the correct answer.

STRATEGY Using Contextual Clues

Contextual clues are important to consider when taking a test because an answer is only correct if it is correct in the context of the question. Contextual clues can also help the test-taker understand the meanings of new or unfamiliar words by finding hints within a sentence, paragraph, or passage. Sometimes, we can even skip over unfamiliar words if we understand the context of the question. Using contextual clues is an effective strategy to use when all answer options look correct. Once you identify the context and what is expected for an answer, you can eliminate answer choices that *look* correct but clearly do not fit the context of the question. For example, if a question is related to how animals obtain energy and there is an option related to photosynthesis, we know that that option is incorrect. If the context of the question was related to plants, that option would be correct. Understanding the context of the question helps lead us to the correct answer.

Read the question carefully. Use contextual clues to identify the topic and help understand or skip over unfamiliar words. Analyze each answer option keeping the context of the question in mind. Eliminate answer options that do not fit the context of the question.

Sample Question

12. A cook is making bread. The cook first combines flour, water, yeast, and salt to prepare the dough. Then the cook kneads the dough and gives it the shape of a bread loaf. Finally, the cook puts the dough in the oven to bake it. The resulting product is a delicious loaf of baked bread that has bubbles of gas and is drier, lighter, and bigger than the dough put in the oven.

Did a chemical change take place?

Ⓐ No, because the water just evaporates.

Ⓑ Yes, because a gas was produced.

Ⓒ No, because the dough just rises to change its shape.

Ⓓ Yes, because the baked bread weighs less than the dough.

The context of the question is baking bread and the question is about the formation of a new substance resulting from a chemical reaction or chemical change. If we look at the scenario, we may not know certain terms such as "kneads" or "yeast". Since the question calls for a chemical change, we only need to look for contextual clues that point us to a chemical change. The phrases "drier, lighter, and bigger" could indicate a physical or chemical change. But the phrase "bubbles of gas" is a contextual clue that a chemical change *did* occur. This automatically eliminates options **A** and **C**. Option **D** indicates that a chemical change occurred, but the reasoning is that the bread weighs less than the dough. We are searching for an option that matches our "bubbles of gas" contextual clue, and we also know that a change in weight does not mean a chemical change occurred. Option **B** matches our answer and is the correct choice.

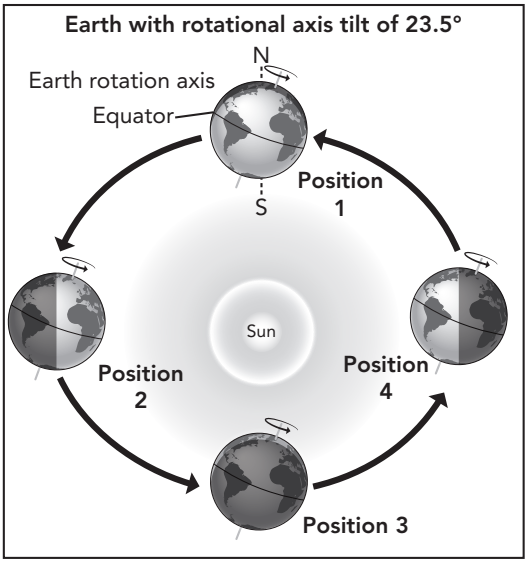
STRATEGY **Anticipating the Answer**

Anticipating the answer means making an educated guess about the answer before looking at the options. When reading the question, it is important to think about what you already know about the topic. What do you anticipate the answer will be? This strategy can help you identify the correct option quickly. Sometimes your educated guess will either match or closely match the correct answer.

Read the question carefully and think about what the answer is most likely to be before looking at the options. What do you know about the topic? How would you answer the question if there were no options? Then, read all the options and pick the answer that closely matches what you anticipated. Be sure to read all the options before selecting the answer.

Sample Question

13. The image shows Earth at four positions as it revolves around the sun.



Which position shows winter in the Northern Hemisphere?

Ⓐ Position 1

Ⓑ Position 2

Ⓒ Position 3

Ⓓ Position 4

If we think about what we already know about Earth's position in relation to the sun, we can recall that it is winter when the Northern Hemisphere is tilted away from the sun and summer when the Northern Hemisphere is tilted toward the sun. Position 4 in the diagram shows the North Pole tilted away from the sun, so we can anticipate this as our answer. This corresponds to option **D**. The remaining options **A**, **B**, and **C** are therefore incorrect.

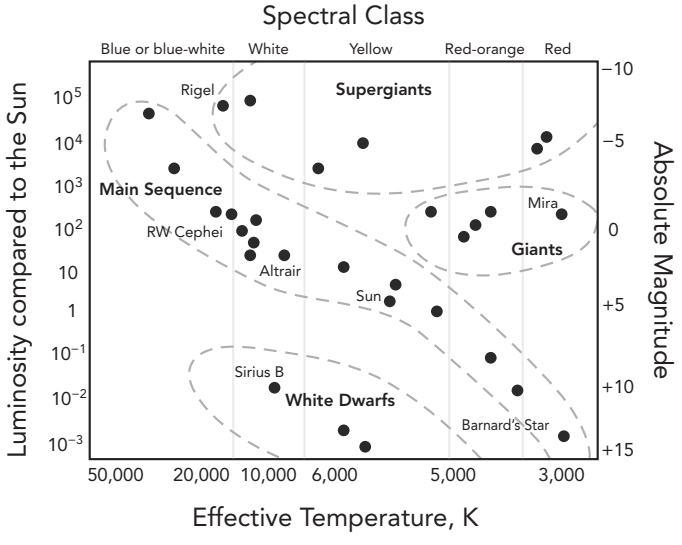
STRATEGY **Watching for Qualifiers**

A qualifier is a word that either limits or enhances another word's meaning. Watching for qualifiers involves keeping track of words such as *most*, *least*, *always*, and *except* in the question. Qualifiers can change the meaning of the question. Sometimes qualifiers are used if two or more options seem correct but only one of the options is the *best* example of a phenomenon. Watching for qualifiers helps the test-taker choose the answer that is the best choice based on the qualifying word or words in the question. It also helps eliminate options that are not correct based on the qualifying word.

Read the question carefully and identify the qualifier used in the question. Then, analyze each answer option carefully, keeping the qualifier in mind. Eliminate the incorrect options that do not fully match or make sense with the qualifier used in the question.

Sample Question

14. The Hertzsprung-Russell diagram illustrates how the size, color, luminosity, spectral class, and absolute magnitude of stars relate.



Which star is **MOST** like the sun?

Ⓐ A red star with a surface temperature of 3,000 K

Ⓑ A white star with a surface temperature of 10,000 K

Ⓒ A blue star with a surface temperature of 30,000 K

Ⓓ A yellow star with a surface temperature of 6,000 K

The qualifying word in the question is *most*. So we know that the answer needs to be a star that is *most* like the sun. The sun is a yellow star with a temperature of around 5,400 K in the H-R diagram. While options **A**, **B**, and **C** may be considered "similar" to the sun in that they are all stars, they are not the **MOST** similar because option **D** is closest in temperature and color. Therefore, only option **D** is correct.

STRATEGY Sequencing Events

Sequencing events involves arranging events into the correct order. This strategy is useful when the question involves steps, processes, or events that follow a certain order. Recalling the events in order as best as possible can help identify the correct answer quickly, even if you do not recall each event or the exact order. If you only recall part of the sequence, you can eliminate options that do not order the same part correctly.

Read the question carefully and sequence the events before looking at the answer options. Then, read all the options and pick the answer that most closely matches the sequence. Be sure to read all the options before choosing the answer.

Sample Question

15. Which sequence shows the correct order of the different stages in the life cycle of a star that is about the same size as the sun?

Ⓐ Nebula → main-sequence star → giant → black dwarf → white dwarf

Ⓑ Nebula → main-sequence star → supergiant → supernova → black dwarf

Ⓒ Nebula → main-sequence star → giant → white dwarf → black dwarf

Ⓓ Main-sequence star → nebula → supergiant → supernova → black dwarf

Even if you do not recall all the stages in the life cycle of stars the size of the sun, you may recall that the first event in the life cycle of all stars is a nebula. Hence, option **D**, which starts with a main-sequence star, is incorrect. After nebula, we also know that all stars go on to become main-sequence stars, so options **A**, **B**, and **C** may look correct. We can recall that medium-size stars, like the sun, end their life cycles as black dwarfs, so we know that the last stage will be black dwarf. So option **A** is not correct. We also know that black dwarfs evolve from white dwarfs, so we are looking for a sequence of events that ends with white dwarf followed by black dwarf. This makes option **B** incorrect. Option **C** is the only option that has the star start as a nebula and end with a white dwarf becoming a black dwarf, making it the correct answer.

Name _____ Date_____

Florida Science Assessment Practice Grade 6

Read each question and choose the best answer. Then use the answer sheet to fill in the letter for the correct answer.

Use the information to answer questions 1 through 2.

In 2017, an experiment was begun involving two astronauts. Scott Kelley and Mark Kelley are identical twins who both worked at NASA. They both trained to be astronauts at the same time, but in 2017 they separated for an experiment.

The results of this experiment are shown below.

	Scott	**Mark**
Time in space	500 days	0 days
Distance traveled	205 million miles	300 miles
Height before	172 cm	172 cm
Height after	178 cm	172 cm
DNA before	Baseline	Baseline
DNA after	7% mutation rate	Same as baseline

1 For the purposes of this study, why was it important that identical twins be involved?

A. Identical twins have the exact same age.

B. Identical twins had the same development and education during their life.

C. Identical twins have similar physical characteristics for scientists to provide a control.

D. Identical twins had the same nutrition as children.

Name _____ Date_____

❷ Based on the data collected, which would be the best application of new knowledge provided by the results of this experiment?

F. to help understand why humans are only able to work as astronauts for five years before they retire

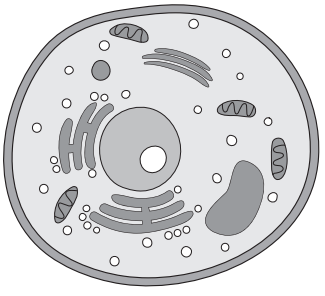
G. to help predict what would happen to astronauts who spent years traveling to, colonizing, and returning from Mars

H. to help explain how traveling at faster speeds through space will affect future astronauts physically and mentally

I. to help challenge existing theories about whether siblings of astronauts are more likely to be better suited to space travel

Use the image below for items 3 and 4.

The image below shows a model of a cell.



❸ Which discovery of a new organism would be **most likely** to change or modify our current understanding of cell theory?

A. an organism that has different types of cells

B. an organism that has cells that can survive outside of its body

C. an organism that has cells that have vacuoles

D. an organism that is not made up of cells

❹ A cell's ability to keep an internal balance in order to remain stable is a natural phenomenon known as homeostasis.

Which of these is one way in which the structure represented by the gray ring around the cell helps maintain homeostasis?

F. It loses layers as the cell increases in size.

G. It regulates the flow of materials into and out of the cell.

H. It prevents any materials from entering or leaving the cell.

I. It gains layers when the cell needs greater protection from the environment.

Name _____ Date_____

5 Engineers are working on a Mars Ascent Vehicle (MAV) for astronauts to launch from Mars's surface. As they test the models, they must use less fuel to get into orbit from Mars than from Earth. Which is the best explanation for this?

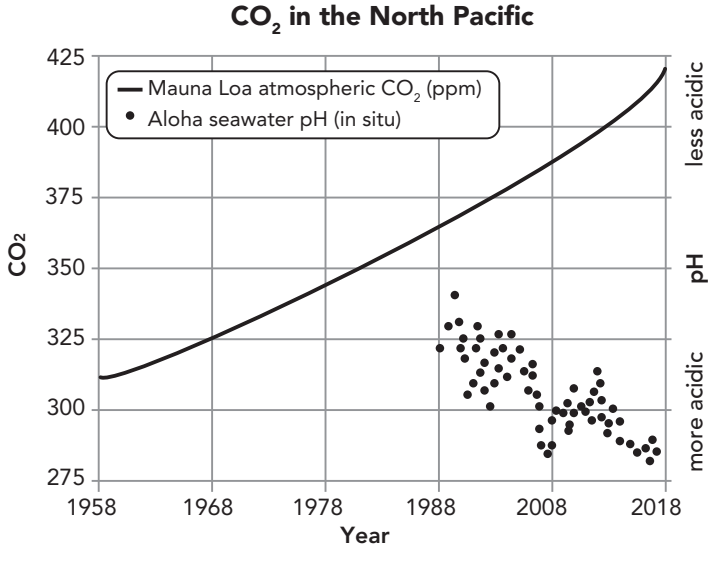
A. Mars is closer to the Sun than Earth.

B. Mars has less gravity than Earth.

C. Mars rotates faster on its axis than Earth.

D. Mars has a smaller diameter than Earth.

A group of scientists is researching the effects of increasing carbon dioxide dissolved in the ocean. They do this by measuring and recording concentrations of different solvents in the ocean several times during the year. They compare these measurements over time.



6 Which statement **best** describes a hypothesis that can be made based on these two graphs?

F. An increase in the CO_2 concentrations of ocean water causes less acidity of ocean water.

G. An increase in the CO_2 concentrations of ocean water causes more acidity of ocean water.

H. Less acidity of the ocean water causes an increase in the CO_2 concentrations of ocean water.

I. More acidity of the ocean water causes a decrease in the CO_2 concentrations of ocean water.

Name _____ Date_____

7 A science class is investigating parasites and fungi. The class is split into two groups of students, and each group is given a set of slides to examine. Some of the slides in each set contain cells that belong to either parasitic or fungal organisms. The students recorded their findings in the table below.

	Group 1	Group 2
Number of students in group	12	11
Time of day slides observed	morning	morning
Number of slides with parasites	15	5
Number of slides with fungi	85	5
Total number of slides observed	100	10

The groups recorded very different results. What change could the students make to their experiment that would **most likely** help them form a better conclusion?

A. The number of students in each group could be changed.

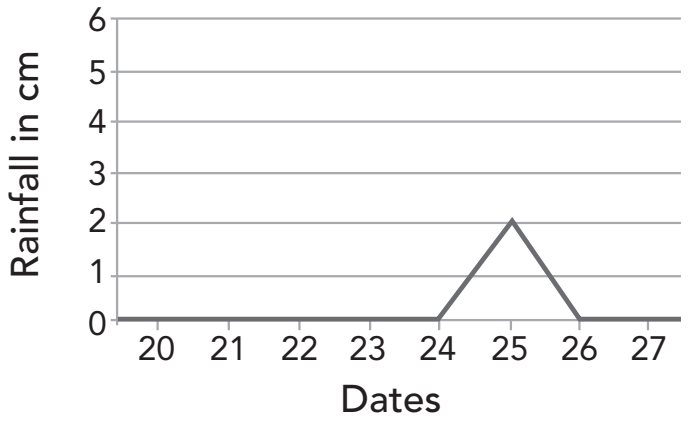
B. The slides could be observed later in the day.

C. Group 1 could reduce the number of slides it observes.

D. Each group could observe the same number of slides.

Name _____ Date_____

8 The Atacama Desert is one of the driest places on Earth. There are some places in the desert that did not record any rainfall for over 20 years.



Based on the graph provided, what **best** describes the data gathered during a week in March of 2015?

F. The weather changed, because it rained on one day.

G. The temperature changed, because it caused precipitation.

H. The climate changed, because it differs from past decades.

I. The humidity changed, because it caused water to condense.

Name _____ Date_____

9 Examine the four sets of objects shown in the diagram. Each of the objects is made of the same material. The mass of the large objects is twice the mass of the small objects.

Which set of objects has the **greatest** gravitational force between them?

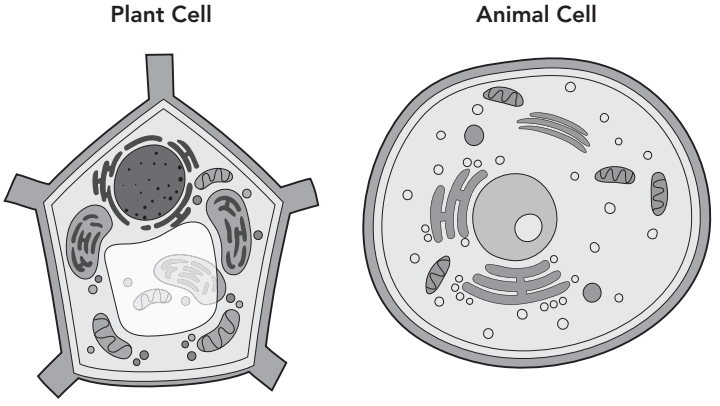
A. 1

B. 2

C. 3

D. 4

10 The image below shows a model of a plant cell and an animal cell.



Which statement does **not** accurately compare the structures of the cells shown in the images?

F. Plant cells have chloroplasts, but animal cells do not.

G. Animal cells have a cell membrane, but plant cells do not.

H. Plant cells have cell walls, but animal cells do not.

I. Animal cells and plant cells both have mitochondria.

Name _____ Date_____

11 Two tables are created to record data related to frogs and trees.

Table A

Distance from Factory Releasing Waste (Meters)	Density of Plant Cover (Number Stems/Square Meter)	Number of Frogs Collected
100	10	0
200	35	2
300	122	9
400	181	15

Table B

Tree Species Identified	Number of Trees Observed
Longleaf pine	5
Cypress	2
Live oak	7
Pecan	16
Florida maple	1

Which table(s) shows the results of an experiment rather than a simple investigation?

A. Table A

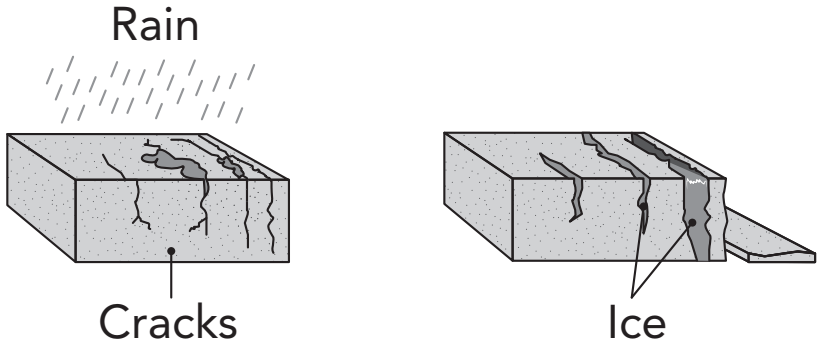
B. Table B

C. Tables A and B

D. neither table

Name _____ Date_____

12 Frost wedging occurs when water seeps into the cracks in a rock and then freezes. The water expands when it freezes. This causes the cracks in the rock to get bigger or even break the rock.



Based on the image, what **best** describes frost wedging?

F. erosion, because it causes the rocks to lose their shape

G. physical weathering, because it is a physical change in the rocks

H. chemical weathering, because ice forms in the rock by a chemical reaction

I. deposition, because the water is deposited inside the rock

13 Students gather data about the mass of three objects. They place these three objects an equal distance from a fourth object, Object D.

Object	Mass (g)
A	350
B	160
C	125

What can the students infer about the gravitational forces between these objects and Object D?

A. They will all be equal, because all of these objects are on Earth's surface.

B. Object A will exert the most gravitational force on Object D.

C. No inferences can be made without knowing the volume of these objects.

D. Object B will exert the least gravitational force on Object D.

Name _____ Date_____

14 Force applied by air resistance on flying objects is called drag. It is applied against the direction of the object's motion. Drag is sometimes useful to flying objects. In which situation would drag be a useful force?

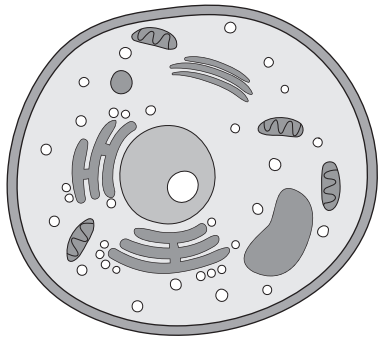
F. when walking in a high wind

G. when using a parachute

H. when using an umbrella

I. when walking with a balloon

15 Sponges live their lives attached to the sea floor or to rocks that are under water. They have no organs, so they feed by allowing nutrient-rich water to flow through them.



Based on the diagram of a cell that could be found in a sponge, which of the following **best** explains whether sponges are animals or plants?

A. Their cells do not have chloroplasts, so they must be animals.

B. Their cells do have cell walls, so they must be plants.

C. Their cells do not have mitochondria, so they must be plants.

D. Their cells do have vacuoles, so they must be animals.

Name _____ Date_____

16 A student says that the image below shows chemical weathering.

What is the **most accurate** response to her claim?

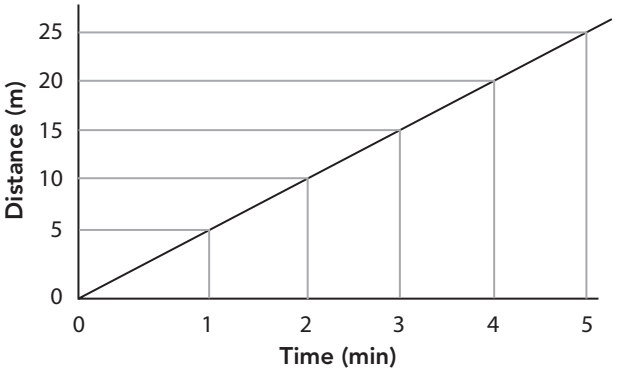
F. no, because the change in the surface of the stone is caused by erosion

G. yes, because acid rain caused a chemical reaction on the stone's surface

H. no, because a physical change has occurred to the surface of the stone

I. yes, because fragments of the stone's surface have deposited elsewhere

17 Students make a graph to show the motion of an object.



How does the speed of the object during the first second compare to the speed of the object in the last second of movement?

A. The speed in the first second and in the last second were the same.

B. The speed in the first second was greater than the speed in the last second.

C. The speed in the last second was greater than the speed in the first second.

D. There is not enough information to compare the speed during these times.

Name _____ Date_____

18 The chart below compares features of different organisms.

	Size (mm)	Type of Cells	Cell Wall Present	Mitochondria Present
Angustopila dominikae	0.86	eukaryote	no	yes
Epulopiscium fishelsoni	0.50	prokaryote	yes	no
Thiomargarita namibiensis	0.30	prokaryote	yes	no
Wolffia globosa	0.65	eukaryote	yes	yes

Based on the chart provided, which of the organisms is a snail?

F. *Angustopila dominikae*, because it is a eukaryote without a cell wall

G. *Epulopiscium fishelsoni*, because it is a prokaryote with a cell wall

H. *Thiomargarita namibiensis*, because it is a prokaryote and the smallest

I. *Wolffia globosa*, because it is a eukaryote with mitochondria

19 Scientists take water samples at certain locations along the shore of a Florida lake. Parts of the lake are heavily used and other parts are not. The scientists determined the density of homes (number of homes per kilometer of shoreline) at four different sampling locations and recorded those values in the table.

Water Sample Location	Number of Homes/Kilometer of Shoreline
A	2
B	12
C	6
D	25

The scientists then determined the percentage of cells containing chloroplasts that were found in their water samples from each location. Which hypothesis **best** supports what the scientists are testing?

A. The amount of pollution in the lake determines where people build their homes.

B. Water samples are harder to obtain in crowded areas of the lake than in less crowded areas.

C. The abundance of microscopic plants in the lake is affected by how heavily the lake is used.

D. Microscopic animals are more likely to be present in water with abundant microscopic plants.

Name _____ Date_____

20 Students in a science class worked together to assemble three identical terrariums. They placed the terrariums under three identical lamps. Each terrarium contained soil and a single plant. The students recorded their methods in the table below.

Terrarium Number	Amount of Light Received (Hours/Day)	Amount of Water Given on Day 1 (Milliliters)	Numbers of Days Observed
1	10	60	14
2	10	120	14
3	10	180	14

Why are the three terrariums **identical** in this investigation?

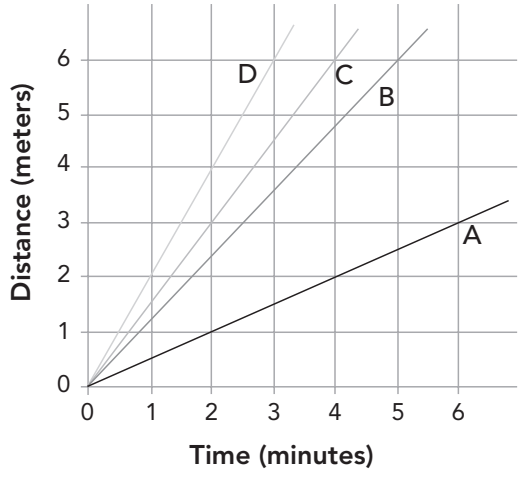
F. The students want to make sure the outcome will be the same in each terrarium.

G. The students want to be able to assemble the terrariums more quickly.

H. The students want to recognize the law of conservation of mass by measuring each terrarium.

I. The students want to be able to link differences in results to the one factor that varied.

21 Students make a graph showing the motion of four objects.



Which of the following is a conclusion supported by the data in this graph?

A. These objects have the same average speed.

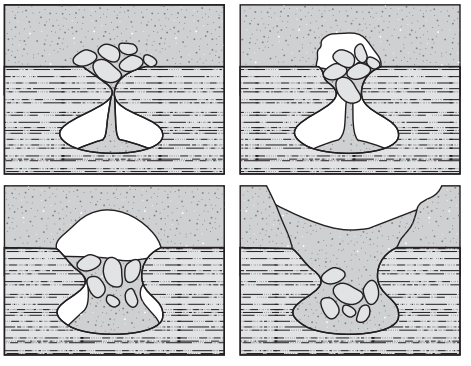
B. None of these objects moved at a constant speed.

C. Object A had the greatest average speed.

D. Object C's speed was greater than Object B's speed.

Name _____ Date_____

22 Sinkholes can cause major problems in Florida housing developments. Because the bedrock of Florida is mostly composed of limestone, large caverns can form due to chemical weathering of the bedrock. If the underground caverns grow close to the surface of Earth, buildings above them collapse into the newly formed spaces.



Which event is **most likely** to precede the formation of a new sinkhole?

F. heat lightning

G. a water spout

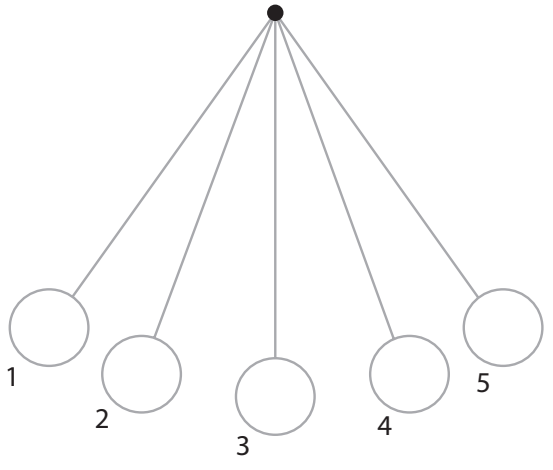
H. an unexpected frost

I. heavy rainfall

Name _____ Date_____

Use the information to answer questions 23 through 24.

Pierre's science class is studying pendulums as an example of cyclic motion. All the teams in the class have identical weights that hang from strings of the same length. The teams have measured the time for one back-and-forth cycle and found that the time is the same whether the pendulum swings through a small arc or a large one. The teacher points out that the constant cycle time of pendulums is why they have been used in clocks for hundreds of years.



23 When you pull a pendulum weight back and let it swing, _____ is the force that pulls it downward.

A. magnetism

B. electricity

C. gravity

D. pulling

24 Which statement **best** summarizes the amount of energy in the pendulum at position 3?

F. all kinetic energy

G. one-half potential energy and one-half kinetic energy

H. all potential energy

I. no kinetic energy and no potential energy

Name _____ Date_____

25 Why does the pendulum move from position 1 toward position 3 when released?

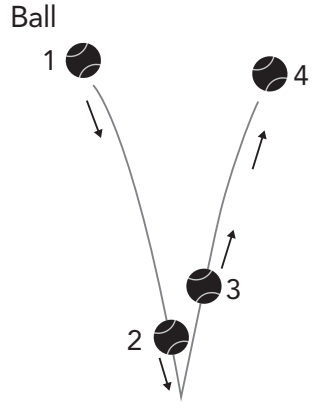
A. Earth has more mass than the pendulum, so the gravitational force between the two pulls the pendulum down toward Earth.

B. The students push the pendulum as they release it, so the force of their hands on the weight causes it to move downward.

C. The string pulls upward and to the right on the weight, causing it to move in the direction of the net force.

D. The magnetic field of the Earth exerts force on the pendulum, causing it to move downward from the fulcrum.

26 Students made a model of the motion of a tennis ball.



What can students conclude about the ball when it is at Position 2?

F. It has more kinetic energy than at any other labeled position.

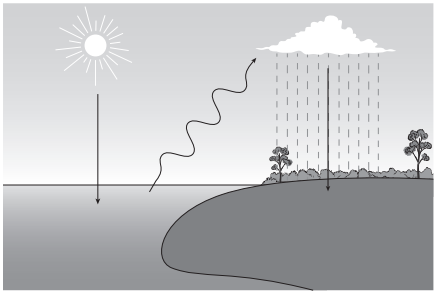
G. It has the slowest speed of any point on the diagram.

H. It contains only potential energy.

I. It has more potential energy than it does at Position 4.

Name _____ Date_____

27 Julie is interested in how energy from the Sun affects Earth's atmosphere. She creates the following model:



Which of the following explains the model Julie made?

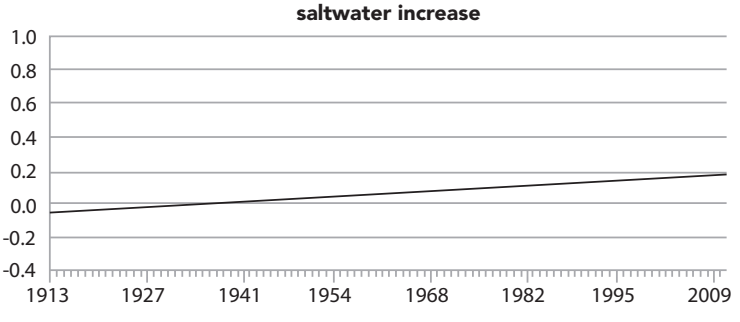
A. Light energy from the Sun bounces off the water and causes rain clouds to disperse.

B. Heat energy from the Sun causes water to heat up and evaporate. Some of the evaporated water will later form rain clouds.

C. Gravitational energy from the Sun pulls the water toward it and creates winds above the waters.

D. Mechanical energy from the Sun pushes down on the water, which cools the oceans and their islands down.

28 Many park rangers in Everglades National Park are worried about the increasing salt levels of the extensive wetlands.



Which is **most likely** the effect of increased salt levels on the environment of the Everglades National Park?

F. The hydrosphere would cause damage to the freshwater organisms of the biosphere.

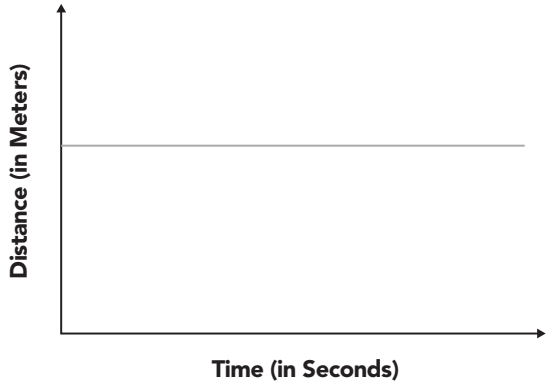
G. The geosphere would become more chemically weathered from the salt.

H. The atmosphere of the Everglades would have more salt in the air due to evaporation.

I. The cryosphere would have a hard time forming because of the salt in the hydrosphere.

Name _____ Date_____

29 Students graph the motion of an object.



A student claims that the line on the graph shows an object moving in one direction at a constant speed. Is this student's claim correct?

A. No, the distance traveled does not change, so the object is not moving.

B. Yes, on a distance-time graph a line with no slope shows constant speed.

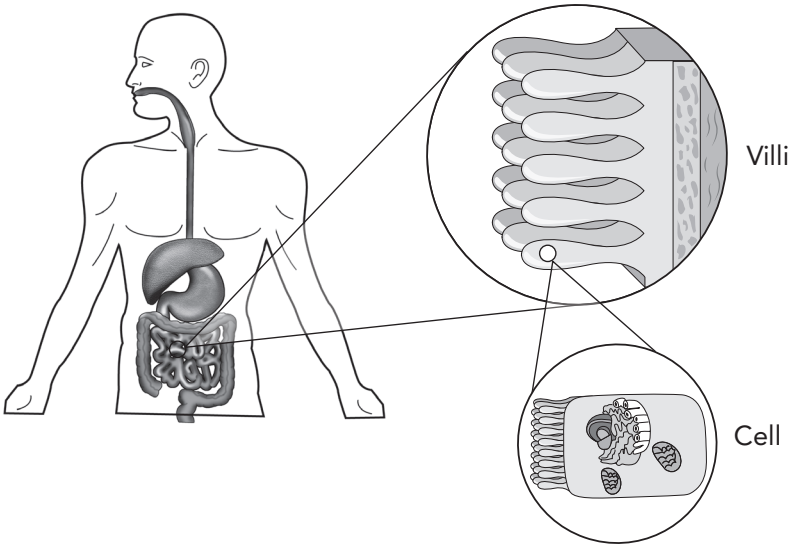
C. No, the flat line indicates that the object is changing direction.

D. Yes, a flat line indicates forward motion in one direction.

Name _____ Date_____

Use the information to answer questions 30 and 31.

The human digestive system is made up of a series of connected organs that process the food taken in through the mouth. The organs chemically and mechanically break down the food as it moves through the digestive tract. At the end of the digestive system, waste products from digestion are combined with waste products from the cells of the body and excreted from the body.



30 Based on the diagram, what is the best definition of a biological system in the body?

F. a collection of specialized cells that perform a single function

G. a group of tissues with similar functions

H. a group of organs that work together to perform one or more functions

I. a group of similar cells that make up part of an organ

31 Based on the diagram, which statement best demonstrates the interaction of the digestive tract with another system in the body?

A. The respiratory system provides oxygen for the burning of food in the small intestines.

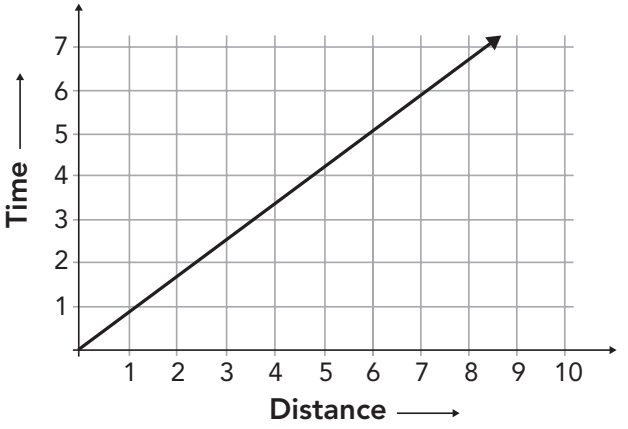
B. The circulatory system takes nutrients absorbed by the villi in the small intestine to the cells in the body for nourishment and energy.

C. The nervous system controls the rate at which food is consumed by the digestive system.

D. The musculoskeletal system provides the means of removing waste products from the digestive system.

Name _____ Date_____

32 Students analyze a graph showing a toy car's motion as it travels on a straight track.



A student claims that this object is being acted on by unbalanced forces. For the time period shown in the graph, is this claim correct?

F. No, this toy car is not changing speed or direction, so the forces on it are balanced.

G. Yes, all objects in motion are being acted on by unbalanced forces.

H. No, the car's constant speed means that no forces are acting on it.

I. Yes, unbalanced forces result in movement at a constant speed.

Name _____ Date_____

33 A scientist puts together the following chart with data on different types of cells.

The scientist compares the mass of each type of cell in a human having a mass of 45 kg (100 lbs).

Type of Cell	Mass (% of 45 kg total)	% of Total # of Cells (out of a total cell count of 30 trillion)
Erythrocytes (Red Blood Cells)	2.5 kg (5.5% of total mass)	84% (25.2 trillion cells)
Platelets	0.5 kg (1% of total mass)	4.9% (1.5 trillion cells)
Adipocytes (Fat Cells)	13 kg (28% of total mass)	0.2% (60 billion cells)
Muscle Cells	20 kg (43.5% of total mass)	0.001% (300 million cells)
Other (Remaining Cells)	10 kg (22% of total mass)	10.9% (3.2 trillion cells)

Based on the data in the table, which of the following questions is the scientist **most** likely studying?

A. How much of each type of cells makes up the average human body?

B. Does the amount of bone marrow cells affect the amount of erythrocytes?

C. Will decreasing the number of adipocytes lead to increased muscle cells?

D. Do people with increased muscle cells have lower body mass?

Name _____ Date_____

34 Every day after school, Zola watches her bird feeder. She keeps track of the birds she sees and the foods they eat in a chart like this one:

	Peanuts	Sunflower Seeds	Raisins
Blue Jays			
Finches			
Robins			

Could Zola's study be considered scientific evidence?

F. no, because advancements in science are based on the information learned through scientific experimentation

G. yes, because scientific explanations are based on collected observations of natural occurrences

H. no, because scientific achievements are based on years of research in a laboratory

I. yes, because scientific knowledge only comes from witnessing a single, isolated event that occurred in nature

Name _____ Date_____

35 Students investigate light energy and how it interacts with matter. They place two beakers of water on a very sunny windowsill. They wrap one beaker in black paper and label it A. They wrap the other beaker in white paper and label it B. They place a thermometer in each beaker. They gather data for one hour and record it in the data table.

Beaker	Temperature (˚C)			
	Start	20 min	40 min	60 min
A	19	22	25	28
B	19	20	22	23

What conclusion would be supported by the students' data?

A. A black sun shade would keep a car interior cooler than a white sun shade.

B. A white t-shirt would be cooler than a black t-shirt on a hot day.

C. A mug made of black plastic would keep water hotter than a mug made of white plastic.

D. White roof tiles would keep a house warmer than black roof tiles.

36 Gregor thinks that anthills are wider when the ground is muddy. He creates the following table:

	Ant Hill 1	Ant Hill 2	Ant Hill 3	Ant Hill 4
Width of Anthill (cm)	4	2	3	4
Muddiness of Ground	very muddy	dry	dry	muddy

Is Gregor's investigation a scientific experiment?

F. His investigation is scientific but it is not an experiment because he does not manipulate variables.

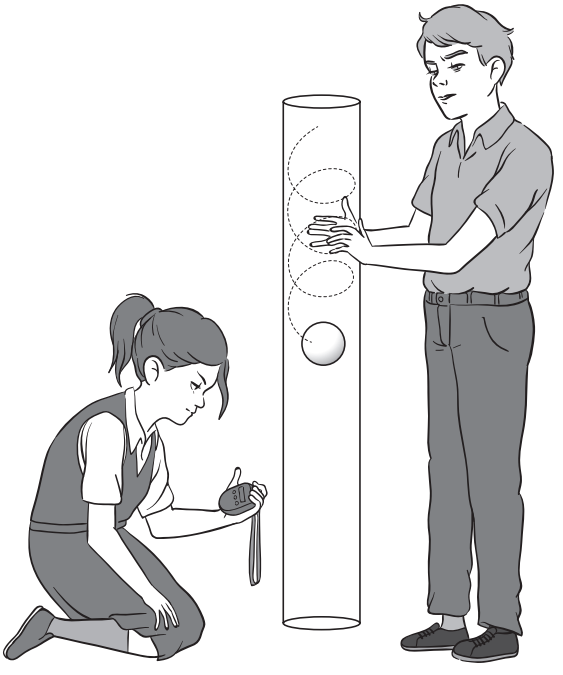
G. His investigation is scientific and it is an experiment because he is taking measurements to confirm a hypothesis.

H. His investigation is not scientific but it is an experiment because he is comparing evidence of multiple observations.

I. His investigation is not scientific and it is not an experiment because he is just making observations.

Name _____ Date_____

37 Science students are comparing the movement of balls as they are dropped into a transparent tube. There are eight balls in the experiment. Four have a diameter of 10 cm, and the other four have a diameter of 20 cm. The balls are made of four different materials. Each ball is dropped from the same height into the same tube. The tube shields each ball from outside effects on its speed. The students then measure and record the amount of time each ball takes to hit the floor.



Which variables or properties in the experiment are being tested to determine their effect on the outcome?

A. height of the tube and speed of the balls

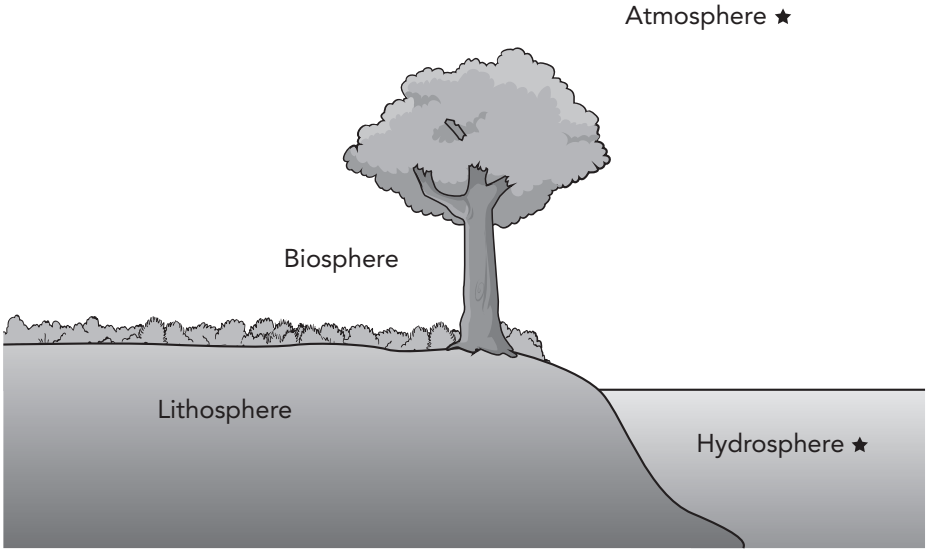
B. rate at which each ball is dropped and material making up the tube

C. handling of the timer and height of the student dropping the balls

D. material and diameter of the balls

Name _____ Date_____

38 Shane wants to explain how Earth's spheres interact to his little sister. He draws the following diagram for her.



How does the interaction of the two spheres Shane indicated on his diagram affect weather patterns on Earth?

F. Some water in the hydrosphere evaporates into the atmosphere, where it can later form rain clouds.

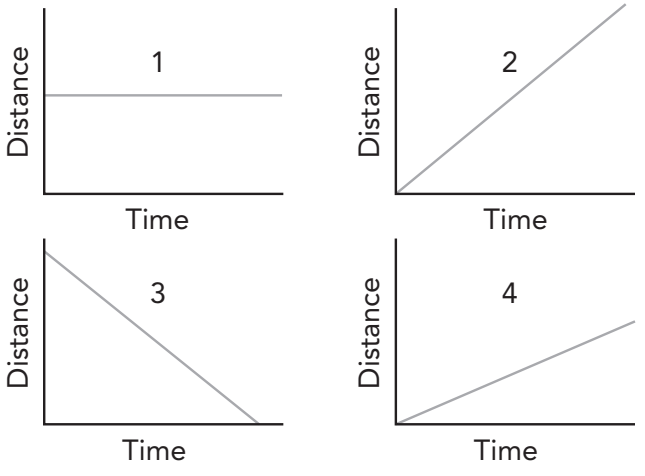
G. Earthquakes in the lithosphere are damaging to the biosphere.

H. Water is used up by plants in the biosphere, causing heating of the lithosphere.

I. Some water in the atmosphere causes tornadoes that transport water to the hydrosphere.

Name _____ Date_____

39 The four graphs below show the motion of four different objects on a straight path during a 20-second time period. All of the graphs use the same scale for distance.



The students have been asked to summarize the motion of the four objects in a single sentence.

Student	Summary
Felicia	The objects all move at the same speed, but not the same direction.
Jose	All of the objects are moving, but at different speeds.
Marc	Two of the objects are moving forward and two are moving backwards.
Emma	Some of the objects are moving, and their speed and direction vary.

Which student has most accurately summarized this data in the graphs?

A. Felicia

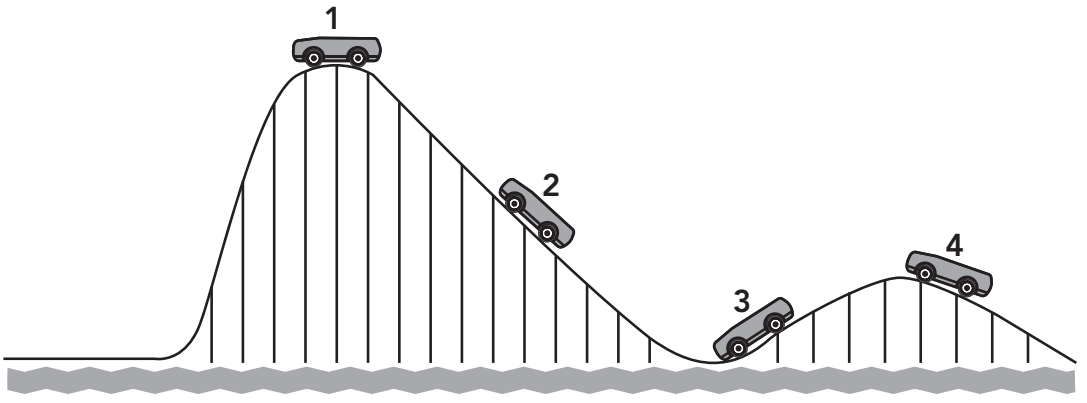
B. Jose

C. Marc

D. Emma

Name _____ Date_____

40 The diagram below shows the motion of a car that is part of an amusement park ride. The same car is shown at four different points during the ride.



When is kinetic energy being converted to potential energy?

F. from Point 1 to Point 2 only

G. from Point 1 to Point 2 and Point 2 to Point 3

H. from Point 2 to Point 3 only

I. from Point 3 to Point 4 only

41 A child rides a sled down a snow-covered hill.

What happens to the kinetic energy of the child and sled as they travel down the hill and eventually slow down?

A. It is transformed into thermal energy and sound energy due to friction with the ground and air.

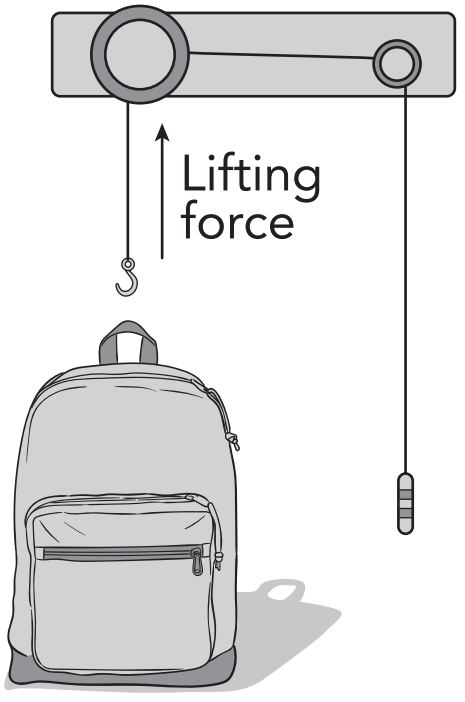
B. It is converted back to potential energy.

C. It is lost to the environment as a whooshing sound.

D. It increases and remains as kinetic energy until the sled and rider encounter a force in the opposite direction.

Name _____ Date_____

42 In Gerry's classroom, backpacks are stored on the floor. Gerry has noticed that bending and lifting heavy backpacks is difficult for some students. He decides to design a device that will lift heavy backpacks from the floor and allow students to put the backpacks on their backs without bending or lifting. He has made a sketch of his device.



How could Gerry be sure his device can exert enough force to lift the students' backpacks?

F. He should make sure the device exerts enough force to overcome friction between the backpack and the floor.

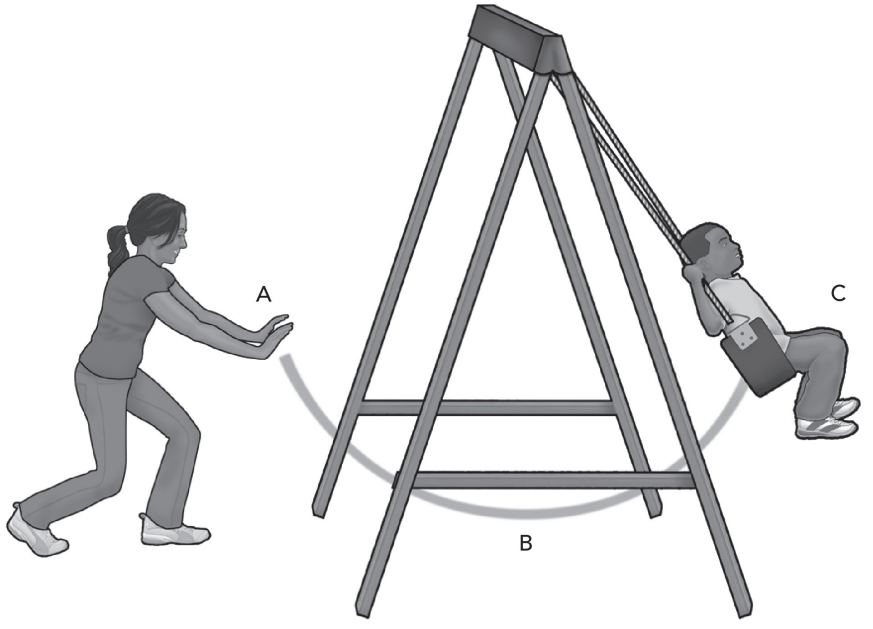
G. He should be sure the lifting force that the device can exert is greater than the weight of the heaviest backpack.

H. He should make sure that there is no net force when the device is acting on the backpacks.

I. He should make sure the device converts kinetic energy to potential energy in the backpacks.

Name _____ Date_____

43 Maria pushes her brother Gabe on a swing. The push occurs at Point A. Keep in mind that energy is transferred and transformed in this system, which is why Maria must keep pushing Gabe if he's going to keep swinging.



After Maria's first push at Point A, Gabe's potential energy is greater at Point C than when he swings back to Point A because

A. some of the kinetic energy Gabe has between Point C and Point A is lost as heat and sound due to friction.

B. Maria provided energy in the form of a push at Point A, but that energy is lost at the opposite end of the swing (Point C).

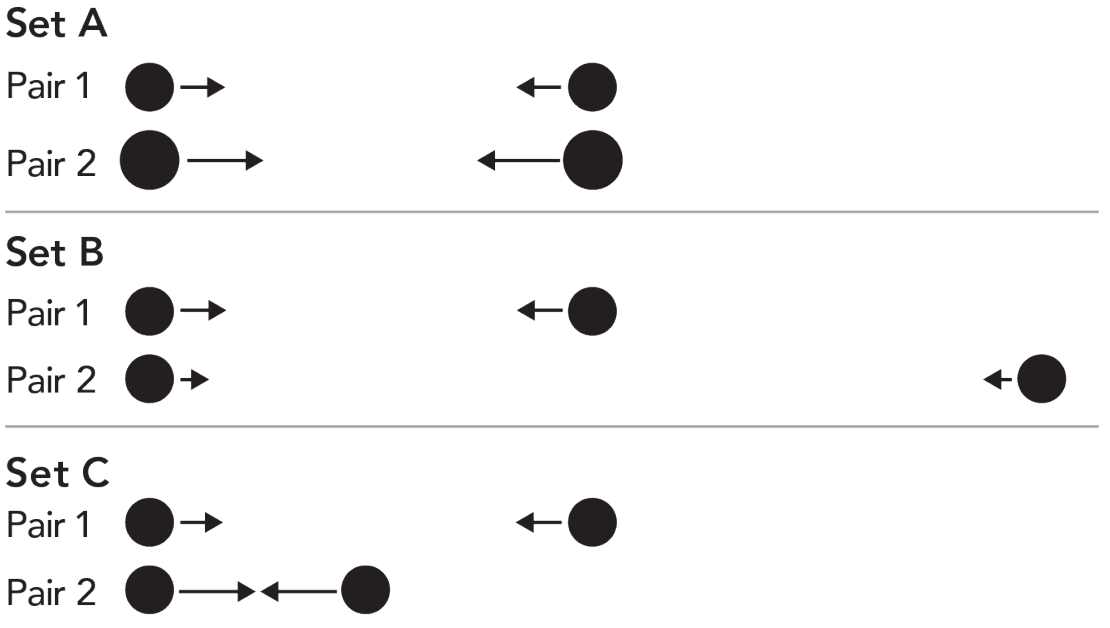
C. gravity is stronger as it pulls Gabe through Point B the first time than it is when it pulls him through the same point on the way back toward Maria.

D. Gabe's momentum at Point C produces a pull force against the swing that takes away from his potential energy after that point.

Name _____ Date_____

Use the information to answer questions 44 through 45.

A careful experiment was carried out to measure the gravitational attraction between metal spheres. The results of the experiment are shown in the picture. For each pair of spheres, the distance between their centers indicates the actual distance between them in the experiment, and the size of each sphere indicates its mass. The length of the arrow on each sphere shows the strength of the force exerted on it by the other sphere.



44 If you needed to measure only the effect of distance on gravitational force and you were designing an experiment to do this, which set(s) of measurements would NOT be necessary to get the results you need?

F. Set A

G. Set B

H. Set C

I. Sets B and C

45 Based on the picture, which statement provides the **best** evidence that gravitational forces are attractive?

A. The arrow on each sphere points toward the other sphere in that pair.

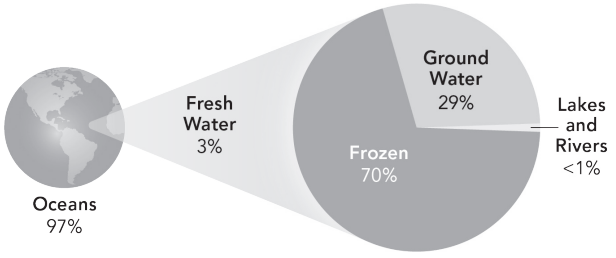
B. In each pair of spheres, one arrow points left and the other points right.

C. The force on each sphere cancels out the force on the other sphere in that pair.

D. In each pair of spheres, the forces have the same strength.

Name _____ Date_____

46 The diagram below summarizes how the hydrosphere is allocated across Earth's surface.



The cycling of water from bodies of liquid water and solid ice through the atmosphere, geosphere, and biosphere is driven mainly by energy from

F. Earth's core.

G. the Sun.

H. wind and tides.

I. human activities that emit greenhouse gases.

47 Almost 2% of Earth's water is located in the polar ice caps. The polar ice caps are the home to many animals, including seals, polar bears, and penguins. Seals warm themselves by lying on the ice in the sunlight. Penguins and polar bears raise their young on the ice and walk on it while hunting for food.

How could these changes in the cryosphere directly affect the biosphere of that region?

A. Loss of ice means fewer hunting grounds for wildlife.

B. Rising sea level will mean more places for animals to swim.

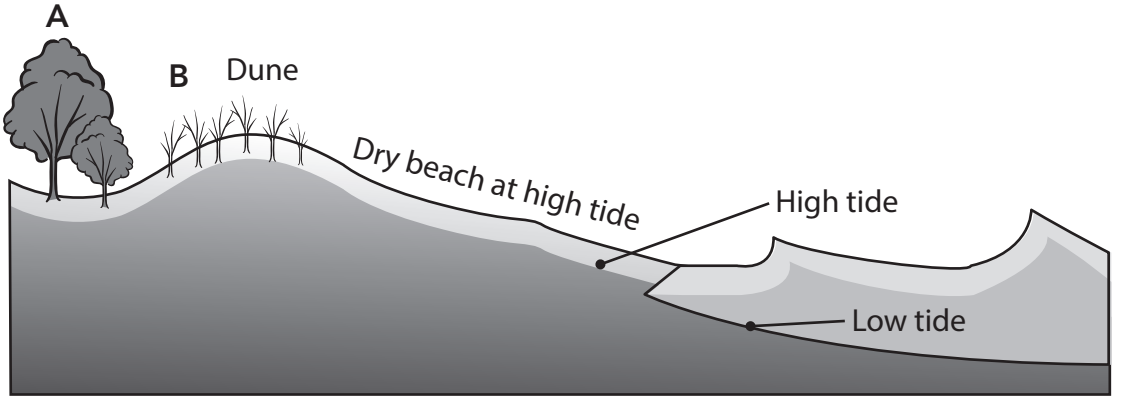
C. More ice means more places for the plants to grow.

D. Lower sea levels will mean more land will be available.

Name _____ Date_____

Use the information to answer questions 48 through 49.

Sandpipers are small birds that frequently nest near the ocean. These birds are part of a group of birds known as "waders" because they walk in the water, where they find most of their food.



48 The beach where the sandpipers live has recently become popular for people to visit in order to swim and picnic. The people walk across the dunes at three points to get to the beach, trampling down some of the dune grasses as they do so. Which statement below **best** describes the likely outcome of the paths worn in the dune?

F. The sand of the path becomes sedimentary rock because people compact the sand as they walk.

G. The dune becomes eroded at the footpaths because of the dune grasses being removed from the footpaths.

H. The dune becomes taller because the ocean deposits more sand in the wider space between the dune grasses.

I. The sand of the path turns into igneous rock because the heat from the Sun melts the particles into a solid mass.

49 How would a change in the hydrosphere **most likely** affect the biosphere where the sandpipers live?

A. Excess rains would wash away the dunes and the plants that live there.

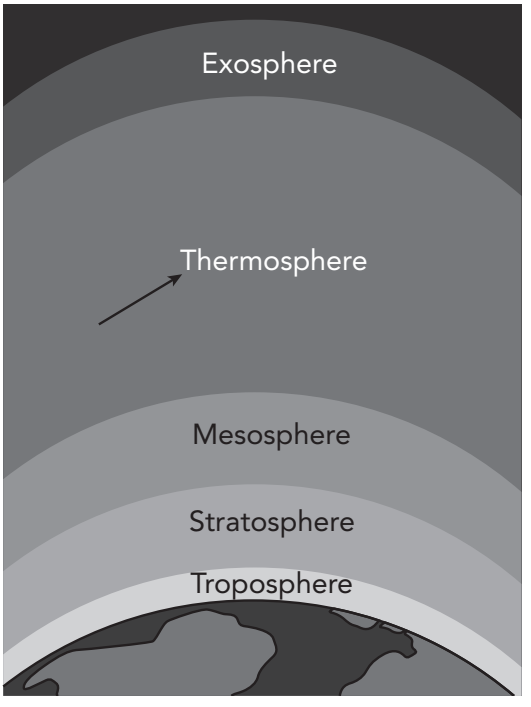
B. Higher temperatures would dry out the plants, causing the sands to shift.

C. Cooler winds would blow away the sands, leaving the plant roots exposed.

D. Rising sea levels would submerge the plants, poisoning them with salt.

Name _____ Date_____

50 Devereaux is interested in becoming a meteorologist, and therefore makes this model of the atmosphere.



How does the layer of the atmosphere indicated in the diagram help protect life on Earth?

F. It helps maintain the moderate temperature Earth's species require.

G. It produces the rain that the species on Earth need to live.

H. It is the boundary between Earth's atmosphere and space.

I. It forms ozone that prevents the Sun's harmful rays from reaching Earth.

51 Jonna is making a graph of a train's motion, with "Time" on the *x*-axis and "Distance traveled" on the *y*-axis. How would she represent the train moving at a constant speed on this graph?

A. By drawing a diagonal line that slopes upward from left to right

B. By drawing a shape like an upside-down letter "U"

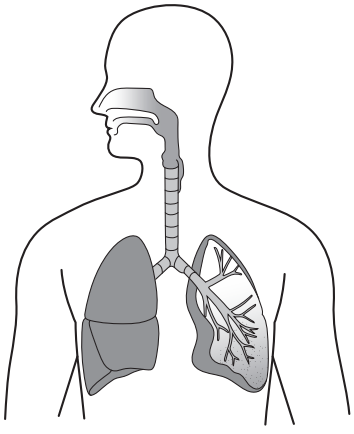
C. By drawing a vertical line through a portion of the graph

D. By drawing a horizontal line through a portion of the graph

Name _____ Date_____

Use the information to answer questions 52 through 53.

The human body is comprised of many different systems. While each system has its own special functions, many work together to maintain homeostasis in the body.



52 Which of these best describes how the human body system shown works with another human body system to maintain homeostasis?

F. Pathogens can enter this system or the digestive system from the external environment.

G. It supports the circulatory system in detecting and combating infectious agents.

H. It works alongside the circulatory system to maintain healthy levels of gases in the blood.

I. It provides the energy the digestive system needs to provide a steady supply of energy to the body.

53 How does the body system seen in the illustration work to maintain homeostasis in the body?

A. It transports oxygen to the cells so they can make energy.

B. It brings in oxygen and removes carbon dioxide from the body.

C. It helps transmit danger signals that keep the body from harm.

D. It breaks down food to release the nutrients the body needs for growth.

Name _____ Date_____

Florida Science Assessment Practice Grade 7

Read each question and choose the best answer. Then use the answer sheet to fill in the letter for the correct answer.

1 Science students have created a table of points to compare and contrast the characteristics of scientific laws and theories. Below is a copy of their table.

Scientific Theories	Scientific Laws
• well-supported	• based on experimental observations
• widely accepted	• replicable
• a simple claim posed by a scientist	• well confirmed facts

Which point did the science students get incorrect about scientific theories or scientific laws?

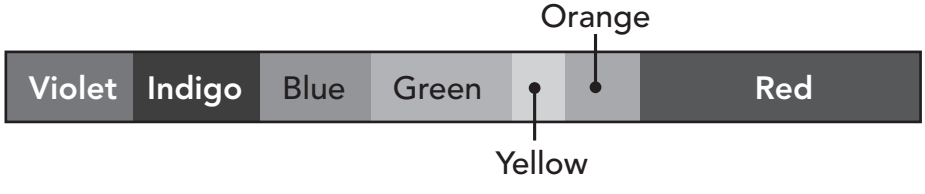
A. Scientific theories are not well supported.

B. Scientific laws are not replicable.

C. Scientific laws are not based on experimental observations.

D. Scientific theories are not just claims posed by scientists.

2 The image below is of the visible light spectrum.



The colors of the visible light spectrum are arranged according to which property?

F. heat intensity

G. refraction rate

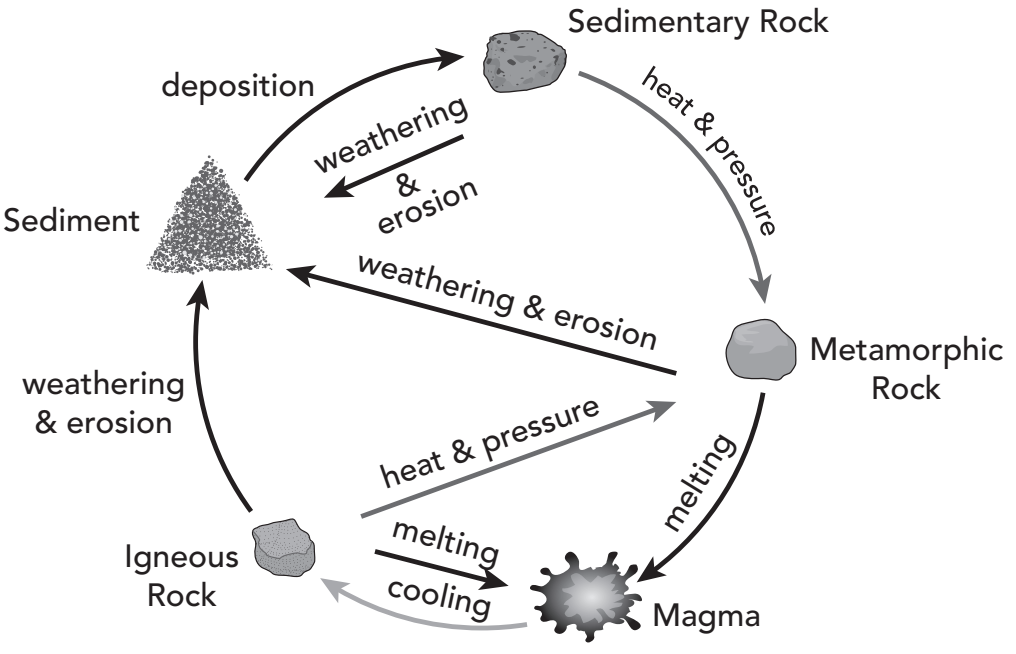
H. light intensity

I. wavelength

Name _____ Date_____

Use the information to answer questions 3 through 5.

Like all other types of matter, rock cycles through changes of form. Minerals formed deep in Earth's crust are constantly recycled into different types of rock as they are melted or exposed to extreme heat and pressure within the crust. Over time, they move to Earth's surface through the processes of volcanic eruption and uplift or are exposed by weathering. Erosion and deposition form layers of sediment that return the weathered minerals back to Earth's interior as eroded minerals are buried under more layers of sediment and decaying organic matter. The image below shows how the processes of the rock cycle work together to move minerals through the geosphere.



❸ A geologist examines a sample of beach rock and discovers that it was composed of grains of sand squeezed tightly together. The quartz grains were cemented together by narrow bands of calcium carbonate. What geologic event occurred that led to the formation of this rock?

A. uplift

B. deposition

C. plate subduction

D. volcanic eruption

Name _____ Date_____

4 Based on the diagram, which process is most likely to be associated with the formation of metamorphic rock from sedimentary rock?

F. volcanic eruption

G. mountain-building

H. trench development

I. mid-ocean ridge formation

5 Which of these provides evidence for the theory that natural processes have caused Earth's continents to come together and separate repeatedly over time?

A. formation of fresh rock during a volcanic eruption

B. development of a new fault line during an earthquake

C. fossils of the same plant species discovered on multiple continents

D. rocks of the same mineral composition found at the source and mouth of a river

Name _____ Date_____

Use the information to answer questions 6 through 8.

Native to Australia, wombats are burrowing animals about the size of a small pig. They are the only known animal in the world to produce cube-shaped scat (feces). Dr. Patricia Yang, a Post-Doctoral Fellow at the Georgia Institute of Technology, recently conducted research to determine why wombat scat is cubic.

Facts About Wombats	
Habitat	temperate forests of southeast Australia
Diet	fibrous grasses, reeds, rushes, dry leaves, bark
Feeding behavior	active during day in winter; nocturnal in summer
Social behavior	live and forage alone but territories overlap; have multiple burrows within a territory; sleep alone
Territorial behavior	feeding areas do not overlap; use warning calls and scent (scat) to protect their territories
Intestinal tract characteristics	910–915 cm in length; digestion takes approximately 2 weeks; scat is very dry and cubic

6 Which statement below best describes how Dr. Yang might apply the scientific method to conduct her research?

F. Dr. Yang proposed a hypothesis, obtained wombat intestines, and conducted experiments to support or disprove her hypothesis.

G. Dr. Yang conducted experiments on wombats to support a theory of evolutionary exception.

H. Dr. Yang studied pictures of wombat digestive systems and wombat scat and theorized why their scat is cubic.

I. Dr. Yang observed wombats in the wild to try to catch them shaping their scat into cubes with their front paws.

Name _____ Date_____

7 One previous hypothesis about wombat cube-shaped scat was that wombats shaped them into cubes to be able to stack them to mark their territory. Which of the following sets of observations might be used to support or disprove that hypothesis?

A. Count how many wombats are in several colonies and average that number. Then count how many cube-shaped wombat droppings are left by each colony and average that number.

B. Identify the edges of a wombat colony and compare the number of scat piles at the boundaries of the territory with the number of cube-shaped scat piles that are found inside the territory.

C. Measure the amount of food wombats eat and compare how the food intake compares with the volume of scat produced.

D. Set up low-light cameras to catch wombats shaping their scat into cubes at the borders of the colony's territory.

8 Dr. Yang had to study wombat intestines to support or disprove her hypothesis. Which statement **best** describes the method of determining whether her findings were valid?

F. Using the practice of replication, Dr. Yang examined one set of wombat intestines multiple times with the same result.

G. Using the practice of repetition, Dr. Yang examined several sets of wombat intestines with the same result.

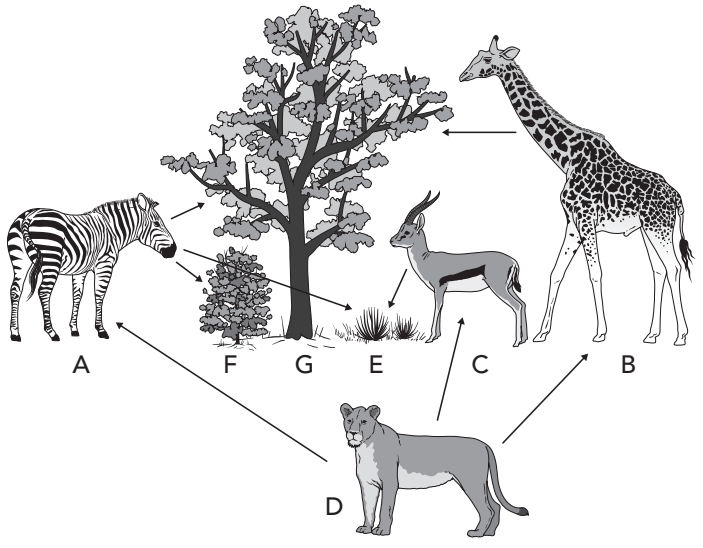
H. Using the practice of replication, Dr. Yang sent her results to several colleagues to have them review her research documents.

I. Using the practice of repetition, Dr. Yang had several colleagues test wombat intestines the same way she did with the same result.

Name _____ Date_____

Use the information to answer questions 9 through 10.

Organism A is a herbivorous species that feeds primarily on organisms E, F, and the low-hanging branches of organism G.



9 A student decides that if there is a drought and all of organisms E and F die, individuals of organism A that have longer necks will be able to survive better than those with shorter necks. Is the student's claim valid?

A. Yes, because individuals with longer necks would be able to easily reach organism G.

B. No, because individuals with shorter necks would be able to hide from organism D.

C. Yes, because individuals with longer necks would be able to defend themselves from organism B.

D. No, because individuals with shorter necks would be able to attract better mates.

10 If scientists artificially selected for long necks in organism A, what would **most likely** be the effect on the ecosystem shown in the diagram?

F. There would be an increase in the number of organism D.

G. Organism A would become competition for organism B.

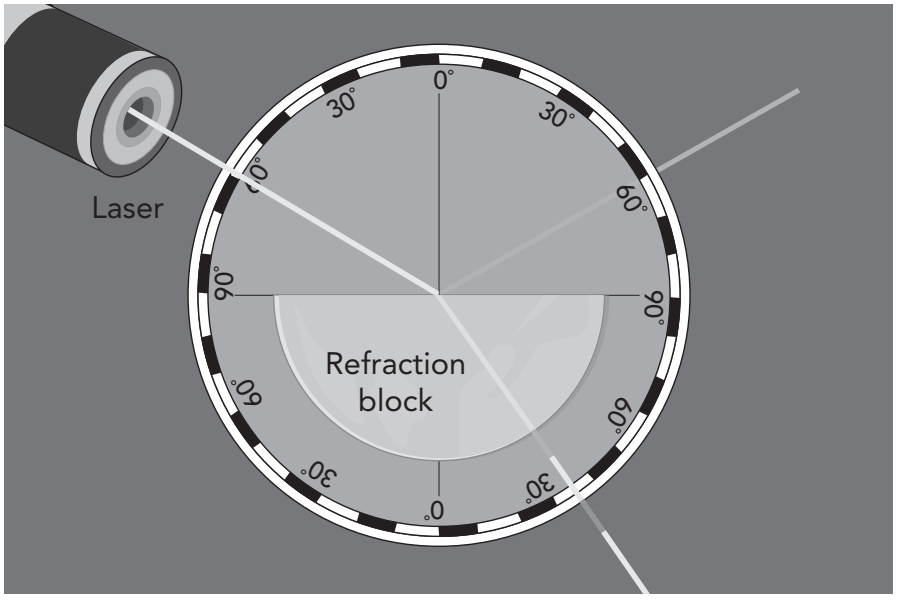
H. The number of consumers in the habitat would be decreased.

I. An increased number of organism A would destroy the habitat.

Name _____ Date_____

Use the information to answer questions 11 through 14.

Augusta is using a laser and a semicircular glass block to investigate how energy travels from one place to another in the form of electromagnetic waves. She draws a circle, divides it into sections, and adds a scale. Then she aligns the flat side of the glass block with the line connecting the 90-degree marks on her scale.



11 Before beginning her investigation, Augusta studies the relationship between frequency and wavelength of electromagnetic waves. How should Augusta describe this relationship in her notes?

A. Wavelength decreases as the frequency of electromagnetic waves increases.

B. Wavelength increases as the frequency of electromagnetic waves increases.

C. Frequency and wavelength of electromagnetic waves depend on radiation type.

D. Frequency and wavelength of electromagnetic waves are unrelated to one another.

Name _____ Date_____

12 Next, Augusta studies the energies of visible light, radio waves, and infrared light. She wants to rank the three types of waves in order of least energetic to most energetic. In what order should she list the three types of waves?

F. radio waves < visible light < infrared light

G. radio waves < infrared light < visible light

H. visible light < radio waves < infrared light

I. visible light < infrared light < radio waves

13 Augusta wants to know how light behaves when it interacts with different materials. She points the laser light at the flat side of the glass block and observes that the light bends when it moves from air into glass. Which of the following phenomena is responsible for this bending of light?

A. reflection

B. refraction

C. absorption

D. transmission

14 Augusta and Manishka are taking a tour of a cavern system. Manishka walks ahead of Augusta and goes around a bend in the cavern. Manishka wants to send a signal to Augusta. What would be the **most** effective way to signal her friend?

F. Hit the side of the cave with her hand.

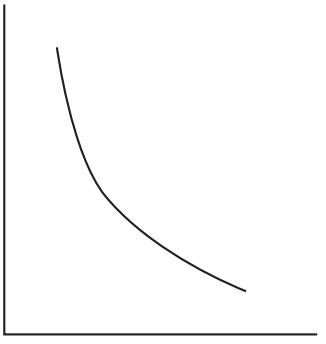
G. Use a mirror to reflect sunlight.

H. Shine a flashlight.

I. Blow a whistle.

Name _____ Date_____

15 Consider the pattern shown in the graph below.



Which observation could **best** be represented by this graph?

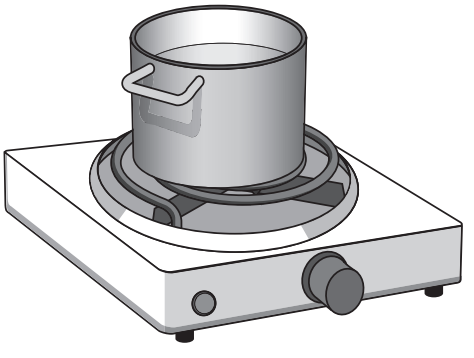
A. wavelengths of the types of radiation from the Sun

B. temperature of boiling water during the hour after it is poured into a cold mug

C. temperature of a room-temperature spoon placed in a cup of hot tea and left for 30 minutes

D. temperature of water being heated on an open flame

16 A student heats water as shown in the diagram below.



What sort of energy transformation is taking place?

F. Electrical energy transforms to heat energy.

G. Heat energy moves from a cooler object to a warmer one.

H. Light energy transforms to heat energy.

I. Kinetic energy transforms to potential energy.

Name _____ Date_____

17 Students hypothesize that temperature is a limiting factor for the germination of seeds. They carry out an experiment to test their hypothesis in which temperature is the independent variable. First, the students label two plastic bags A and B. They place a damp paper towel in each bag. They place one bean seed in each bag. Then they place one bag in the refrigerator and the other bag on the windowsill. Whenever the paper towels look dry, they add more water. Each day they check to see if the seeds have germinated and record their observations in a data table below.

	Length Day 0 (cm)	Length Day 2 (cm)	Length Day 4 (cm)	Length Day 6 (cm)
A – Refrigerator	0.0	0.0	0.0	0.0
B – Windowsill	0.0	0.0	0.2	0.5

Which of the following describes the dependent variable of this experiment?

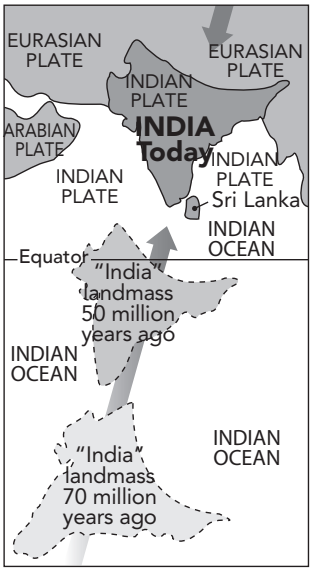
A. temperature

B. bag

C. water

D. length

18 The map shows the movement of the India landmass over time.



When the Indian crustal plate collided with the Eurasian crustal plate, what occurred?

F. thunderstorms

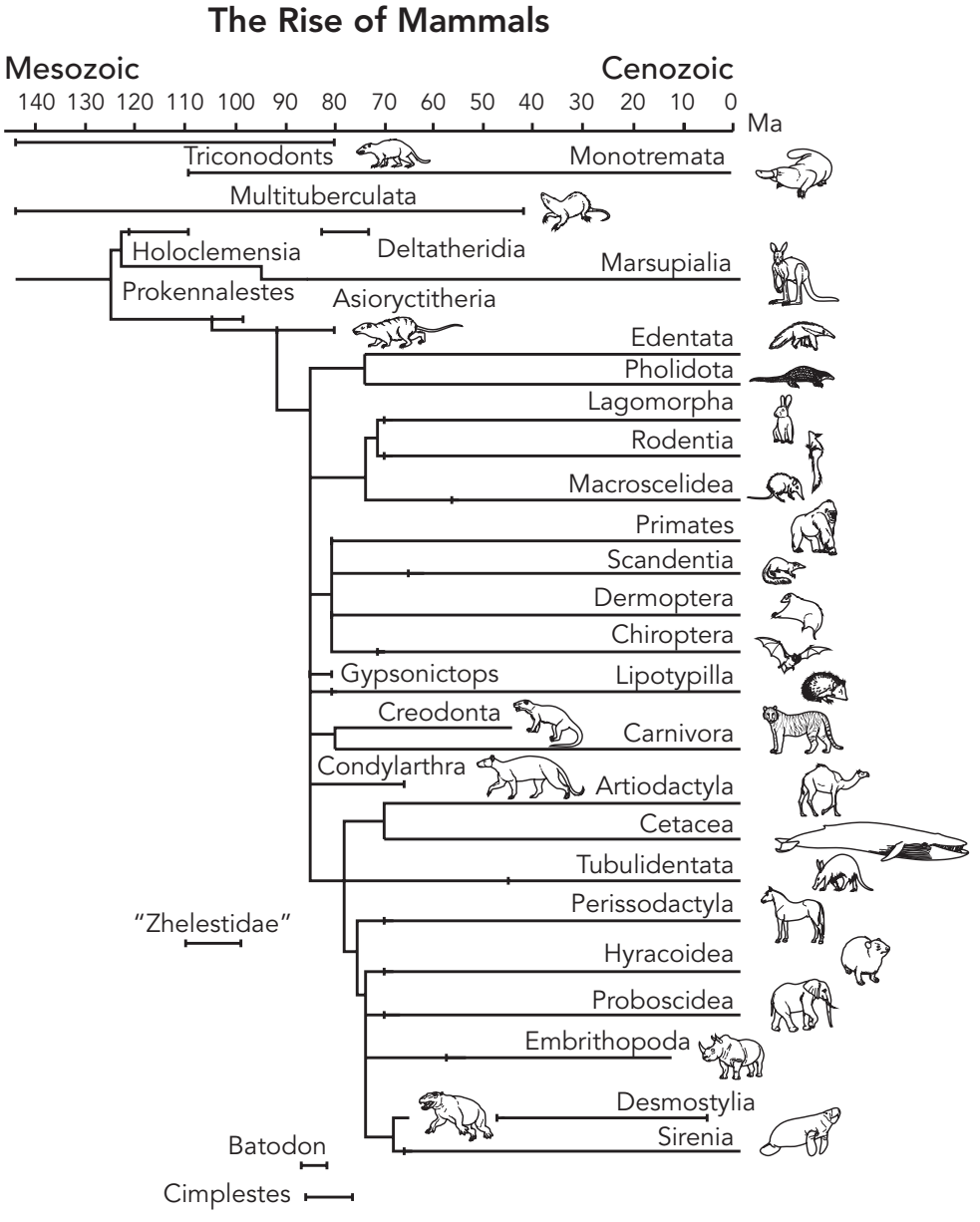
G. canyon formation

H. mountain building

I. river redirection

Name _____ Date_____

19 Mammal populations grew rapidly in number, size, and variety after the death of the dinosaurs.



What **best** explains why mammals would be able to grow in size after the dinosaurs became extinct?

A. Largeness requires having two recessive alleles.

B. More resources existed due to fewer competitive consumers.

C. Lack of producers led to decreased mutualism.

D. Mitosis allowed them to produce larger offspring.

Name _____ Date_____

20 The *Tyrannosaurus rex* is most closely related to chickens and ostriches. The table below compares some traits of the *Tyrannosaurus rex*, chicken, and ostrich.

	Can Fly	Lays Eggs	Has Teeth
Tyrannosaurus rex	no	yes	yes
Ostrich	no	yes	no
Chicken	no	yes	no

What statement **best** explains the difference found in the chart between a *Tyrannosaurus rex*, a modern chicken, and a modern ostrich?

F. They all have different traits because their ancestors did not have teeth.

G. None of these animals have teeth because they are not mammals.

H. Teeth are a trait that comes from having two recessive genes.

I. The environment of the ostrich and chicken ancestor favored organisms without teeth.

21 Rachel is learning about how scientists' theories about evolution changed over time. Her teacher says these changes occur because scientific knowledge is the result of debate and confirmation within the science community. Her teacher then shows the class the following table:

Example 1:	A group of historians records the events that occurred during a presidential election.
Example 2:	A doctor performs a test to determine if a patient is allergic to a particular food.
Example 3:	Several detectives discuss an unsolved crime, each offering their own evidence-based explanation of what happened.
Example 4:	A coach decides that a new rule should be implemented to prevent player injuries.

Which of the examples in the table should Rachel say is **most** similar to how her teacher described the way scientists gain knowledge?

A. Example 1

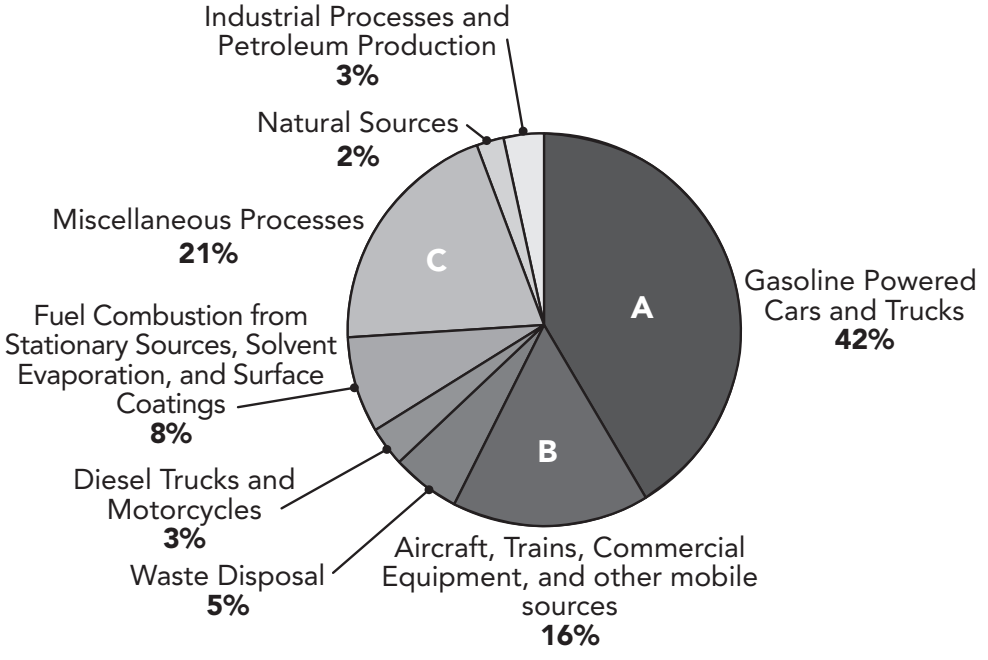
B. Example 2

C. Example 3

D. Example 4

Name _____ Date_____

22 The graph shows the percentages of different sources of air pollution, mostly created by humans.



Based on the chart provided, what **best** explains the main sources of air pollution?

F. Burning fuel in engines causes large amounts of chemicals to be released and pollute the air.

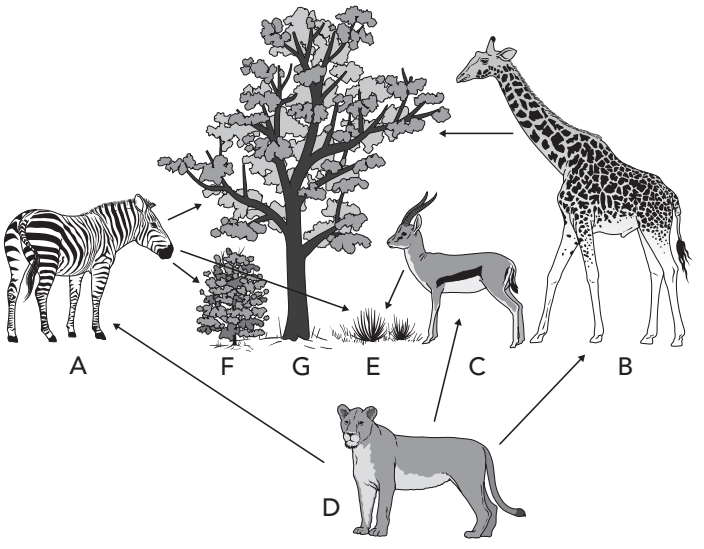
G. When trash is burned to get rid of it, chemicals in a gaseous state are released into the air.

H. Decaying animals produce more toxic gases than any of the human creations listed.

I. Water treatment plants remove toxins from water which then create the most air pollutants.

Name _____ Date_____

23 Organism A is a herbivorous species that feeds primarily on organisms E, F, and the low-hanging branches of organism G.



If individuals with longer necks survive the season and breed, what would **best** describe their offspring?

A. They would eat only organism E.

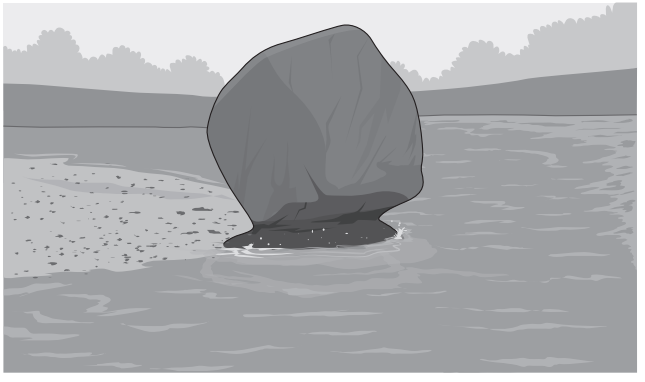
B. They would have their parents' features.

C. They would learn to eat organism F.

D. They would be unable to survive in the wild.

Name _____ Date_____

24 Shane is walking when he finds a river.



Which processes of the rock cycle can Shane observe?

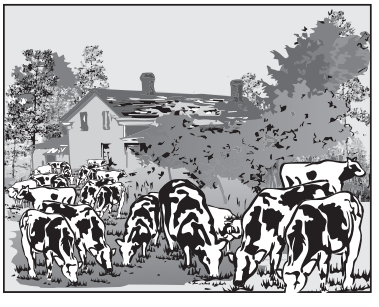
F. erosion of a boulder causing igneous rock to be formed

G. chemical weathering forming rock pieces into a single rock

H. deposition of rock particles forming a new rock formation

I. physical weathering and erosion of a larger rock

25 The agriculture industry has a difficult job of keeping up with the food demands of increasing populations. As populations grow, there is a need for more cattle. However, raising more cattle uses a lot of natural resources and has other negative impacts on the environment.



How do large cattle farms, like the one shown above, contribute to soil erosion?

A. The gases expelled by the cows mix with the atmosphere, thereby causing acid rain, which reduces the soil's ability to stick together.

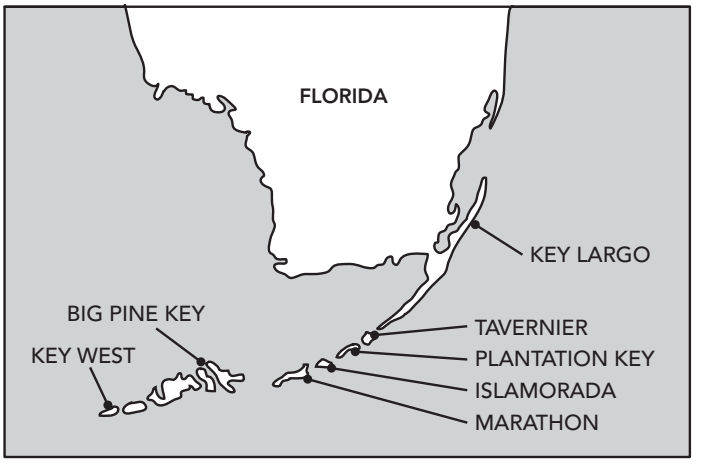
B. Farmers allow the cows to graze in their fields, which kicks up the soil, making it easier to move.

C. An overabundance of cows causes all the grass to be eaten, which loosens the soil, thereby making it easier to wash away.

D. The wastes made by the cows add toxic chemicals to the soil, which kills the microbes that hold it together.

Name _____ Date_____

26 The endangered Key deer is the smallest deer in North America. They live on the Florida Keys, where they eat the thatch palm berries found on the islands that they swim between.



If climate change were to raise sea levels, what **best** describes the effect this would have on the Key deer located at the National Key Deer Refuge on Big Pine Key?

F. The animals would be stranded on separate islands.

G. They would have to migrate to Florida's mainland.

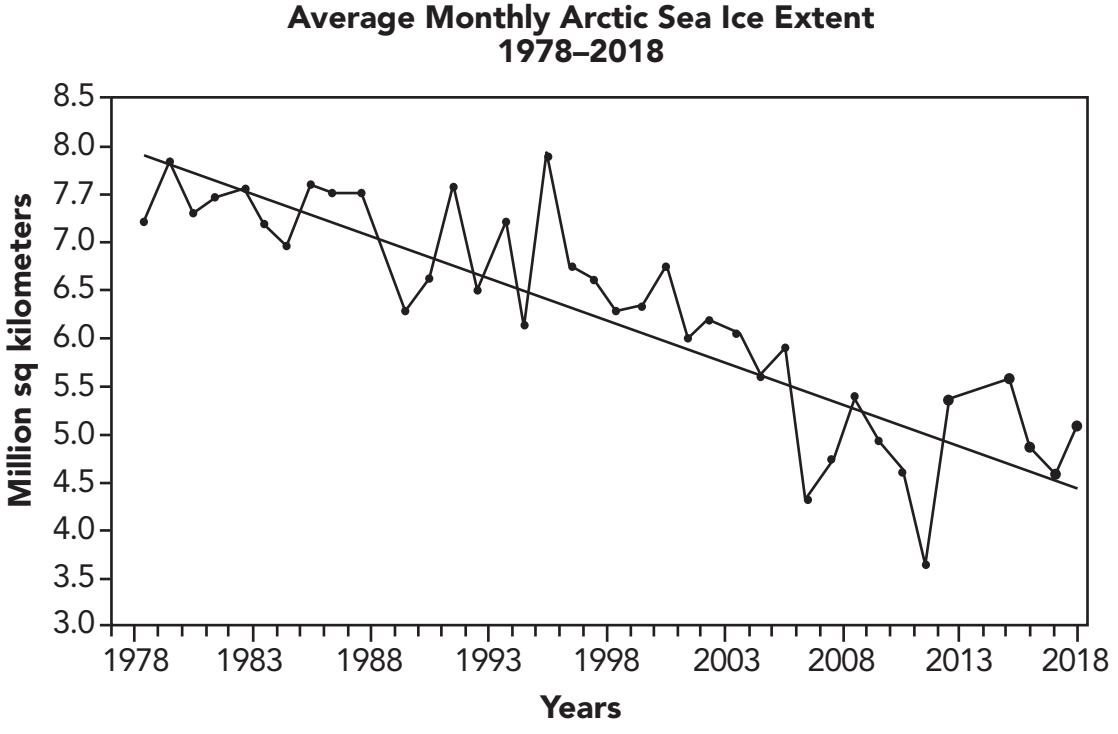
H. Saltwater would kill the plants, leaving less food for the deer.

I. The deer would need to adapt to drink salty water.

Name _____ Date_____

Use the information to answer questions 27 through 29.

Polar bears live in the Arctic, where there is no sunlight from October until March and no nightfall from June until August. The Arctic looks white year round due to the presence of sea ice even in the summer. The chart below shows the amount of sea ice over the last few decades.



27 Polar bears are carnivores, and their most nutritious food source is seals. They hunt for seals by waiting for them to come through breathing holes in the Arctic ice. Based on the graph, how will changes in the extent of ice directly affect polar bear populations?

A. There will be more seals around because the ocean waters will not be as cold.

B. More humans will visit the Arctic and the animals living there will be displaced.

C. They will have fewer opportunities to hunt because there will be less ice.

D. It will be easier to find food because the Arctic will not be frozen all the time.

Name _____ Date_____

28 Even though they look white, a polar bear's hairs are actually clear and their skin is black. Why is it an advantage for polar bears to have white-looking fur, but black skin?

F. Black skin helps them blend in with the darkness during the winter months.

G. White fur blends in with their surroundings, but black skin absorbs more energy from the sun.

H. Black skin was already a trait bears had, so they evolved white fur to camouflage it.

I. White fur has greater density, which helps keep the animals warmer longer.

29 Some scientists think that in the next 20 years, climate change will result in a continuation of the trend seen in the graph. If this were to happen, which statement **best** describes what will happen to polar bears?

A. They will not be able to evolve quickly enough to adjust to their environment, and they will become extinct.

B. They will adapt to have darker fur so that they can blend in with the surroundings.

C. They will learn to eat the plants that will be plentiful once the ice has melted.

D. They will move to Antarctica because it is the other place on Earth covered with ice.

Name _____ Date_____

30 Earth is made up of several distinct layers. A few facts of each are listed in the table.

Layer	Earth's Interior		
	Thickness (km)	Temperature (°C)	Type of Rock
crust	30	15	silicic rock, basalt, andesite
upper mantle	720	870	eclogite, garnet, olivine
lower mantle	2171	3000	magnesium, silicon oxide
outer core	2259	5000	sulfur, nickel alloy
inner core	1221	7200	sulfur, nickel alloy

Given the information in the table, what is the **best** explanation for why the inner core is solid?

F. This layer is solid because it is the thickest of all of the layers of the planet.

G. The high temperature of the sulfur present in the layer causes it to be a solid.

H. All of Earth's layers are solids because of the compounds they are made of.

I. The immense pressure from the other layers causes it to be solid despite the heat.

31 A science class is discussing the difference between theories and laws. They compile a list of theories and laws in the table shown below.

	Law	Theory
A. Gravity	X	
B. Atoms		X
C. Plate Tectonics		X
D. Conservation of Mass	X	

Which of the following statements **best** explains why C is a theory and not a law?

A. because it is an explanation of a phenomenon

B. because it can be studied but not explained

C. because it cannot be explained in a statement without exceptions

D. because experiments cannot be performed to prove it exists

Name _____ Date_____

32 Etan is learning about how different fields of science use different methods of investigation. The methods a scientist uses to develop a scientific explanation may be limited by the size of the object being studied, how easily it can be accessed or handled, or by what instrumentation or technology is available.

Method 1	Method 2
observation and collection of evidence	laboratory experiment

Which field(s) of science would be the **most** dependent on the method shown in column 1 in the pursuit of developing a scientific explanation?

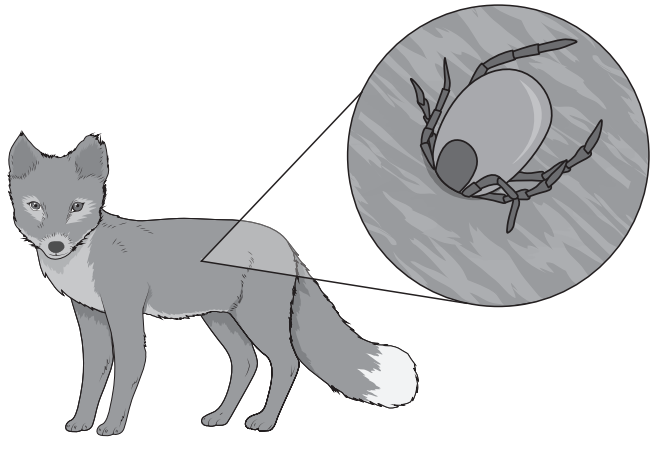
F. astronomy

G. chemistry

H. physics

I. robotics

33 Delilah is learning about relationships between organisms when she finds this image in a book.



Which other relationship does Delilah say is most similar to the one shown?

A. Predation is similar to parasitism because one animal is benefiting by living off another animal that is harmed.

B. Commensalism is similar to parasitism because neither animal is harmed by its relationship with the other.

C. Mutualism is similar to parasitism because both animals in the relationship need each other to stay alive.

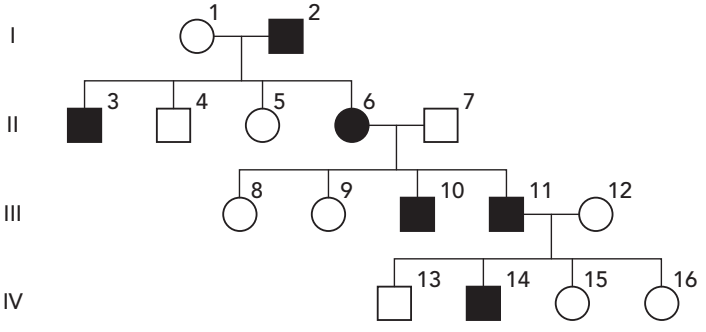
D. Competition is similar to parasitism because one animal is preventing another animal from living off the same prey.

Name _____ Date_____

Use the information to answer questions 34 through 36.

In a species of mice, fur color can either be brown (G) or white (g). The allele for brown fur is dominant, and the allele for white fur is recessive. The pedigree shows the inheritance of fur color through three generations of mice.

Pedigree of Fur Color in Mice



34 What is the genotype and phenotype of individual 1?

F. She has white fur and a genotype of gg.

G. She has white fur and a genotype of GG.

H. She has brown fur and a genotype of Gg.

I. She has brown fur and a genotype of Gg.

35 What is the probability that individual 11 will have offspring with white fur if the male reproduces with a female that has genotype Gg?

A. 0%

B. 25%

C. 50%

D. 100%

36 For the phenotypes to be inherited, sexual reproduction must take place. How would the inheritance be different if asexual reproduction took place instead?

F. New phenotypes would be introduced due to the speed at which reproduction is able to take place.

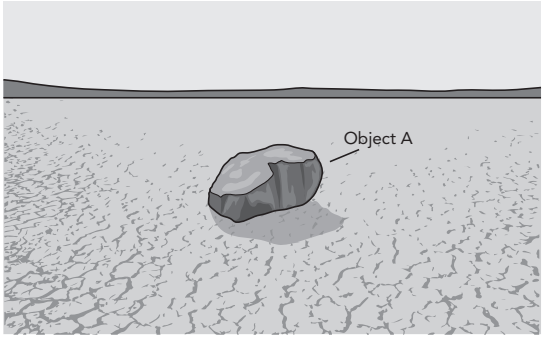
G. All of the existing genotypes would be converted into recessive ones to force the expression of the trait.

H. Each individual would produce offspring with the exact same genotypes and phenotypes as itself.

I. The genotypes and phenotypes for each generation would alternate between dominant and recessive.

Name _____ Date_____

37 A geologist is out hiking when she comes across the following scene.



She believes that object A is much younger than its surroundings. How could the geologist gather useful physical evidence to support her idea?

A. She could determine the amount of physical weathering on object A and compare it to the amount of rainfall in the area for the past decade.

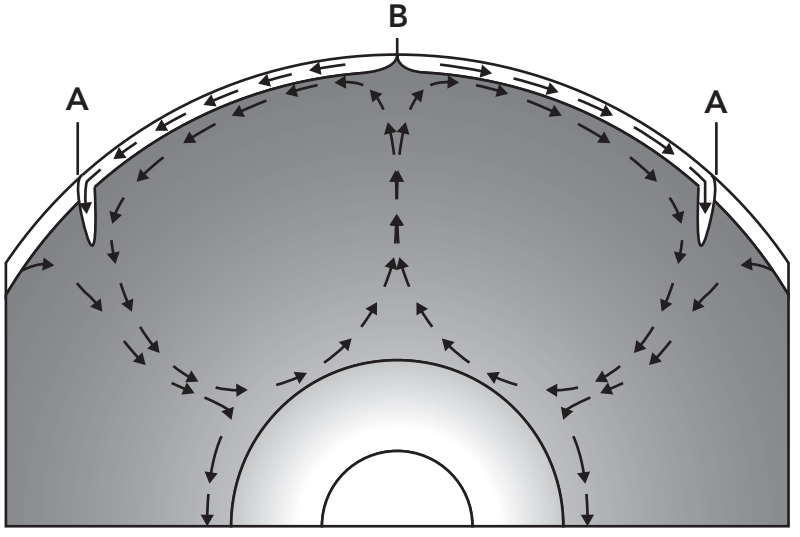
B. She could measure the amount of radioactive minerals in object A and compare it to the amounts of radioactive minerals in similar objects nearby.

C. She could determine what minerals are present in object A and compare them to the minerals found in boulders in the area.

D. She could measure the density of object A and compare it to the density of similar-sized rocks found nearby.

Name _____ Date_____

38 The illustration shows the movement of heat within Earth in areas called convection cells.



Heat flow and the movement of material within Earth cause several changes at the surface. What is happening at the site labeled B?

F. Additional materials are being piled from above in this site.

G. New material is being brought to the surface.

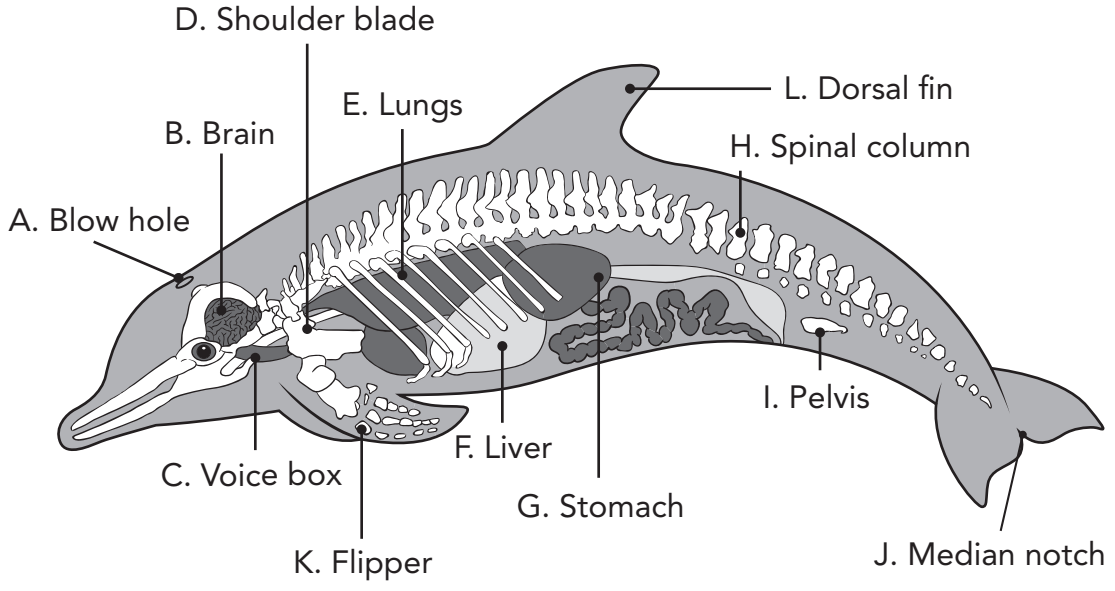
H. One of the tectonic plates is being submerged under another.

I. The inner core is pushing its molten lava toward the surface.

Name _____ Date_____

Please use the information to answer questions 39 through 40.

The anatomy of dolphins provides evidence that they share a common ancestor with an animal that lived on land millions of years ago.



39 Based on feature I in the diagram, what might you expect to see if you analyzed a fossil of an ancestor of dolphins?

A. Evidence that the ancestor made sounds.

B. Evidence that the ancestor had arms.

C. Evidence that the ancestor had legs.

D. Evidence that the ancestor had feet.

40 What is the **most likely** reason that dolphins' land-dwelling ancestors evolved to live in the water?

F. to reduce competition with other organisms for food

G. to use feature A

H. to develop aquatic traits such as feature K

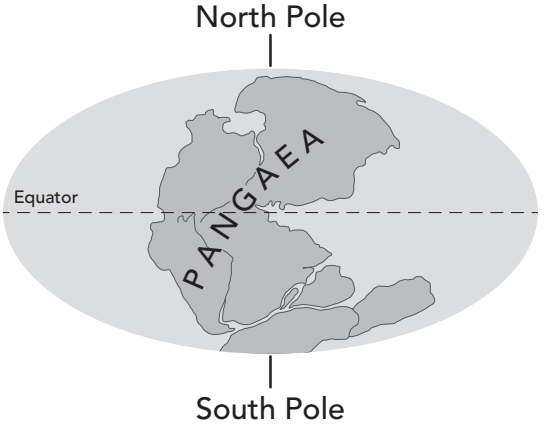
I. to participate in the natural annual migration of the species

Name _____ Date_____

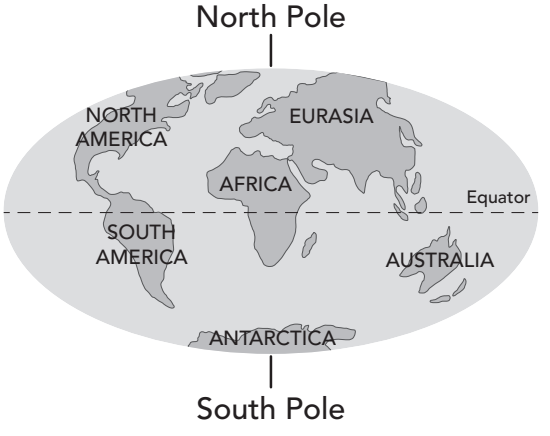
Use the information to answer questions 41 through 44.

The Earth's crust is not solid. It is broken into pieces called tectonic plates. These plates float on top of the mantle, a layer of molten rock that circulates in convection currents. The vertical circulation of these convection currents causes the tectonic plates to move at a rate of mere centimeters a year. Over time, this movement has resulted in changes to the location and shape of the continents we know today, as some plate edges dive below their neighbors while new crust is formed at others. The direction of plate movement is dependent upon the direction of mantle circulation below the plate boundaries. The results of this plate movement over time is shown in the pair of maps below.

250 Million Years Ago



Earth Today



41 Which statement below is NOT evidence that can be used to support theories that Earth evolves over geologic time?

A. Africa is about the same shape as it was before it moved.

B. South America and Africa have coastlines that fit together.

C. Oceans have formed and grown between the continents.

D. Modern-day Asia appears to have rotated clockwise over time.

42 Modern-day Africa and the Eurasian continent are separated from the North American continent by an ocean that has been growing in width for 250 million years. This is evidence that which tectonic process is taking place at the boundary between the tectonic plates that these continents occupy?

F. earthquake activity

G. volcanic eruptions

H. mountain-building

I. sea-floor spreading

Name _____ Date_____

43 Which of the following events is evidence that continents are moving apart as tectonic plates move?

A. an increase in height of a mountain range where two plates meet

B. the formation of a chain of volcanic islands in the center of an oceanic plate

C. an increase in number of earthquakes in a volcanic mountain before eruption

D. the formation of a rift valley between two plates moving away from each other

44 Why is plate tectonics characterized as a theory instead of a law?

F. It provides an evidence-based explanation for why and how the plates form and move.

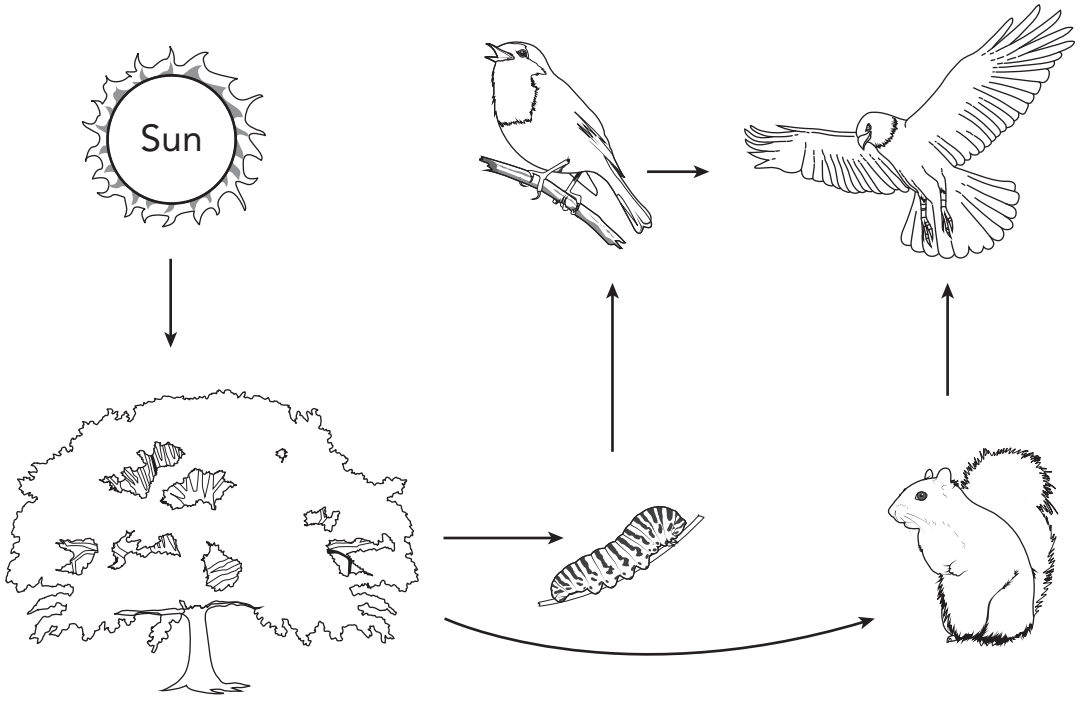
G. It predicts what will happen in the crust if certain conditions are met.

H. It proves that plate motion is the cause of all earthquakes and volcanoes.

I. It summarizes what is expected to happen once evidence about plate motion has been collected.

Name _____ Date_____

45 Nate makes the following model of a food web within an ecosystem for class.



Which **best** identifies a limitation of this model?

A. It shows relationships that cannot be observed directly.

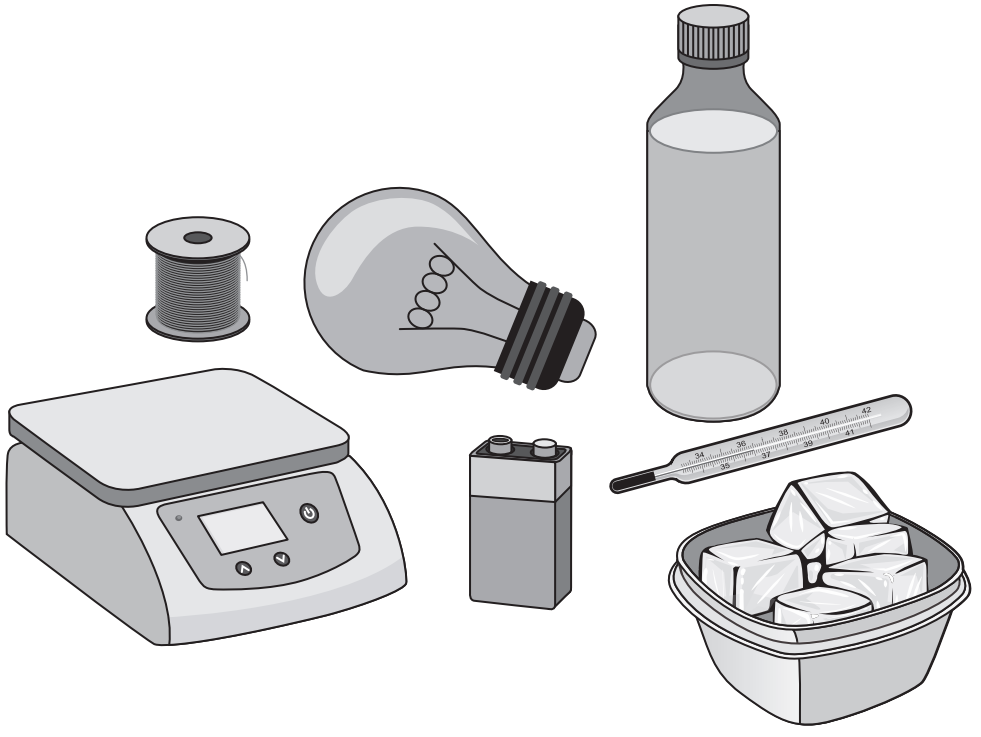
B. It summarizes information so it can be easily analyzed.

C. It simplifies feeding relationships so some details are not included.

D. It allows patterns in ecosystems to be identified.

Name _____ Date_____

46 Patricia is making a model to explain to her class how energy is neither created nor destroyed. She has the following objects to work with:



What evidence can she produce to explain to the class that energy is not created or destroyed but only changes from one form to another?

F. Pour the water from the bottle onto the ice cubes in the bowl and use the thermometer to show the change in temperature of the water.

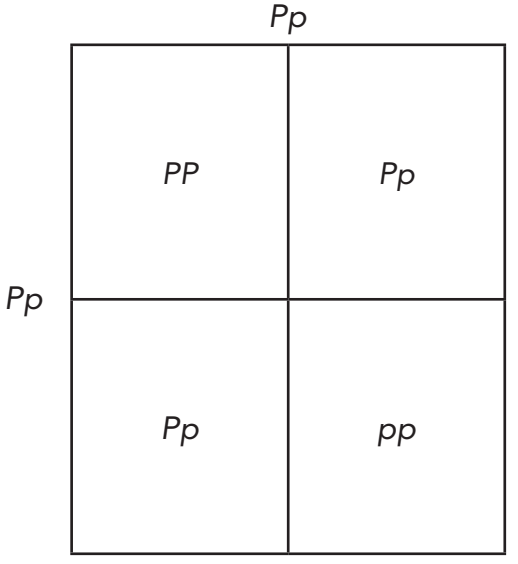
G. Stir the water in the bottle using the copper wire and use the digital scale to show no change in mass from the motion.

H. Attach the battery to the light bulb using the copper wire and use the thermometer to show the change in temperature near the bulb.

I. Warm the ice cubes in the bowl using the light bulb and use the digital scale to show no change in mass of the bowl of melting ice.

Name _____ Date_____

47 In a certain type of plant, the allele for purple flowers (*P*) is dominant, while the allele for pink flowers (*p*) is recessive. Plant 1 and Plant 2 are both heterozygous for the color of their flowers. Use the Punnett square to answer the question.



What are the colors of the flowers on the parent plants and what is the probability that the plants will produce pink offspring?

A. The parents have pink and purple flowers. The probability that their offspring will have pink flowers is 100%.

B. The parents have purple flowers. The probability that their offspring will have pink flowers is 25%.

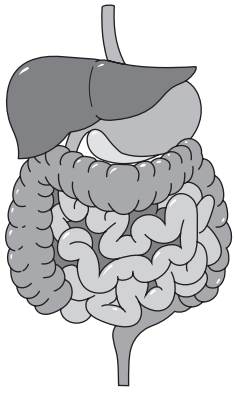
C. The parents have pink and purple flowers. The probability that their offspring will have pink flowers is 50%.

D. The parents have pink flowers. The probability that their offspring will have pink flowers is 25%.

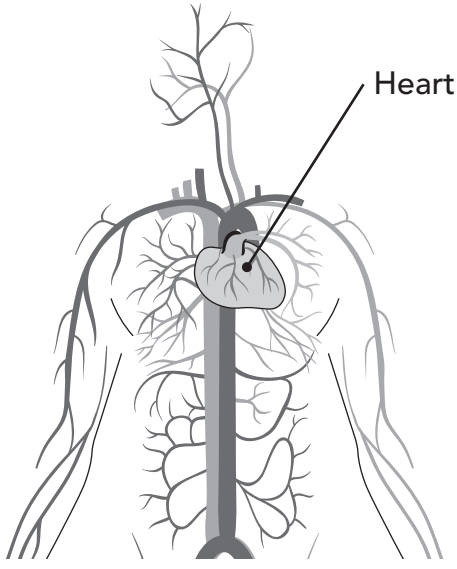
Name _____ Date_____

48 The image below shows models of two human organ systems.

Model A



Model B



Which of the following would cause one of the systems in the models to be disrupted?

F. There is a blockage between the stomach and the small intestine.

G. A person cannot taste the flavor of their food.

H. The digestive tract splits into small and large intestines.

I. A person avoids peanuts because of a food allergy.

Name _____ Date_____

49 What would **best** explain why there would be greater numbers of each species after the dinosaurs died?

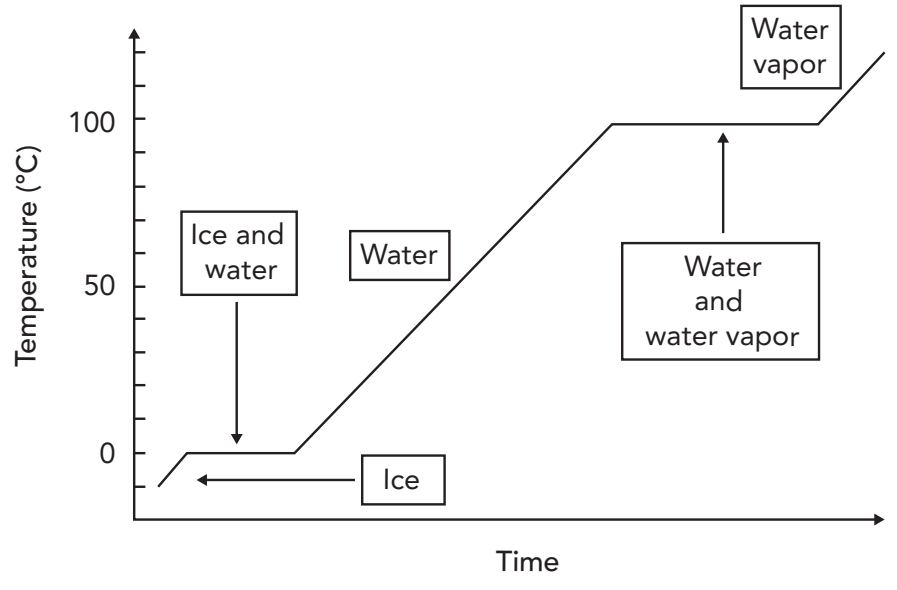
A. They were no longer exposed to a variety of diseases.

B. Several species of animals evolved from the extinct animals.

C. Parasites were unable to adapt to the change in the ecosystem.

D. Fewer predators allowed more individuals to survive and reproduce..

50 Students place a beaker containing a sample of ice on a burner. They measure the temperature at regular time intervals and record their observations.



Based on the data, what conclusion could be made?

F. Temperature does not increase during a change of state.

G. During changes of state, temperature decreases.

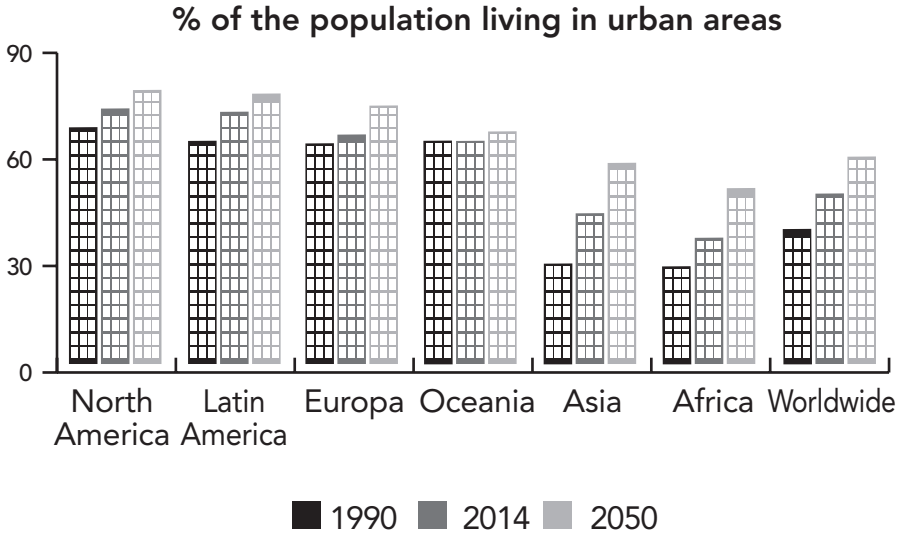
H. Temperature increases during a change of state.

I. All water samples will experience all states during a given time period.

Name _____ Date_____

Please use the information to answer questions 51 through 52.

Urbanization happens when people move into cities. The graph shows the amount of urbanization that has happened in the past and is projected to happen in the future.



51 Which conclusion can be made from these data?

A. More than half of the world's population lives within cities.

B. Asia has the fewest people living in cities.

C. More people live in cities in Latin America than in North America.

D. Europe is projected to have the same amount of urbanization in 2050 as Asia.

52 The graph shows the percentages of people that are expected to move into cities. Which statement best describes how an increase of people moving into cities will affect the availability of a natural resource?

F. There will be a decrease in the amount of water pollution, as people will no longer live near lakes.

G. There will be a loss of agricultural land, as cities expand their borders to accommodate growing populations.

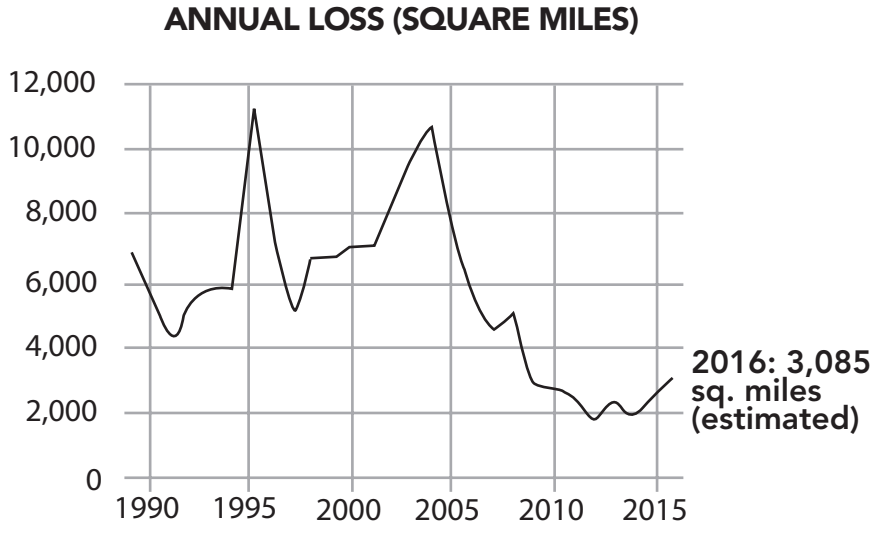
H. The air will be cleaner, as biodiversity in surrounding areas will be increased due to people moving away.

I. The amount of oil will increase, as fewer people will need to drive to get to work and school.

Name _____ Date_____

Please use the information to answer questions 53 through 55.

One of the impacts humans have on the environment is the deforestation of tropical rainforests. The graph shows the changes in the number of square miles of Amazon rainforests that are being deforested.



53 What conclusion can be made from the graph?

A. The overall trend in the amount of destruction has remained consistent for the last twenty years.

B. There was a general decrease between 2005 and 2015 in the amount of forest being destroyed.

C. There were more conservation efforts in place prior to 2005 than there are today.

D. The greatest losses of rainforest habitat occurred in the last century.

54 Based on the trends in the data since 2015, what prediction can be made about what will happen to the amounts of rainforest deforestation?

F. The amount of deforestation will decrease to almost nothing.

G. The amount of deforestation will reach a constant level.

H. The amount of deforestation will continue to increase over time.

I. The amount of deforestation will reach pre-2000 levels within a short period.

Name _____ Date_____

55 Which of these is **most likely** an impact on the planet caused by the amount of deforestation seen in the graph?

A. The number of animal and plant extinctions has increased dramatically.

B. The overall concentration of oxygen in the atmosphere has increased.

C. There have been many new advancements in the production of medicines.

D. Biodiversity in many areas has increased due to the movement of organisms from the destroyed habitat.

56 The map on the left shows regions with favorable conditions for the transmission of malaria. The map on the right shows regions where many people carry the allele for sickle-cell disease. The two diseases are not related; malaria is an infectious disease, and sickle-cell disease is a genetic disorder. However, the sickle-cell allele gives carriers who do not suffer from the full-blown disease some protection from malaria.

Malaria

Sickle-Cell Disease

Which is the best explanation for the fact that the two regions show significant overlap?

F. Malaria is more easily transmitted among sickle-cell carriers, so it is more common in areas where the sickle-cell allele is abundant.

G. In regions where malaria is common, sickle-cell carriers are less likely to die from malaria than people who do not carry the allele.

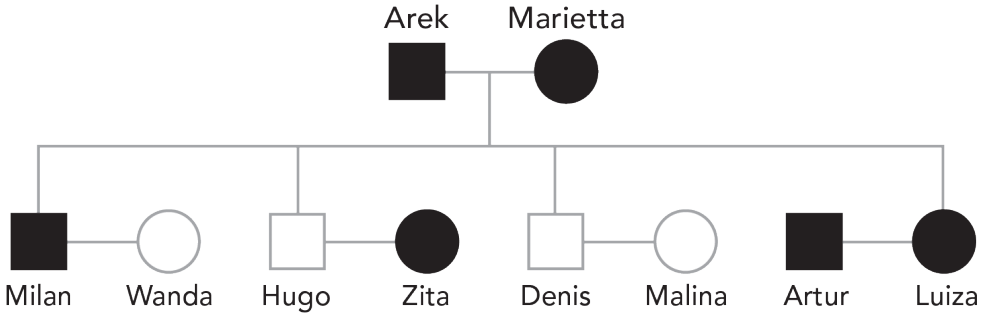
H. The mosquitoes that transmit malaria can also transmit sickle-cell disease, because that disease is common in those regions.

I. Sickle-cell carriers cannot have children in malaria-free regions because their genes are different from those of the people who live there.

Name _____ Date_____

57 Some people have an uncontrollable need to sneeze when they go out into bright sunlight. You might see these people sneezing when they walk out of a movie theatre or a school on a sunny day. The condition is called ACHOO syndrome. ACHOO syndrome is a genetic condition and the ACHOO allele is dominant.

Look at the pedigree for the Kowalski family. Arek and Marietta both have ACHOO syndrome. They have four married children. Some of the children have ACHOO and others do not.



Using the information provided in the pedigree, which of the following statements about genotypes can you conclude is correct?

A. Arek is heterozygous for ACHOO.

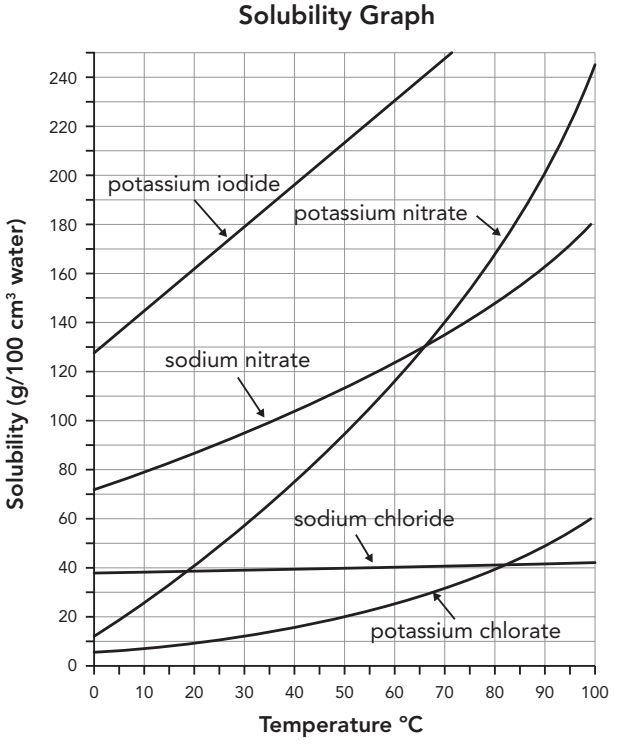
B. Hugo is homozygous for ACHOO.

C. Luiza's phenotype cannot be determined using the pedigree.

D. Milan is homozygous for ACHOO.

Name _____ Date_____

58 Students investigate the solubility of different substances in water. They record their results and make a graph to analyze the data.



The graph shows that the solubility of potassium nitrate increases as the temperature of the solution increases. If the solute is introduced at a lower temperature than the solvent, and the temperature of the solvent is maintained, which statement below **best** describes what happens to the solute and solvent?

F. The solute temperature lowers, lowering the kinetic energy available to dissolve the solvent into the solution.

G. The solute temperature rises until it has the same temperature as the solvent, raising its kinetic energy and allowing the solute to dissolve into the solution.

H. The solvent temperature lowers, lowering the kinetic energy available to dissolve the solvent into the solution.

I. The solvent temperature rises until it has enough kinetic energy to dissolve the solute into the solution.

Name _____ Date_____

59 Native to Australia, wombats are burrowing animals about the size of a small pig. They are the only known animal in the world to produce cube-shaped scat (feces). Dr. Patricia Yang, a Post-Doctoral Fellow at the Georgia Institute of Technology, recently conducted research to determine why wombat scat is cubic.

Facts About Wombats	
Habitat	temperate forests of southeast Australia
Diet	fibrous grasses, reeds, rushes, dry leaves, bark
Feeding behavior	active during day in winter; nocturnal in summer
Social behavior	live and forage alone but territories overlap; have multiple burrows within a territory; sleep alone
Territorial behavior	feeding areas do not overlap; use warning calls and scent (scat) to protect their territories
Intestinal tract characteristics	910–915 cm in length; digestion takes approximately 2 weeks; scat is very dry and cubic

Which statement **best** describes the use of replication to verify the results of a scientific discovery?

A. Several scientists observe one scientist conduct experiments and compare their notes on the results obtained.

B. One scientist repeats the same experiment multiple times and compares the results obtained.

C. One scientist performs several different experiments and compares the results obtained.

D. Several scientists perform the same experiment separately and compare their results with the original experiment results.

FLORIDA

SAVVAS SCIENCE EXPLORATIONS

Integrated Grade 7 Statewide Science Assessment Workbook

Florida Savvas Science Explorations helps you prepare your students for the Florida Statewide Science Assessment. In this component you will find an array of test-taking strategies and standards-based practice. There is even a full practice test on Savvas Realize. All tests reflect the quality and design of Florida Statewide Science Assessment test items.

In addition to this print resource, you'll find digital assessment and progress monitoring tools online that allow you to track student understanding and readiness throughout the year.

Savvas.com

0524.KH.LB.Sci581R1417

SAVVAS LEARNING COMPANY