Grade 5

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ABOUT THIS BOOK

Science Test Practice is for everyone who wants to have a working knowledge of the fundamentals of science. Written with the goal of helping students achieve on science tests, it approaches science through the format of the National Science Education Standards.

The National Science Education Standards were developed by the National Academy of Science, an organization of leading scientists in the United States. Their goal is for all students to achieve scientific literacy. To be scientifically literate means to be able to understand the richness of the world around us; to be able to make decisions based on the skills and processes that science teaches us; and to approach problems and challenges creatively.

This book is divided into four sections, each one based on a National Science Education Content Standard. This book focuses on content standards A-D: Science as Inquiry, Physical Science, Life Science, and Earth and Space Science, with one section devoted to each standard. Standards E-G, which cover science and technology and science in personal and social perspectives, are covered within the four sections. A correlation chart details the coverage of all standards in the book (see pp. 7–8).

Students can begin with the Pretest (pp. 9–12). This test covers all the three major strands of science:

- physical science, which includes how objects move and interact;
- life science, which includes animals, plants, and ecosystems;
- earth and space science, which includes rocks and minerals, the oceans, and the solar system.

After the Pretest, you may wish to complete the test practice in order, or complete the sections out of sequence.

Finally, the Posttest (pp. 89–91) gives students a chance to practice yet again, applying the knowledge gleaned from the rest of the book. A complete answer key appears at the back of the book.

With its real-life questions and standards-based approach, *Science Test Practice* will engage students, give them solid test-taking hints and practice, and provide them an opportunity to build their confidence for other exams.

National Science Education Content Standards Correlation

Each national content standard begins with the phrase, “As a result of activities in grades 5-8, all students should develop . . .”

Standard	Pages
CONTENT STANDARD A: Science as inquiry	
Abilities necessary to do scientific inquiry	15–21, 62
To learn about the world in a scientific manner, students need to learn how to ask questions, formulate possible answers, devise experiments to test those answers, and basing their conclusions on evidence.	
Understanding about scientific inquiry	14, 22–23
Students need to understand that the investigations used to gather information depend on the question being asked; that scientists use mathematics and technology as they work; and that scientists build on the work other scientists have done, by asking questions about that work and that grow out of that work.	
CONTENT STANDARD B: Physical Science	
Properties and changes of properties in matter	25–31
Motion and forces	35–38
Transfer of energy	32–34
CONTENT STANDARD C: Life Science	
Structure and function in living systems	40–44, 47
Reproduction and heredity	45–46, 48–49
Regulation and behavior	47, 50
Populations and ecosystems	51–55
Diversity and development of organisms	52, 56, 57–61
CONTENT STANDARD D: Earth and Space Science	
Structure of the earth system	63–79
Earth's history	86
Earth in the solar system	80–85
CONTENT STANDARD E: Science and Technology	
Abilities of technological design	75, 78
Understanding about science and technology	45, 64, 65, 67, 72

National Science Education Content Standards Correlation

CONTENT STANDARD F: Science in Personal and Social Perspectives	
Science can seem removed from everyday life, but it actually surrounds us. Personal hygiene activities are based in scientific reasoning. Understanding the risks and benefits in the world makes students more informed citizens.	
Personal health	47, 77
Populations, resources, and environments	51–54, 60, 72
Natural hazards	47–48, 55
Risks and benefits	65–68
Science and technology in society	67, 72
CONTENT STANDARD G: History and Nature of Science	
Science as a human endeavor	22–23, 27, 54, 60
Science is a pursuit of human beings, with many different skills, backgrounds, qualities, and talents. However, scientists all share curiosity about the world, a tendency to ask questions about what is known, an openness to new ideas, insight, and creativity.	
Nature of science	15–23, 53
History of science	22–23, 27

Name_____ Date_____

Grade 5 Pretest

To find out what you know about science, take this test before you work on any of the sections in the book. It will not only check your knowledge, but will also show you the kinds of questions that are asked in the rest of the book. A sample question is below.

Example: When water vapor rises from Earth's surface and forms clouds, it undergoes which processes?

(A) condensation and runoff
(B) evaporation and condensation
(C) evaporation and percolation
(D) runoff and percolation

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

HINT: If you don't know the answer to a question, don't let that stop you. Skip the question and keep working. Then, after you complete the last question on the test, go back and answer the question you skipped.

1. Chelsea and Yan want to find out which species of birds are native to their schoolyard. What would be the best way to find out?

(A) Watch two birds for one month and record their movements.
(B) Observe the schoolyard each day for a month and record the different types of birds they see.
(C) Conduct an experiment in which different types of bird feed are put out each day.
(D) Watch the schoolyard for one day and note how many times one species of bird appears.

2. Water and ice are the same substance. However, ice floats in water. Why does ice float in water?

(F) Water is more dense than ice.
(G) Water is less dense than ice.
(H) Water has lower flotation than ice.
(J) Water has greater flotation than ice.

3. Which of the following is not a simple machine?

(A) a pulley
(B) an inclined plane
(C) a bucket
(D) a wheel and axle

GO ON

Name_____ Date_____

Grade 5 Pretest

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

4. Which tools are helpful for recording data?

- (F) computers
- (G) pens and paper
- (H) charts and graphs
- (J) all of the above

5. What are the three states of matter?

- (A) solid, liquid, gas
- (B) atom, element, molecule
- (C) small, medium, large
- (D) mass, volume, density

6. The living and nonliving things that are found in an environment are called a(n) _____ .

- (F) community
- (G) ecosystem
- (H) food web
- (J) habitat

7. Which of the following is a testable hypothesis?

- (A) Insects experience moods.
- (B) Bean sprouts grow better in black soil than in sand.
- (C) Cats will evolve to have less fur in the future.
- (D) None of these is a testable hypothesis.

8. Solids, liquids, and gases differ because of the amount of energy that their atoms absorb. A solid can change state to a liquid when energy is added. Which of the following is an example of a solid changing state and becoming liquid?

- (F) rain falling from the sky
- (G) ice melting into water
- (H) a nail rusting
- (J) a lightbulb being lit

9. As gas particles expand to fill a larger space, what happens to the density of the gas?

- (A) Nothing. The density of a substance is a physical property that does not change.
- (B) Because the particles move farther apart, the density decreases.
- (C) It depends upon the temperature.
- (D) It depends upon the type of gas.

10. Which part of the flower makes pollen?

- (F) the pistil
- (G) the petals
- (H) the sepals
- (J) the stamens

Name_____ Date_____

Grade 5 Pretest

Directions: Read the questions and write a short answer to each one on the lines provided.

11. A dirt hill is being eroded very quickly. Name two possible causes for this erosion.

_____

_____

_____

12. Explain why timber is considered a renewable resource.

_____

_____

_____

13. You notice that one of the plants in your house is growing toward a window that faces west. Form a hypothesis about the plant's growth.

_____

_____

_____

14. What could happen to an ecosystem when an animal becomes endangered or extinct?

_____

_____

_____

Name_____ Date_____

Grade 5 Pretest

Directions: Read each question. Write a paragraph that answers each one on the lines provided. Use a topic sentence. Be sure to end every sentence with a period.

15. Describe what you would see if you were in a temperate deciduous forest. What sorts of animals would you see? What plants? Describe factors such as the temperature, soil, and precipitation.

_____

_____

_____

_____

_____

16. Imagine that you are a brilliant inventor. Think of something you can invent to help people in their everyday lives. Name your invention and describe what it would do. Tell why you created the invention.

_____

_____

_____

_____

17. Describe one distinctive feature of plant cells.

_____

_____

_____

_____

_____

STOP

Content Standard A

Section A of the National Science Education Standards for grade 5 builds on what students learned during grade 4 about the nature of science and the tools scientists use. This section will help students learn more about what science is, as well as about processes, concepts, and laboratory safety.

Not just a refresher course, this section engages students' critical thinking skills and encourages them to use science to explore the world. It will enforce the basic scientific tenet that students must ask questions about the world from a learned perspective in order to understand science.

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. **Which of the following is safe to do during a lab activity?**
   - (A) washing your hands often
   - (B) mixing unknown substances
   - (C) putting your fingers in a mold culture
   - (D) running from desk to desk

2. **Tahira and Luis are doing a lab experiment. As part of the experiment, they place one bean plant under a heat lamp. Which of the following actions does NOT show a safe lab action?**
   - (F) carefully placing exactly one bean seed in each pot
   - (G) measuring the height of the sprouts each week
   - (H) leaving the heat lamp on overnight with no one around
   - (J) recording the temperature under the lamp with a thermometer

3. **You are working with two liquids that react and produce a gas when poured together. Which of the following is an important practice in this situation?**
   - (A) working in groups
   - (B) wearing steel-toed boots
   - (C) wearing goggles
   - (D) working quickly

4. **Which of the following practices would be safe to do in a science lab?**
   - (F) eating and drinking
   - (G) mixing random chemicals
   - (H) ignoring the teacher's directions
   - (J) putting equipment away when finished

5. **Which of the following lab tools must be handled carefully because it is breakable?**
   - (A) beaker
   - (B) balance
   - (C) microscope
   - (D) all of the above

6. **Hannah and Wesley are using a microscope to view slides of animal cells. Which of the following is NOT a safe lab procedure?**
   - (F) taking turns viewing the slide
   - (G) slowly adjusting the focus knob
   - (H) wiping off the microscope before putting it away
   - (J) pushing each other to get a better view

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

HINT: Before you choose your answer to a multiple-choice question, be sure to read each of the possible answers.

1. Nico wants to find out about the eating behaviors of mice. Which of the following questions should she ask?

- (A) How long do mice live?
- (B) Can a mouse have more than one litter in its life?
- (C) Is a mouse a herbivore or a carnivore?
- (D) Which climate region has the most mice?

2. Which of the following is NOT part of the scientific method?

- (F) developing a hypothesis that can be tested
- (G) sharing the results of an experiment with other scientists
- (H) testing the hypothesis with a controlled experiment
- (J) changing experiment results that don't fit with the hypothesis

3. What is a hypothesis?

- (A) a testable idea about something
- (B) an explanation for a set of related observations
- (C) a generally accepted fact of science
- (D) a prediction about the world that is not testable

4. Which of the following is true about a scientific theory?

- (F) It becomes a law 100 years after it is proposed.
- (G) It is different from a scientific law, which is a statement believed to be true all the time for a set of circumstances.
- (H) It will never change, no matter how much evidence to the contrary is found.
- (J) It is the same thing as a hypothesis.

5. Edward Jenner was a physician. In 1796, he showed scientifically that a person who had been exposed to a disease called cowpox would not get sick when exposed to the more serious disease smallpox. What question might Jenner have asked that led to his experiment?

- (A) "Why is it that cows do not get smallpox like human beings do?"
- (B) "If people wash their hands more, will they keep catching cowpox?"
- (C) "What is it about cowpox that keeps people from getting sick with smallpox?"
- (D) "If everyone in the world had smallpox, what would happen to the cowpox disease?"

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. Jasmin believes heavier objects fall faster than lighter objects. Which of the following experiments should she use to test this theory?

- (A) Throw a small rubber ball in the air and measure the time it takes to hit the ground.
- (B) Drop a small rubber ball and a rock from the same height at the same time and observe what happens.
- (C) Place a small rubber ball and a rock in a tub of water and observe which one sinks.
- (D) Drop a small rubber ball from the top of a chair and count the number of times it bounces.

2. Delilah and Jorge put an empty balloon on one side of a balance scale and a balloon filled with air on the other side of the balance scale. The side with the filled balloon tips down.

Which of the following statements is the BEST explanation for this data?

- (F) Air has no weight.
- (G) Balloons have weight.
- (H) Air has weight.
- (J) Balloons have no weight.

3. Keiko believes plants grow better when they are given warm water each day instead of cold water. Which of the following experiments should she plan to test this theory?

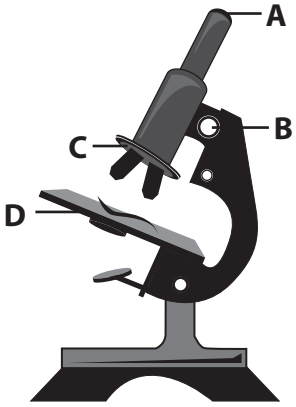
- (A) Water two identical plants with cold water—the same amount each day. Place one plant under a heat lamp once a week. At the end of one month, measure their height and record which one has grown taller.
- (B) Water two identical plants the same amount each day, one with cold and one with warm. At the end of one month, measure their height and record which one has grown taller.
- (C) Grow two identical plants, one in a jar of water and one in a pot of soil, and measure them after one month to see which has grown taller.
- (D) Water two identical plants each day, one with cold water and one with warm water. Give the cold-water plant more water. At the end of one month, measure their height and record which one has grown taller.

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice. Use the diagram to answer questions 2-4.



1. For which of the following can you use a microscope?

- (A) studying the stars
- (B) weighing a dime
- (C) looking at plant cells
- (D) measuring a person

2. Which arrow on the diagram of a microscope points to the eyepiece?

- (F) A
- (G) B
- (H) C
- (J) D

3. Which arrow on the diagram of a microscope points to the stage?

- (A) A
- (B) B
- (C) C
- (D) D

4. Which part of the microscope do you move to change the magnification power at which you observe specimens?

- (F) A
- (G) B
- (H) C
- (J) D

5. To observe a specimen under the microscope, you first need to put it on a _____.

- (A) knob
- (B) plate
- (C) chamber
- (D) slide

6. Sheila and Eloy are having a hard time seeing the bean sprout cells because the image is blurry. What should they do?

- (F) Turn A
- (G) Turn B
- (H) Turn C
- (J) Turn D

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

Example: When Fergus and his mom got into the car, the thermometer read 9°C. When they reached his grandparents' house, the thermometer in the car read 18°C. What was the difference in temperatures?

- (A) 8°
- (B) 9°
- (C) 10°
- (D) 11°

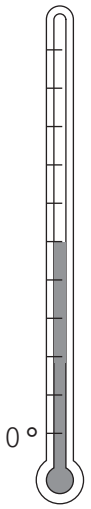
HINT: When a question involves mathematics, be sure to work out the answer on your own first, and then choose the answer from the list.

1. Sakura needs to measure the air temperature in her classroom. Which of the following tools should she use?

- (A) meterstick
- (B) scale
- (C) microscope
- (D) thermometer

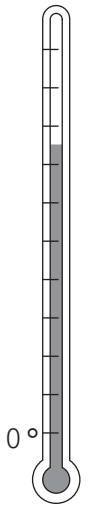
2. Melissa checked the temperature before her mom started a fire in their fireplace. The thermometer looked like the one shown.

- (F) 5°C
- (G) 10°C
- (H) 15°C
- (J) 20°C



3. Each line on this thermometer represents ten degrees Fahrenheit (°F). What is the temperature?

- (F) 7°F
- (G) 37°F
- (H) 75°F
- (J) 87°F



STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. **Wendy is doing an experiment in which she grows one plant in high humidity and one plant in low humidity to see which is the better environment for a plant's health. Humidity is the amount of water vapor in the air. What data should she record as she does the experiment?**
   - (A) the height and appearance of the two plants
   - (B) the air temperature
   - (C) the time of day in which she waters the plants
   - (D) the color of one of the plants

2. **Chelsea and Yan want to find out which species of birds are native to their schoolyard. What would be the best way to find out?**
   - (F) Watch two birds for one month and record their movements.
   - (G) Observe the schoolyard each day for a month and record the different types of birds they see.
   - (H) Conduct an experiment in which different types of bird feed are put out each day.
   - (J) Watch the schoolyard for one day and note how many times one species of bird appears.

3. **Which tools are helpful for recording data?**
   - (A) computers
   - (B) pens and paper
   - (C) charts and graphs
   - (D) all of the above

4. **Evan's science class took a field trip to a nearby prairie. First, they read about prairie ecosystems. Second, they took a bus to a nature preserve. Third, they counted the different kinds of plant species they saw. Fourth, they wrote down each type of plant they saw. Finally, they collected soil samples and returned to the classroom to do an experiment with them.**

   During which part of the fieldwork above was Evan making observations?
   - (F) when he read about prairie ecosystems
   - (G) when he saw how many different kinds of plants he could count
   - (H) when he collected soil samples
   - (J) when he returned to the classroom to do an experiment with the soil

5. **During which part of the fieldwork above was Evan recording data?**
   - (A) when he wrote down each type of plant he saw
   - (B) when he read about prairie ecosystems
   - (C) when he saw how many different kinds of plants he could count
   - (D) when he returned to the classroom to do an experiment with the soil

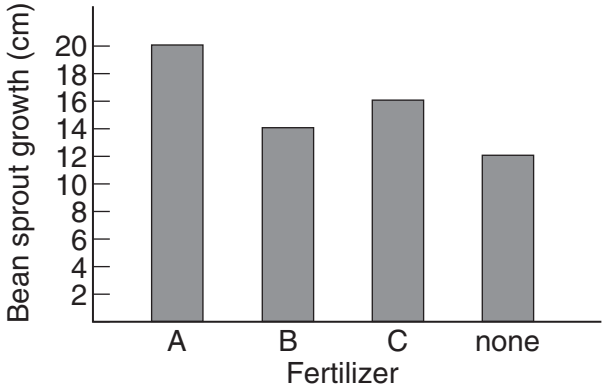
STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

Erin's science class decided to test which fertilizer was best for growing bean sprouts. They collected the following data:



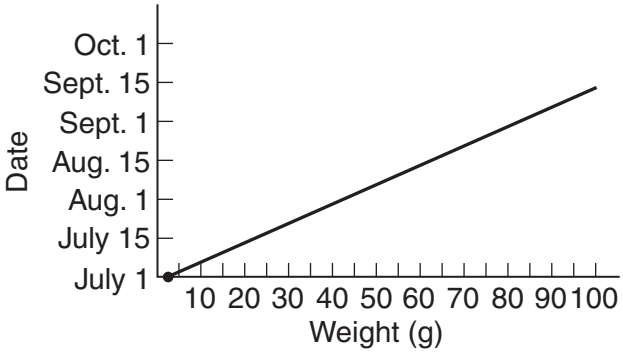
1. Which fertilizer helped the bean plant to grow tallest?

- (A) fertilizer A
- (B) fertilizer B
- (C) fertilizer C
- (D) fertilizer D

2. The bean sprout grew to approximately 12 cm when it received _____ .

- (F) fertilizer A
- (G) fertilizer B
- (H) fertilizer C
- (J) no fertilizer

Adrian and his sister received a young hamster July 1. It weighed 3 g. He recorded the animal's growth each week and made the following line graph.



3. On what date did Adrian's hamster weigh 35 g?

- (A) July 1
- (B) July 8
- (C) July 15
- (D) July 22

4. When the hamster reaches adulthood at 10 weeks of age on September 2, how much will it probably weigh?

- (F) about 75 g
- (G) about 85 g
- (H) about 95 g
- (J) about 105 g

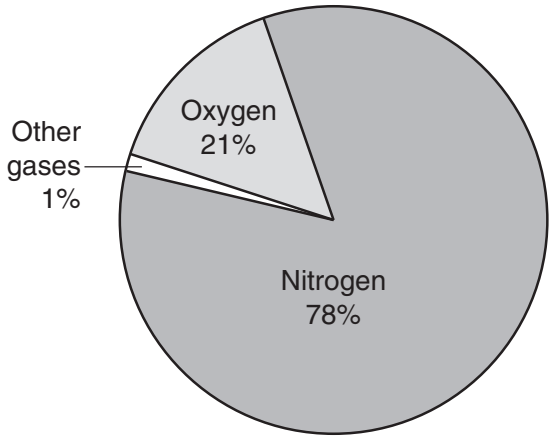
STOP

Name_____ Date_____

Grade 5

Directions: Use the circle graph to answer questions 1–2.

HINT: The sections of a circle graph stand for how much of the total each item makes up.



1. According to the graph, which element or compound makes up the largest part of the atmosphere?

(A) oxygen
(B) nitrogen
(C) argon
(D) carbon dioxide

2. Which element or compound makes up almost 21% of the Earth's atmosphere?

(F) carbon dioxide
(G) argon
(H) nitrogen
(J) oxygen

3. Use the data below to make a bar graph.

Lifespan of animals
Axes labels: animals, years

Bluebird: 6 years	Rabbit: 2 years
Bass: 8 years	Bullfrog: 10 years

STOP

Name_____ Date_____

Grade 5

Directions: Read the passage below. Use the information from it to answer questions 1–7 on page 23.

Jane Goodall: How a Scientist Works

Jane Goodall was always interested in wild animals. She noticed that chimpanzees were like humans in some ways. They certainly looked like us. Jane asked a question: Did they act like us, too?

Jane thought that chimps were like us in many ways. She planned an experiment to find the similarities. She would live with the chimps in Africa and watch their behavior.

It was important to plan carefully to get the chimps to accept her. Jane knew that they would be scared if she got close right away. She started watching them from far away. Slowly she moved closer. She did not want to hurt the chimps. She just wanted to watch how they behaved.

After a while, the chimps accepted Jane. They did not move away when she came near. She was able to watch how the chimps behaved. By watching how they treated each other, she learned that they had different personalities. She even saw them making and using tools to pick termites out of their nests. No one had ever seen chimps use tools before. Carefully, Jane recorded everything she saw.

Using her results, Jane found out that chimps were smart animals. She wrote articles and books to tell people about what she had seen in the field. Before her research, people thought that only humans used tools. She used her research to show that chimps were like humans in many ways.

Today, Jane Goodall travels the world telling people about the chimpanzees. She works hard to save these special animals and the habitat they live in, and encourages other people to help, too.

GO ON

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Directions: Read the passage on page 22. Use the information to help you answer the questions below.

1. **What did Jane Goodall observe before she formed her hypothesis?**

_____

_____

_____

_____

2. **What was Goodall's hypothesis?**

_____

_____

_____

_____

3. **Was Goodall's hypothesis correct? How do you know?**

_____

_____

_____

_____

4. **Which was evidence that chimps behaved like humans?**

   (F) They lived in Africa.
   (G) They looked like humans.
   (H) They were scared of Goodall.
   (J) They made and used tools.

5. **What evidence might have helped Goodall find out that the chimps had different personalities?**

_____

_____

_____

6. **What was Goodall's conclusion?**

_____

_____

_____

_____

7. **If Goodall wanted to record how much one chimp ate each day as it got older, what would be the best way to present the information?**

   (A) on a table
   (B) on a pie chart
   (C) on a line graph
   (D) on a bar graph

STOP

Content Standard B

Section B of the National Science Education Standards for Grade 5 centers on physical science, including the properties of objects and materials, motion, temperature, light, magnetism, and electricity. Section B will build on previous education while giving students the opportunity to use their skills to learn more and accomplish greater tasks.

In this section, objects are the focus, along with their place in the physical world. Starting with density, mass, volume, and states, objects are also examined in relation to their reaction to energy and liquids. Because this section will explore the science behind complex notions such as gravity, magnetism, electricity, and friction, students will be expected to use critical-thinking and decision-making skills.

Name_____ Date_____

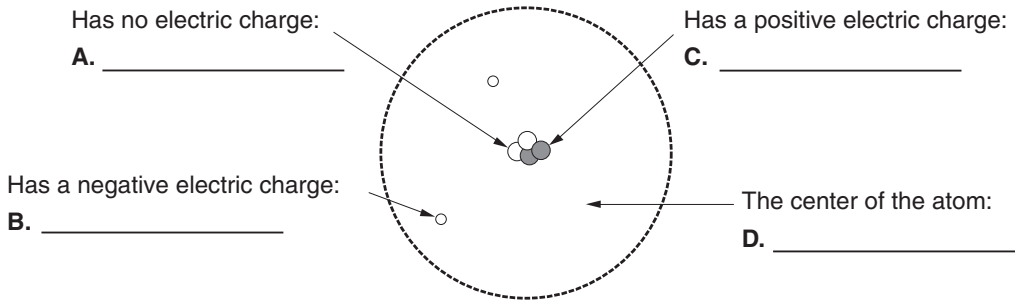
Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. Label the diagram with the parts of the atom provided in the box below. Use the clues to help you.

Word Bank

proton, neutron, electron, nucleus



2. Which of these statements is true?

- (F) Light, sound, and electricity are made of atoms.
- (G) Atoms are large enough to see with an ordinary microscope.
- (H) Some matter is made of molecules, not atoms.
- (J) Atoms have mass and volume.

3. Sean wants to model an atom. Which parts should he include in the nucleus?

- (A) protons and electrons
- (B) neutrons and electrons
- (C) protons and neutrons
- (D) electrical charge

4. Which must be true to make Sean's atom model most accurate?

- (F) Nearly all of its mass should be in the nucleus.
- (G) Nearly all of its mass should be in the electrons.
- (H) All the parts of the atoms should have equal mass.
- (J) The neutrons should be the heaviest parts.

5. What else must be true of Sean's model in order to make it accurate?

- (A) The nucleus must take up the most space in the atom.
- (B) The neutrons should be huge compared to the protons.
- (C) A giant space where the electrons can move around must surround a tiny nucleus.
- (D) Each electron is huge compared to the other parts of the atom.

STOP

Name_____ Date_____

Grade 5

Directions: Read the passage and use the information to answer questions 1–6. Choose the truest possible answer.

HINT: Each element has a different number of protons, neutrons, and electrons that make it unique. The number of protons in an atom is called that element's atomic number.

1. The element oxygen has an atomic number of 8. How many protons does it have?

- (A) 4
- (B) 6
- (C) 8
- (D) 10

2. Which of the following is a pure element?

- (F) fresh water
- (G) table salt
- (H) aluminum foil
- (J) rose quartz

3. Most substances are NOT pure elements. Matter is usually composed of two or more combined elements. Why?

- (A) Electrons in elements tend to combine with electrons in other elements.
- (B) Elements are always unstable when they occur in their pure form.
- (C) Elements often swap neutrons and protons with other elements.
- (D) A compound of two or more elements is stronger than a pure element.

4. The element sodium can explode in its pure form. Combined with the element chlorine, it forms ordinary table salt. Why does sodium behave differently in these two substances?

- (F) The extra atoms make ordinary table salt too heavy to explode.
- (G) The electron cloud is more stable when the two elements combine.
- (H) The electron cloud is the same, but the atomic number is different.
- (J) The chlorine overpowers the sodium when the two elements combine.

5. When two or more atoms become linked together by sharing electrons, what do they form?

- (A) an element
- (B) an isotope
- (C) a molecule
- (D) a mixture

6. Elements with atomic numbers greater than 92 do not occur naturally on Earth. Where do these elements come from?

- (F) outer space
- (G) laboratories
- (H) human bodies
- (J) underground

STOP

Name_____ Date_____

Grade 5

Directions: Study the diagram and use it to answer questions 1–3.

	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	Group 12	Group 13	Group 14	Group 15	Group 16	Group 17	Group 18
Period 1	1 H Hydrogen 1.00794																	2 He Hellum 4.0026
Period 2	3 Li Lithium 6.941	4 Be Beryllium 9.0122											5 B Boron 10.811	6 C Carbon 12.011	7 N Nitrogen 14.0067	8 O Oxygen 15.9991	9 F Fluorine 18.9984	10 Ne Neon 20.183
Period 3	11 Na Sodium 22.9898	12 Mg Magnesium 24.305											13 Al Aluminum 28.9815	14 Si Silicon 28.086	15 P Phosphorus 30.97	16 S Sulfur 32.06	17 Cl Chlorine 35.455	18 Ar Argon 39.948
Period 4	19 K Potassium 39.098	20 Ca Calcium 40.08	21 Sc Scandium 44.956	22 Ti Titanium 47.87	23 V Vanadium 50.942	24 Cr Chromum 51.996	25 Mn Maganese 54.94	26 Fe Iron 55.845	27 Co Cobalt 58.9382	28 Ni Nickel 68.69	29 Cu Copper 68.546	30 Zn Zinc 65.39	31 Ga Gallum 69.72	32 Ge Germanium 72.59	33 As Arsenic 74.92	34 Se Selenium 78.96	35 Br Bromine 79.91	36 Kr Krypton 83.80
Period 5	37 Rb Rubidium 85.47	38 Sr Strontium 87.62	39 Y Yttrium 88.906	40 Zr Zirconium 91.22	41 Nb Niobium 92.906	42 Mo Molybdenum 95.94	43 Tc Technetium 96.91	44 Ru Ruthenlum 101.07	45 Rh Rhodium 192.2	46 Pd Palladium 106.4	47 Ag Silver 107.868	48 Cd Cadmlum 112.41	49 In Indium 114.82	50 Sn Tin (Stannum) 121.75	51 Sb Antimony 121.75	52 Te Tellurlum 127.60	53 I Iodine 126.90	54 Xe Xenon 131.29
Period 6	55 Cs Cesium 132.905	56 Ba Barium 137.33	57–71* Lanthanides	72 Hf Hafnium 178.49	73 Ta Tantalum 180.948	74 W Tungsten 183.84	75 Re Rhenium 186.2	76 Os Osmlum 190.2	77 Ir Iridium 192.2	78 Pt Platinum 195.08	79 Au Gold 196.967	80 Hg Mercury 200.59	81 Tl Thallium 204.18	82 Pb Lead 207.7	83 Bi Bismuth 208.98	84 Po Polonlum (210)	85 At Astatine (210)	86 Rn Radon (222)
Period 7	87 Fr Francium (223)	88 Ra Radium (226)	89–103** Actinides	104 Rf Rutherfordium (261)	105 Db Dubnium (262)	106 Sg Seaborglum (266)	107 Bh Bohrium (267)	108 Hs Hasslum (265)	109 Mt Meitnerlum (268)	110 Ds Darmstadtium (269)	111 Rg Roentgenium (272)	112 Uub Ununbium (277)	113 Unt Ununtrium	114 Uuq Ununquadium	115 Uup Ununpentium	116 Uuh Ununhexium	117 Ununseptium	118 Ununoctium

***LANTHANIDES**	57 La Lanthanum 138.91	58 Ce Cerium 140.12	59 Pr Prasseodymium 140.908	60 Na Neodymium 144.24	61 Pm Promethium (145)	62 Sm Samarlum 150.36	63 Eu Europlum 151.96	64 Eu Gadollnlum 157.25	65 Tb Terblum 158.925	66 Dy Dysproslum 162.50	67 Ho Holmium 164.990	68 Er Herblum 167.26	69 Tm Thullum 168.934	70 Yb Yttarbium 173.04	71 Lr Lutetlum 174.97
****ACTINIDES**	89 Ac Actinium (227)	90 Th Thorium 232.038	91 Pa Protactinium 231.036	92 U Uranium 238.03	93 Np Nepyunium (237)	94 Pu Plutonium (244)	95 Am Americlum (243)	96 Cm Curium (247)	97 Bk Berkellium (247)	98 Cf Californium (251)	99 Es Einsteinium (252)	100 Fm Fermlum (257)	101 Md Mendelevlum (258)	102 No Nobelium (259)	103 Lr Lawrenclum (262)

1. Which elements are in the same group as Boron (B)?

(A) Al, Cc, In, Tl
(B) C, N, O, F, Ne
(C) Si, As, Te, I
(D) Ge, Sb, Po

2. Find the element Xenon on the periodic table. Its chemical symbol is Xe. Which of the following would react to other elements in a way similar to Xenon?

(F) silver (Ag)
(G) neon (Ne)
(H) iodine (I)
(J) none of the above

3. Explain why you chose your answer for question 2 in the space below.

_____
_____
_____
_____
_____
_____
_____
_____

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

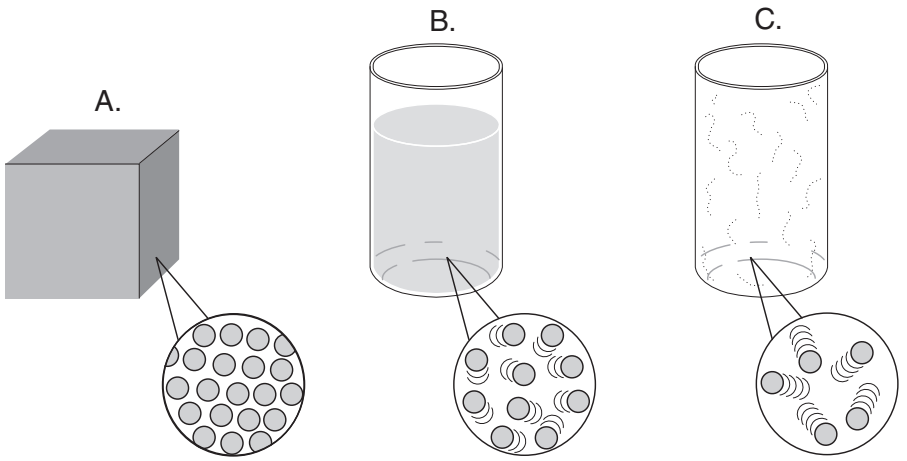
1. Which is an example of a solid?

- (A) air
- (B) ketchup
- (C) milk
- (D) paper

2. Which property is true of a solid?

- (F) It will take the shape of its container.
- (G) It will flow downward but not up.
- (H) It has definite shape.
- (J) It has no definite volume.

The diagrams below show matter in three different states: solid, liquid, and gas. The small pictures in the circles give you an idea of how far apart the molecules are in each state and how much motion they have.



3. If you could see the molecules in a pencil, which would they look most like?

_____

4. If you could see the molecules in the air around you, what would they look most like?

_____

5. Name a substance that would have a molecular arrangement similar to Diagram B.

_____

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

HINT: Physical properties are features you can measure or observe about a substance. They are helpful for identifying matter and remain the same, even if the amount of the substance changes.

1. According to the definition above, which of these is a physical property?

- (A) ability to burn
- (B) tendency to rust
- (C) smell
- (D) none of the above

2. Kara loves woodworking. She spent time carving a statue, sanding it smooth, and painting it. Which of the following physical properties of the wood did she change?

- (F) size, texture, and color
- (G) size, color, and smell
- (H) texture, mass, and ability to burn
- (J) color, texture, and streak

3. While carrying a pitcher of iced tea, Sandy tripped and dropped it. The glass pitcher shattered. What kind of physical change occurred to the pitcher?

- (A) color
- (B) shape
- (C) smell
- (D) none

4. Sam wanted to identify a certain rock that his teacher gave him. With his teacher's approval, he performed some tests and recorded his observations in a notebook.

First, he wrote down the rock's color and odor. Using a dropper, he applied some strong vinegar to the rock and noticed that the rock began to bubble and release gas. Finally, he rubbed the rock on a piece of unglazed tile and observed that it left a white streak on the tile.

Which was not a physical property of the rock?

- (F) the streak color
- (G) the ability to release gas
- (H) the color
- (J) the odor

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

HINT: Density is the ratio of mass to volume. It tells how heavy something is for its size. A bowling ball is heavier than a ball of foam the same size; therefore, the bowling ball has greater denser.

1. If you squeeze the foam you will increase its density. Why?

- (A) The volume becomes smaller.
- (B) The particles become more closely packed.
- (C) The ratio of weight to volume changes.
- (D) all of the above

2. How does placing a gas into a smaller container affect its density?

- (F) It increases the density.
- (G) It decreases the density.
- (H) The density of a substance never changes.
- (J) It depends on what kind of gas it is.

3. Salad dressing often has a layer of oil floating on top of the vinegar. Why?

- (A) The oil is denser.
- (B) The vinegar is denser.
- (C) The oil is thicker.
- (D) The vinegar is thicker.

4. A teacher places three stainless steel balls on top of a piece of corrugated cardboard. One is the size of marble. The second is the size of a golf ball. The third stainless steel ball is the size of a bowling ball. As the class watches, she removes the three balls and holds up the piece of cardboard. The students notice that the cardboard is flattened in the place where the largest stainless steel ball rested. Which of the following explanations for this is correct?

- (F) The largest ball was obviously the most dense because it squashed the cardboard.
- (G) The smallest ball was most dense because it had the smallest volume.
- (H) The largest ball weighed the most; therefore, it was the densest.
- (J) All three balls had the same density, but the largest ball weighed the most; therefore, it squashed the cardboard.

STOP

Name_____ Date_____

Grade 5

Directions: Read the text below. Use information from it to help you answer the questions.

Stir a handful of sand into a beakerful of water, and you will see the sand grains spinning around before they eventually settle to the bottom. This is a mixture. The components of a mixture can be separated easily, often by hand.

Stir a handful of salt into a beakerful of water and you will see the salt disappear. No matter how closely you look, you won't see the salt. In a solution like this, the salt molecules—not just the grains—become evenly distributed among the water molecules.

1. Which of the following is a mixture?

(A) iron filings in sand
(B) lemonade
(C) aluminum
(D) distilled water

2. Which of the following methods could be used to separate a mixture?

(F) evaporation
(G) filtering
(H) pouring off liquid
(J) all of these

3. Which of the following methods could be used to separate a solution?

(A) evaporation
(B) filtering
(C) pouring off liquid
(D) all of these

4. Salt water is a solution. Which is the solute and which is the solvent?

(F) Salt is the solvent; water is the solute.
(G) Salt is the solute; water is the solvent.
(H) The terms solute and solvent refer to mixtures, not solutions.
(J) The terms solute and solvent are interchangeable.

5. Which of the following could not be a solution?

(A) a solid dissolved in a liquid
(B) a gas dissolved in liquid
(C) copper and brass mixed to make bronze
(D) marbles stirred into a tub of sand

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. The transfer of thermal energy from warmer areas of matter to cooler areas of matter is called what?

- (A) heat
- (B) radioactivity
- (C) temperature
- (D) thermometer

2. When a thermometer measures the temperature of a substance, it is measuring the _____ .

- (F) substance's specific heat capacity
- (G) movement of thermal energy from one substance to another
- (H) amount of light the substance emits
- (J) average kinetic energy of the substance

3. Materials that transfer thermal energy by direct contact better than other materials are called _____ .

- (A) insulators
- (B) electromagnetic waves
- (C) convection ovens
- (D) conductors

4. Which of the following is a common way for thermal energy to be transferred in liquids and gases, including water and air?

- (F) conduction
- (G) convection
- (H) insulation
- (J) radiation

5. Jarrod measured the temperatures of two containers of water with two different thermometers. The water in Container A was at 80°C. The water in Container B was at 5°C. The water in Container A has _____ .

- (A) more average kinetic energy than the water in Container B
- (B) less average kinetic energy than the water in Container B
- (C) the same average kinetic energy as the water in Container B
- (D) less thermal energy than the water in Container B

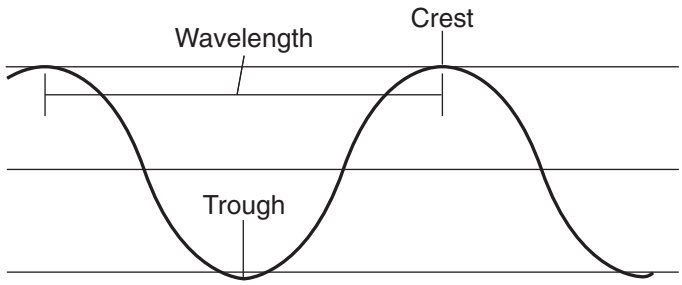
STOP

Name_____ Date_____

Grade 5

Directions: Read the passage and study the diagram. Use the information to answer questions 1–4. Choose the truest possible answer.

Light is a form of energy that travels in waves. Each wave has a high point, or a peak. The distance between the peaks of the waves is called the wavelength. Light waves have different wavelengths. The low point between the waves is called the trough.



1. The light that people can see is called _____ .

(A) microwaves
(B) infrared radiation
(C) ultraviolet radiation
(D) visible light

2. White light contains _____ .

(F) all of the wavelengths of visible light
(G) x-rays and ultraviolet light
(H) ultraviolet light and infrared light
(J) sound waves

3. Which of the following explains why Jade's house looks blue?

(A) The house absorbed the blue wavelength of light and reflected all of the other wavelengths.
(B) The house reflected the blue wavelength of light and absorbed all of the other wavelengths of light.
(C) The house separated white light into all of the different wavelengths of light.
(D) The house refracted visible light.

4. You can see yourself in a mirror because the mirror does what to light?

(F) The mirror absorbs the light.
(G) The mirror separates the light.
(H) The mirror reflects the light.
(J) The mirror refracts the light.

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. What happens to the charge of an object that gains electrons?

- (A) The object acquires a negative charge.
- (B) The object acquires a positive charge.
- (C) The object acquires no charge.
- (D) The charge of the object does not change.

2. What is an electrical force between non-moving charges called?

- (F) electric current
- (G) electric circuit
- (H) series circuit
- (J) static electricity

3. Which of the following is a substance that is a poor conductor of electricity and is used to coat wires?

- (A) a conductor
- (B) an insulator
- (C) a switch
- (D) a transformer

4. What is a continuous flow of an electric charge through a pathway called?

- (F) insulation
- (G) magnetism
- (H) electric current
- (J) static electricity

Directions: Read the question. Write a paragraph that answers the question on the lines provided. Use a topic sentence. Be sure to end every sentence with a period.

5. Jasmine has set up two circuits. One has three light bulbs wired in a series circuit. The other has three light bulbs wired in a parallel circuit. She removes one light bulb from each circuit. Explain why the remaining two lights in the series circuit go out while the remaining two lights in the parallel circuit stay lit.

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STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. What are the two ends of a magnet called?

- (A) atoms
- (B) electrons
- (C) poles
- (D) fields

2. Which of the following is an example of a permanent magnet?

- (F) a straightened paper clip
- (G) a needle in a compass
- (H) an iron nail that has been rubbed against a magnet
- (J) an electromagnet made from a battery, a nail, and a piece of wire

3. What is the name of the area around a magnet in which a magnetic force can be observed?

- (A) a pole
- (B) an atom
- (C) iron filings
- (D) a magnetic field

4. Which of the following uses chemical reactions to create an electric current?

- (F) a battery
- (G) an electric generator
- (H) an electric motor
- (J) an electromagnet

Directions: Read the question. Write a paragraph that answers the question on the lines provided. Use a topic sentence. Be sure to end every sentence with a period.

5. How can an electric current cause an iron nail to become a temporary magnet?

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STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. **A person stands on a sidewalk next to a stop sign while she waits to cross a street. A car on the street passes by the person and the sign. To the person waiting to cross the street, the stop sign is an example of _____.**
   - (A) acceleration
   - (B) velocity
   - (C) Newton's Second Law
   - (D) a frame of reference

2. **Which of the following is a change in the position of an object?**
   - (F) acceleration
   - (G) motion
   - (H) speed
   - (J) velocity

3. **If you are told that a car is traveling at 70 kilometers per hour, you're being told information about the car's _____.**
   - (A) acceleration
   - (B) direction
   - (C) speed
   - (D) velocity

4. **Speed is a rate of change in _____.**
   - (F) direction over time
   - (G) distance over time
   - (H) time over distance
   - (J) velocity over time

5. **Which of the following is an example of velocity?**
   - (A) 50 kilometers
   - (B) 50 kilometers per hour
   - (C) 50 kilometers per hour east
   - (D) 50 kilometers per hour per hour

6. **A car traveling east changes its velocity from 50 km/h to 70 km/h in 2 minutes. The change in the car's velocity is its _____.**
   - (F) acceleration
   - (G) direction
   - (H) position
   - (J) speed

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. **What is a push or pull that acts on an object called?**
   - (A) force
   - (B) friction
   - (C) gravity
   - (D) inertia

2. **Newton's First Law states that _____ .**
   - (F) two objects with mass will be attracted to each other
   - (G) an object in motion will eventually slow down and stop on its own
   - (H) an object at rest will remain at rest and an object in motion will remain in motion unless a force acts on it
   - (J) what goes up must come down

3. **Inertia is _____ .**
   - (A) the same as gravity
   - (B) the mass of an object
   - (C) the acceleration of an object
   - (D) a word to describe the principle of Newton's First Law

4. **The force that causes two objects with mass to be pulled toward each other is called _____ .**
   - (F) acceleration
   - (G) friction
   - (H) gravity
   - (J) inertia

5. **Pedro was building a birdhouse out of wood. He rubbed a piece of sandpaper against an edge of one of the pieces of wood to smooth it. The resistance he felt as he rubbed the sandpaper against the wood was due to which of the following?**
   - (A) acceleration
   - (B) friction
   - (C) gravity
   - (D) inertia

6. **Newton's Second Law states that an object will accelerate only when _____ .**
   - (F) a sustained force acts upon the object
   - (G) balanced forces act upon the object
   - (H) unbalanced forces act upon the object
   - (J) no forces act upon the object

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. **When a force moves an object over a distance, which of the following has been performed?**
   - (A) acceleration
   - (B) friction
   - (C) gravity
   - (D) work

2. **A tool with few or no moving parts that makes work easier is called a _____ .**
   - (F) wheel and axle
   - (G) simple machine
   - (H) complex machine
   - (J) ball and pivot

3. **The pivot point of a lever is called its _____ .**
   - (A) axle
   - (B) fulcrum
   - (C) pulley
   - (D) wheel

4. **Which of the following is NOT a type of lever?**
   - (F) nutcracker
   - (G) pliers
   - (H) ramp
   - (J) seesaw

Directions: Read the question. Write a paragraph that answers the question on the lines provided. Use a topic sentence. Be sure to end every sentence with a period.

5. **Explain how an inclined plane, such as a ramp, can decrease the amount of force required to lift an object. Draw a diagram to illustrate your explanation.**

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_____

_____

STOP

Content Standard C

Section C of the National Science Education Standards studies the living earth. Students will go beyond basic scientific descriptions of living things and explore life in-depth. This section emphasizes critical thinking about various aspects of living things, their effect on the earth, and how plants and animals interrelate.

Students will be asked to formulate questions that demonstrate critical thinking skills while examining the basic needs and structures of living things. They will attempt to determine what distinguishes organisms. Students will examine material and formulate hypotheses about ecosystems, life cycles, and food webs to determine how animals affect their environment and themselves in the process.

From the most basic level to more advanced study, students will pursue the answers to complex and challenging questions about organisms and the natural world.

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. What are the basic structural units of organisms called?

- (A) fat
- (B) cells
- (C) genes
- (D) nucleus

2. Which part of a plant cell allows it to perform photosynthesis?

- (F) cytoplasm
- (G) cell wall
- (H) chloroplast
- (J) cell membrane

3. What does the cell nucleus do?

- (A) captures food materials
- (B) stores digestive enzymes
- (C) coordinates all cell activity
- (D) functions as the cell's heart

4. Which of the following organisms would have cells that include a cell wall?

- (F) bird
- (G) fern
- (H) human
- (J) octopus

Directions: Read the question. Write a paragraph that answers the question on the lines provided. Use a topic sentence. Be sure to end every sentence with a period.

5. What is the Cell Theory? List at least three parts of the theory in your answer.

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STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. Which of the following is the simplest living thing?

- (A) a worm
- (B) a bacterium
- (C) an amoeba
- (D) a mushroom

2. A multicellular organism usually has many cells that have their own _____.

- (F) muscles
- (G) function
- (H) skeleton
- (J) food supplies

3. Which of the following type of cells is NOT found in an animal?

- (A) fiber cells
- (B) blood cells
- (C) nerve cells
- (D) muscle cells

4. Cells reproduce by _____ .

- (F) dividing
- (G) multiplying
- (H) subtracting
- (J) adding

5. You are given two microscope slides containing sample muscle cells from a mouse and from a whale. What will you observe?

- (A) The whale cells are larger than the mouse cells.
- (B) The mouse cells are larger than the whale cells.
- (C) The cells are different colors.
- (D) The cells are similar sizes.

Directions: Read each question. Write your answer on the lines provided.

6. Is it possible for a single cell to live on its own? Tell why or why not.

_____

_____

_____

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_____

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. What is the name of a collection of cells that work to perform one or more specific functions?

- (A) bone
- (B) tissue
- (C) nucleus
- (D) cell system

2. Skin is made up of cells that keep moisture from getting out of the body and prevent germs from getting in. Skin is a _____ .

- (F) cell
- (G) tissue
- (H) both F and G
- (J) neither F nor G

3. The heart is made up of muscle tissue. However, the tissue in the heart is different from the tissue in the leg. Infer the reason for the difference.

- (A) The heart must beat all the time, so its tissue has to be able to contract and relax constantly and not tire out.
- (B) The leg is much larger than the heart, so the tissue in the leg muscle needs to contain larger cells.
- (C) The muscle in the heart needs to contract when the person thinks about it, where the leg muscle does not.
- (D) The heart muscle is always in touch with blood and the blood makes it look different from the leg muscle.

Directions: Write the name of the tissue on the line next to the description of its function.

Word Bank

Connective	Epithelial	Nervous	Muscle

4. _____ covers the outside of your body

5. _____ attaches one tissue to another

6. _____ expands and contracts to produce movement

7. _____ sends information around your body

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. A group of tissues that performs a specific function is called a(n) _____ .

- (A) bone
- (B) organ
- (C) muscle
- (D) artery

2. The function of the small intestine is to _____ .

- (F) create white blood cells
- (G) change proteins into amino acids
- (H) absorb nutrients from food
- (J) produce hormones throughout the body

3. Which of the following is NOT an organ?

- (A) lungs
- (B) lipid
- (C) kidney
- (D) pancreas

4. What organ is NOT associated with the digestive system?

- (F) liver
- (G) kidney
- (H) stomach
- (J) pancreas

Directions: Read the question. Write a paragraph that answers the question on the lines provided. Use a topic sentence. Be sure to end every sentence with a period.

5. Within the eye, there are many different tissues. The tissue of the cornea is clear. The tissue of the iris can contract and control how much light enters the eye. The retina is made up of cells that gather light.

Think about how the structure of these tissues is related to their function.

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STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. **A group of organs that function together to perform a certain role in the body is called a _____ .**
   - (A) cell
   - (B) collection
   - (C) system
   - (D) tissue

2. **The circulatory system carries blood throughout the body. Which describes the movement of a blood cell through the circulatory system?**
   - (F) heart, lungs, arteries, capillaries, veins, back to heart
   - (G) heart, arteries, veins, capillaries, back to heart
   - (H) capillaries, arteries, veins, heart, lungs, back to capillaries
   - (J) arteries, capillaries, veins, lungs, heart, back to arteries

3. **How are the excretory system and respiratory system alike?**
   - (A) they both use the kidneys to produce blood plasma
   - (B) they both use the pancreas to collect gases and fluids
   - (C) they both produce waste to be removed from the body
   - (D) they both help to maintain the body's white blood cell levels

4. **Neurons and receptors are part of the _____ .**
   - (F) nervous system
   - (G) skeletal system
   - (H) muscular system
   - (J) excretory system

5. **Which of the following is a function of the skeletal system?**
   - (A) support
   - (B) protection
   - (C) calcium storage
   - (D) all of the above

6. **The _____ is part of the integumentary system.**
   - (F) heart
   - (G) brain
   - (H) stomach
   - (J) skin

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. What is the process by which plants produce offspring?

- (A) mitosis
- (B) respiration
- (C) reproduction
- (D) photosynthesis

2. Which of the following plants does not reproduce with seeds?

- (F) rose
- (G) pine
- (H) moss
- (J) oak

3. On a hike, Jose finds a large pinecone. Why does a pine tree produce cones?

- (A) to scare off squirrels
- (B) to spread its seeds
- (C) to spread its pollen
- (D) to trap food in the sap

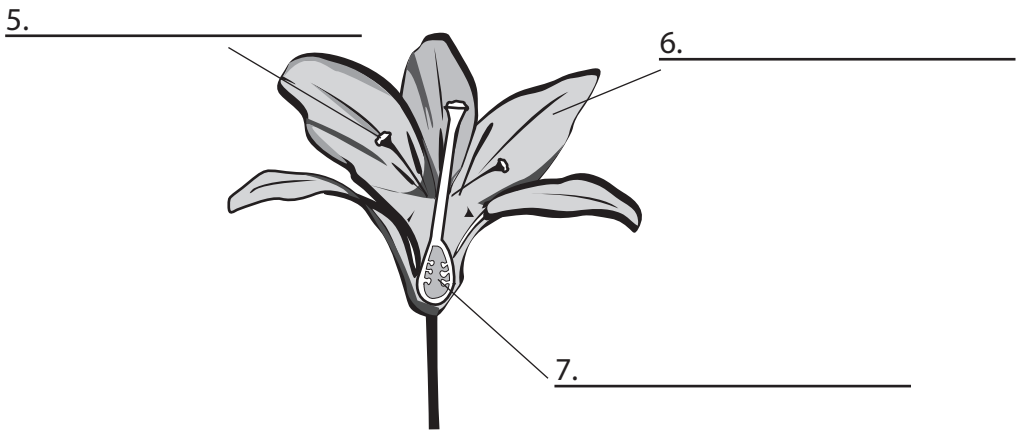
4. Through plant breeding, scientists have created many new types of plants that grow very well. In what way does this benefit humans?

- (F) It allows farmers to grow same-size plants.
- (G) It allows farmers to produce a lot of food.
- (H) It allows grocery stores to sort fruits better.
- (J) none of the above

Directions: Label the diagram of a flower using the words in the Word Bank.

Word Bank

pistil, stamen, petal



STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. What is the process by which an animal produces offspring?

- (A) pollination
- (B) reproduction
- (C) metamorphosis
- (D) photosynthesis

2. Which of the following characteristics do insects have?

- (F) hard exoskeleton
- (G) ten legs
- (H) radial symmetry
- (J) spiny skins

3. An animal that changes form as it grows and develops, such as a butterfly or frog, undergoes _____ .

- (A) pollination
- (B) reproduction
- (C) metamorphosis
- (D) photosynthesis

4. The body temperatures of amphibians and reptiles change with _____ .

- (F) the phase of the moon
- (G) the temperature of their surroundings
- (H) the amount of food they have consumed
- (J) the influence of the tides

Directions: Read the questions. Write your answers on the lines below.

5. Are bats birds or mammals? Explain your answer.

_____

_____

6. What advantages does flight give to a bird?

_____

_____

_____

STOP

Name_____ Date_____

Grade 5

Directions: Read the passage below. Use the information to help you answer questions 1–4 on page 48.

Tamika was skateboarding in the park. She tried to jump, but fell and hurt her arm. Her father took her to the hospital. The radiologist took X-rays of her arm and put them up on a glowing screen.

"Did I break my radius or ulna?" Tamika asked, wide-eyed.

"It looks like you know your skeletal system," the radiologist chuckled. "You actually fractured some of the short bones in your wrist. Next time you should really wear wrist guards and pads on your elbows and knees."

Tamika stared at the X-ray. "What is all the black space around my bone?" she asked.

"There are five systems that you can't see in an X-ray. They are the muscular, immune and endocrine, digestive, circulatory, and respiratory systems. They all work together as a team," the radiologist said as he wrapped a cast around Tamika's arm.

"So what I digest with my stomach affects my bones?" Tamika asked.

"Of course. If you eat foods that are high in calcium, your bones will be much stronger. And if you use your muscles a lot by exercising, your circulatory system will thank you for making your heart stronger."

"I'm nervous here in the hospital. That is from my nervous system, right?" Tamika asked.

"In a way. Your nervous system is responsible for all of your thoughts and emotions in addition to your senses. Your emotions affect all of your other systems as well. That is why your hands may sweat when you get scared, or your stomach may feel funny if you are anxious. All of the systems work together."

"So in order for all of my systems to be stronger, I should eat the right foods and wear protective gear when I go skateboarding, right?" Tamika said, beaming.

"You've got it," the radiologist said.

GO ON

Name_____ Date_____

Grade 5

Directions: Read the passage on page 47. Use the information to help you answer the questions below.

1. **Short, irregular, flat, and long are the four types of bones in the _____ system.**
   - (A) skeletal
   - (B) muscular
   - (C) nervous
   - (D) immune

2. **What effect does smoking tobacco have on the body?**
   - (F) It helps your digestive system break down food easily.
   - (G) It weakens the immune and respiratory systems.
   - (H) It has no effect on the muscular or skeletal systems.
   - (J) It strengthens the body's ability to produce adrenaline.

3. **Explain two ways NOT mentioned in the passage on page 47 in which the body's systems work together.**

_____

_____

_____

_____

_____

4. **Explain how the digestive system helps the whole body.**

_____

_____

_____

_____

_____

_____

_____

STOP

Name_____ Date_____

Grade 5

Directions: Read the passage below. Use the information to answer questions 1–4. Choose the truest possible answer. Shade in the circle before your choice.

Living things pass their traits down to their offspring. Offspring often look like their parents, but sometimes an organism will look nothing like its parents. Does that mean that something has gone wrong? Not necessarily. It means that different genes are showing up in the offspring. A gene is the basic unit of heredity. Genes contribute to everything about an organism, from the flower color in a plant to the fur color of a kitten.

Each parent contributes one gene. Genes can be dominant or recessive. If both parents contribute a dominant gene, then that trait will show, or be expressed, in the offspring. If one parent gives a dominant gene and the other gives a recessive gene, the dominant trait will show; the recessive gene will be suppressed. If both parents contribute recessive genes, then the recessive trait will show in the offspring. Some traits are not inherited. They are learned by the organism.

1. Hannah and Lucas can roll their tongues. Their mother can, too, but their father cannot. The ability to roll your tongue is a _____ .

- (A) learned trait
- (B) dominant trait
- (C) recessive trait
- (D) mixed trait

2. A recessive trait will only show if _____ .

- (F) the dominant gene dies
- (G) the right cells are present
- (H) the parents want it to appear
- (J) two recessive genes are present

3. What do all living things have in common with their offspring?

- (A) They have the same skills.
- (B) They are the same species.
- (C) They have the same color hair.
- (D) They are the same size.

4. Traits are _____ .

- (F) always inherited
- (G) always learned
- (H) sometimes learned
- (J) none of the above

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. **A baby seal is rescued and brought to an aquarium. The aquarium workers do not need to teach the baby to swim, but they do have to teach it to hunt. Why?**
   - (A) Seals do not like to hunt.
   - (B) Seals learn to hunt from their mothers.
   - (C) Seals are naturally lazy.
   - (D) The aquarium workers need something to do.

2. **One example of a learned behavior is the ability to _____ .**
   - (F) see
   - (G) eat
   - (H) read
   - (J) breathe

3. **Fish are born knowing how to swim. This is an example of a(n) _____ .**
   - (A) inherited behavior
   - (B) behavioral skill
   - (C) recessive gene
   - (D) learned behavior

4. **Baby Kabil cries when he wants food. This is an example of a(n) _____ .**
   - (F) inherited behavior
   - (G) recessive gene
   - (H) knowledge store
   - (J) learned behavior

Directions: Read the question. Write your answer on the lines provided.

5. **Andrea's parents can both play the piano. When Andrea grows up, will she know how to play the piano? Why or why not?**

_____

_____

_____

_____

_____

_____

_____

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. **A family of birds lives on a tree branch. A family of worms lives in the soil under the tree. The birds and the worms are part of the same _____ .**
   - (A) climate
   - (B) species
   - (C) organism
   - (D) ecosystem

2. **Which is an example of a nonliving part of an ecosystem?**
   - (F) ants
   - (G) soil
   - (H) trees
   - (J) grass

3. **What basic need do worms fill for birds?**
   - (A) air
   - (B) food
   - (C) shelter
   - (D) water

4. **A small forest is bulldozed and replaced with a housing development. What might the animals and birds that had lived in the forest ecosystem do?**
   - (F) adapt to the change
   - (G) leave and find a new home
   - (H) die
   - (J) all of the above

Directions: Read the questions. Write your answers on the lines provided.

5. **What is one way in which the plants in an ecosystem might help the animals?**

_____

_____

6. **Describe an ecosystem you have seen. What are some living parts? What are some nonliving parts?**

_____

_____

_____

_____

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. How do animals get energy from the sun?

- (A) by breathing in air that contains the sun's energy
- (B) by making food in a process called photosynthesis
- (C) by absorbing energy when they are in direct sunlight
- (D) by eating plants that make food from the sun's energy

2. A goat eats grass. Which is true about the goat and the grass?

- (F) The goat and the grass are both producers.
- (G) The goat and the grass are both consumers.
- (H) The goat is a producer and the grass is a consumer.
- (J) The goat is a consumer and the grass is a producer.

3. What is the relationship between a producer and a consumer?

- (A) Producers eat consumers.
- (B) Consumers eat producers.
- (C) Producers take consumers' food.
- (D) Consumers take producers' food.

4. A(n) _____ is an organism that breaks down dead organisms and turns them into nutrients.

- (F) scavenger
- (G) composer
- (H) herbivore
- (J) decomposer

5. Which of the following is a producer?

- (A) a tiger
- (B) a monkey
- (C) a sunflower
- (D) a hippopotamus

6. Which of the following is a consumer?

- (F) an iris
- (G) a daisy
- (H) a squirrel
- (J) a tomato plant

7. Which shows the movement of energy through an ecosystem?

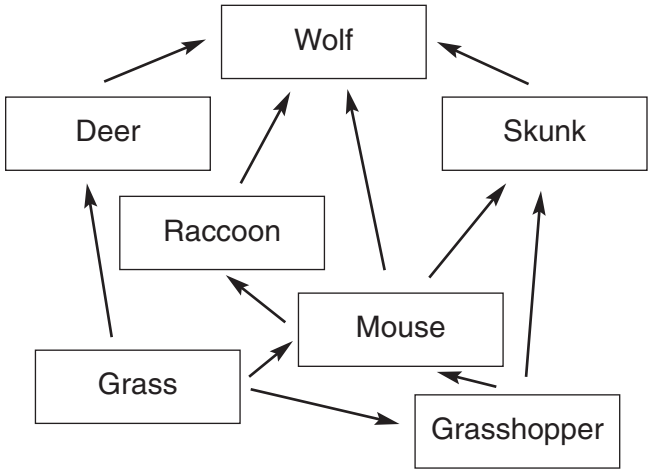
- (A) sun → producer → consumer → decomposer
- (B) producer → decomposer → consumer → sun
- (C) consumer → decomposer → producer → sun
- (D) decomposer → producer → sun → consumer

STOP

Name_____ Date_____

Grade 5

Directions: Study the diagram below. Use it to answer questions 1–6.



1. What does the wolf eat?

(A) grass, skunks, raccoons, and grasshoppers
(B) deer, raccoons, mice, and grasshoppers
(C) grasshoppers, mice, skunks, and deer
(D) deer, mice, skunks, and raccoons

2. What does the deer eat?

(F) grasshoppers
(G) grass
(H) mice
(J) raccoons

3. Which of the following organisms depends on grass for food?

(A) mouse
(B) grasshopper
(C) deer
(D) all of the above

4. Which of the following organisms is NOT prey to the skunk?

(F) deer
(G) mouse
(H) grasshoppers
(J) none of the above

5. If the population of raccoons fell rapidly, which animal would experience an increase in population?

_____

_____

6. If the population of wolves increased rapidly, which animals would experience a decrease in population? Explain why.

_____

_____ STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. The population of a species of animal in an area includes _____ .

- (A) all the members of that species
- (B) all the females of that species
- (C) all the males of that species
- (D) all the juveniles of that species

2. One year, the population of snowshoe hares in an Alaskan park increased greatly. Over the next few years, what will probably happen to the population of the lynx, the hare's major predator?

- (F) It will increase because there are more hares to eat.
- (G) It will decrease because there are too many hares.
- (H) It will stay the same no matter how many hares there are.
- (J) none of the above

3. Three hundred Dall sheep live on a mountain. The winter is harsh and very snowy. What will probably happen to the sheep population during the winter?

- (A) It will probably increase as sheep come to the mountain.
- (B) It will probably decrease due to the harsh weather.
- (C) It will probably increase as more lambs are born.
- (D) It will remain the same.

4. Which of the following factors limit the size of a population?

- (F) the amount of suitable habitat
- (G) the number of predators
- (H) the amount of human activity
- (J) all of the above

5. The population of white-tailed deer in the United States has increased. What could be a reason?

- (A) better food available to the deer
- (B) a lack of natural predators
- (C) more fawns being born
- (D) all of the above

6. Scientists in Massachusetts hope to increase the population of an endangered shorebird, the piping plover. The plover nests on the sand on beaches. Which action could the scientists take to increase the population of wild plovers?

- (F) limit people's access to the beach so the nests are safe
- (G) trap the plovers and keep them in captivity
- (H) build their observation stand right on the beach with the birds
- (J) put more sand on the beach for the birds to nest in

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Write your answer on the lines provided.

1. **How might a volcanic eruption affect an animal population?**

_____

_____

_____

2. **How might an earthquake affect an ecosystem?**

_____

_____

_____

3. **A volcanic eruption sends many harmful gases, such as sulfur, into the air. The sulfur sent into the air by the volcanic eruption often leads to acid rain. Describe how you think this affects the organisms that are still alive.**

_____

_____

_____

_____

_____

4. **List two ways that a thunderstorm might affect the environment.**

_____

_____

_____

5. **A wildfire destroys many of the plants and animals in an ecosystem. A few living things are left. What problems might they have?**

_____

_____

_____ STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. A pufferfish swells up with water when it is threatened. This is an example of an _____ .

- (A) behavior
- (B) offense
- (C) balance
- (D) reduction

2. A houseplant is kept in a room with only one window. What will the plant likely do in response to this situation?

- (F) stop growing
- (G) grow straight up
- (H) grow toward the window
- (J) grow in the direction opposite the window

3. Why do some species of birds migrate?

- (A) to find mates
- (B) to escape predators
- (C) to avoid cold and find food
- (D) to exercise their wings and lungs

4. During a period of no rain, which of the following might a plant do to survive?

- (F) grow deeper roots
- (G) produce more leaves
- (H) produce bigger flowers
- (J) bend leaves toward the sun

5. A rabbit's heartbeat quickens, its muscles tense, and its breathing becomes shallow. What is the most probable reason?

- (A) He is too hot.
- (B) He has not slept.
- (C) He sees a predator.
- (D) He is feeling hungry.

6. Which of the following behaviors is an example of a plant responding to its internal clock?

- (F) bending its leaves toward the sun
- (G) growing deep roots during a drought
- (H) closing its leaves at the start of night
- (J) growing upward over other plants

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Write your answer on the lines provided.

1. **What is an adaptation?**

_____

_____

2. **How have birds' bodies become adapted to the demands of flight?**

_____

_____

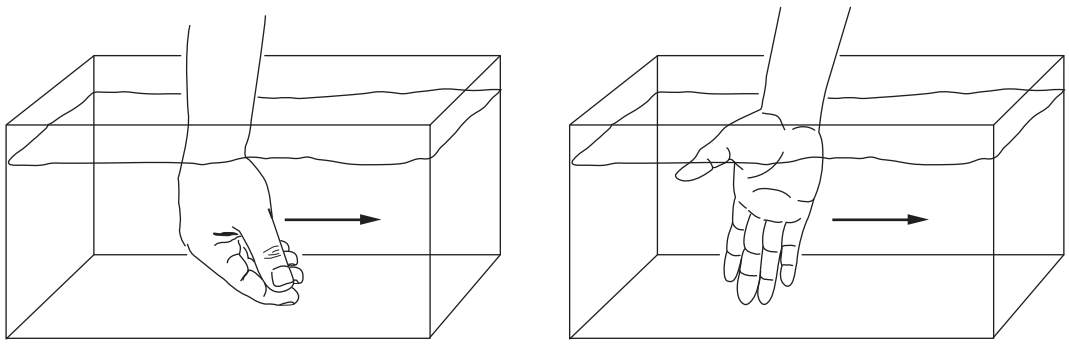
_____

_____

_____

_____

_____



A B

3. **Fill a sink or bucket with several inches of water. Move your hand through it, first palm-forward (A), and then sideways (B). You'll notice that there is much less resistance when you move your hand sideways. How does a fish's body shape do the same thing by presenting a smaller surface area to the water that it is moving through?**

_____

_____

_____

GO ON

Name_____ Date_____

Grade 5

Directions: Study the chart below. Use the information to help you answer questions 1–5.

Animal	Habitat	Adaptation
Beluga Whale	Arctic water	Layer of fat called blubber
Peacock	Forest	Bright tail feathers
Alligator	Fresh water	Eyes on top of head
Reindeer	Cold areas	Thick fur
Hummingbird	Rainforest	Long tongue

1. **Which two animals in the chart have adaptations that help them stay warm in their environments?**
   - (A) reindeer and beluga whales
   - (B) reindeer and alligators
   - (C) beluga whales and peacocks
   - (D) hummingbirds and peacocks

2. **Why does a beluga have blubber instead of thick fur?**
   - (F) to swim more easily
   - (G) to catch prey
   - (H) to climb trees
   - (J) to signal danger

3. **Which adaptation allows an animal to find prey while submerged in water?**
   - (A) the position of an alligator's eyes
   - (B) the tail feathers of a peacock
   - (C) the long tongue of a hummingbird
   - (D) the amount of blubber on a beluga whale

4. **Which adaptation might help an animal attract a mate?**
   - (F) bright tail feathers
   - (G) layer of blubber
   - (H) long tongue
   - (J) thick fur

Directions: Read the question. Write your answer on the lines provided.

5. **Which animal's adaptation might help it gather nectar from flowers?**

_____

_____

STOP

Name_____ Date_____

Grade 5

Directions: Study the chart below. Use the information to help you answer the questions.

Plant	Habitat	Adaptation
Aloe Plant	Desert	Thick leaves
Red Mangrove	Near water	"Prop roots" above the ground
Bromeliad	Rainforest	Central water reservoir
Cactus	Desert	Waxy outer layer
Rose Bush	Varity of places	Fragrant flowers
Prairie Grass	Dry, usually flat land	Deep roots
Maple Tree	Cool climate	Broad leaves

1. Which plant has an adaptation that helps it to attract pollinators?

(A) cactus
(B) rose bush
(C) maple tree
(D) red mangrove

2. Which two plants are adapted to live in an environment with little rainfall?

(F) aloe plant and cactus
(G) rose bush and maple tree
(H) prairie grass and rose bush
(J) maple tree and red mangrove

3. Fires are an important part of the prairie ecosystem. Fires frequently occur on prairies as a natural control, making sure that the prairie does not become a forest. Why do you think prairie grasses have adapted to grow long roots?

_____

_____

4. In winter, maple trees lose their broad leaves. Why do you think maple trees can survive the winter without leaves? (HINT: Think of energy storage.)

_____

_____

_____

_____

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. An extinct animal or plant species is one that _____ .

- (A) no longer exists
- (B) exists only in captivity
- (C) has few remaining individuals
- (D) only existed during the Paleozoic Era

2. A species that is in danger of becoming extinct is called a(n) _____ .

- (F) insecure species
- (G) unsteady species
- (H) conserved species
- (J) endangered species

3. Which of the following are important in protecting endangered species?

- (A) preserving the habitat in which the species lives
- (B) protecting the species from human activities, such as hunting
- (C) educating people about the value of the endangered species
- (D) all of the above

4. In the United States, endangered animals and plants are protected by the _____ .

- (F) the Constitution
- (G) the Endangered Species Act
- (H) the Federal Register
- (J) the Internal Revenue Service

5. If you encounter an endangered species, what should you do?

- (A) catch it and give it to a game warden
- (B) chase it away so it becomes frightened of people
- (C) make sure you do not disturb it
- (D) bring it home to keep as a pet

6. Which of the following American animals is no longer listed as an endangered species?

- (F) the bald eagle
- (G) the Florida panther
- (H) the key deer
- (J) the North Atlantic right whale

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. What is a fossil?

- (A) partly decayed plant material that is found in bogs
- (B) a close relationship between two different species
- (C) the hardened remains of an ancient plant or animal
- (D) an itchy bump on the skin caused by an allergy

2. A scientist is studying the fossil skull of an extinct animal. The teeth are sharp and pointed. What can the scientists infer about the animal's diet?

- (F) It ate mostly meat.
- (G) It ate mostly plants.
- (H) It ate small organisms from the water.
- (J) It ate nothing at all.

3. Why are there relatively few fossils of soft-bodied animals?

- (A) because there weren't many soft-bodied animals
- (B) because soft tissues don't fossilize very well
- (C) because there are too many hard fossils to classify
- (D) because soft tissues evaporate before they fossilize

4. Which of the following can be inferred from fossils?

- (F) an organism's size
- (G) an organism's shape
- (H) an organism's body covering
- (J) all of the above

5. What do fossils teach us?

- (A) that life on Earth has taken many forms over time
- (B) that life on Earth has existed only briefly
- (C) that life on Earth came from another planet
- (D) that life on Earth has a long boring history

6. Which of the following is not a fossil?

- (F) petrified wood
- (G) an insect in amber
- (H) a dinosaur footprint
- (J) a rock sample

7. Why are there gaps in the fossil record?

- (A) because Earth's geologic processes may destroy fossils over time
- (B) because there may be fossils that we haven't yet discovered
- (C) all of the above
- (D) none of the above

STOP

Content Standard D

Section D takes a more in-depth approach to the understanding of the earth, its materials, and how the planet fits in with the rest of the cosmos. Students will explore the solar system, including the various planets, comets, and asteroids. Students will also learn about the earth itself, including its physical features and layers, as well as how its cycles work together to maintain a balance that supports life.

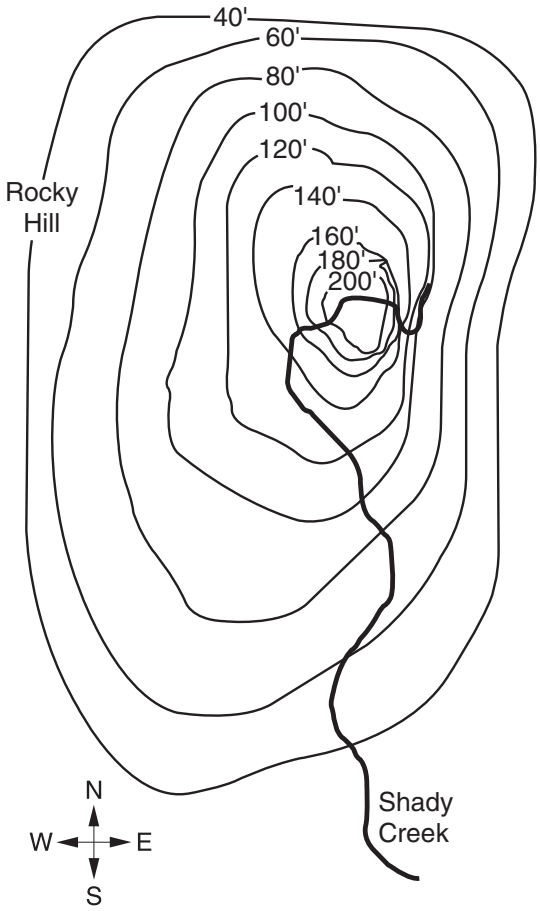
Students will apply certain knowledge about the earth to gain a greater understanding of its various cycles. Included are erosion, precipitation, deposition, and natural disasters like landslides, earthquakes, volcanoes, and weather phenomena.

Section D gives students the opportunity to understand most of the basic processes that make life possible on the earth. Students can explain what makes the earth a special planet in our solar system and in the universe.

Name_____ Date_____

Grade 5

Directions: Study the diagram below. Use the information to help you answer questions 1–6.



1. **How many feet of elevation are there between the contour lines on the map?**
   - (A) 10
   - (B) 20
   - (C) 50
   - (D) 100

2. **What is the elevation (in feet) of Rocky Hill?**
   - (F) greater than 100, but less than 150
   - (G) greater than 80, but less than 100
   - (H) greater than 180 but less than 200
   - (J) greater than 200, but less than 220

3. **In which direction does Shady Creek flow?**
   - (A) east
   - (B) west
   - (C) north
   - (D) south

4. **What is the lowest elevation (in feet) shown on the map?**
   - (F) 20
   - (G) 30
   - (H) 40
   - (J) 100

5. **Where is the steepest terrain?**
   - (A) east side of Rocky Hill
   - (B) west side of Rocky Hill
   - (C) southwest side of Sandy Hill
   - (D) along the course of Shady Creek

6. **How can you tell which places are the steepest?**

_____

_____

STOP

Name_____ Date_____

Grade 5

Directions: Read the text below. Use it to answer questions 1–6.

If the earth were a hardboiled egg, the lithosphere would be its shell—complete with cracks! The lithosphere, or crust, is broken up into pieces called plates. Because of the motion of the earth's mantle, the plates are in constant motion. However, the motion is so slow that it is generally not perceptible.

The edges between plates are called plate boundaries. At a boundary, plates may move in the same direction, as in the case of the North American Plate and the Pacific Plate; both are moving northwest. Or, plates may move away from each other, as the African Plate and the South American Plate are doing. Plates may also move toward each other, as off the coast of the Pacific Northwest, where a small plate, called the Juan de Fuca Plate, is sliding under the larger North American Plate. The United States is located on the North American Plate. The movement of one plate beneath another is called subduction. In a zone of subduction, mountains, volcanoes, and earthquakes can occur.

1. On which plate is the United States located?

- (A) the African Plate
- (B) the South American Plate
- (C) the North American Plate
- (D) the Juan de Fuca Plate

2. What is another name for the lithosphere?

- (F) plate
- (G) zone
- (H) crust
- (J) mantle

3. In which ways can plates move at a boundary?

- (A) toward each other
- (B) in the same direction
- (C) away from each other
- (D) all of the above

4. Which two plates are moving toward each other?

- (F) Pacific and North American
- (G) South American and African
- (H) North American and South American
- (J) North American and Juan de Fuca

5. What happens at a zone of subduction?

- (A) One plate moves below another.
- (B) Mountains and volcanoes can form.
- (C) Earthquakes can occur.
- (D) all of the above

6. What causes the plates to be in constant motion?

- (F) the motion of th earth's interior
- (G) the motion of the earth's seas
- (H) the pull of the moon on the earth
- (J) the activity of volcanoes

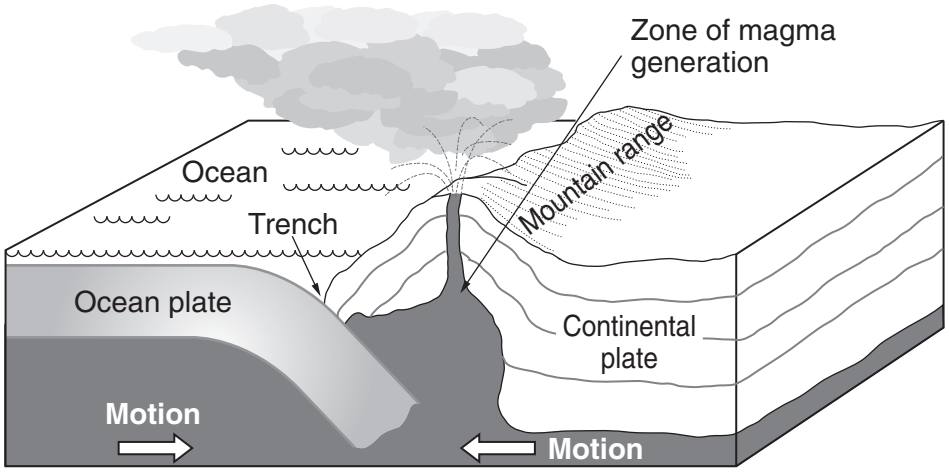
STOP

Name_____ Date_____

Grade 5

Directions: Read the text below and study the diagram. Use information from both to help you answer questions 1–4.

Many Earth-changing processes take millions of years. Volcanoes are an important exception. In 1943, a volcano suddenly appeared in a Mexican cornfield in 1943. Within a year it had grown into a 1,000-foot mountain! Lava flows from volcanoes can spread quickly over the landscape, covering the surface



1. What is the difference between magma and lava?

- (A) there is no difference
- (B) magma is black; lava is red
- (C) magma explodes; lava flows
- (D) magma is underground; lava is at the surface

2. What will happen to the oceanic plate in the diagram?

- (F) It will melt and form magma.
- (G) It will fuse with the continental plate.
- (H) It will wrinkle and form mountains.
- (J) It will move down until it reaches the core.

3. The volcano in the diagram occurs at a plate boundary where one plate is sliding beneath another. Why does a volcano occur here?

- (A) because the plates are moving apart
- (B) because the plates are moving toward each other
- (C) because the place in the diagram is the "Ring of Fire"
- (D) because plate boundaries are weak spots in the lithosphere

4. What type of rock does lava or magma form when it cools?

- (F) sandstone
- (G) igneous
- (H) sedimentary
- (J) metamorphic

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. **A sudden movement of Earth's crust is called a(n) _____ .**
   - (A) earthquake
   - (B) glacier
   - (C) landslide
   - (D) adobo

2. **An earthquake occurs because _____ .**
   - (F) too many buildings are in one location
   - (G) the moon pulls on Earth's surface
   - (H) pressure builds up and is suddenly released
   - (J) underground explosions take place

3. **Earthquakes usually occur near plate boundaries where cracked pieces of crust rub against each other. What are the cracks called?**
   - (A) foci
   - (B) faults
   - (C) ruptures
   - (D) centers

4. **Which of the following can result from an earthquake?**
   - (F) new mountains
   - (G) new plates
   - (H) heavy snow
   - (J) none of the above

5. **The San Andreas Fault runs for hundreds of miles through California. Because of the fault, California _____ .**
   - (A) has a very varied climate, from desert to snowy mountains
   - (B) receives a great deal of sunlight each year
   - (C) contains a very fertile central valley
   - (D) experiences many small and large earthquakes each year

6. **If an earthquake occurs, what should you do?**
   - (F) If you're indoors, stay in and get under a desk or a table.
   - (G) If you're outdoors, stay away from trees and buildings.
   - (H) If you're on a beach, leave and find high ground.
   - (J) all of the above

7. **Which is NOT likely to happen in a large earthquake?**
   - (A) California will fall into the ocean.
   - (B) Buildings may collapse unless they are reinforced.
   - (C) Elevated roads may be damaged and broken.
   - (D) New landforms can be created.

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. **Which would be most prone to a landslide or mudslide?**
   - (A) a plain
   - (B) a plateau
   - (C) a delta
   - (D) a hillside

2. **Natural events often trigger mudslides or landslides. Which natural disaster is LEAST likely to do so?**
   - (F) a wildfire
   - (G) a drought
   - (H) a volcano
   - (J) an earthquake

3. **Which activity increases the risk of mudslides or landslides?**
   - (A) chopping down trees
   - (B) building houses on hillsides
   - (C) building ski resorts and other recreation facilities on mountains
   - (D) all of the above

4. **When water from heavy rains saturates the soil, mud or landslides can result. How can people protect themselves from this risk?**
   - (F) by evacuating during and after heavy rains
   - (G) by watching for tilted trees, trickles of mud, and sudden cracks in the walls
   - (H) by learning whether their neighborhood has experienced landslides or mudslides before
   - (J) by doing all of the above

Directions: Read the questions. Write your answers on the line provided.

5. **How does a mudslide differ from a landslide?**

_____

_____

6. **How might people be affected by a landslide?**

_____

_____

STOP

Name_____ Date_____

Grade 5

Directions: Read the paragraph below. Fill in the blanks with terms from the Word Bank.

Word Bank

erosion, weathering, deposition

Water is a powerful mover of earth. As ice, it can scrape the land bare and carry boulders hundreds of miles. In its liquid form, water can cause 1._____ . The motion of the water over soil, or even over solid rock, can wear the soil or rock away. The water then transports the material in a process called 2._____ . Water cannot carry material forever, though. It can carry material only as long as it is moving fast enough to transport the particles. For example, when a stream of water that is carrying sand particles enters a pond, the stream slows down. When it slows, it drops the sand. This dropping of material is called 3._____.

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

4. Weathering can be caused by _____ .

- (A) plant roots
- (B) moving water
- (C) ice
- (D) all of the above

5. A rock is exposed to high temperatures during a forest fire, and its surface layers crack and peel. This is an example of _____ .

- (F) acclimation
- (G) deposition
- (H) erosion
- (J) weathering

6. The Grand Canyon was formed over many years by which process?

- (A) erosion by moving water
- (B) erosion by glacial action
- (C) erosion by wind movement
- (D) erosion by moving rocks

7. A river enters a lake and it slows down. Which will happen next?

- (F) The river will pick up and move additional sediment.
- (G) The river will drop the large particles that it is carrying.
- (H) The river will continue to carry the same sediment load.
- (J) The river will do nothing.

STOP

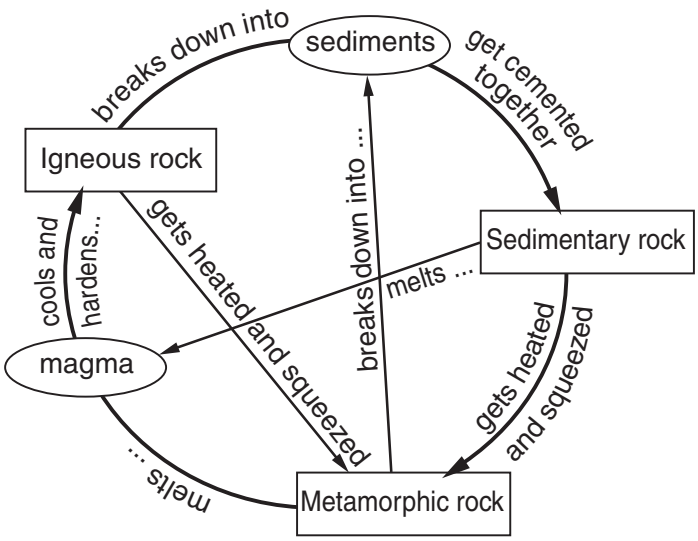
Name_____ Date_____

Grade 5

Directions: Read the text below and study the diagram. Use information from both to help you answer questions 1–3.

Earth's three main types of rocks—igneous, sedimentary, and metamorphic—constantly change form over a cycle that takes millions of years. Many geologic processes drive these changes. The changes that rocks undergo are depicted in this diagram of the rock cycle.

Rock Cycle



1. Describe how igneous rock changes into sedimentary rock.

_____

_____

_____

2. How can metamorphic rock become igneous rock?

_____

_____

_____

3. What is the endpoint of the rock cycle?

_____

_____

_____

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer.

HINT: Earth was once bare rock and now is covered in thousands of different soil types. Soil is a critical ingredient to life on earth—allowing plants to grow and healthy ecosystems to develop.

1. Soil consists of many ingredients. Tiny rock particles supply plants with minerals. What process creates tiny particles from bedrock?

- (A) erosion
- (B) deposition
- (C) weathering
- (D) cementation

2. Rock particles alone cannot make a healthy soil. They must combine with organic matter called humus. Where does humus come from?

- (F) decomposing plants and animals
- (G) microorganisms that digest organic material
- (H) burrowing animals that mix and aerate organic material
- (J) all of the above

3. The United States alone has more than 20,000 different kinds of soil. What factors play the biggest role in determining how soils develop differently?

- (A) latitude and longitude
- (B) plant and animal activity
- (C) bedrock and weathering
- (D) temperature and moisture

4. Which soil would be most susceptible to erosion?

- (F) soil in a valley
- (G) soil facing the sun
- (H) soil on a steep slope
- (J) soil facing away from the sun

5. How would a well-developed soil look?

- (A) deep and light
- (B) deep and dark
- (C) defined layers and thin
- (D) defined layers and deep

6. Which is the most productive and fertile part of soil?

- (F) the bedrock
- (G) the topsoil
- (H) the gravelly mineral layer
- (J) all of the above

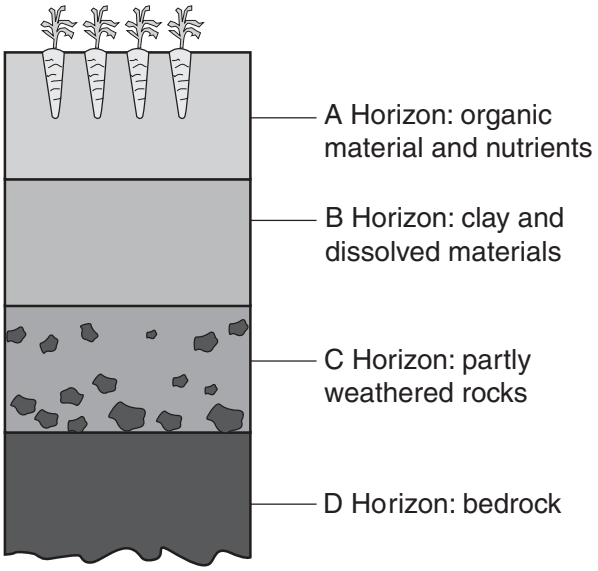
STOP

Name_____ Date_____

Grade 5

Directions: Read the text below and study the diagram. Use information from both to help you answer questions 1–6.

The diagram shows a typical soil profile. Notice that it has layers, called horizons, that look different from each other. Many types of soils cover Earth. Soils are usually classified by their texture, which is their proportions of sand, silt, and clay.



1. Which layers contain the most roots?

(A) D and A
(B) A and B
(C) B and C
(D) D and B

2. Which layer contains clay?

(F) D
(G) A
(H) B
(J) C

3. Which layer contains the parent material?

(A) A
(B) B
(C) C
(D) D

4. In which layer is the most organic material found?

(F) A
(G) B
(H) C
(J) D

5. Which layer has the least organic matter?

(A) A
(B) B
(C) C
(D) D

6. Suppose you had a clay soil in your vegetable patch, which drained poorly and did not produce healthy plants. How could you best improve the soil?

(F) water less
(G) add fertilizer
(H) add silt to change the texture
(J) add sand to change the texture

STOP

Name_____ Date_____

Grade 5

Directions: Read each question. Write your answer on the lines provided.

1. Why is the water cycle important?

_____

_____

_____

2. What are some of the different ways in which organisms obtain water?

_____

_____

_____

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

3. What is it called when water vapor changes into liquid water?

- (A) evaporation
- (B) transpiration
- (C) precipitation
- (D) condensation

4. What is a cloud made of?

- (F) gas
- (G) smoke
- (H) lakes and rivers
- (J) tiny water droplets

5. After a rainstorm, some water does not seep into the ground. This water is called _____ .

- (A) groundwater
- (B) runoff
- (C) seepage
- (D) a spring

6. Which stage of the water cycle increases the amount of water vapor in the atmosphere?

- (F) evaporation
- (G) transpiration
- (H) precipitation
- (J) percolation

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

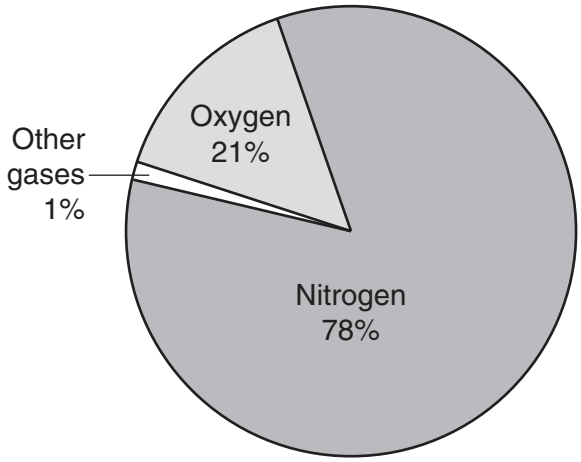
1. What is the atmosphere?

- (A) air in a vacuum
- (B) oxygen in the air
- (C) the blanket of air around the earth
- (D) all the gases in the air but nitrogen

2. Which of the following adds the gas carbon dioxide to the atmosphere?

- (F) thunderstorms
- (G) building bridges
- (H) motor vehicles
- (J) planting trees

Directions: Look at the circle graph below. Use it to answer questions 3-5.



3. Which gas makes up the majority of Earth's atmosphere?

- (A) argon
- (B) hydrogen
- (C) nitrogen
- (D) oxygen

4. Based on this graph, what percentage of Earth's atmosphere is made up of carbon dioxide?

- (F) more than 21%
- (G) more than 78%
- (H) less than 1%
- (J) It is impossible to tell.

5. Earth's atmosphere is 21% oxygen. That means out of 200 air molecules, _____ .

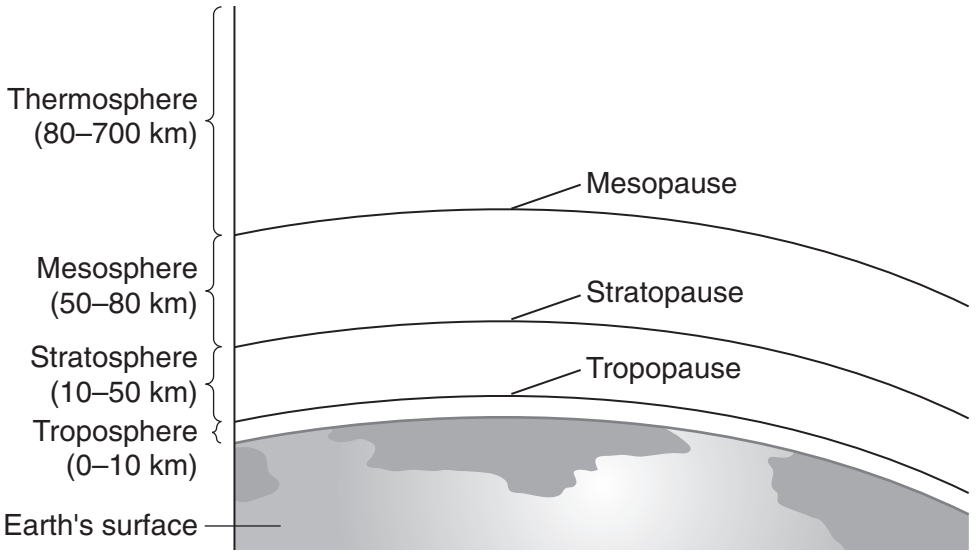
- (A) 21 are oxygen
- (B) 78 are oxygen
- (C) 42 are oxygen
- (D) 63 are oxygen

STOP

Name_____ Date_____

Grade 5

Directions: Study the diagram. Use the information to help you answer the questions that follow.



1. The layer of the atmosphere closest to Earth's surface is the _____ .

(A) mesosphere
(B) stratosphere
(C) troposphere
(D) thermosphere

2. Which layer of the atmosphere extends from 50 km to 80 km above Earth's surface?

(F) mesosphere
(G) stratosphere
(H) troposphere
(J) thermosphere

3. Commercial airliners fly at heights of 35,000 feet. If there are 3,280 feet in a kilometer, in which layer of the atmosphere do airliners fly?

(A) mesosphere
(B) stratosphere
(C) troposphere
(D) thermosphere

4. In which layer of the atmosphere would you encounter the most weather activity?

(F) mesosphere
(G) stratosphere
(H) troposphere
(J) thermosphere

GO ON

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. The only atmospheric layer that has the correct mixture of gases necessary to support life is the _____ .

- (A) mesosphere
- (B) stratosphere
- (C) troposphere
- (D) thermosphere

2. Which atmospheric layer has the greatest air pressure?

- (F) mesosphere
- (G) troposphere
- (H) stratosphere
- (J) thermosphere

3. What is the altitude of the mesopause?

- (A) 80 feet
- (B) 80 miles
- (C) 80 meters
- (D) 80 kilometers

4. Which is the thinnest atmospheric layer?

- (F) mesosphere
- (G) troposphere
- (H) stratosphere
- (J) thermosphere

5. The mission of a new weather balloon is to measure the air temperature and air pressure at various heights above Earth's surface. What instruments should it carry?

- (A) thermometer and barometer
- (B) barometer and anemometer
- (C) thermometer and anemometer
- (D) thermometer and psychrometer

6. The ozone layer is part of the _____ .

- (F) mesosphere
- (G) troposphere
- (H) stratosphere
- (J) thermosphere

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. Clouds are most likely to appear when an area is experiencing high _____ .

- (A) humidity
- (B) wind speed
- (C) air pressure
- (D) temperatures

2. A large frozen raindrop that is produced by a thunderstorm is called _____ .

- (F) hail
- (G) snow
- (H) sleet
- (J) freezing rain

3. What is an extended shortage of precipitation in an area called?

- (A) arid
- (B) deluge
- (C) drought
- (D) dry spell

4. Which of the following options shows the correct order of processes necessary to produce precipitation?

- (F) evaporation, cooling, condensation
- (G) condensation, evaporation, cooling
- (H) cooling, condensation, evaporation
- (J) evaporation, condensation, cooling

Directions: Read the question. Write your answer on the lines provided.

5. Write a brief paragraph to explain how water on the earth's surface may now be part of a cloud.

_____

_____

_____

_____

_____

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. **Which of the following must be present to create a tornado, hurricane, or blizzard?**
   - (A) high winds
   - (B) spiraling air
   - (C) thick moisture
   - (D) hot temperatures

2. **How does a blizzard differ from a snowstorm?**
   - (F) The snowfall cuts down on visibility.
   - (G) The winds exceed 56 kph.
   - (H) The temperature is below -7°C.
   - (J) all of the above

3. **Which type of cloud is a sign that a thunderstorm may be brewing?**
   - (A) cirrus
   - (B) cumulus
   - (C) cumulonimbus
   - (D) stratus

4. **What precaution should you take if you are outside during a thunderstorm?**
   - (F) Stay away from tall objects, such as trees.
   - (G) Stay away from metal objects, such as flagpoles.
   - (H) If you are swimming, get out of the water.
   - (J) all of the above

5. **Tornadoes usually appear with what kind of storm?**
   - (A) blizzards
   - (B) hurricanes
   - (C) thunderstorms
   - (D) typhoons

6. **In case of a tornado, what should you do?**
   - (F) go indoors
   - (G) get into a car
   - (H) move out into the open
   - (J) go to the mall

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice

1. **A mountain rising from the seafloor that does not reach the ocean surface is called a _____ .**
   - (A) seamount
   - (B) block mountain
   - (C) volcanic mound
   - (D) continental slope

2. **Seafloor spreading makes the oceans wider. At which ocean-floor feature does this process occur?**
   - (F) ocean trench
   - (G) midocean ridge
   - (H) continental shelf
   - (J) volcanic island arc

3. **Which ocean-floor feature is NOT located on a plate boundary?**
   - (A) abyssal plain
   - (B) ocean trench
   - (C) midocean ridge
   - (D) none of the above

4. **The ocean floor drops sharply at the _____ .**
   - (F) ocean basin
   - (G) ocean ridge
   - (H) continental shelf
   - (J) continental slope

Word Bank

undersea canyon	ooze
abyssal plain	manganese nodules
nekton	plankton

Directions: Choose terms from the Word Bank below to complete the sentences.

5. **Large organisms that live in the ocean are part of the sea's _____.**
6. **The _____ makes up most of the ocean floor.**
7. **The mixture of fine particles that cover the ocean floor is called _____.**
8. **Microscopic organisms that live in the ocean are known as _____.**
9. **Rich in minerals, _____ are found on the ocean floor.**
10. **The Hudson River forms an _____ after it enters the ocean.**

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. **Ocean currents play a role in determining a continent's climate. What is an ocean current?**
   - (A) the continuous movement of the wind above an ocean surface
   - (B) a continuous movement of ocean water that flows in an ocean
   - (C) the continuous flow of electricity in the ocean from animal activity
   - (D) the rising and falling of the ocean's surface caused by the sun's rotation

2. **Surface ocean currents are caused by _____ .**
   - (F) tides
   - (G) winds
   - (H) Earth's rotation
   - (J) freshwater flowing off land

3. **Water in an ocean current is different from surrounding water because _____ .**
   - (A) it only exists in areas near the equator
   - (B) it flows while the surrounding water is still
   - (C) it never contains fish or other living things
   - (D) it often has a different temperature and saltiness

4. **The ocean tides are mainly caused by the _____ .**
   - (F) sun's gravity
   - (G) sun's rotation
   - (H) moon's gravity
   - (J) season of the year

5. **Which phases of the moon cause the highest high tides and lowest low tides?**
   - (A) new moons and full moons
   - (B) first and last quarter moons
   - (C) crescent and gibbous moons
   - (D) waxing and waning crescent moons

Directions: Read the question. Write your answer on the lines provided.

6. **Becky wants to explore the ocean's shore. Why should she go during low tide?**

_____

_____

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the term that best completes the sentence from the Word Bank. Write your answers on the lines provided.

Word Bank

star, solar eclipse sunspots, heat, solar system,
the sun, gravity, light, fusion

1. **The _____ is the source of most of the energy on the earth.**
2. **The sun holds the earth and other planetary objects in its orbit because of its tremendous _____ .**
3. **The sun is the center of the _____ .**
4. **The sun is a medium-sized yellow _____ .**
5. **The sun gives off _____ and _____ .**
6. **When the moon is between the sun and the earth, a _____ occurs.**
7. **The sun's surface is sometimes marked with _____ , which are cooler areas on the surface.**
8. **The sun's energy comes from _____ reactions inside it, as hydrogen atoms are combined into helium atoms.**

Directions: Read the question. Write a paragraph that answers the question on the lines provided. Use a topic sentence. Be sure to end every sentence with a period.

9. **The sun is a medium sized star. That means there are many stars larger than it. If there are stars larger than the sun, why does the sun appear to be the biggest, brightest object in the sky?**

_____

_____

_____

_____

STOP

Name_____ Date_____

Grade 5

Directions: Choose terms from the Word Bank below to complete the chart.

Word Bank

made from rock, covered with water, has polar ice caps, has a dusty red surface, has two moons, has one moon

1. Earth	2. Mars

Directions: Read the questions. Choose the truest possible answer. Color in the circle before your choice.

3. The solar system includes _____ .

- (A) the sun, planetary objects, moons, asteroids, and comets
- (B) the sun but not planetary objects, moons, asteroids, or comets
- (C) planetary objects, moons, asteroids, and comets, but not the sun
- (D) the sun and the planetary objects but not the comets, asteroids, or moons

4. An example of a dwarf planet would be _____ .

- (F) Neptune
- (G) Mars
- (H) Mercury
- (J) Pluto

5. What feature do all the inner planets have in common?

- (A) They are rocky.
- (B) They are very hot.
- (C) They have moons.
- (D) They lack atmospheres.

6. List the inner planets in order from nearest the sun to farthest away.

- (F) Mars, Earth, Venus, Mercury
- (G) Mercury, Mars, Earth, Venus
- (H) Mercury, Venus, Earth, Mars
- (J) Venus, Mars, Earth, Mercury

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. The outer planets are _____ .

- (A) Mars, Saturn, Neptune, Uranus, Pluto
- (B) Earth, Mars, Jupiter, Saturn, Neptune
- (C) Mars, Jupiter, Saturn, Uranus, Neptune
- (D) Jupiter, Saturn, Uranus, Neptune, Pluto (dwarf planet)

2. What is the largest planet in our solar system?

- (F) Mercury
- (G) Earth
- (H) Jupiter
- (J) the sun

3. Jupiter, Uranus, Neptune and Saturn are sometimes called gas giants. Why?

- (A) because they are made up mostly of gases
- (B) because they have no atmospheres to speak of
- (C) because they are covered in multicolored clouds
- (D) because they are very light and have low gravity

4. Which outer planets have rings?

- (F) Jupiter
- (G) Saturn
- (H) Uranus and Neptune
- (J) all of the above

Directions: Read each question. Write a short answer to each one on the lines provided.

5. Scientists have always debated whether Pluto was really a planet. In August of 2006, scientists redefined Pluto as a dwarf planet. A dwarf planet differs from a planet because the orbit around it is not clear of celestial bodies. There is continued controversy about Pluto and this definition. Explain why Pluto's definition could change again.

_____

_____

_____

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. A solar system is _____ .

- (A) a large object that orbits the Sun
- (B) a cluster of planets that have no moons
- (C) the thick atmosphere that presses down on the planets
- (D) a group of objects in space that move around a central star

2. Our solar system includes _____ _____ , planets and small solar system bodies.

- (F) east planets
- (G) west planets
- (H) gassy rocks
- (J) dwarf planets

3. One hypothesis to explain what asteroids really are is _____ .

- (A) stars that have stopped burning
- (B) bits of light reflected off of the Sun
- (C) pieces of a planet that never formed
- (D) smaller planets that have not been identified

4. A comet _____ .

- (F) is a ball of gas right next to Pluto
- (G) will dissolve if it travels too close to the sun
- (H) takes about seven days to complete one rotation
- (J) is a small mass of dust and ice that orbits the sun

5. What is it called when the moon covers the sun?

- (A) comet
- (B) eclipse
- (C) shadow
- (D) asteroid

6. Why do comets seem to have tails?

- (F) it is an optical illusion
- (G) because they are close to asteroids
- (H) they emit vapor when they are close to the sun
- (J) they break apart after several rotations around the moon

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. What is a star?

- (A) a section of a constellation
- (B) an object that slowly orbits the sun
- (C) a group of bright objects
- (D) a ball of gas that gives off heat and light

2. Stars consist mostly of what gases?

- (F) hydrogen and helium
- (G) helium and nitrogen
- (H) hydrogen and oxygen
- (J) helium and neon

3. You can tell how hot a star is by its _____ .

- (A) size
- (B) color
- (C) mass
- (D) shape

4. Stars form in nebulas, which are _____ .

- (F) remnants of a former star
- (G) clouds of gas and dust
- (H) places at the galaxy's center
- (J) none of the above

5. The largest stars are called _____ .

- (A) main sequence stars
- (B) giant stars
- (C) supergiants
- (D) protostars

6. When a massive star explodes, it is called a _____ .

- (F) sun
- (G) nebula
- (H) supernova
- (J) supergiant

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. What are constellations?

- (A) meteors that orbit the sun
- (B) natural groupings of stars
- (C) a comet's gases and vapors
- (D) distinctive patterns of stars

2. Why is it possible to see Orion in the night sky during winter, but not during summer?

- (F) The earth's nighttime side faces Orion during the winter, and Earth's daytime side faces Orion during the summer.
- (G) The earth tilts on its axis as the seasons change so the North Pole is facing away from Orion during summer.
- (H) During summer, the earth faces only the moon and not any constellations.
- (J) none of the above

3. If a galaxy is 3 billion light-years away, how long does it take its light to reach Earth?

- (A) 1 billion years
- (B) 3 billion years
- (C) 6 billion years
- (D) 12 billion years

4. What is the name of our galaxy?

- (J) the Great Starway
- (G) Orion's Belt
- (H) the Milky Way
- (F) the Galileo

5. Galaxies are made up of _____ .

- (A) superclusters
- (B) many solar systems
- (C) pinwheels
- (D) gases

6. What shape is our galaxy?

- (F) spiral
- (G) elliptical
- (H) repeating
- (J) irregular

STOP

Name_____ Date_____

Grade 5

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

1. The _____ changes as time passes.

- (A) land
- (B) ocean life
- (C) atmosphere
- (D) all of the above

2. Which of the following gives us evidence that the earth has changed?

- (F) rocks
- (G) fossils
- (H) radioactive decay
- (J) all of the above

3. The largest division of geologic time is the _____ .

- (A) year
- (B) period
- (C) era
- (D) eon

4. According to the geologic time scale, which life form first appeared on the earth?

- (F) stromatolites
- (G) mammals
- (H) birds
- (J) spiders

Directions: Read the text below. Use information from it and from the diagram to answer questions 5–7.

In geology, older rocks are usually located below younger rocks, in layers called strata. Sometimes, rock strata are intruded on by a flow of molten rock that then solidifies.

5. Which is the oldest rock layer in the diagram?

_____

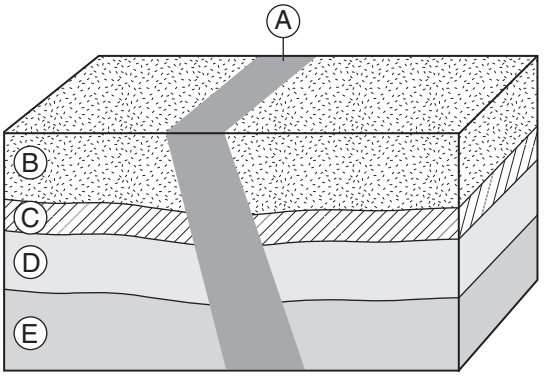
6. Which rock layer is the youngest?

_____

7. Tell the order in which these rock strata formed.

_____

_____



STOP

Name_____ Date_____

Grade 5 Posttest

Directions: Use the information below to answer questions 1–3.

Jamal and Keisha are lab partners. They have made an electromagnet out of wire, a nail, and a battery. They performed an experiment to find out if an electromagnet will get stronger if they wrap more coils of wire around the nail. They counted the number of steel washers their electromagnet attracted from a pile each time they increased the number of coils of wire by five. Their results are in the table below.

Number of Coils of Wire	Number of Washers Attracted
5	0
10	3
15	5
20	7
25	9
30	10

1. The idea that the electromagnet will increase in strength if it has more coils of wire is the _____ .

(A) observation
(B) hypothesis
(C) experiment
(D) conclusion

2. Which of the following is the variable in this experiment?

(F) the battery
(G) the washers
(H) the number of wire coils
(J) the nail

3. Which of the following is a safe laboratory practice for Jamal and Keisha's experiment?

(A) wrapping the wire around their fingers
(B) pointing the nail toward their faces
(C) scraping the battery with the nail
(D) wearing insulated gloves while handling the battery and wire

GO ON

Name_____ Date_____

Grade 5 Posttest

Directions: Read the questions. Choose the truest possible answer. Shade in the circle before your choice.

4. The smallest particle of an element that still retains the properties of that element is called a(n) _____ .

- (F) nucleus
- (G) molecule
- (H) atom
- (J) compound

5. An environment where an organism naturally lives is its _____ .

- (A) climate
- (B) ecosystem
- (C) habitat
- (D) population

6 Inherited traits that help an organism survive in its environment are called _____ .

- (F) adaptations
- (G) genes
- (H) habitats
- (J) mass extinctions

7. The structural unit of all plants and animals is called the _____ .

- (A) cell
- (B) chloroplast
- (C) nucleus
- (D) organelle

8. What do all the inner planets of our solar system have in common?

- (F) They are relatively small and rocky.
- (G) They are large and gaseous.
- (H) They each have several moons.
- (J) They have liquid water on their surfaces.

9. When you carry out a test of your hypothesis to find out whether it is true or false, which part of the scientific method are you applying?

- (A) observing an event
- (B) asking a question
- (C) performing an experiment
- (D) making a conclusion

Name_____ Date_____

Grade 5 Posttest

10. Two accurate thermometers are side by side. If the Fahrenheit thermometer reads 212 degrees, what does the Celsius thermometer read?

(F) 0°
(G) 32°
(H) 100°
(J) 312°

11. Parts of the earth receive different amounts of sunlight throughout the year, giving rise to the seasons, because the _____ .

(A) distance between the earth and the sun varies
(B) northern hemisphere has more land
(C) north and south poles reflect sunlight
(D) The earth is tilted on its axis

12. The thinnest layer of the earth is the _____ .

(F) crust
(G) mantle
(H) outer core
(J) inner core

13. Newton's Second Law of Motion describes a force (F) as _____ .

(A) distance divided by time
(B) mass times acceleration
(C) acceleration divided by distance
(D) acceleration times distance

14. Which of the following is a nonrenewable resource?

(F) sunlight
(G) coal
(H) wind
(J) water

15. When an apple falls from a tree, which of the following occurs?

(A) Electromagnetic energy is transformed into gravity.
(B) Mechanical energy is transformed into radiation.
(C) Kinetic energy is transformed into potential energy.
(D) Potential energy is transformed into kinetic energy.

Directions: Read the question. Write your answer on the lines provided.

16. What is thermal energy?

_____

_____

GO ON

Name_____ Date_____

Grade 5 Posttest

Directions: Read each question. Write a paragraph that answers each one on the lines provided. Use a topic sentence. Be sure to end every sentence with a period.

17. Explain the difference between a climate and a biome.

_____

_____

_____

_____

_____

_____

_____

18. Explain why the climate on one side of a mountain range might be damp while the climate of the area on the other side of the mountain is dry.

_____

_____

_____

_____

_____

STOP

Name_____ Date_____

Grade 5 Posttest

Directions: Read each question. Write a paragraph that answers each one on the lines provided. Use a topic sentence. Be sure to end every sentence with a period.

19. What is the difference between a substance's physical properties and its chemical properties? Give at least one example of each type of property.

_____

_____

_____

_____

_____

20. Explain the difference between acquired traits and inherited traits. Give an example of each type of trait.

_____

_____

_____

_____

_____

STOP

Page 9 Pretest
Example: B
1. B
2. F
3. C

Page 10 Pretest
4. J
5. A
6. G
7. B
8. G
9. B
10. J

Page 11 Pretest
11. Answers should include any two of the following: a lack of plants, which would hold the dirt with their roots; there has been a lot of rainfall and the rain has speeded up erosion; the hill is very steep and bare so the soil erodes easily; the soil is dry and the wind blows it away.
12. Answer should indicate that after trees are cut down, they will grow back, although some species of tree grow back more quickly than others do.
13. The plant is growing toward the source of sunlight.
14. Because the plants and animals in an ecosystem depend on each other, if one species disappears it will have an effect on all the other living things.

Page 12 Pretest
15. The temperature in a temperate deciduous forest never gets extremely hot or extremely cold. These forests get between 2 to 5 feet of precipitation every year, both as rain and snow. Among the plants in this forest are rhododendrons, and deciduous trees such as oak, maple, or aspen, which shed their leaves in the fall. The fallen leaves decay and enrich the soil as humus. Animals that live in such a forest include many species of birds, including woodpeckers and songbirds; mammals such as fox, deer, and mice; reptiles such as snakes; and amphibians such as frogs and newts.
16. Answers will vary, but should indicate that the student has thought about the problem creatively and developed a logical and reasonable solution in the form of an invention.
17. Answers should describe the cell wall or chloroplast.

Page 14
1. A
2. H
3. C
4. J
5. D
6. J

Page 15
1. C
2. J
3. A
4. G
5. C

Page 16
1. B
2. H
3. B

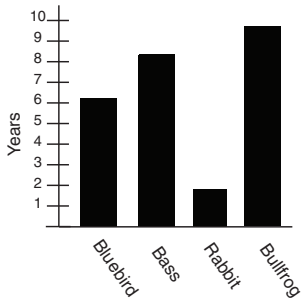
Page 17
1. C
2. F
3. D
4. H
5. D
6. G

Page 18
Example: B
1. D
2. H
3. C

Page 19
1. A
2. G
3. D
4. G
5. A

Page 20
1. A
2. J
3. D
4. G

Page 21
1. B
2. J
3.



Page 23
1. Chimps looked a lot like humans.
2. Chimps are like humans in many ways.
3. Goodall's hypothesis was correct. She thought chimps were like humans, and she found evidence that showed similarities between chimps and humans. For example, she discovered that chimps make and use tools.
4. J
5. She saw how they treated one another differently.
6. Chimps are smart like humans.
7. C

Page 25
1. A: neutron
   B: electron
   C: proton
   D: nucleus
2. J
3. C
4. F
5. C

Page 26
1. C
2. H
3. A
4. G
5. C
6. G

Page 27
1. A
2. G
3. The noble gases are found in the same group on the periodic table and so react similarly.

Page 28
1. D
2. H
3. diagram A
5. diagram C
6. Answers should indicate a liquid, such as water or lemonade.

Page 29
1. C
2. F
3. B
4. G

Page 30
1. D
2. F
3. B
4. J

Page 31
1. A
2. J
3. A

4. G
5. D

Page 32
1. A
2. J
3. D
4. G
5. A

Page 33
1. D
2. F
3. B
4. H

Page 34
1. A
2. J
3. B
4. H
5. In a series circuit there is only one path for the electric current to flow. It flows from one light bulb to the next through the wire connecting them. When a light bulb is removed, the current stops flowing. In a parallel circuit the electric current can flow through more than one pathway. If a light bulb is removed, the pathways for the remaining two light bulbs are still intact and therefore they remain lit.

Page 35
1. C
2. G
3. D
4. F
5. If a wire with an electric current flowing through it is looped around an iron nail, the electric current causes the magnetic fields of the atoms in the nail to align in the same direction. The alignment of these magnetic fields causes the nail to be magnetized. The nail will remain magnetized as long as the electric current passes through the wire. If the electric current stops flowing, the magnetic fields of the atoms cease to align, and the nail ceases to be magnetic.

Page 36
1. D
2. G
3. C
4. G
5. C
6. F

Page 37
1. A
2. H
3. D
4. H
5. B
6. H

Page 38
1. D
2. G
3. B
4. H
5. The amount of work done equals force times distance (W = Fd). If an object is lifted straight up from the ground, the distance is less than if the same object were moved along a ramp. Since the amount of work (W) done is the same in either case, and the distance (d) has increased when a ramp is used, the amount of force (F) needed to move the object must decrease when the ramp is used.

Page 40
1. B
2. H
3. C
4. G
5. Answers should include three of the following: all organisms are made of one or more cells; the cell is the unit of structure and organization of all living things, all cells come from other cells through cellular division; all cells are very similar in chemical composition; cells carry genetic material that is passed from cell to cell during cellular division; there is energy flow within the cell.

Page 41
1. B
2. G
3. A
4. F
5. D
6. Yes; some living things, such as bacteria and protists, are made up on only one cell. The parts of the cell carry out all the functions needed to support life.

Page 42
1. B
2. G
3. A
4. epithelial
5. connective
6. muscle
7. nervous

Page 43
1. B
2. H
3. B
4. G
5. Possible answer: The tissues of the eye have structures that suit the functions they perform. Without these specialized structures, the eye would not work properly. For example, if the cornea's tissue were not clear, then light could not enter the eye. If the iris's tissue could not contract, there would be no way to control how much light entered the eye. Without the light-gathering cells of the retina, the eye would not be able to pick up images.

Page 44
1. C
2. F
3. C
4. F
5. D
6. J

Page 45
1. C
2. H
3. B
4. G
5. stamen
6. petal
7. pistil

Page 46
1. B
2. F
3. C
4. G
5. Bats are mammals; they have fur and feed milk to their offspring.
6. Flight allows birds to escape predators and to reach food that other animals cannot get to.

Page 48
1. A
2. G
3. The nervous system affects your respiratory system when you get nervous and breathe faster than usual. Your muscular system affects your circulatory system when you use your muscles it warms the body and helps your circulatory system pump blood quickly through the body.
4. The digestive system obtains nutrients for food that all body cells need.

Page 49
1. B

2. J
3. B
4. H

Page 50
1. B
2. H
3. A
4. F
5. Andrea will not know how to play the piano unless someone teaches her. Playing the piano is a learned behavior, not an inherited trait.

Page 51
1. D
2. G
3. B
4. J
5. They may provide food. They can be used for shelter.
6. Answers should show an understanding that plants and animals are living parts of ecosystems, and sun, air, water, soil, etc. are nonliving parts.

Page 52
1. D
2. J
3. B
4. J
5. C
6. H
7. A

Page 53
1. D
2. G
3. D
4. F
5. Mice
6. The populations of deer, mice, raccoons, and skunks would drop as the wolves would need more food to sustain their growing numbers.

Page 54
1. A
2. F
3. B
4. J
5. D
6. F

Page 55
1. The lava from a volcano might kill an animal population. The lava and ash might kill the plants on which the animals feed.
2. It could knock trees over, which would affect the shelter and food supplies of some species.
3. Answers include: Acid rain can make water sources poisonous to animals and humans. Acid rain can kill plants which animals use for food.
4. Answers include: flooding, landslides, lightning hitting a tree
5. The organisms that were dependent on other species for food may have to find another food supply, while others may have to find new shelter.

Page 56
1. A
2. H
3. C
4. F
5. C
6. H

Page 57
1. An adaptation is a structure or function that helps a living thing survive in its environment.
2. Birds have strong but hollow bones that are very light. Birds have wings and feathers that allow them to take off, soar, and land. Birds have beaks instead of tooth-filled jaws, which would be much heavier. Birds have air sacs within their bodies that make them light. Birds have strong pectoral muscles to move their wings.
3. Because a fish presents a relatively small surface to the water that it is moving through, it encounters less resistance from the water. A larger surface, modeled by the palm-forward movement, takes more effort to move. By being narrow, a fish doesn't need to expend a great deal of energy in its forward movement.

Page 58
1. A
2. F
3. A
4. F
5. The hummingbird's long tongue helps it to feed on the nectar of deep throated plants.

Page 59
1. B
2. F
3. Prairie grasses have long roots so that when a fire occurs, they are able to grow again.
4. Maple trees have broad leaves, which receive much sun during the summer, allowing them to produce enough sugars to last the winter. Therefore, during the winter, they do not need leaves to produce sugars for survival.

Page 60
1. A
2. J
3. D
4. G
5. C
6. F

Page 61
1. C
2. F
3. B
4. J
5. A
6. J
7. C

Page 63
1. B
2. J
3. D
4. H
5. A
6. The steepest places are where the contour lines are closest together.

Page 64
1. C
2. H
3. D
4. J

Page 65
1. D
2. F
3. D
4. G

Page 66
1. A
2. H
3. B
4. F
5. D
6. J
7. A

Page 67
1. D
2. G
3. D
4. J
5. The soil in a mudslide is soaked with water, and that in a landslide is not.
6. Answers will vary. Possible answer: Their homes might be damaged.

Page 68
1. weathering
2. erosion

3. deposition
4. D
5. J
6. A
7. G

Page 69
1. Igneous rock is broken down into sediments by weathering and transported by erosion. After being deposited, the sediments are buried under layer upon layer of sediment and eventually are compressed and cemented together into sedimentary rock.
2. If metamorphic rock is melted, as it would be if it were part of a tectonic plate that subsides under another plate, it will become magma. When the magma comes back to the surface and cools, it will form igneous rock.
3. The rock cycle does not have an endpoint; the different types of rock can be formed and reformed over and over again.

Page 70
1. C
2. J
3. D
4. H
5. D
6. G

Page 71
1. B
2. H
3. D
4. F
5. D
6. J

Page 72
1. All organisms use water to survive.
2. Answers include: Plants seep up water from the soil. Many animals drink from streams. Some animals get water from their food.
3. D
4. J
5. B
6. F

Page 73
1. C
2. H
3. C
4. F
5. D

Page 74
1. C
2. F
3. B
4. H

Page 75
1. C
2. G
3. D
4. G
5. A
6. H

Page 76
1. A
2. F
3. C
4. F
5. Answers should show an understanding that heat makes water on the earth's surface evaporate and rise as water vapor, and that the water vapor cools and condenses to form clouds.

Page 77
1. A
2. J
3. C
4. J
5. C
6. F

Page 78
1. A
2. G
3. A
4. J
5. nekton
6. abyssal plain
7. ooze
8. plankton
9. manganese nodules
10. undersea canyon

Page 79
1. B
2. G
3. D
4. H
5. A
6. Becky should go during low tide because she will be able to see more of the shore.

Page 80
1. sun
2. gravity
3. solar system
4. star
5. heat, light
6. solar eclipse
7. sunspots
8. fusion
9. Answers include: The sun may be only a medium-sized star, but it is the earth's star. It is the star that is closest to our planet. Because the sun is so much closer to us than any other star is, it appears much bigger and brighter than any other star.

Page 81
1. Earth: made from rock; covered with water; has polar ice caps; has one moon
2. Mars: made from rock; has a dusty red surface; has polar ice caps; has two moons
3. A
4. J
5. A
6. H

Page 82
1. D
2. H
3. A
4. J
5. Answers will vary, but should refer to new technological advances and discoveries.
6. about 18 billion km

Page 83
1. D
2. J
3. C
4. J
5. B
6. H

Page 84
1. D
2. F
3. B
4. G
5. C
6. H

Page 85
1. D
2. F
3. B
4. H
5. B
6. F

Page 86
1. D
2. J
3. D
4. F
5. layer E
6. layer A
7. layer E, layer D, layer C, layer B, layer A

Page 87 Posttest
1. B
2. H
3. D

Page 88 Posttest

4. H
5. C
6. F
7. A
8. F
9. C

Page 89 Posttest

10. H
11. D
12. F
13. B
14. G
15. D
16. Thermal energy is the total kinetic energy of a substance. It can be felt as heat.

Page 90 Posttest

17. A biome is a group of similar ecosystems that covers a large area of the earth. Biomes include the living (plants and animals) and nonliving (geographical features, such as bodies of water, rocks, mountains) things found in it. A climate is used to describe the weather generally found over a large region of the earth. Climates are usually described as either wet or dry.
18. As air carrying moisture approaches a mountain, the mountainside forces the air to rise to a higher altitude. Air at the higher altitude is colder than at the lower altitude, and colder air can hold less moisture. This causes precipitation, or rain, on one side of the mountain. As the air continues to move over the mountain, it has released most of its moisture on the windward side of the mountain. This leaves little or no water to fall on the lee side.

Page 91 Posttest

19. A physical property is one that can be observed or measured. Color, texture, length, and density are all physical properties. A chemical property describes a substance's ability to change its arrangement of atoms or molecules. An example of a chemical property of water is its ability to break down into hydrogen and oxygen.
20. An acquired trait is a characteristic that an organism develops after it is born. Acquired traits are not controlled by genes. They may be learned behaviors, (for example, a physical skill such as riding a bicycle) or they may be a physical characteristic, such as a person's hairstyle. An inherited trait is a characteristic that a parent passes on to its offspring. Inherited traits, such as eye color or height, are controlled by genes.