





**COMMON CORE**  
**SCIENCE**  
*4 Today*  
**Daily  
Skill Practice**

**Grade 5**

**Carson-Dellosa Publishing, LLC**  
**Greensboro, North Carolina**

## Credits

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## Table of Contents

Introduction .....	4	Week 21: Energy in Ecosystems.....	49
Common Core State Standards Alignment Matrix.....	5	Week 22: Populations.....	51
<b>Science as Inquiry</b>		Week 23: Cycles in Nature .....	53
Week 1: Science Process Skills.....	9	Week 24: Body Systems.....	55
Week 2: Measurement and Graphic Aids.....	11	Week 25: Healthful Lifestyles.....	57
Week 3: Experiments.....	13	<b>Earth and Space Science</b>	
Week 4: Variables.....	15	Week 26: The Atmosphere .....	59
Week 5: Evidence .....	17	Week 27: Earth's Water .....	61
<b>Physical Science</b>		Week 28: Weather .....	63
Week 6: Atoms and Elements.....	19	Week 29: Climate.....	65
Week 7: Properties of Matter.....	21	Week 30: Changes on Earth .....	67
Week 8: Changes in Matter .....	23	Week 31: Earth and the Moon.....	69
Week 9: Motion and Forces .....	25	Week 32: The Solar System .....	71
Week 10: Energy .....	27	<b>Science and Technology</b>	
Week 11: Electricity .....	29	Week 33: Engineering.....	73
Week 12: Sound.....	31	<b>Science in Personal and Social Perspectives</b>	
Week 13: Light .....	33	Week 34: Resources .....	75
<b>Life Science</b>		Week 35: Human Impact .....	77
Week 14: Cells .....	35	Week 36: Pollution.....	79
Week 15: Systems of Organisms.....	37	Week 37: Earth-Friendly Practices.....	81
Week 16: Plants .....	39	Week 38: Alternative Energy .....	83
Week 17: Heredity and Reproduction.....	41	Week 39: History and Science.....	85
Week 18: Adaptations .....	43	Week 40: Science in Careers .....	87
Week 19: Animal Behavior .....	45	Answer Key .....	89
Week 20: Ecosystems.....	47		

# Introduction

*Common Core Science 4 Today* is a perfect supplement to any classroom science curriculum. Students' science skills will grow as they support their knowledge of science topics with a variety of engaging activities.

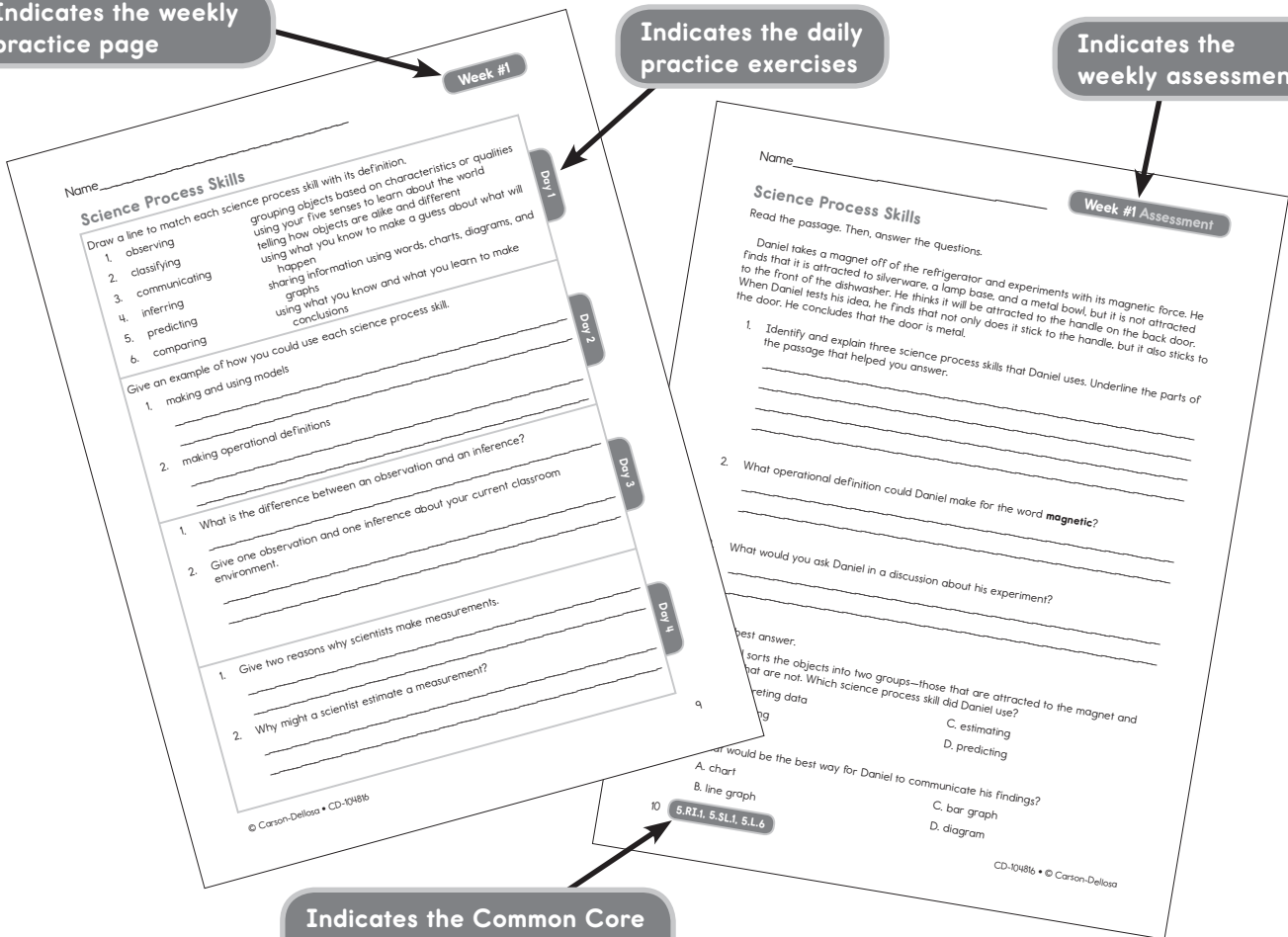
This book covers 40 weeks of daily practice. You may choose to work on the topics in the order presented or choose the topic that best reinforces your science curriculum for that week. During the course of four days, students take about 10 minutes to complete questions and activities focused on a science topic. On the fifth day, students complete a short assessment on the topic.

Various skills and concepts in math and English language arts are reinforced throughout the book through activities that align to the Common Core State Standards. Because of the nature of the Speaking and Listening standards, classroom time constraints, and the format of the book, students may be asked to record verbal responses. You may wish to have students share their answers as time allows. To view these standards, please see the Common Core State Standards Alignment Matrix on pages 5 to 8.

Indicates the weekly practice page

Indicates the daily practice exercises

Indicates the weekly assessment



Indicates the Common Core State Standards covered in the daily practice exercises and the weekly assessment

# Common Core State Standards Alignment Matrix

## English Language Arts

STANDARD	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20
5.RI.1	●														●				●	
5.RI.2																				
5.RI.3							●								●			●		
5.RI.4															●		●			
5.RI.5																				
5.RI.6								●												
5.RI.7																●				
5.RI.8																				
5.RI.9												●								
5.RI.10															●		●	●	●	
5.W.1			●		●									●	●			●	●	
5.W.2						●				●		●			●		●	●		●
5.W.3																				
5.W.4																				
5.W.5																				
5.W.6																				
5.W.7																				
5.W.8										●		●						●		
5.W.9																				
5.W.10			●																	
5.SL.1	●		●	●	●	●		●	●		●		●							●
5.SL.2																				
5.SL.3																				
5.SL.4																				
5.SL.5		●				●				●			●			●				
5.SL.6																				
5.L.4						●											●			
5.L.6	●	●		●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●

W = Week

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# Common Core State Standards Alignment Matrix

## English Language Arts

STANDARD	W21	W22	W23	W24	W25	W26	W27	W28	W29	W30	W31	W32	W33	W34	W35	W36	W37	W38	W39	W40	
5.RI.1												●	●		●				●		
5.RI.2																					
5.RI.3	●	●	●	●				●		●	●									●	
5.RI.4							●														
5.RI.5																					
5.RI.6																					
5.RI.7																					
5.RI.8																					
5.RI.9																					
5.RI.10							●					●	●		●					●	
5.W.1				●		●	●					●		●	●	●	●	●	●	●	●
5.W.2	●		●			●					●						●				●
5.W.3						●		●													
5.W.4																					
5.W.5																					
5.W.6																					
5.W.7																					
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5.W.9																					
5.W.10																					
5.SL.1								●		●		●		●	●	●					
5.SL.2																					
5.SL.3																					
5.SL.4					●				●	●											
5.SL.5	●	●		●		●					●										
5.SL.6																					
5.L.4							●			●									●		●
5.L.6	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●			

W = Week

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# Common Core State Standards Alignment Matrix

## Math

STANDARD	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W15	W16	W17	W18	W19	W20
5.OA.A.1																				
5.OA.A.2																				
5.OA.B.3														•						
5.NBT.A.1																				
5.NBT.A.2										•										
5.NBT.A.3							•													
5.NBT.A.4																				
5.NBT.B.5												•								
5.NBT.B.6								•			•	•							•	
5.NBT.B.7								•								•				
5.NF.A.1																				
5.NF.A.2																				
5.NF.B.3																				
5.NF.B.4																	•			
5.NF.B.5																				
5.NF.B.6																				
5.NF.B.7												•								
5.MD.A.1														•						
5.MD.B.2		•																		
5.MD.C.3																				
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5.G.A.2																				
5.G.B.3																				
5.G.B.4																				

W = Week

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# Common Core State Standards Alignment Matrix

## Math

STANDARD	W21	W22	W23	W24	W25	W26	W27	W28	W29	W30	W31	W32	W33	W34	W35	W36	W37	W38	W39	W40
5.OA.A.1									●											
5.OA.A.2									●											
5.OA.B.3																				
5.NBT.A.1																				
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5.NBT.A.3						●														
5.NBT.A.4																				
5.NBT.B.5															●			●		
5.NBT.B.6																●	●			
5.NBT.B.7					●	●								●			●			
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5.NF.B.4		●									●						●			
5.NF.B.5																				
5.NF.B.6																	●			
5.NF.B.7																				
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5.MD.C.5														●						
5.G.A.1																				
5.G.A.2																				
5.G.B.3																				
5.G.B.4																				

W = Week

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Name \_\_\_\_\_

## Science Process Skills

Draw a line to match each science process skill with its definition.

- |                  |   |
|------------------|---|
| 1. observing     | grouping objects based on characteristics or qualities        |
| 2. classifying   | using your five senses to learn about the world               |
| 3. communicating | telling how objects are alike and different                   |
| 4. inferring     | using what you know to make a guess about what will happen    |
| 5. predicting    | sharing information using words, charts, diagrams, and graphs |
| 6. comparing     | using what you know and what you learn to make conclusions    |

Day 1

Give an example of how you could use each science process skill.

1. making and using models

---



---

2. making operational definitions

---



---

Day 2

1. What is the difference between an observation and an inference?

---

2. Give one observation and one inference about your current classroom environment.

---



---

Day 3

1. Give two reasons why scientists make measurements.

---



---

2. Why might a scientist estimate a measurement?

---



---

Day 4

Name \_\_\_\_\_

## Science Process Skills

Read the passage. Then, answer the questions.

Daniel takes a magnet off of the refrigerator and experiments with its magnetic force. He finds that it is attracted to silverware, a lamp base, and a metal bowl, but it is not attracted to the front of the dishwasher. He thinks it will be attracted to the handle on the back door. When Daniel tests his idea, he finds that not only does it stick to the handle, but it also sticks to the door. He concludes that the door is metal.

1. Identify and explain three science process skills that Daniel uses. Underline the parts of the passage that helped you answer.

---



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---

2. What operational definition could Daniel make for the word **magnetic**?

---



---

3. What would you ask Daniel in a discussion about his experiment?

---



---

Circle the best answer.

4. Daniel sorts the objects into two groups—those that are attracted to the magnet and those that are not. Which science process skill did Daniel use?

- |                      |                |
|----------------------|----------------|
| A. interpreting data | B. classifying |
| C. estimating        | D. predicting  |

5. What would be the best way for Daniel to communicate his findings?

- |              |               |
|--------------|---------------|
| A. T-chart   | B. line graph |
| C. bar graph | D. diagram    |

Name \_\_\_\_\_

## Measurement and Graphic Aids

Complete the chart to tell corresponding units used to measure each characteristic.

Characteristic	Customary Units	Metric Units
1. mass		
2. liquid capacity		
3. length		
4. distance		
5. temperature		

Day 1

1. What measurement system is used in the science community?

\_\_\_\_\_

2. Why do all scientists use this system?

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Day 2

1. Mia made a chart to show the kinds of materials in her recycling bin. What two conclusions can she make based on the data in the chart?

Material	Number of Pieces
aluminum	8
tin	2
plastics	3
glass	2
paper	5

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Day 3

1. Draw a graphic aid to show the data in the chart for a report Mia is presenting.

Day 4

Name \_\_\_\_\_

## Measurement and Graphic Aids

Answer the questions.

Carla grew 10 plants for an experiment. She measured their growth each week and recorded the data in a chart.

Week 3			
Plant	Height (cm)	Plant	Height (cm)
1	$1\frac{1}{4}$	6	$1\frac{1}{2}$
2	$1\frac{1}{4}$	7	2
3	$1\frac{3}{4}$	8	$1\frac{1}{2}$
4	$1\frac{1}{2}$	9	$1\frac{5}{8}$
5	$1\frac{1}{8}$	10	$1\frac{3}{4}$

1. Draw a line plot to show the data for the week.

2. Why is a line plot a good graphic aid to show the data?

---



---

3. What conclusion can Carla make from her data?

---



---

4. What is the average height of a three-week-old plant? To find the average, add all of the heights together and divide by the total number of plants.

Name \_\_\_\_\_

## Experiments

Write **true** or **false**.

1. \_\_\_\_\_ An experiment always tests a hypothesis.
2. \_\_\_\_\_ A scientist makes a prediction based on the results of the experiment.
3. \_\_\_\_\_ Experiments need to be controlled to make sure they are fair.
4. \_\_\_\_\_ It is important to change at least two variables during an experiment.
5. \_\_\_\_\_ All data needs to be carefully recorded during an experiment.

Day 1

1. Your partner for a science experiment wants to begin right away. You would like to read through the entire set of instructions. What would you say to your partner?

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Day 2

1. What are three safety rules that people should follow during an experiment? Write a paragraph for a public safety announcement.

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Day 3

1. Your class divides into several groups to complete the same experiment. The groups get different results. How would you explain the possible reasons for the differences?

---



---



---



---

Day 4





Name \_\_\_\_\_

## Variables

1. What is a variable?

\_\_\_\_\_

\_\_\_\_\_

2. What is the function of a variable in an experiment?

\_\_\_\_\_

\_\_\_\_\_

Day 1

Use each term in a sentence to explain its meaning.

1. dependent variable \_\_\_\_\_

\_\_\_\_\_

2. independent variable \_\_\_\_\_

\_\_\_\_\_

3. controlled variable \_\_\_\_\_

\_\_\_\_\_

Day 2

1. Mona plans to do an experiment with her dog and his food. She is going to change the amount of food and the time of day she feeds her dog to see if the changes affect how quickly he eats the meal. Explain to Mona why she should change her experiment and how.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Day 3

Drew is experimenting on a circuit. He wants to know if the size of the wire used affects battery life. Identify the variables in Drew's experiment.

1. independent variable \_\_\_\_\_

2. dependent variable \_\_\_\_\_

3. controlled variables \_\_\_\_\_

\_\_\_\_\_

Day 4

Name \_\_\_\_\_

## Variables

Identify the independent, dependent, and controlled variables for each experiment.

- Chelsea wants to test how different soil additives affect plant growth. She decides to test sand, compost, fertilizer, gypsum, and lime. She uses the same potting mix and seeds for each pot and adds two tablespoons of each additive to the soil before planting the seeds. She makes three pots with each additive. She places them all in a windowsill and waters them daily. She also measures the height of each plant daily.

A. independent variable \_\_\_\_\_

B. dependent variable \_\_\_\_\_

C. controlled variables \_\_\_\_\_

- Nick wants to experiment with how temperature affects different candies. He gathers chocolate bars, gummy bears, lollipops, and gum. He places one of each type of candy on the counter, in the freezer, and in a microwave for 30 seconds. He tests each candy for hardness, as well as any other observable changes, and records his observations.

A. independent variable \_\_\_\_\_

B. dependent variable \_\_\_\_\_

C. controlled variables \_\_\_\_\_

- Luke wants to make a better oven mitt. He plans to test different materials such as newspaper folded 2" thick, fleece, corrugated cardboard, and woven sea grass. With an adult's help, he places four metal pans in a 350° oven for 30 minutes. Then, an adult removes the pans from the oven and places each one on the materials. He places a thermometer under each material to immediately measure the amount of heat transfer. He tests the materials again at five minutes and a last time at 10 minutes.

A. independent variable \_\_\_\_\_

B. dependent variable \_\_\_\_\_

C. controlled variables \_\_\_\_\_

Name \_\_\_\_\_

## Evidence

1. What is evidence in a scientific context?

---

2. Why is evidence important in scientific inquiry?

---



---



---

Day 1

1. Pablo claims that hot water boils faster than cold water because his family has always done it that way. Explain the concept of evidence to Pablo and how it can help prove or disprove his claim.

---



---



---



---

Day 2

Scientists base their conclusions only on **empirical** evidence. Empirical evidence is based on facts and is objective, or free from opinions and biases. Write **E** for each empirical piece of evidence. Write **S** for each subjective piece of evidence.

1. \_\_\_\_ The liquid maintained a temperature of 20°C.
2. \_\_\_\_ Fourteen of the 30 pill bugs ate sample A.
3. \_\_\_\_ The dogs that wore scented collars were better behaved.
4. \_\_\_\_ The clothes washed in detergent C were the cleanest.
5. \_\_\_\_ Using a shorter wire in the circuit had no effect on the volume of the buzzer.

Day 3

1. How are evidence and conclusions related?

---



---

2. What role does evidence play in repeating experiments?

---



---

Day 4

Name \_\_\_\_\_

## Evidence

Give an example of empirical evidence that can be collected for each experiment.

1. Does the thickness of the wire affect the flow of electricity in circuits?

---



---

2. How much water does moss contain?

---



---

3. Can people tell the difference between sugar and artificial sweeteners?

---



---

4. Does the age of a bag of microwave popcorn affect how much popcorn it produces?

---



---

Answer the question.

5. Write a paragraph to explain your opinion on the role of evidence in the scientific community.

---



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Name \_\_\_\_\_

## Atoms and Elements

Write a word to correctly complete each sentence.

- \_\_\_\_\_ is anything that has mass and takes up space.
- The \_\_\_\_\_ is the building block of matter.
- The smallest particle of matter is the \_\_\_\_\_.
- The \_\_\_\_\_ table lists all of the elements.
- A \_\_\_\_\_ is a group of atoms bonded together.

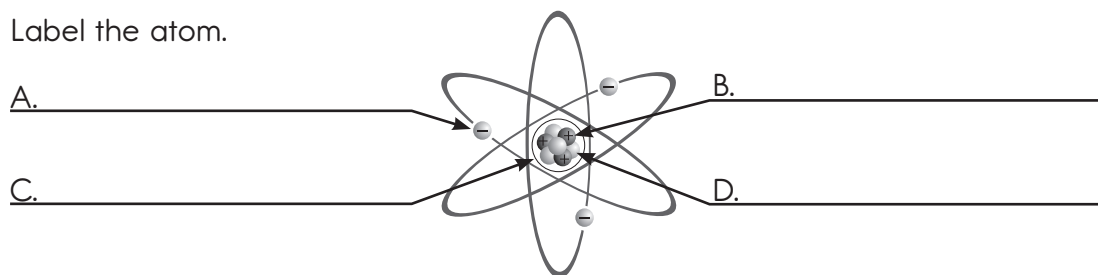
Day 1

Write **true** or **false**.

- \_\_\_\_\_ There are about 100 elements.
- \_\_\_\_\_ Heat and light can break down elements.
- \_\_\_\_\_ Elements can be combined to make different kinds of matter.
- \_\_\_\_\_ Most elements are nonmetal.
- \_\_\_\_\_ A period table groups elements by their properties and atomic numbers.

Day 2

- Label the atom.

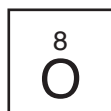


- How would this diagram enhance a report on atoms?

\_\_\_\_\_

Day 3

Look at the element from the periodic table. Then, answer the questions.



- What is the name of the element? \_\_\_\_\_
- What does the atomic number identify? \_\_\_\_\_
- How many electrons does the element have? \_\_\_\_\_
- What does the letter **O** represent? \_\_\_\_\_

Day 4

Name \_\_\_\_\_

## Atoms and Elements

Circle the best answer.

1. Which is not an element?
  - A. silver
  - B. water
  - C. iron
  - D. aluminum
  
2. How are elements arranged in the periodic table?
  - A. by the mass of the nucleus
  - B. in alphabetical order
  - C. in the order they were discovered
  - D. by the number of protons

Answer the questions.

3. Describe the particles in an atom and their charges.

---



---



---

4. If an atomic number for an element is 15, what two facts do you know?

---



---



---

5. How would you explain to a friend why elements are called the building blocks of matter?

---



---



---

Name \_\_\_\_\_

## Properties of Matter

1. What is a molecule?

---



---

2. How are molecules the same as atoms?

---



---

Day 1

1. What is a compound?

---



---

2. Give an example of a compound. Identify its parts.

---



---

Day 2

1. How is a mixture the same as and different from a solution?

---



---



---

2. Is salt water a mixture or a solution? Explain.

---



---

Day 3

Write **P** for each physical change. Write **C** for each chemical change.

1. \_\_\_\_\_ cut

2. \_\_\_\_\_ grind

3. \_\_\_\_\_ burn

4. \_\_\_\_\_ tear

5. \_\_\_\_\_ bake

6. \_\_\_\_\_ tarnish

7. \_\_\_\_\_ melt

8. \_\_\_\_\_ rust

9. \_\_\_\_\_ digest

10. Give another example of each type of change.

---

Day 4

Name \_\_\_\_\_

## Properties of Matter

Answer the questions.

1. A green banana turns yellow as it ripens. What kind of change is taking place?

---



---

2. What are two ways to separate a compound?

---



---

3. Give an example of a mixture. Explain how you know that it is a mixture.

---



---

4. Nora has three solutions that are 1 L each. Solution A has a 0.6 concentration of salt. Solution B has a 0.63 concentration of salt. Which solution has the greater concentration? \_\_\_\_\_

Circle the best answer.

5. What is lemonade?

- A. a molecule
- B. a compound
- C. an element
- D. a solution

6. Which is not a physical property?

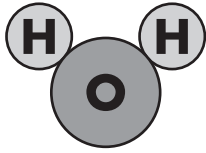
- A. color
- B. texture
- C. elasticity
- D. reaction to heat



Name \_\_\_\_\_

## Changes in Matter

1. Use the words in the word bank to help you explain the diagram.



atoms	compound	molecule
-------	----------	----------

---



---



---

Day 1

1. What is a physical change? Give three examples.

---



---

2. What is a chemical change? Give three examples.

---



---

Day 2

1. How is a mixture similar to and different from a solution?

---



---

2. Kyle does not understand if salt water is a mixture or a solution. How would you explain it to him?

---



---

Day 3

1. Rust is a compound that occurs when the elements iron and oxygen combine. Do they create a physical or a chemical change?

---

2. Describe what happens when iron and oxygen combine. Can the change be reversed?

---



---

Day 4

Name \_\_\_\_\_

## Changes in Matter

Describe how the molecules in each state of matter change as they change states. Give an example of each change.

1. solid to liquid \_\_\_\_\_  
\_\_\_\_\_
2. gas to liquid \_\_\_\_\_  
\_\_\_\_\_
3. liquid to solid \_\_\_\_\_  
\_\_\_\_\_
4. liquid to gas \_\_\_\_\_  
\_\_\_\_\_
5. solid to gas \_\_\_\_\_  
\_\_\_\_\_

Answer the questions.

6. Why are no new substances made when a mixture is formed?  
\_\_\_\_\_  
\_\_\_\_\_
7. Davis is experimenting with baking bread. He mixes his first batch for five minutes. After the bread bakes, its dimensions are 8 inches long, 4 inches wide, and 1.75 inches high. He mixes his second batch for two minutes. After it bakes, its dimensions are 8 inches long, 4 inches wide, and 3.5 inches high. Which method created more bread? How much more did it create? \_\_\_\_\_
8. What can Davis conclude about mixing times?  
\_\_\_\_\_

Circle the best answer.

9. What is true about a compound?
 

A. Every molecule is the same.	B. Most molecules are the same.
C. Each molecule is different.	D. It has one type of molecule.

Name \_\_\_\_\_

## Motion and Forces

1. What is speed?

---



---

2. Mrs. Chang drives 150 kilometers in 2 hours. What is her speed? Explain how you found the answer.

---



---

Day 1

Write a word to correctly complete each sentence.

1. The tendency for an object to stay at rest or in motion is called \_\_\_\_\_.

2. A \_\_\_\_\_ can make something move or cause it to stop.

3. The pull of \_\_\_\_\_ is weaker when two objects are farther apart.

4. The measure of speed in a certain direction is called \_\_\_\_\_.

5. When a car \_\_\_\_\_, its rate of speed changes.

Day 2

1. Why do road crews spread sand on icy roads?

---



---

2. How do professional bicycle riders reduce friction? Name two ways.

---



---

Day 3

1. What is friction?

---



---

2. Your class is discussing reducing friction. Name three ways to reduce friction.

---



---

Day 4

Name \_\_\_\_\_

## Motion and Forces

Ben and his little sister Claire are riding in the car when their mom has to stop suddenly. Ben faces forward, and Claire's car seat faces the back of the car, so they feel the stop differently. Read their accounts of the stop. Then, answer the questions.

Ben: I was looking out the window when mom hit the brakes suddenly. My head went forward, and the seat belt was very tight across my chest. It hurt a little! Then, I fell back against the seat, and my head bumped the headrest. It was as if someone pushed me back.

Claire: Mom stopped fast. It felt as if someone pushed me hard. I could not move my head to see Ben. Then, it stopped pushing. My head moved up. I could see Ben again.

1. How are their accounts similar and different? Why do you think this is?

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2. What forces were affecting Ben and Claire?

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Circle the best answer.

3. What happens when two balls of different masses are dropped from the same height?

- |   |                                    |
|---|------------------------------------|
| A. Gravity pulls them close together.     | B. Their speed is different.       |
| C. The larger ball hits the ground first. | D. Their acceleration is the same. |

4. Which surface provides the greatest amount of friction?

- |          |             |
|----------|-------------|
| A. ice   | B. pebbles  |
| C. grass | D. concrete |

5. What force pulls objects together?

- |             |                   |
|-------------|-------------------|
| A. mass     | B. gravity        |
| C. reaction | D. air resistance |

Name \_\_\_\_\_

# Energy

Write the name of the type of energy described in each sentence.

1. The food Roberto eats powers his body. \_\_\_\_\_
2. A technician X-rays a bone to see if it is broken. \_\_\_\_\_
3. Greg turns on a lamp to read. \_\_\_\_\_
4. All of the ice in a glass melts. \_\_\_\_\_
5. A power plant uses uranium to split atoms, which supply electric energy.  
\_\_\_\_\_
6. Keisha takes her dog for a walk. \_\_\_\_\_

Day 1

1. Think about a car on a roller coaster. How is potential energy changed into kinetic energy? Use the illustration to support your explanation.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Day 2

Write **true** or **false**.

1. \_\_\_\_\_ Radar guns, used by police to catch speeding cars, work with ultraviolet rays.
2. \_\_\_\_\_ All objects give off infrared rays.
3. \_\_\_\_\_ Visible light is the only form of radiant energy you can see.
4. \_\_\_\_\_ Radio waves treat some forms of cancer.
5. \_\_\_\_\_ Some TVs use radio waves.
6. \_\_\_\_\_ Visible light can cook food.

Day 3

1. How does energy change when you turn on a lamp?

\_\_\_\_\_

\_\_\_\_\_

2. How does energy change when you eat food?

\_\_\_\_\_

\_\_\_\_\_

Day 4

Name \_\_\_\_\_

## Energy

Answer the questions.

- Write a paragraph to explain how energy is useful in the classroom. Name three different kinds of energy used and describe the use of each.

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- Give one example of each energy change.

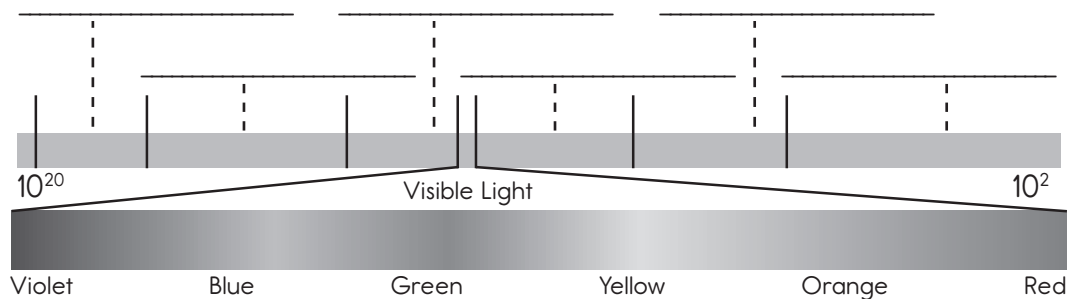
A. radiant energy to chemical energy \_\_\_\_\_

B. electric energy to mechanical energy \_\_\_\_\_

C. mechanical energy to thermal energy \_\_\_\_\_

- Use the chart of frequency ranges to complete the electromagnetic spectrum with the names of each radiation type. Visible light has been added to the diagram for you.

Radiation Type	Frequency (Hz)	Radiation Type	Frequency (Hz)
radio	$10^4$	ultraviolet rays	$10^{16}$
infrared	$10^{13}$	visible light	$10^{15}$
gamma rays	$10^{20}$	X-rays	$10^{18}$
microwaves	$10^{10}$		



- Scientists often use scientific notation to express numbers. Numbers written in scientific notation are shown as whole numbers multiplied by a power of 10. Why do you think scientists use scientific notation instead of standard form?

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Name \_\_\_\_\_

# Electricity

1. What kind of charge does the atom have? Explain.

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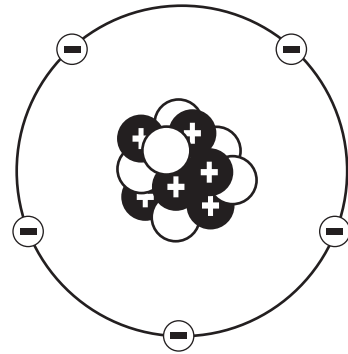
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2. What will happen to change the charge of the atom? Why?

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Day 1

1. How do charges between the ground and a cloud create lightning? Explain. Then, discuss with a partner.

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Day 2

1. Look at the diagram. Explain how an electric circuit works.

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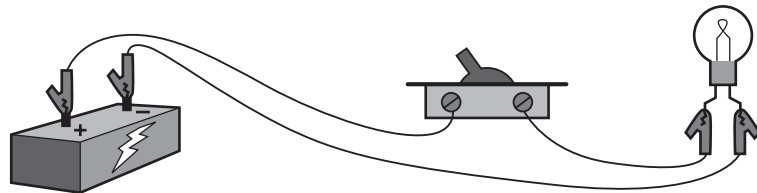
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Day 3

1. Write the numbers **1** to **5** to show the order of how electricity is produced.

- A. \_\_\_\_ The generator makes electricity.
- B. \_\_\_\_ The turbine turns the drive shaft.
- C. \_\_\_\_ Coal burns to power the turbine.
- D. \_\_\_\_ Power lines deliver the electricity to the buildings.
- E. \_\_\_\_ The drive shaft powers the electromagnet in the generator.

Day 4

Name \_\_\_\_\_

## Electricity

Circle the best answer.

1. What kind of charge does an atom with extra electrons have?
 

A. negative	B. positive
C. no charge	D. all of the above
  
2. Which unit measures how much electric energy a building uses?
 

A. kilowatt-hour	B. volt
C. watt	D. amp
  
3. Which material is not a conductor?
 

A. glass	B. plastic
C. metal	D. water
  
4. What is the power source for a generator in a power plant?
 

A. the sun	B. electromagnets
C. electricity	D. batteries

Answer the questions.

5. Why do some clothes stick together when they are pulled from a dryer?

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6. Hannah is curious about how much electricity the average US home uses. She gathered historical energy-use data. In 2012, the yearly consumption was 10,837 kWh, or about 903 kWh a month. Maine residents had the lowest yearly average at 6,367 kWh. How many fewer kWh does the average Maine home use per month than the country average?

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Name \_\_\_\_\_

## Sound

1. How are all sounds made?

\_\_\_\_\_

2. How do sounds travel? Explain the process.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Day 1

Draw a line to match each word with its definition.

- |               |  |
|---------------|--|
| 1. wavelength | the highest point of a wave  |
| 2. crest      | half the distance of a wavelength  |
| 3. trough     | the lowest point of a wave   |
| 4. frequency  | the number of waves that move past a point in one second                 |
| 5. amplitude  | the distance from one point on a wave to the same point on the next wave |

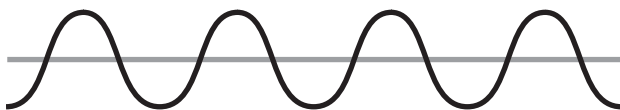
Day 2

Write **true** or **false**.

- \_\_\_\_\_ Pitch is the quality of being a high or low sound.
- \_\_\_\_\_ Pitch is based on the amplitude of a sound wave.
- \_\_\_\_\_ A sound that has a high pitch has a long wavelength.
- \_\_\_\_\_ A loud sound always has a high pitch.
- \_\_\_\_\_ A sound that has a low pitch has a low frequency.

Day 3

1. Describe the pitch and the volume shown by the wavelength. Tell how you know.



\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

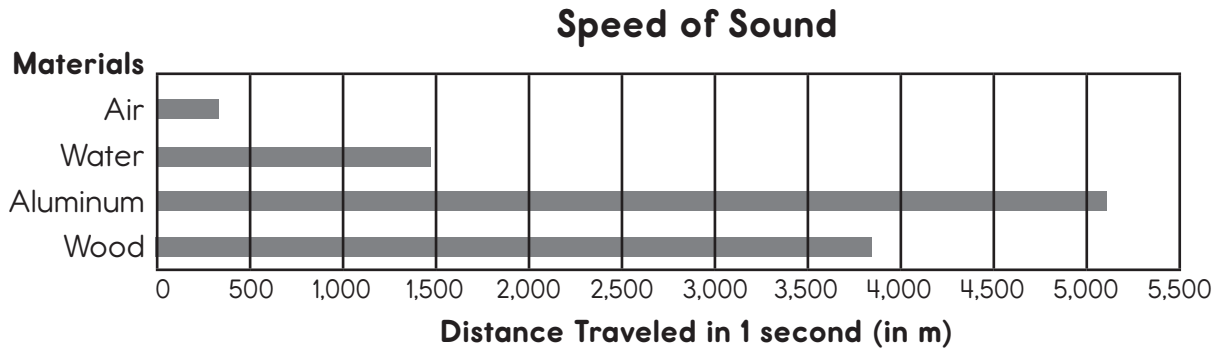
2. Draw a wavelength that has an opposite pitch and volume.

Day 4

Name \_\_\_\_\_

## Sound

Use the graph to answer the questions.



- Of the materials on the graph, through which material does sound travel about 5 times more quickly than it does through air?  
\_\_\_\_\_
- Sound can travel 3,240 meters per second through gold. It travels half that distance through rubber in the same amount of time. How far can sound travel through rubber per second?  
\_\_\_\_\_
- Which material on the graph is most similar to rubber? \_\_\_\_\_
- Mohammed plays a bass drum and a snare drum in the school band. Describe the pitch and the loudness of each instrument. Give an explanation for each.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Circle the best answer.

- How does a guitar make a sound?
 

A. A string gets longer.	B. A string vibrates.
C. The wood gets hot.	D. The wood gets smaller.
- Which instrument has the lowest pitch?
 

A. violin	B. cymbals	C. clarinet	D. bass drum
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Name \_\_\_\_\_

# Light

Write **true** or **false**.

1. \_\_\_\_\_ Light is given off in small particles called photons.
2. \_\_\_\_\_ Photons travel in waves.
3. \_\_\_\_\_ Light can move in a straight line or turn corners.
4. \_\_\_\_\_ A mirror works because of refraction.
5. \_\_\_\_\_ Reflection describes when light rays are bent.
6. \_\_\_\_\_ Light can travel more than 186,000 miles per second (about 300,000 km per second).

Day 1

1. How would you describe what is happening in the diagram to a partner?

\_\_\_\_\_

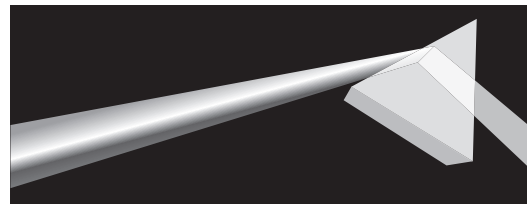
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Day 2

Circle the words in parentheses that correctly complete the sentences.

1. An apple looks red because the wavelength is (absorbed, reflected).
2. A white shirt looks white because the beam of light is (refracted, scattered).
3. Only the blue wavelength will be (absorbed, transmitted) when a blue filter covers a flashlight.
4. You can see smoke because part of the light is (transmitted, scattered) by the smoke particles, while the other part is (transmitted, scattered) through the light.
5. A curtain that is (opaque, translucent) will keep all light from entering a room.

Day 3

1. What is a lens?

\_\_\_\_\_

2. Label each lens. Draw lines to show how light moves through them.



A. \_\_\_\_\_

B. \_\_\_\_\_

Day 4

Name \_\_\_\_\_

## Light

Answer the questions.

- John knocked a pillow off of the couch. When picking it up, he noticed that the side that had been facing up was lighter than the one that had been facing down. What hypothesis might John make about the color change? Describe an experiment that he can do to test his hypothesis. Be sure to include the variable he can change.

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- Your friend says that black is a color. Is she right or wrong? How would you discuss this with her?

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Circle the best answer.

- Which is not a characteristic of visible light?
  - It is a form of radiant energy.
  - It produces heat.
  - It is translucent.
  - It contains some ultraviolet waves.
  
- Why can you see a reflection in a mirror?
  - The image is reflected off a smooth surface.
  - The silver in the mirror conducts the image.
  - The glass bends the image and slows its speed.
  - The image scatters as it moves through the glass.

Name \_\_\_\_\_

# Cells

Day 1

1. What is a cell?

\_\_\_\_\_

2. Name at least four of the six processes of life that cells control.

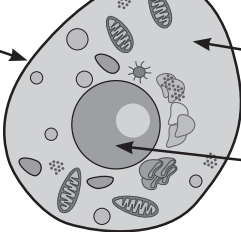
\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Day 2

1. Name the cell. Then, label its parts. Tell what each part does.

Name \_\_\_\_\_

A. \_\_\_\_\_  
 \_\_\_\_\_



B. \_\_\_\_\_  
 \_\_\_\_\_

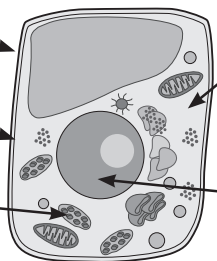
C. \_\_\_\_\_  
 \_\_\_\_\_

Day 3

1. Name the cell. Then, label its parts. Tell what each part does.

Name \_\_\_\_\_

A. \_\_\_\_\_  
 \_\_\_\_\_



B. \_\_\_\_\_  
 \_\_\_\_\_

C. \_\_\_\_\_  
 \_\_\_\_\_

D. \_\_\_\_\_  
 \_\_\_\_\_

E. \_\_\_\_\_  
 \_\_\_\_\_

Day 4

Write **true** or **false**.

1. \_\_\_\_\_ Every cell has a nucleus.
2. \_\_\_\_\_ Cells are the basic units of matter.
3. \_\_\_\_\_ A cell will divide and make two cells that are exactly the same.
4. \_\_\_\_\_ Organs are made of similar cells that work together.
5. \_\_\_\_\_ Chromosomes in one cell are the same as in the other new cell.
6. Rewrite any false statements to make them true.

\_\_\_\_\_

Name \_\_\_\_\_

## Cells

Answer the questions.

- Why are cells necessary? Write a paragraph to explain your position. Give details and examples.

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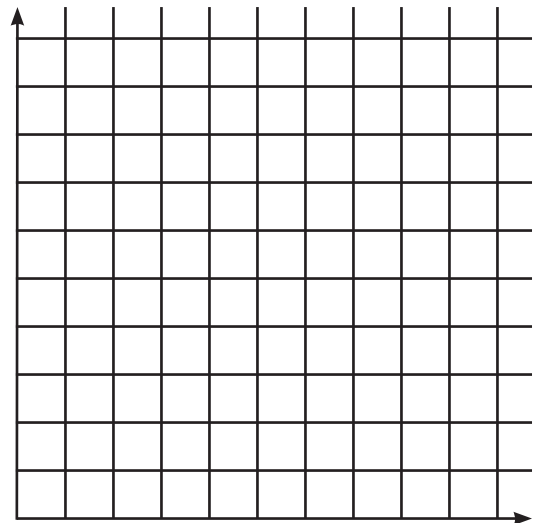
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- A scientist is studying division patterns in a cell type. The number of cells doubles every hour. Complete the chart.

Hour	Number of Cells
0	1
1	2
2	4
3	



- Use the data to create a line graph. Be sure to title the graph and label the axes.
- How many cells will there be after a full day of division? \_\_\_\_\_

Circle the best answer.

- Which is not found in an animal cell?
  - A. cytoplasm
  - B. chloroplasts
  - C. nucleus
  - D. cell membrane

Name \_\_\_\_\_

## Systems of Organisms

Write words from the word bank to complete the passage.

characteristics    kingdoms    organisms    species

Scientists refer to all living things in the world as \_\_\_\_\_. An organism can be grouped into one of six main groups. These six groups, called \_\_\_\_\_, include plants, animals, protists, eubacteria, archaebacteria, and fungi. These are the largest groups in which organisms can be placed for identification. After kingdoms, organisms can be further divided by various \_\_\_\_\_ that they share. \_\_\_\_\_ is the smallest and most specific group into which organisms can be divided.

Day 1

Use the passage in Day 1 to answer the questions.

1. How many kingdoms are there? \_\_\_\_\_
2. Name the kingdoms.  
\_\_\_\_\_
3. How are kingdoms and species alike? How are they different? Cite the text to support your answer.  
\_\_\_\_\_

Day 2

1. Place the following words in order to show how body systems of organisms are organized. Start with the smallest unit and build toward the largest unit. Under each unit, give an example. Make sure all examples are related to each other.

cell    organ    organism    tissue    system

\_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_    \_\_\_\_\_

Day 3

1. How do systems in organisms prove that organisms are related? Write a paragraph to explain your position. Give examples and details to support your position.

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Day 4





Name \_\_\_\_\_

## Plants

1. Write **P** for each substance that is important for growing a healthy plant.

\_\_\_\_\_ sun

\_\_\_\_\_ carbon dioxide

\_\_\_\_\_ water

\_\_\_\_\_ soil

\_\_\_\_\_ oxygen

\_\_\_\_\_ temperature

\_\_\_\_\_ fertilizer

\_\_\_\_\_ insects

2. Circle three substances above. Tell how they make plants healthy. \_\_\_\_\_

\_\_\_\_\_

Day 1

Use each word in a sentence to tell why it is important to plants.

1. photosynthesis \_\_\_\_\_

\_\_\_\_\_

2. chlorophyll \_\_\_\_\_

\_\_\_\_\_

3. carbon dioxide \_\_\_\_\_

\_\_\_\_\_

Day 2

1. Name two ways plants reproduce. Describe each way and give an example of each.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Day 3

1. Draw an illustration to accompany a written or oral report about adaptations in plants. Write a caption to support the illustration.

\_\_\_\_\_

Day 4

Name \_\_\_\_\_

## Plants

Circle the best answer.

1. What is the main source of energy for plants?
  - A. sugar
  - B. nutrients
  - C. decomposers
  - D. oxygen

Answer the questions.

2. What are three ways that plants interact with their nonliving environment?

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3. What is the nitrogen cycle? What parts do plants play in it?

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4. For people with pollen allergies, the pollen count is very important. It measures the amount of pollen grains in a cubic meter of air. If the pollen count for a spring day is 6.8, how many grains of pollen can be expected to be in an area 15 meters square and 7 meters high?

---

Name \_\_\_\_\_

## Heredity and Reproduction

Write a word from the word bank for each definition.

heredity	inherit	reproduction	species	trait
----------	---------	--------------	---------	-------

- \_\_\_\_\_ - the passing of characteristics from one generation to the next
- \_\_\_\_\_ - the process of making new organisms
- \_\_\_\_\_ - a group of organisms that can reproduce
- \_\_\_\_\_ - a feature or a characteristic received from a parent
- \_\_\_\_\_ - to get a characteristic from a parent or an ancestor

Day 1

1. What are three traits that organisms in the same species might have?

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2. What are three specific traits that you inherited from your parents?

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Day 2

Scientists use Punnett squares to predict possible outcomes of traits in offspring. A single trait is shown in a 2 x 2 square for four possible outcomes. Capital letters represent dominant traits. Lowercase letters represent recessive traits.

	S	s
S	SS	Ss
s	Ss	ss

1. A scientist is studying three traits in a litter of puppies. The Punnett square shows 64 possible outcomes. It predicts that  $\frac{3}{4}$  of the puppies will be born with spots. How many puppies would that be in a litter of 12 puppies? \_\_\_\_\_
2. Nine puppies are born, and 3 of them have spots. Is that close to the prediction? \_\_\_\_\_

Day 3

1. Unscramble the letters in parentheses to complete the sentences. Then, write the letters **A** to **E** to show the correct order. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

- The bee \_\_\_\_\_ (lanstoplie) the pistil of another plant.
- Sperm cells in pollen grow on the \_\_\_\_\_ (matnes). Egg cells are found in the ovules deep inside the \_\_\_\_\_ (iplist).
- A tube grows down from the pollen, through the pistil, and into an \_\_\_\_\_ (lovue).
- A sperm cell \_\_\_\_\_ (terzilfies) an egg cell.
- \_\_\_\_\_ (nelplo) sticks to a bee as it gathers nectar.

Day 4



Name \_\_\_\_\_

## Adaptations

1. What is an adaptation?

\_\_\_\_\_

2. Choose an animal. What is one way that the animal's body has adapted to its environment? What is one behavior that helps the animal adapt to its environment?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Day 1

1. Unscramble the letters in parentheses to complete the paragraph.

All plants and animals adapt to better survive in their environment. Any adaptations that relate to the body of an animal or a plant are \_\_\_\_\_ (sutarclut) adaptations. Adaptations that affect how an animal or a plant reacts to situations are \_\_\_\_\_ (hovibealra) adaptations. \_\_\_\_\_ (malgeofacu) is a structural adaptation that helps animals and plants blend into their surroundings. Some animals and plants use a behavioral adaptation called \_\_\_\_\_ (irmcymi) to fool predators into thinking they are another species.

Day 2

1. Use the words in the word bank to explain how parents can influence adaptations in their offspring.

inherited	instinctive	learned	traits
-----------	-------------	---------	--------

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Day 3

1. Why does Earth have such a diversity of plant and animal life? Give three reasons.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Day 4



Name \_\_\_\_\_

## Animal Behavior

Write **I** for each inherited trait. Write **L** for each learned behavior.

- |   |                            |
|---|----------------------------|
| 1. _____ riding a bike                  | 2. _____ size 8 feet       |
| 3. _____ chewing with your mouth closed | 4. _____ playing baseball  |
| 5. _____ blue eyes                      | 6. _____ curly hair        |
| 7. _____ enjoying comedy movies         | 8. _____ attached earlobes |

Day 1

1. Write three traits you inherited from your parents.

\_\_\_\_\_

2. Write three behaviors you have learned.

\_\_\_\_\_

\_\_\_\_\_

3. Choose a trait or a behavior and explain how it affects your life.

\_\_\_\_\_

\_\_\_\_\_

Day 2

1. Explain the differences between learned behaviors and instinctive behaviors.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. Think about a time that you observed an animal. What instinctive behavior did the animal exhibit?

\_\_\_\_\_

Day 3

1. What are two benefits that animals gain by migrating?

\_\_\_\_\_

\_\_\_\_\_

2. Do you think migration is a pattern of behavior? Explain.

\_\_\_\_\_

\_\_\_\_\_

Day 4

Name \_\_\_\_\_

## Animal Behavior

Circle the best answer.

- When Canada geese travel from their summer homes in Canada to the United States, what are they doing?
 

A. imprinting	B. learning
C. migrating	D. adapting

Answer the question.

- A turtle pulls his head into his shell when a larger animal approaches. Is this instinctive or learned behavior? Explain how you know.

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Read the passage. Then, answer the questions.

Monarch butterflies have one of the most well-known migrations in the world. This amazing phenomenon is observed by people around the world. Monarchs are not able to survive the freezing winter temperatures in the majority of the US states, so each autumn, they migrate south and west to Mexico and Southern California. Monarchs from the eastern United States can migrate as far as 3,000 miles (4,828 km) to Mexico. A monarch can travel from 50 to 100 miles (80 to 160 km) a day, although the farthest travel ever recorded was 265 miles in one day! However, because of the short life span of the monarch, each generation that migrates to Mexico has never been there before. The most amazing thing is that monarchs know the way even though they have never migrated before.

- What part of the monarch migration shows the importance of inherited behaviors? Underline the parts of the passage that helped you answer.

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- How long, on average, would it take a monarch to travel 2,500 miles (4,023 km)?

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Name \_\_\_\_\_

## Ecosystems

1. What is an ecosystem?

\_\_\_\_\_

\_\_\_\_\_

2. Give three examples each of the living and nonliving things that coexist in an ocean ecosystem.

A. living \_\_\_\_\_

B. nonliving \_\_\_\_\_

Day 1

1. Choose two ecosystems from the word bank. Write a paragraph to compare and contrast them.

arctic tundra    desert    forest    grassland    marsh    ocean    rain forest

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Day 2

Write **true** or **false**.

1. \_\_\_\_\_ Ecosystems always stay the same.

2. \_\_\_\_\_ Animals can easily adapt to living in different ecosystems.

3. \_\_\_\_\_ Ecosystems must include nonliving things such as soil, air, and water.

4. \_\_\_\_\_ Humans are part of ecosystems.

5. \_\_\_\_\_ If one type of animal in an ecosystem goes extinct, nothing happens.

6. Rewrite any false statements to make them true.

\_\_\_\_\_

Day 3

1. Your class is discussing how the living and nonliving parts of ecosystems are dependent. Describe how changes in the nonliving parts of an ecosystem can affect the ecosystem.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Day 4



Name \_\_\_\_\_

## Energy in Ecosystems

Unscramble the letters in parentheses to complete the sentences.

- All living things need \_\_\_\_\_ (greeny) to survive.
- Plants are \_\_\_\_\_ (crodupres) that use light to make energy.
- Animals are \_\_\_\_\_ (smonsruce) because they eat plants and other animals.
- An \_\_\_\_\_ (evibrroeh) is an animal that eats plants to get the stored energy of sugar.

Day 1

- What are two ways that the energy stored in dead organisms is used? Give examples of each.

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Day 2

- What is the relationship between decomposers and plants?

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- Complete the illustration with four other animals to show how energy moves in a food chain.



- Use the unscrambled words from Day 1 to label the organisms in your food chain.
- What kind of discussion would this illustration support? \_\_\_\_\_

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Day 3

- Compare a food chain and a food web. Tell how they are alike and different.

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Day 4

- Look at the food chain you made in Day 3. What organisms can you include to show a food web? Add at least three more animals' names and draw arrows to show a food web.
- What ecosystem does your food web represent? \_\_\_\_\_

Name \_\_\_\_\_

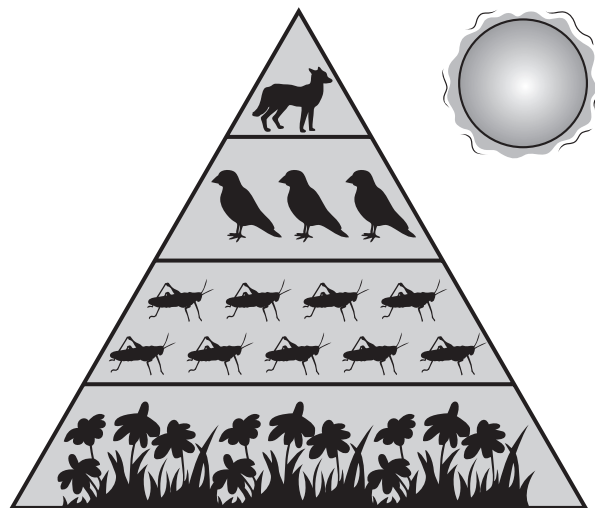
### Energy in Ecosystems

Circle the best answer.

- What is the main source of energy for plants?  
 A. sugar                      B. nutrients                      C. decomposers                      D. oxygen
- What does the diagram below show?  
 A. an ecosystem                      B. a food chain                      C. an energy pyramid                      D. a food web

Answer the questions.

- Add arrows to the diagram to show the flow of energy. Write a paragraph to explain the purpose of an energy pyramid. Use the words in the word bank to help you.



consumer	energy	photosynthesis	predator	prey	producer
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- Why is the pyramid a good shape to show the flow of energy?

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Name \_\_\_\_\_

## Populations

Draw a line to match each word with its definition.

- |                |  |
|----------------|--|
| 1. ecosystem   | the place where an animal lives, where all of its needs can be met |
| 2. habitat     | all of the populations that live in a place                        |
| 3. population  | all of the living and nonliving things in a place                  |
| 4. environment | a group of one kind of living thing that lives in a place          |
| 5. community   | everything that is around a living thing                           |

Day 1

1. Why do scientists keep track of populations? Explain.

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Day 2

2. Animals often move around. How might scientists keep track of the animals in these populations?

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1. What are three reasons why a population might change?

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Day 3

2. How might an increasing population of robins positively and negatively affect a community?

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1. The lion population in an area is always  $\frac{1}{7}$  of the antelope population. Complete the population chart.

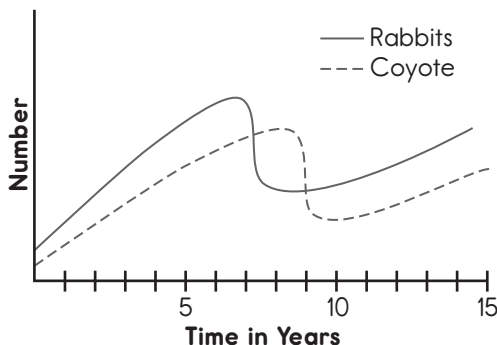
Year	2009	2010	2011	2012	2013	2014
antelope	161	252	266	217	231	210
lions						

Day 4

Name \_\_\_\_\_

## Populations

Look at the graph. Then, answer the questions.



1. What happened to the rabbit population in the first six years?

\_\_\_\_\_

2. When did the coyote population begin to increase?

\_\_\_\_\_

\_\_\_\_\_

3. What reason might have contributed to the increase in the coyote population?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. Why is a line graph a good choice to communicate data? How would it be useful in a discussion on the balance of nature?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Circle the best answer.

5. A scientist is studying the factors that affect the coyote population. What hypothesis might she make?

A. Coyote predators affect the coyote population.

B. Rabbits have big ears to hear the coyote's approach.

C. When the population of rabbits decreases, the coyote population decreases.

D. When the population of coyotes decreases, the rabbit population decreases.

Name \_\_\_\_\_

## Cycles in Nature

Unscramble the letters in parentheses to complete the sentences.

1. The phases of the moon make the \_\_\_\_\_ (runal) cycle.
2. A \_\_\_\_\_ (feil) cycle describes how an organism grows and reproduces.
3. The \_\_\_\_\_ (yoxeng) cycle explains how producers and consumers work together to make the air they need to survive.
4. Plants use the cycle of \_\_\_\_\_ (stesithhoopnys) to make sugar they need for energy.

Day 1

Write **true** or **false**.

1. \_\_\_\_\_ The amount of nitrogen changes because of the nitrogen cycle.
2. \_\_\_\_\_ The proteins in nitrogen promote cell growth and repair.
3. \_\_\_\_\_ Most organisms cannot use nitrogen gas.
4. \_\_\_\_\_ Lightning and special kinds of bacteria turn nitrogen compounds into gas.
5. \_\_\_\_\_ Decomposers restore nitrogen to soil.
6. \_\_\_\_\_ Nitrogen made by lightning washes into the soil with the help of rain.

Day 2

Write a letter to match each phase with its description.

- |                               |  |
|-------------------------------|--|
| 1. _____ waxing gibbous moon  | A. The moon looks like a big, bright circle.   |
| 2. _____ third quarter moon   | B. A sliver of the shrinking moon is lit.      |
| 3. _____ waning gibbous moon  | C. A sliver of the growing moon is lit.        |
| 4. _____ waxing crescent moon | D. One-half of the shrinking moon is lit.      |
| 5. _____ first quarter moon   | E. The moon looks dark in the night sky.       |
| 6. _____ waning crescent moon | F. The growing moon's surface is mostly lit.   |
| 7. _____ new moon             | G. One-half of the growing moon is lit.        |
| 8. _____ full moon            | H. The shrinking moon's surface is mostly lit. |

Day 3

1. Write a paragraph to describe the life cycle of a flowering plant. Use the words in the word bank to help you.

germinate	pollinate	seedling
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Day 4





Name \_\_\_\_\_

## Body Systems

Write the name of the system described in each sentence.

1. The bones support the body, give it shape, and protect the soft parts.  
\_\_\_\_\_
2. The body uses energy when food is broken down. \_\_\_\_\_
3. Muscles help the body move. \_\_\_\_\_
4. Waste is removed from the body. \_\_\_\_\_
5. Oxygen enters the body, and carbon dioxide leaves the body.  
\_\_\_\_\_

Day 1

1. Write the numbers **1** to **6** to show the order of the respiratory system's function.
  - A. \_\_\_\_ Air flows through the trachea.
  - B. \_\_\_\_ Oxygen passes into red bloods cells in blood vessels.
  - C. \_\_\_\_ Air enters the nose.
  - D. \_\_\_\_ Inside the lungs, air passes through smaller tubes to reach the alveoli.
  - E. \_\_\_\_ Carbon dioxide enters the air sacs and leaves the body.
  - F. \_\_\_\_ Air flows through the bronchial tubes into the lungs.

Day 2

Write **true** or **false**.

1. \_\_\_\_\_ The heart, the brain, the blood, and the blood vessels make up the circulatory system.
2. \_\_\_\_\_ Nutrients travel by blood to the cells in the body.
3. \_\_\_\_\_ White blood cells inside the blood help fight infections.
4. \_\_\_\_\_ The smallest blood vessels are called veins.
5. \_\_\_\_\_ The circulatory system controls body temperature.
6. \_\_\_\_\_ The circulatory system moves oxygen throughout the body.

Day 3

1. Unscramble the letters in parentheses to complete the paragraph about the nervous system.

The \_\_\_\_\_ (sovernu) system helps people sense their environment. It consists of the \_\_\_\_\_ (nabir), the spinal cord, and nerves. \_\_\_\_\_ (preetrocs), like the eyes, ears, and skin, sense changes outside the body. Inside, \_\_\_\_\_ (sronag), like the heart and the stomach, sense changes in chemicals and body fluids. The data travels through the nerves and \_\_\_\_\_ (nilpas) cord to the brain. It processes the information. It sends a signal telling the body how to \_\_\_\_\_ (crate).

Day 4

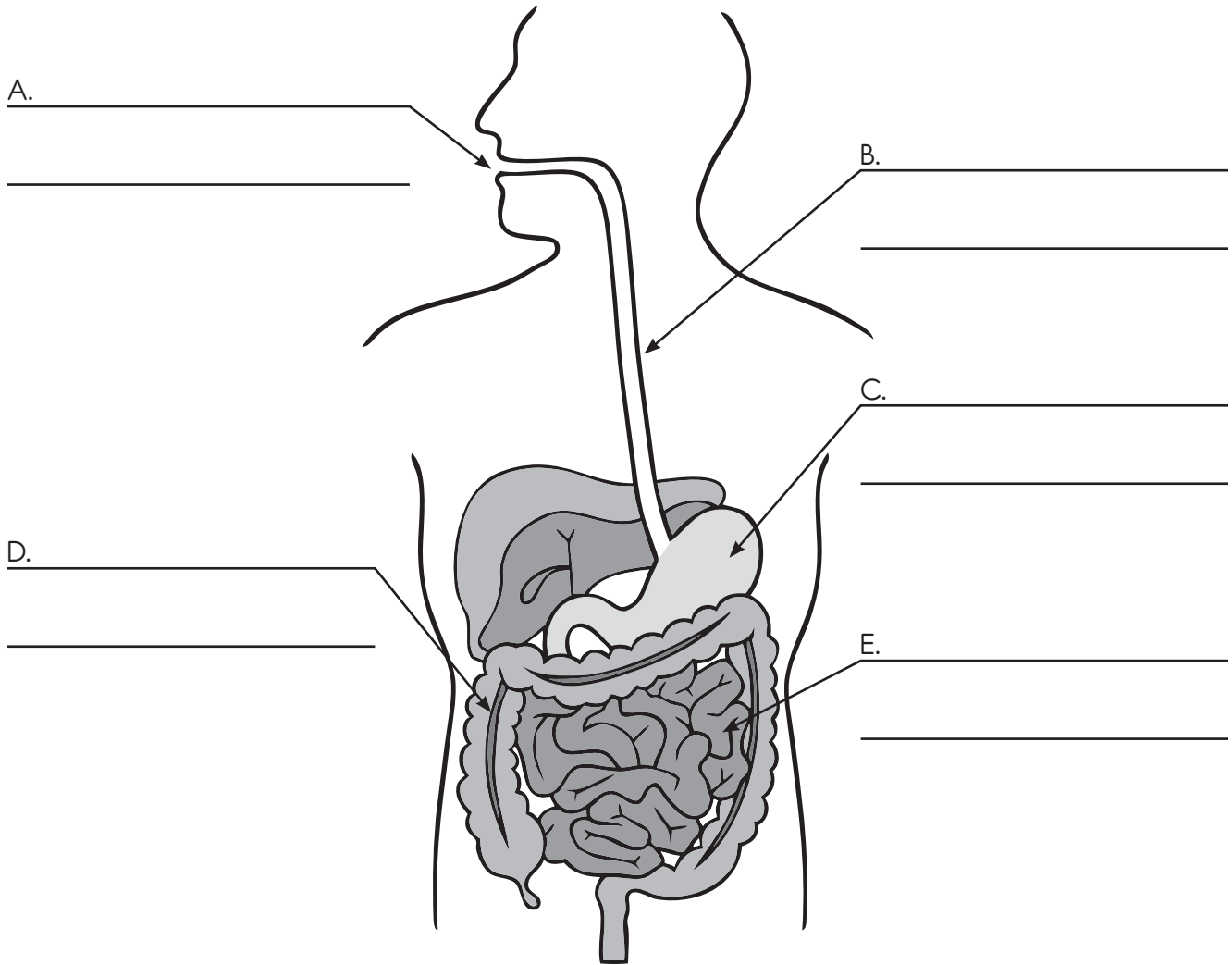
Name \_\_\_\_\_

### Body Systems

Answer the questions.

- 1. What body system is shown? Write the name of the system. Then, label the diagram. Briefly explain the function of each organ.

body system \_\_\_\_\_



- 2. Are all parts of the human body system important? Explain.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_

## Healthful Lifestyles

1. Why is it important to eat a healthful diet? Give two reasons.

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Day 1

2. Why should you eat foods of all different colors?

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1. Name three ways that exercise helps the body.

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Day 2

2. Do you get enough exercise? Why or why not?

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1. Fill in the blanks to correctly complete the paragraph.

Cardiovascular health deals with keeping the \_\_\_\_\_ in good working order. One way to maintain a healthy heart is to get physical \_\_\_\_\_ several times each week. You should also \_\_\_\_\_ a diet that is low in fat, sodium, and cholesterol. Be sure to give your body at least eight hours of \_\_\_\_\_ each night. Practice healthy habits, like washing your hands often and sneezing into your elbow to avoid \_\_\_\_\_. Finally, talk with a friend or an adult if you are having feelings of \_\_\_\_\_, because it can create trouble for your cardiovascular system when you are older.

Day 3

Draw a line to match each word with its definition.

- |                  |  |
|------------------|--|
| 1. carbohydrates | chemical elements found in food that are used for all bodily functions |
| 2. fats          | nonliving elements found in cells                                      |
| 3. proteins      | help provide insulation and cushioning for organs                      |
| 4. nutrients     | essential for creating and repairing tissues                           |
| 5. vitamins      | the major source of energy for humans                                  |
| 6. minerals      | organic compounds essential to life                                    |

Day 4

Name \_\_\_\_\_

## Healthful Lifestyles

Answer the questions.

1. What are six nutrients your body needs to grow and stay healthy? Write a report to explain what each nutrient does and give an example of each.

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2. Many kids and adults get caffeine through soft drinks, energy drinks, and coffee. Doctors recommend that adults consume 200 to 300 milligrams (mg) or less of caffeine per day. More than 500 to 600 mg per day can cause side effects such as upset stomach, fast heartbeat, and muscle tremors. How many 8 ounce (oz.) servings can you safely drink of each type of drink?

Amount of Caffeine in Common Drinks	
Drink (8 oz.)	Caffeine Level (mg)
coffee	110
soft drink	35
black tea	61
energy drink	80

- A. coffee \_\_\_\_\_  
 B. soft drink \_\_\_\_\_  
 C. black tea \_\_\_\_\_  
 D. energy drink \_\_\_\_\_

Circle the best answer.

3. Which of these foods is heart-healthy?  
 A. soft drink                      B. butter                      C. orange                      D. potato chips
  
4. Which food group should you limit your servings of?  
 A. fats, oils, and sweets                      B. grains                      C. dairy                      D. vegetables

Name \_\_\_\_\_

## The Atmosphere

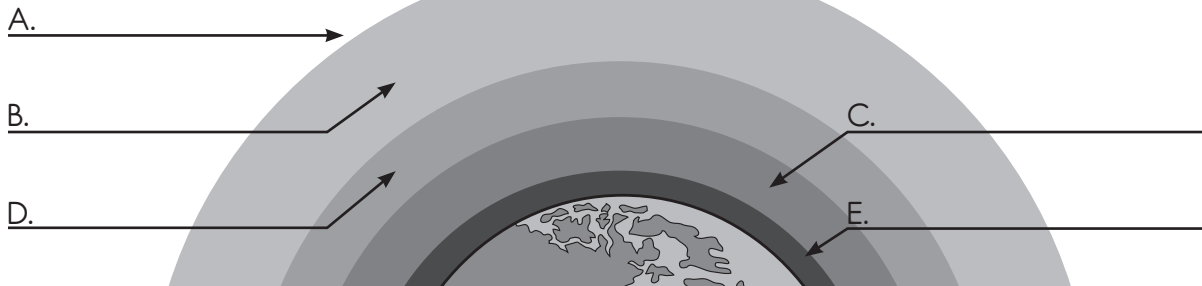
Write words from the word bank to complete the sentences. Not all words will be used.

atmosphere	exosphere	gravity	mesosphere
stratosphere	thermosphere	troposphere	

- The \_\_\_\_\_ is about 500 miles (805 km) high.
- It is held close to Earth because of \_\_\_\_\_.
- We live in the \_\_\_\_\_.
- The top layer, which is space, is the \_\_\_\_\_.
- Ozone gas is in the \_\_\_\_\_ layer.

Day 1

- Label the diagram for a report about the atmosphere. Use the word bank in Day 1 to help you.



Day 2

- What are the three most important gases in the troposphere? Tell why each is important.

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Day 3

Write **true** or **false**.

- \_\_\_\_\_ Most of the air in the troposphere is made of oxygen.
- \_\_\_\_\_ Lightning can make nitrogen gas in the air usable to organisms.
- \_\_\_\_\_ Some bacteria can also make nitrogen gas usable to organisms.
- \_\_\_\_\_ Plants do not need nitrogen.
- \_\_\_\_\_ Decomposers change oxygen in dead organisms into nitrogen gas.
- \_\_\_\_\_ The nitrogen levels are constantly decreasing each year.

Day 4

Name \_\_\_\_\_

## The Atmosphere

Answer the questions.

1. The ozone layer is often the topic of news reports. It has been reported that the ozone layer had dangerously thinned in the 1980s, though NASA has recently stated that it is beginning to improve. Why do you think so many people are interested in this element of the atmosphere? Give two reasons.

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2. What do you think would happen to the atmosphere if there was no gravity? How could this affect life on Earth?

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The chart shows the amounts of each kind of gas in the troposphere. Use the chart to answer the questions.

Gas	Percent (%)
nitrogen	78
oxygen	21
carbon dioxide	0.9
other	0.1

3. Is more carbon dioxide or more non-categorized gases in the troposphere? How do you know? \_\_\_\_\_

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4. Argon gas is about 0.09% of the “other” gases. How much of the “other” category is not argon? \_\_\_\_\_

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Name \_\_\_\_\_

## Earth's Water

1. What is the hydrosphere? Name at least five parts of the hydrosphere.

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2. Why is the hydrosphere important? Give three reasons.

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Day 1

1. Write words from the word bank to complete the paragraph.

condensation	evaporation	precipitation	runoff	transpiration
--------------	-------------	---------------	--------	---------------

The water cycle maintains the constant movement of water on Earth. The sun heats water in the ocean, causing \_\_\_\_\_. As the water vapor rises, the process of \_\_\_\_\_ transforms it into tiny droplets, which form clouds. Then, water falls to the ground in the form of \_\_\_\_\_ such as rain or snow. After it reaches the ground, water is returned to rivers and other bodies of water as \_\_\_\_\_. Water that is absorbed into the ground can be taken in by plants and returned to the air through the process of \_\_\_\_\_. Without the water cycle, freshwater would be unavailable to support animal and plant life across the world.

Day 2

Write **true** or **false**.

- \_\_\_\_\_ Most of Earth's water is in the oceans.
- \_\_\_\_\_ Animals play a part in the water cycle through transpiration.
- \_\_\_\_\_ Without the sun, the water cycle would not exist.
- \_\_\_\_\_ Freshwater is contained in rivers, lakes, and glaciers.
- \_\_\_\_\_ The water cycle does not affect the weather.
- Rewrite any false statements to make them true.

Day 3

1. What role does seawater play in the hydrosphere?

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2. Describe what might happen to ocean wildlife when chemicals from a large ship are spilled into the ocean.

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Day 4

Name \_\_\_\_\_

### Earth's Water

Circle the best answer.

- 1. Where is the greatest amount of freshwater found?  
 A. in clouds                      B. underground                      C. in rivers                      D. in glaciers
  
- 2. Which is an example of flowing freshwater?  
 A. swamp                      B. creek                      C. lake                      D. estuary

Answer the questions.

- 3. Why are clouds considered to be a part of the hydrosphere?

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- 4. Do you think water is an inexhaustible resource? Explain.

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- 5. Write a public service announcement to explain the importance of freshwater. Give three ways that people can preserve freshwater's cleanliness.

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Name \_\_\_\_\_

# Weather

Draw a line to match each word with its definition.

- |                  |  |
|------------------|--|
| 1. wind          | water that falls to Earth's surface                  |
| 2. precipitation | a tool for measuring wind speed                      |
| 3. barometer     | moving air created by areas of high and low pressure |
| 4. humidity      | the amount of moisture in the air                    |
| 5. anemometer    | a tool for measuring atmospheric pressure            |

Day 1

1. Use the weather map to describe the weather for your area of the country.

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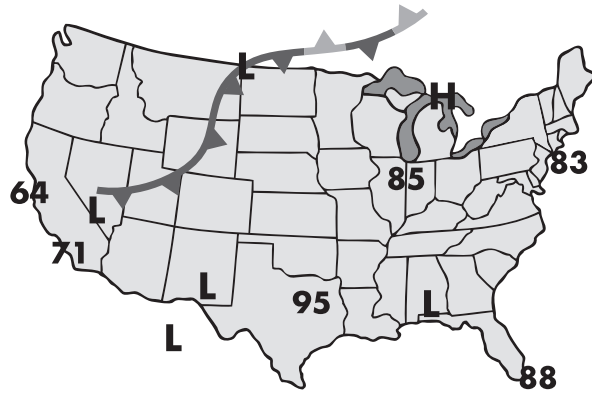
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Day 2

1. Describe how weather and the water cycle are related.

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Day 3

1. What is the difference between weather and climate? Explain. Then, discuss with a partner.

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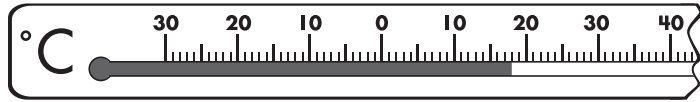
Day 4



Name \_\_\_\_\_

# Climate

1. What is the temperature shown on the thermometer?  
\_\_\_\_\_



To convert Celsius temperatures to Fahrenheit temperatures, scientists multiply the temperature by 9, divide by 5, and then add 32.

2. Write the expression used for converting temperatures. \_\_\_\_\_
3. What temperature would the temperature above be on the Fahrenheit scale?  
\_\_\_\_\_

Day 1

1. What is the weather in the community in which you live?  
\_\_\_\_\_  
\_\_\_\_\_

2. What is the climate in the community in which you live?  
\_\_\_\_\_  
\_\_\_\_\_

Day 2

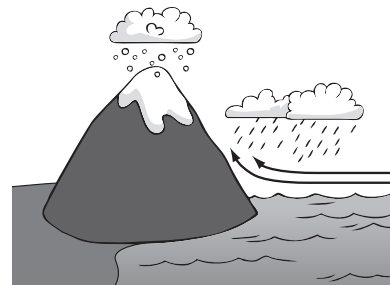
1. How does the shape of Earth affect climate?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. How does the tilt of Earth affect climate?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Day 3

1. Label the diagram so that it can be used in a report about climate. Use the words from the word bank.

dry air	moist air	mountain
ocean	rain	snow



2. How does the shape of the land affect the climate of a place? Use the diagram as your example to explain the climate on each side of the mountain to a partner.

Day 4

Name \_\_\_\_\_

## Climate

Answer the questions.

1. What are one natural event and one human activity that can affect climate? How do these impact the balance of nature? Write a paragraph to explain your opinion on how humans affect climate.

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2. The chart shows the daily rainfall totals (in inches) for October in the town of Lawn Oak. Use the data to draw a line plot of the amounts of rainfall. Then, answer the questions.

0.3	0.2	0	0	0.2	0.3
0	0	0.4	0	0	0
0	0	0	0	0	0.1
0.1	0.2	0	0	0.2	0.3
0	0.1	0	0.1	0.1	0

3. How much total rain did Lawn Oak get in October? \_\_\_\_\_
4. What does the line plot tell you about Lawn Oak's climate?

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Name \_\_\_\_\_

## Changes on Earth

Tell how each event changes the surface of Earth.

1. volcano \_\_\_\_\_  
\_\_\_\_\_
2. earthquake \_\_\_\_\_  
\_\_\_\_\_
3. flood \_\_\_\_\_  
\_\_\_\_\_

Day 1

Write **C** for each sentence that describes chemical weathering. Write **P** for each sentence that describes physical weathering.

1. \_\_\_\_\_ A cave forms underground in limestone rock.
2. \_\_\_\_\_ Plant roots grow in the crack of a rock and force the rock to crack.
3. \_\_\_\_\_ Air pollution erodes the nose on a statue.
4. \_\_\_\_\_ Water trickles in the crack of a rock and freezes, making the crack bigger.
5. \_\_\_\_\_ Wind picks up particles of sand and blasts the rock, forming an arch.
6. \_\_\_\_\_ The acid in a moss begins to wear a hole in a rock.

Day 2

1. What is the difference between weathering and erosion?  
\_\_\_\_\_  
\_\_\_\_\_
2. What are the three forces that cause erosion?  
\_\_\_\_\_  
\_\_\_\_\_
3. How does a glacier cause erosion?  
\_\_\_\_\_

Day 3

1. (Weathering, Deposition) is the settling of rocks and soil once it has been eroded.
2. The materials fall out once the water or wind (quickens, slows).
3. The soil in these areas is filled with rich (nutrients, gases) that are good for crops.
4. Depositions caused by wind can form (mountains, dunes).
5. Depositions caused by ocean water can form new (bays, beaches).
6. In a river, deposition can create a (delta, canyon).

Day 4

Name \_\_\_\_\_

## Changes on Earth

Answer the questions.

1. You are giving an oral report on the four ways that rocks are physically weathered to form soil. Write your notes. Be sure to explain each way clearly.

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2. Marcos does not believe that rivers can change the land. Do you agree or disagree? What would you tell him in a discussion?

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Circle the best answer.

3. Which helps prevent soil erosion?
  - A. spraying water
  - B. plowing fields
  - C. planting grass
  - D. constructing buildings

Name \_\_\_\_\_

## Earth and the Moon

Earth's diameter is about (about 12,750 km). The moon's diameter is about  $\frac{27}{100}$  of Earth's diameter.

1. What is the diameter of the moon? \_\_\_\_\_

Day 1

1. Explain how the moon's position affects the tides of Earth's oceans.

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2. Does a new moon affect the tides differently than a quarter moon? Explain.

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Day 2

1. You are giving a presentation on the lunar cycle. For each phase of the moon, draw an illustration to show what the moon looks like.

waxing crescent	new moon	full moon	waxing gibbous
waning gibbous	waning crescent	first quarter	third quarter

Day 3

1. What is an eclipse?

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2. Name the two different types of eclipses and describe how they are different.

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Day 4

Name \_\_\_\_\_

### Earth and the Moon

Circle the best answer.

1. What causes seasons?
 

A. Earth's orbit	B. Earth's equator
C. the tilt of Earth's axis	D. the phases of the moon
  
2. Which force causes the tides?
 

A. gravity	B. momentum
C. pressure	D. friction
  
3. When does a lunar eclipse take place?
 

A. during a waxing gibbous moon	B. during a full moon
C. during a waning crescent moon	D. during a new moon

Answer the questions.

4. Compare the moon's revolution around Earth with the moon's rotation on its axis. Tell how they are alike and different.

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5. The seasons have been studied and predicted for hundreds of years. Explain why the knowledge of the seasons was so important to early farmers.

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Name \_\_\_\_\_

## The Solar System

Draw a line to match each word with its definition.

- |                  |   |
|------------------|---|
| 1. planet        | a rocky object that revolves around the sun   |
| 2. star          | a group of stars that form a pattern in the night sky   |
| 3. asteroid      | a ball of burning gases   |
| 4. meteorite     | a large group of stars surrounded by gas and dust   |
| 5. comet         | a large heavenly body that revolves around the sun  |
| 6. constellation | a rocky object from space that travels through the atmosphere and lands on the surface of Earth |
| 7. galaxy        | a ball of ice, gas, and dust that moves around the sun  |

Day 1

Write **true** or **false**.

- \_\_\_\_\_ Scientists measure a star's distance from Earth in meters.
- \_\_\_\_\_ Planets move in elliptical paths.
- \_\_\_\_\_ Gravity is the force that keeps the planets orbiting the sun.
- \_\_\_\_\_ The asteroid belt is located between Jupiter and Saturn.
- \_\_\_\_\_ A shooting star is actually a meteoroid that enters Earth's atmosphere.
- \_\_\_\_\_ Some planets shine because they are made of gases.

Day 2

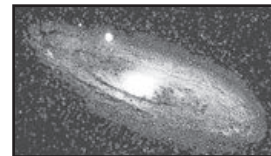
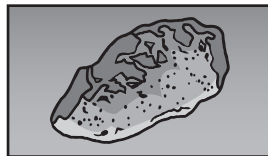
Pluto was discovered in 1930. However, in 2006, the International Astronomical Association met to specifically define the word **planet**. As a result, Pluto, for many years the ninth planet, was characterized as a dwarf planet. It had only been considered a planet for 75 years. Pluto's orbit is shared with many other similar objects, unlike any of the other eight planets. This group is known as the Kuiper belt.

- Why do you think scientists need definitions for the different types of planets? Underline evidence from the passage that supports your opinion.

\_\_\_\_\_

Day 3

- Write the name of each solar system body.



- A. \_\_\_\_\_ B. \_\_\_\_\_ C. \_\_\_\_\_ D. \_\_\_\_\_

- What is the difference between an asteroid and a meteoroid?

\_\_\_\_\_

Day 4

Name \_\_\_\_\_

## The Solar System

Answer the questions.

1. Why do you think astronomers made the decision to change Pluto's status? Do you agree or disagree? Why?

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2. What are three characteristics that allow Earth to support life? Explain why each is important.

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Circle the best answer.

3. What makes a meteorite burn?
  - A. gas
  - B. friction
  - C. magnetism
  - D. potential energy
  
4. Where is the asteroid belt located?
  - A. between Venus and Earth
  - B. between Jupiter and Saturn
  - C. between Mars and Jupiter
  - D. between Mars and the sun

Name \_\_\_\_\_

## Engineering

The National Aeronautics and Space Administration, or NASA, is the agency in the US government that works to understand outer space. NASA scientists and engineers develop materials and tools to keep their vehicles and astronauts safe. They have developed and improved many tools, such as the cordless drill, hook-and-loop tape, freeze-dried food, and solar cells, which civilians use today. While engineers may develop items to solve specific problems, often they can be used by a wider audience.

Day 1

1. How can engineers improve daily life for many people? Cite evidence from the passage.

\_\_\_\_\_

If you look up at your home's ceilings, you will mostly likely see a smoke detector. Smoke detectors as we know them were first used on the Skylab Space Station in the 1970s. It was designed to avoid the false alarms early smoke detectors were known for. It helped to protect the Skylab crew from hazardous gases, not just smoke. Engineers continue to improve the smoke detectors we use at home. They have created whole-house systems that can work with security systems that can alert the fire department.

Day 2

1. How has engineering improved smoke detectors? Cite evidence from the passage.

\_\_\_\_\_

You feel hot and have a headache. You wonder if you have a fever. You walk to the medicine cabinet to get a thermometer. Then, you place it in your ear. This kind of thermometer measures the heat, in the form of infrared radiation, coming from your eardrum. Forehead thermometers use this technology as well. Thermometers have come a long way from the breakable glass thermometers filled with toxic mercury.

Day 3

1. How has engineering improved thermometers? Cite evidence from the passage.

\_\_\_\_\_

\_\_\_\_\_

Asthma is a disorder where the airways in the lungs get blocked. Breathing may be difficult at times for people experiencing this illness. People with asthma may blow into a peak flow meter daily. This simple device measures how much air is being expelled. If the level is low, the person knows that an asthma attack is about to happen and can take medicine to prevent it.

Day 4

1. How has engineering improved the lives of asthma sufferers? Cite evidence from the passage.

\_\_\_\_\_

Name \_\_\_\_\_

## Engineering

Read the passage. Then, answer the questions.

Race car drivers use two inventions that were first developed for astronauts. They were developed to protect astronauts from the heat and other harsh conditions outside of the spacecraft. The suits they wear have a special coating that is less likely to burn. However, these suits can also trap the body's heat, making the suits very hot to wear. So, race car drivers also use another NASA technology called **cool suits**. A special garment is worn next to the body under the suit. Chilled liquid is pumped throughout the garment. These suits are also used by firefighters and even people who cannot regulate their own body temperature.

1. What problems did each kind of clothing solve for astronauts?

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2. Why would the suits with a special coating that did not burn be good for race car drivers?

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3. How do you think a cool suit rids the body of heat?

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4. How else might a cool suit be used?

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5. How does communication between scientists affect society?

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Name \_\_\_\_\_

## Resources

1. What is a natural resource?

\_\_\_\_\_

\_\_\_\_\_

2. Name two living and two nonliving natural resources. Tell how each is a resource.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Day 1

Use each term in a sentence to show its meaning. Give an example of each.

1. renewable resource \_\_\_\_\_

\_\_\_\_\_

2. nonrenewable resource \_\_\_\_\_

\_\_\_\_\_

3. inexhaustible resource \_\_\_\_\_

\_\_\_\_\_

Day 2

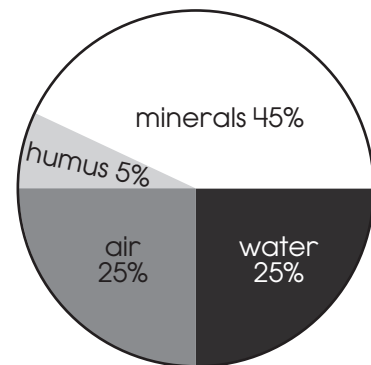
1. How is soil a resource? What kind of resource is it?

\_\_\_\_\_

\_\_\_\_\_

2. The graph shows the materials in soil. A scientist takes a 1 x 1 x 6 inch deep soil sample from the area. How much of the sample's volume is comprised of minerals?

\_\_\_\_\_



Day 3

1. Name six ways people use water.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. What are three ways that people can conserve water?

\_\_\_\_\_

\_\_\_\_\_

Day 4

Name \_\_\_\_\_

### Resources

Circle the best answer.

1. Which is a fossil fuel?

A. petroleum

B. aluminum

C. iron

D. oxygen

2. Which is an inexhaustible resource?

A. trees

B. wind

C. soil

D. natural gas

Answer the questions.

3. Your class is discussing if a renewable resource could ever be an inexhaustible resource. What would you say?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Scientists estimate that the world's supply of petroleum is running out quickly. How will this impact you? How will this impact society? Should people promote stronger conservation measures to slow the loss of this resource? Write a paragraph to explain your opinions.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_

## Human Impact

1. What are three ways that people change the land?

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Day 1

2. How do people benefit from each change you named?

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1. Look at the changes you named in Day 1. What is one way that each change negatively affects people?

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Day 2

2. Do the benefits outweigh the negative effects in your examples? Explain.

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1. Ozone is a gas found in the stratosphere. How does ozone help people?

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2. Your friend does not understand human impact on the ozone. What examples could you give to help her understand?

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3. What are two effects that will most likely occur if the ozone continues to be destroyed?

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Day 3

As the human population grew in the United States, people built houses on farmland. This growth caused a decrease in the bluebird population. These birds nested in tree holes they found near open fields. People in some communities began to build special boxes for the birds, placing them in parks and backyards. The bluebird population began to grow again.

1. What were a negative and a positive impact of people on the bluebird population?

---

Day 4

Name \_\_\_\_\_

## Human Impact

Read the passage. Then, answer the questions.

Kudzu is a plant indigenous to Japan. It grows quickly (up to 1 foot, or 30 cm, per day) and has beautiful, fragrant flowers. People brought it to the United States to help prevent soil erosion, feed animals, and decorate gardens. However, kudzu grew so well in the South that it completely covered many native flowers, shrubs, and trees, killing the plants. In 1972, the US Department of Agriculture declared that kudzu was a weed and began killing it. The plant, needing several applications of herbicides, was difficult to kill. In the meantime, people worked to find uses for the plant. They began to make baskets, jelly, and syrup from kudzu. Preliminary testing also showed that it may one day be made into a useful drug.

1. How did the human decision to plant kudzu positively and negatively impact the United States?

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2. Why did people change their views about kudzu?

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3. Is kudzu a resource? Explain.

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4. In your opinion, should plants or animals indigenous to other countries be allowed into the United States? Why or why not?

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5. A single kudzu plant has 4 vines. If each vine grows at the maximum rate during June, July, and August, how many meters of kudzu will grow from that plant in those 3 months? \_\_\_\_\_



Name \_\_\_\_\_

## Pollution

Write a word to correctly complete each sentence.

1. Adding harmful materials to the environment causes \_\_\_\_\_.
2. Dumping trash on the ground results in \_\_\_\_\_ pollution.
3. Construction sites using heavy equipment and loud music produce \_\_\_\_\_ pollution.
4. Sewage and oil leaks into ponds, lakes, streams, and oceans produce \_\_\_\_\_ pollution.
5. The \_\_\_\_\_ pollution is a huge problem because it affects our breathing and temperature balance on Earth.

Day 1

Write **true** or **false**.

1. \_\_\_\_\_ Most of the world's freshwater is contained in glaciers.
2. \_\_\_\_\_ There is more freshwater than salt water.
3. \_\_\_\_\_ Some people get their water from lakes.
4. \_\_\_\_\_ Groundwater can become polluted by runoff of water from farms.
5. \_\_\_\_\_ Farmers put fertilizer in their wastewater to make it safe to use.
6. \_\_\_\_\_ People washing their hands and brushing their teeth adds to water pollution.

Day 2

Tony heard on the news that the city he lives in has a lot of air pollution. He does an experiment in which he spreads petroleum jelly on paper. He puts the paper outside in the morning and then checks it before dinner. The petroleum jelly has a lot of dirt and dust on it.

1. What might have been Tony's hypothesis?  
\_\_\_\_\_
2. Did Tony's experiment prove his hypothesis? Explain. Then, discuss with a partner.  
\_\_\_\_\_

Day 3

1. What are three ways that the land gets polluted?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Name two ways that land pollution can affect you.  
\_\_\_\_\_  
\_\_\_\_\_

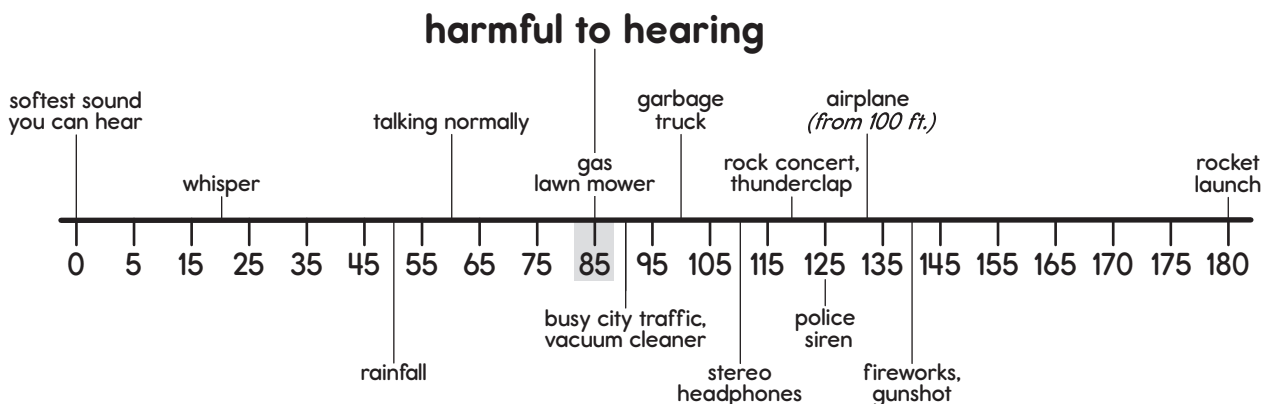
Day 4

Name \_\_\_\_\_

## Pollution

Answer the questions.

- Noise pollution can be harmful to people and other animals. Use the decibel chart to answer the questions.



A. How many times louder is an airplane overhead than talking normally? \_\_\_\_\_

B. How might the noise pollution from a nearby airport affect a community?

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- Identify the form of pollution that is the biggest problem in your community. Describe its causes and its effects. Then, suggest a way to solve the problem.

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Circle the best answer.

- Which is not a pollutant?

A. a jack hammer      B. volcanic ash      C. fertilizer      D. water

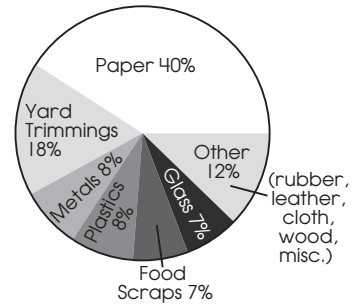
- What is the main contributor to rising ozone levels?

A. burning fossil fuels      B. space debris      C. sunlight      D. tree cutting

Name \_\_\_\_\_

## Earth-Friendly Practices

A person, on average, produces 1,600 pounds of trash each year. Use the percents on the chart to find how many pounds of each type of trash make up the total.



1. paper \_\_\_\_\_
2. yard clippings \_\_\_\_\_
3. metals and plastics \_\_\_\_\_
4. food scraps \_\_\_\_\_
5. other \_\_\_\_\_

Day 1

1. What are the three Rs for helping the environment? Describe each R word and give examples of how you practice each.

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Day 2

1. Write the numbers **1** to **5** to show the order of recycling aluminum cans.
  - A. \_\_\_\_\_ The melted aluminum is poured into bar molds and cooled.
  - B. \_\_\_\_\_ The old cans are melted in a furnace.
  - C. \_\_\_\_\_ The old cans are crushed and shredded.
  - D. \_\_\_\_\_ The aluminum bars are shaped into cans, foil, automobile parts, or doors.
  - E. \_\_\_\_\_ Old aluminum cans are collected.

Day 3

1. Give one example of a personal or local environmental issue and one example of a national or global issue. What is your opinion on these two issues?

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Day 4

Name \_\_\_\_\_

## Earth-Friendly Practices

Answer the questions.

- Yard clippings, orange peels, coffee grounds, and other food scraps can be put into a compost pile. Explain what a compost pile is, how it works, and what it can be used for. Use the words in the word bank to help you.

decay      decomposers      energy      nutrients

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- Use the EnergyGuide label to answer the questions.

A. How many kilowatt-hours does this model use each month?

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B. How does a label such as this help a consumer shop for appliances?

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Based on standard U.S. Government tests

# ENERGYGUIDE

Refrigerator-Freezer  
With Automatic Defrost  
With Side-Mounted Freezer  
Without Through-the-Door/Ice Service

XYZ Corporation  
Model ABC-W  
Capacity: 23 Cubic Feet

**Compare the Energy Use of this Refrigerator with Others before You Buy.**

This Model Uses 776 kWh/year	
<b>Energy Use (kWh/year) range of all similar models</b>	
Uses Least Energy 742	Uses Most Energy 836

kWh/year (kilowatt-hours per year) is a measure of energy (electricity) use. Your utility company uses it to compute your bill. Only models with 22.5 to 26.4 cubic feet and the above features are used in this scale.

**Refrigerators using more energy cost more to operate.**  
This model's estimated yearly operating cost is:

\$68

Based on a 1995 U.S. Government national average cost of 8.4¢ per kWh for electricity. Your actual operating cost will vary depending on your local utility rates and your use of the product.

Name \_\_\_\_\_

## Alternative Energy

1. What is alternative energy?

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2. Why are people increasingly interested in alternative energy sources?

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Day 1

Explain how each source produces energy.

1. wind \_\_\_\_\_

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2. sun \_\_\_\_\_

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3. hydroelectric dam \_\_\_\_\_

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Day 2

Write **true** or **false**.

1. \_\_\_\_\_ There are no drawbacks to alternative energy sources.

2. \_\_\_\_\_ Some alternative sources, such as wind and solar energy, are inexhaustible.

3. \_\_\_\_\_ Gasoline is the only substance that can power a car.

4. \_\_\_\_\_ Geothermal means "earth heat," because it gathers energy from the heat of the earth.

5. \_\_\_\_\_ Fossil fuels are renewable, but they pollute Earth.

6. Rewrite any false statements to make them true.

Day 3

1. Write a letter to the editor to explain your opinion on alternative energy sources. Give reasons and details.

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Day 4



Name \_\_\_\_\_

## History and Science

Draw a line to match each scientist's name with his or her scientific achievement.

- |                         |   |
|-------------------------|---|
| 1. Marie Curie          | author of the theory of relativity  |
| 2. Albert Einstein      | scientist who discovered the benefits of radium and radioactive therapies |
| 3. Isaac Newton         | anthropologist who studied women's roles in various societies             |
| 4. Lewis Howard Latimer | inventor, draftsman, and engineer instrumental in improving lighting      |
| 5. Margaret Mead        | author of the three laws of motion  |

Day 1

Isaac Newton is one of the most famous scientists in history. His first experiments dealt with bending light using a prism. After much experimentation, Newton discovered that white light could be separated into colors as it moved through a prism. Newton stated that light consists of streams of very small particles. He shared his ideas in a journal, but they were not accepted because other scientists were unable to duplicate his experiments.

Day 2

1. How might failures and not being accepted by peers encourage a scientist?

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The first electric car was built in 1891. It ran on batteries and could carry six passengers. These cars became very popular because they were quiet, lacked the smoke and the fumes of steam-powered cars, and were easy to operate. However, the batteries only allowed the cars to go about 50 miles (km) before being recharged, and they did not go very fast.

Day 3

1. Compare steam-powered and electric cars. Tell how they were alike and different.

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Information written on papyrus tells how early Egyptian doctors used plants around them as medicines. They used onions to prevent colds and thyme as a pain reliever. They used aloe vera to treat headaches, burns, and skin diseases. They used honey for a number of ailments such as sore throats and as antibiotics to spread on wounds.

Day 4

1. Why were early doctors good scientists?

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Name \_\_\_\_\_

## History and Science

Answer the questions.

1. Consider the world events that took place during the 1940s. Why do you think Albert Einstein moved to the United States to continue his studies and experiments?

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2. Lewis Howard Latimer drafted many patents for inventions still used today. Why do you think it is important for inventors to patent their inventions?

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3. Read the quote from Margaret Mead. Explain it in your own words.

“Anthropology demands the open-mindedness with which one must look and listen, record in astonishment and wonder that which one would not have been able to guess.”

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4. Marie Curie died from radiation poisoning because of her experiments with radium. How has experimentation changed so that scientists better protect themselves and safeguard the health of those with whom they are working? Include two specific changes in your explanation.

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Name \_\_\_\_\_

## Science in Careers

Draw a line to match the name of each science profession with its definition.

- |                   |  |
|-------------------|--|
| 1. audiologist    | works with Earth's atmosphere and everything in it                 |
| 2. gemologist     | identifies and evaluates stones and minerals                       |
| 3. physiologist   | prepares and dispenses medicines                                   |
| 4. pharmacist     | diagnoses and treats hearing loss and imbalance problems           |
| 5. horticulturist | studies the chemical, mechanical, and physical makeup of organisms |
| 6. meteorologist  | cultivates fruits, flowers, and other plants                       |

Day 1

Look at each profession. Name a science concept that each person needs to know to do the job.

1. architect \_\_\_\_\_
2. detective \_\_\_\_\_
3. artist \_\_\_\_\_
4. surveyor \_\_\_\_\_
5. pilot \_\_\_\_\_
6. science fiction writer \_\_\_\_\_

Day 2

Look at each school subject. Name two science careers that people can pursue in each area of interest.

1. math \_\_\_\_\_
2. language arts \_\_\_\_\_
3. health \_\_\_\_\_
4. social studies \_\_\_\_\_
5. art \_\_\_\_\_

Day 3

1. The world is constantly changing. Does science impact these changes? Give at least two examples.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Day 4

Name \_\_\_\_\_

### Science in Careers

Answer the questions.

- 1. What career would you like to have? Describe the job and explain three ways that you could use science in it.

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- 2. Choose a sport. Explain three ways that science impacts it. Think about the skills needed in the sport, people who support the sport, safety needs of the sport, or basic science principles related to it.

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- 3. Is it important for you to take science now and throughout your school career? Write a paragraph to explain your opinion. Give at least two reasons and examples.

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# Answer Key

## Page 9

**Day 1:** 1. using your five senses to learn about the world; 2. grouping objects based on characteristics or qualities; 3. sharing information using words, charts, diagrams, and graphs; 4. using what you know and what you learn to make conclusions; 5. using what you know to make a guess about what will happen; 6. telling how objects are alike and different;

**Day 2:** 1–2. Answers will vary. **Day 3:** 1. An observation is a concrete fact that can be observed. An inference is a conclusion based on observed facts. 2. Answers will vary.

**Day 4:** 1. Answers will vary but may include to be objective and to allow other scientists to try to repeat their experiments successfully. 2. Answers will vary but may include to make a conclusion simpler to understand.

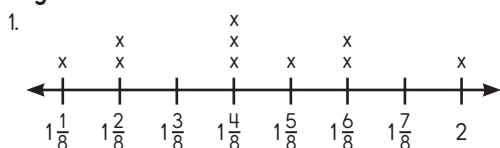
## Page 10

1. Answers will vary but may include that he makes a hypothesis about what the magnet will stick to and tests it in an experiment. He observes the results of the experiment to see that the magnet does stick to the handle. He infers that the door is also metal, because the magnet sticks to it. 2. Answers will vary but may include that magnetic means having a force that attracts metal objects. 3. Answers will vary. 4. B; 5. A

## Page 11

**Day 1:** 1. pound, gram; 2. quart, liter; 3. inch, centimeter; 4. mile, kilometer; 5. degrees Fahrenheit, degrees Celsius; **Day 2:** 1. The metric system is used in the science community. 2. Answers will vary but may include that the metric system allows scientists all around the world to understand the data gathered, even if they do not speak the same language. **Day 3:** 1. Answers will vary. **Day 4:** 1. Drawings will vary but may include a bar graph.

## Page 12



2. A line plot shows trends in data. 3. Answers will vary.

4.  $1\frac{21}{40}$  centimeters

## Page 13

**Day 1:** 1. true; 2. false; 3. true; 4. false; 5. true; **Day 2:** 1. Answers will vary but may include that you should read the instructions. You need to make sure you have all of the materials called for. You also need to know how to set up the experiment to complete it. **Day 3:** 1. Answers will vary. **Day 4:** Answers will vary but may include that some control variables may have been slightly different.

## Page 14

1. Answers will vary but may include that she should examine the plant for problems such as bugs and amounts of water given to the plant. 2. Answers will vary but may include goggles, hand lens, and water. 3. Answers will vary.

## Page 15

**Day 1:** 1. A variable is an element in an experiment that is able to vary, or change. 2. In an experiment, the variable is changed in order to find its effect on something else.

**Day 2:** 1. Answers will vary but may include that a dependent variable's values change because of changes in another variable. 2. Answers will vary but may include that the independent variable is the variable that is changed in an experiment. 3. Answers will vary but may include that a controlled variable is any variable that stays the same in an experiment. **Day 3:** 1. Mona should only change one variable at a time. If she does not, she will not know what variable causes a change in the speed at which her dog eats. **Day 4:** 1. size of the wire; 2. battery life; 3. Answers will vary but may include the length of the wires, the brand of battery, and the amount of time the battery stays connected.

## Page 16

1. A. soil additives; B. plant height; C. Answers will vary but may include amount of sunlight, amount of water, and frequency of watering. 2. A. temperature; B. hardness and other observable changes; C. Answers will vary but may include the same brand of candy, the place used to change the temperature, and the amount of time the candy spent there. 3. A. the material used; B. temperature/heat transfer; C. Answers will vary but may include the amount of time the object is heated, the time intervals at which the heat is tested, and using the same thermometer each time.

## Page 17

**Day 1:** 1. In a scientific context, evidence is the data collected in an experiment. 2. Answers will vary but may include that evidence is important because it allows other scientists to retry and compare the experiment results. **Day 2:** 1. Answers will vary. **Day 3:** 1. E; 2. E; 3. S; 4. S; 5. E; **Day 4:** 1. Conclusions are based on evidence. 2. Evidence allows scientists to accurately compare the results of repeated experiments.

## Page 18

1. Answers will vary but may include checking the relative dimness of lightbulbs. 2. Answers will vary but may include finding the mass of the moss before and after letting it dry out for a period of time. 3. Answers will vary but may include giving people a blind taste test and asking them to choose the sample made with artificial sweeteners. 4. Answers will vary but may include measuring the volume of aged versus fresh bags. 5. Answers will vary.

## Page 19

**Day 1:** 1. Matter; 2. element; 3. atom; 4. periodic; 5. molecule;

**Day 2:** 1. true; 2. false; 3. true; 4. false; 5. true;

**Day 3:** 1. A. electron; B. proton; C. nucleus; D. neutron;

2. Answers will vary. **Day 4:** 1. oxygen; 2. It tells the number of protons in the element. 3. 8; 4. It tells the symbol for the element.

## Answer Key

### Page 20

1. B; 2. D; 3. The electron moves freely around the nucleus. It has a negative charge. Protons and neutrons are joined inside the atom. The neutron has no charge. The proton has a positive charge. 4. The element has 15 electrons and 15 protons. 5. Answers will vary but should include that they cannot be broken down any further, and they can join to form other kinds of matter.

### Page 21

**Day 1:** 1. A molecule is made when two or more of the same kinds of atoms join. 2. They are the same because a molecule is the smallest part of a substance, while an atom is the smallest part of an element. **Day 2:** 1. A compound is made when atoms of two or more elements join. 2. Answers will vary but may include that water is a compound comprised of two hydrogen atoms and one oxygen atom. **Day 3:** 1. Answers will vary but may include that they are the same because two or more substances are mixed together, but their substances do not form a new compound. They are different because the parts of a mixture can be easily separated, while one part of a solution is dissolved throughout another part. It is more difficult to separate. 2. Salt water is a solution because the salt is dissolved in the water. It can be separated through evaporation. **Day 4:** 1. P; 2. P; 3. C; 4. P; 5. C; 6. C; 7. P; 8. C; 9. C; 10. Answers will vary.

### Page 22

1. A chemical change is taking place when a banana changes from green to yellow. 2. Heat and light can be used to separate a compound. 3. Answers will vary. 4. Solution B; 5. D; 6. D

### Page 23

**Day 1:** 1. Answers will vary but may include that the hydrogen and oxygen **atoms** combine to create a water **molecule**. Water is a **compound** because it is made of more than one element. **Day 2:** 1. A physical change does not alter the item's molecules. Examples will vary. 2. A chemical change alters the item's molecules. Examples will vary. **Day 3:** 1. Both solutions and mixtures are made of different materials mixed together. A solution is a special mixture where one material is dissolved into another and distributed evenly throughout. It cannot be easily separated, while a mixture can. 2. Answers will vary but may include that salt water is a solution because the salt is dissolved in the water. It can be separated through evaporation. **Day 4:** 1. chemical; 2. When they combine, a chemical reaction takes place, which forms a new material. The change cannot be reversed.

### Page 24

1. Molecules get farther apart and fit their container. Examples will vary but may include ice melting. 2. Molecules get closer

together and fit their container. Examples will vary but may include water vapor condensing. 3. Molecules get close together in a uniform pattern. Examples will vary but may include water freezing. 4. Molecules get farther apart and spread out to fill the space given. Examples will vary but may include water evaporating. 5. Molecules rapidly spread apart and out to fill the space given. Examples will vary but may include dry ice sublimating. 6. No new molecules are formed. The separate compounds in the mixture can still be separated. 7. mixing for two minutes; 56 square inches more; 8. The less you mix the batter, the fluffier the bread will be. 9. A

### Page 25

**Day 1:** 1. Speed is the measure of how far something moves in a set amount of time. 2. 75 km/h; To find the speed, I divided the total number of kilometers by the time of travel. **Day 2:** 1. inertia; 2. force; 3. gravity; 4. velocity; 5. accelerates; **Day 3:** 1. Sand creates more friction so that tires do not slide. 2. Answers will vary but may include wearing close-fitting clothes to reduce drag and ride close to the handlebars to reduce air resistance. **Day 4:** 1. Friction is the force that slows an object's movement. 2. Answers will vary.

### Page 26

1. Answers will vary but may include that their accounts are different because Ben was facing forward, and Claire was facing backward, so the forces acted differently on them. Their accounts are similar because they both felt two distinct forces in opposite directions. 2. The force of inertia caused them to continue moving after the brakes were applied. The force of the seat belt and the car seat kept them from moving too far forward. 3. D; 4. B; 5. B

### Page 27

**Day 1:** 1. chemical energy; 2. radiant energy; 3. electrical energy; 4. thermal energy; 5. nuclear energy; 6. mechanical energy; **Day 2:** 1. The potential energy of the car at the top of the hill changes to kinetic energy as gravity pulls it down the slope. **Day 3:** 1. false; 2. false; 3. true; 4. true; 5. true; 6. false; **Day 4:** 1. A lamp has electrical energy. The energy changes into radiant energy to make visible light when the lamp is turned on. 2. Food has chemical energy. The energy changes into mechanical energy to help me move.

### Page 28

1. Answers will vary. 2. A. Examples will vary but may include plants turning sunlight into sugar. B. Examples will vary but may include electric cars. C. Examples will vary but may include rubbing your hands together to warm them. 3. From left to right: gamma rays, X-rays, ultraviolet rays, infrared, microwaves, radio; 4. Answers will vary but may include that it helps show very large or very small numbers more easily.

# Answer Key

## Page 29

**Day 1:** 1. The atom has a positive charge because it has more protons than electrons. 2. Electrons will jump to this atom because they like to be balanced. **Day 2:** 1. Particles are constantly moving in a cloud. The top part of the cloud becomes positively charged, while the bottom becomes negatively charged. Electrons from the ground try to jump to the cloud, leaving the ground positively charged. The electrons in the cloud are repelling each other plus the electrons that are moving up from the ground. The now positively charged ground strongly attracts the extra electrons. The jump of the electrons to the ground creates lightning. **Day 3:** 1. Electrons leave the battery through the negative end. The negatively charged electrons create an electric charge that travels through the wire to the lightbulb. The thin wire in the bulb gets so hot from the current that it lights. The electrons continue to flow through the next wire to the switch. From there, it moves through the third wire and back to the positive end of the battery. **Day 4:** A. 4; B. 2; C. 1; D. 5; E. 3

## Page 30

1. A; 2. A; 3. B; 4. B; 5. Answers will vary but may include that when clothes rub together, one may become positively charged, while the other may become negatively charged. They are attracted to each other, or stick together, because they have opposite charges. 6. about 372 fewer kWh a month

## Page 31

**Day 1:** 1. All sounds are made with vibrations. 2. Answers will vary but may include that sound travels in waves and through matter. The vibrations push the molecules in the matter close together. Those vibrations spread out again and push the molecules next to them. The process continues and makes waves. **Day 2:** 1. the distance from one point on a wave to the same point on the next wave; 2. the highest point of a wave; 3. the lowest point of a wave; 4. the number of waves that move past a point in a one second; 5. half the distance of a wavelength; **Day 3:** 1. true; 2. false; 3. false; 4. false; 5. true; **Day 4:** 1. The sound is loud and low-pitched. The amplitude of the wave shows it is loud. The frequency of the waves shows it is low pitched. 2. Check students' drawings. The wavelength should show a low amplitude (crest to trough) and higher frequency.

## Page 32

1. water; 2. 1,620 meters per second; 3. water; 4. The bass drum is bigger. It will vibrate more slowly when, so the frequency of the sound wave will be less. Therefore, the pitch will be lower. The snare drum is smaller, so it will vibrate more quickly when hit, having a higher frequency. Its pitch will be higher. 5. B; 6. D

## Page 33

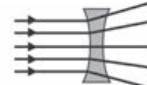
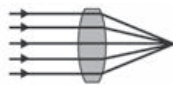
**Day 1:** 1. true; 2. true; 3. false; 4. false; 5. false; 6. true; **Day 2:** 1. Answers will vary but may include that light enters a prism, where the material changes the speed of the photons. The change in speed causes the light to bend, or refract,

separating the colors. **Day 3:** 1. reflected; 2. scattered; 3. transmitted; 4. scattered, transmitted; 5. opaque;

**Day 4:** 1. A lens is an object that bends light.

2. A. convex

B. concave



## Page 34

1. Answers will vary. 2. Answers will vary but should include that she is wrong because black is made when all of the colors of the spectrum are absorbed. 3. C; 4. A

## Page 35

**Day 1:** 1. A cell is the smallest unit in an organism. 2. Cells control getting energy, using energy, growth, reproduction, waste removal, and response to stimuli. **Day 2:** Animal Cell; A. cell membrane—controls what passes in and out of the cell; B. cytoplasm—the jellylike material that fills the cell; C. nucleus—controls the growth, development, and division of the cell; **Day 3:** Plant Cell; A. cell wall—the stiff material on the outside of the cell that helps the cell keep its shape; B. cytoplasm—the jellylike material that fills the cell; C. cell membrane— controls what passes in and out of the cell; D. chloroplast—the part that uses the sun's energy to make sugar; E. nucleus—controls the growth, development, and division of the cell; **Day 4:** 1. false; Some cells do not have a nucleus. 2. true; 3. true; 4. false; Tissues are made of similar cells that work together. 5. true

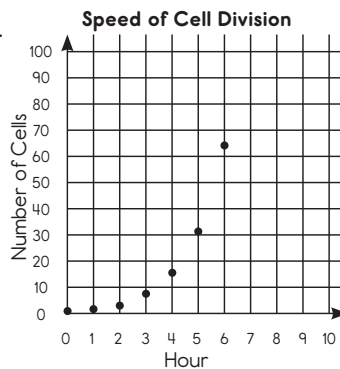
## Page 36

1. Answers will vary.

2.

Hour	Number of Cells
0	1
1	2
2	4
3	8
4	16
5	32
6	64

3.



4. 16,777,216 cells; 5. B

## Page 37

**Day 1:** 1. organisms; kingdoms; characteristics; species;

**Day 2:** 1. six; 2. plants, animals, protists, eubacteria, archaeobacteria, fungi; 3. They are both ways to classify organisms. A kingdom is more broad, and a species is the most specific classification. Check students' citations.

**Day 3:** 1. cell, tissue, organ, system, organism; Examples will vary.

**Day 4:** 1. Answers will vary but should include that similarities between systems in different organisms show that they have similar backgrounds.

# Answer Key

## Page 38

1. Answers will vary but should include that systems give scientists a way to show similarities and differences between different organism groups, which makes it easier to group them in more specific ways. 2. C; 3. A

## Page 39

**Day 1:** 1. P: sun, water, fertilizer, carbon dioxide, soil, temperature; 2. Answers will vary. **Day 2:** 1. Answers will vary but may include that a plant uses photosynthesis to make sugar and starch for energy. 2. Answers will vary but may include that chlorophyll inside plant cells gives a plant its green color. 3. Answers will vary but may include that plants use carbon dioxide from the air as part of the photosynthesis process. **Day 3:** 1. Answers will vary but may include through seeds, or by using insects to pass pollen to and fertilize other plants. Examples will vary. **Day 4:** Drawings will vary.

## Page 40

1. A; 2. Answers will vary but may include that they interact with the soil, which provides support to keep the plant anchored in the ground. The soil also provides nutrients that keep it healthy. They interact with the sun to get the energy needed for photosynthesis. They interact with water to keep fluid flowing through their system and also aid photosynthesis. 3. The nitrogen cycle is the process in which the nitrogen gas that is unusable is changed to a form that organisms can use. Some bacteria in plant roots can change nitrogen gas into a compound. Plants use the compounds to make protein. Decomposers return compounds to the soil when they get the energy from dead plants. 4. 714 grains

## Page 41

**Day 1:** 1. heredity; 2. reproduction; 3. species; 4. trait; 5. inherit; **Day 2:** 1. Answers will vary but may include that they might inherit body shape, height, and color of different parts. 2. Answers will vary. **Day 3:** 1. 4 puppies; 2. yes ( $\frac{3}{9} = \frac{4}{12}$ ); **Day 4:** A. pollinates; B. stamen, pistil; C. ovule; D. fertilizes; E. pollen; B, E, A, C, D

## Page 42

1. Heredity makes sure that certain traits are passed down in a species so that they can survive in the habitat. 2. Answers will vary but may include inherited traits from a parent, such as eye color, greatly affect an organism. There are inherited traits that are affected by the body systems and environment, such as height. There are acquired skills, such as playing an instrument, that also affect the development of an organism. Examples will vary.

## Page 43

**Day 1:** 1. An adaptation is the body structure or the behavior of an animal that helps it survive in its environment. 2. Answers will vary. **Day 2:** 1. structural, behavioral, camouflage, mimicry;

**Day 3:** 1. Answers will vary but may include that parents pass on many **inherited traits** to their offspring. However, there are **instinctive** traits that are available to all members of a species. Animals may also adopt **learned** traits by watching the behavior of their parents. **Day 4:** 1. Answers will vary.

## Page 44

1. B; 2. Answers will vary. 3. Answers will vary.

## Page 45

**Day 1:** 1. L; 2. I; 3. L; 4. L; 5. I; 6. I; 7. L; 8. I; **Day 2:** 1–3. Answers will vary. **Day 3:** 1. An instinctive behavior is an activity that an animal knows how to do from birth. It is a response to stimuli. The animal performs the task correctly without help the first time. Animals are not born with learned behaviors. They must gain knowledge and experience to perform these tasks correctly. 2. Answers will vary. **Day 4:** Answers will vary but may include that during migration, animals find mates, find abundant sources of food, or find safe areas to reproduce. 2. Answers will vary but may include yes, because most animals migrate twice a year, at the same times each year.

## Page 46

1. C; 2. Instinctive, because the turtle automatically knows to do that to stay safe from predators. 3. Answers will vary but may include that the monarch's life cycle is so short that it must migrate for the first time with no help. Check students' underlining. 4. from 25 to 50 days

## Page 47

**Day 1:** 1. An ecosystem is a community of organisms along with the nonliving parts of the environment. 2. Answers will vary. **Day 2:** 1. Answers will vary. **Day 3:** 1. false; Ecosystems can change. 2. false; Animals are best suited to the ecosystem in which they live. 3. true; 4. true; 5. false; If one type of animal in an ecosystem becomes extinct, it affects other parts of the ecosystem. **Day 4:** 1. Answers will vary but may include that a changing climate or lack of water would make it difficult for animals and plants to survive.

## Page 48

1. Answers will vary. 2. B; 3. D

## Page 49

**Day 1:** 1. energy; 2. producers; 3. consumers; 4. herbivore; **Day 2:** 1. Some animals, such as buzzards, eat the dead animals to get the energy. Decomposers, such as worms and mushrooms, break down the bodies of dead organisms. 2. Decomposers return the nutrients stored in dead organisms to the soil so that plants can use them. **Day 3:** 1–3. Answers will vary. **Day 4:** 1. A food chain shows only one way that energy can pass in organisms. A food web shows several different chains and the many ways that the energy passes. 2–3. Answers will vary.

# Answer Key

## Page 50

1. A; 2. C; 3. Arrows should be added to the diagram, showing energy moving from the bottom to the top of the pyramid. Answers will vary but may include that the sun is the energy source for the flowers. Through photosynthesis, sunlight is changed into sugar for the plant. The plant uses some of the energy for growth and stores the rest. The base is the largest level because it has the most energy. Grasshoppers eat the flowers. Not as much energy moves up because the flowers used some of it for their own needs. Birds, the predators, eat the grasshoppers, the prey. The animal at the top of the pyramid is the coyote, the strongest predator on the pyramid. 4. The pyramid has a broad base and a small point at the top. It shows that the producers have a lot of energy. As each animal consumes the one below, the amount of energy is reduced, so that less energy is passed along at the top of the pyramid.

## Page 51

**Day 1:** 1. all of the living and nonliving things in a place; 2. the place where an animal lives, where all of its needs can be met; 3. a group of one kind of living thing that lives in a place; 4. everything that is around a living thing; 5. all of the populations that live in a place; **Day 2:** 1. They want to find out if a population is changing. If the number of organisms is decreasing, they will want to protect them. If the numbers are increasing, they may want to reduce the number to maintain the balance of nature. 2. Answers will vary but may include that they put bands or transmitters on the animals.

**Day 3:** 1. Answers will vary but may include that a population might change because of disease, predators killing too many prey, or people changing habits. 2. Positively—robins would eat many of the insects, such as mosquitoes and grasshoppers, which cause humans problems; negatively—there might be too many robins, and they would eat most of the insects, leaving few foods for other birds to eat. **Day 4:** 1.

Year	2009	2010	2011	2012	2013	2014
antelope	161	252	266	217	231	210
lions	23	36	38	31	33	30

## Page 52

1. The rabbit population grew. 2. It grew from the first to the ninth year. 3. Answers will vary but may include that there was plenty of food for the coyotes to catch and eat. 4. A line graph shows changes over time. In this case, the graph shows how two populations change over a 10-year period. Answers will vary. 5. C

## Page 53

**Day 1:** 1. lunar; 2. life; 3. oxygen; 4. photosynthesis; **Day 2:** 1. false; 2. true; 3. true; 4. false; 5. true; 6. true; **Day 3:** 1. F; 2. D; 3. H; 4. C; 5. G; 6. B; 7. E; 8. A; **Day 4:** Answers will vary but may include that seeds germinate in the soil when a root begins to grow down and the stem begins to grow up. Next, the leaves and the stem grow above the soil to make a seedling. The mature plant produces flowers. Wind, birds, or bees and other insects pollinate the flowers. The pollen grains join with eggs. Seeds form and scatter on the ground when the flowers die.

## Page 54

1. C; 2. B; 3. B; 4. Answers will vary.

## Page 55

**Day 1:** 1. skeletal; 2. digestive; 3. muscular; 4. excretory; 5. respiratory; **Day 2:** A. 2; B. 5; C. 1; D. 4; E. 6; F. 3; **Day 3:** 1. false; 2. true; 3. true; 4. false; 5. true; 6. true; **Day 4:** 1. nervous, brain, Receptors, organs, spinal, react

## Page 56

1. digestive; A. mouth, softens and begins to break down food; B. esophagus, guides food from the mouth to the stomach; C. stomach, breaks food down into liquid; D. large intestines, turns leftover food into waste that will exit the body; E. small intestines, breaks down food and absorbs nutrients; 2. Answers will vary.

## Page 57

**Day 1:** 1. Answers will vary but may include a healthful diet provides the nutrients that give the body energy. It helps prevent injury and illness. 2. Answers will vary but may include each color of food has different minerals and nutrients. Eating from all of the colors ensures that the body is getting a variety of minerals and nutrients for better nutrition.

**Day 2:** Answers will vary but may include that exercise keeps the muscles strong. It builds the muscles and the lungs so that the heart can pump more blood, and the lungs can get more air. Exercise can reduce stress for better mental health. It helps people sleep better too. 2. Answers will vary. **Day 3:** 1. heart, exercise, eat, sleep, disease or illness, stress; **Day 4:** 1. the major source of energy for humans; 2. help provide insulation and cushioning for organs; 3. essential for creating and repairing tissues; 4. chemical elements found in food that are used for all body functions; 5. organic compounds essential to life; 6. nonliving elements found in cells

# Answer Key

## Page 58

1. Answers will vary but may include that carbohydrates are sugars and starches that give the body energy. Bread and fruits have carbohydrates. Proteins build muscle and bone and give the body energy. Meat, beans, and cheese have proteins. Fat is important for energy and keeps the body warm. Meat and oil have fats. Vitamins provide nutrients to keep the body healthy and help it grow. Fruits and vegetables have many vitamins. Minerals also keep the body healthy and help it grow. Most foods have minerals. Finally, water keeps the body's temperature balanced. 2. A. 2; B. 8; C. 4; D. 3; 3. C; 4. A

## Page 59

**Day 1:** 1. atmosphere; 2. gravity; 3. troposphere; 4. exosphere; 5. stratosphere; **Day 2:** A. exosphere; B. thermosphere; C. mesosphere; D. stratosphere; E. troposphere;

**Day 3:** 1. Answers will vary but may include that the three most important gases are nitrogen, oxygen, and carbon dioxide. All living things need nitrogen to live. Plants need it as a nutrient, and animals need it for their cells. Animals breathe oxygen. Plants need carbon dioxide for photosynthesis. **Day 4:** 1. false; 2. true; 3. true; 4. false; 5. false; 6. false

## Page 60

1. Answers will vary. 2. Answers will vary. 3. more carbon dioxide,  $0.9 > 0.1$ ; 4. 0.01%

## Page 61

**Day 1:** 1. The hydrosphere is the water found on Earth. Examples will vary but may include oceans, rivers, lakes, ponds, glaciers, aquifers, and clouds. 2. Answers will vary but may include that all living things need water to live. Water vapor in the air gives us weather. It provides jobs for some people.

**Day 2:** 1. evaporation, condensation, precipitation, runoff, transpiration; **Day 3:** 1. true; 2. false; Plants play a part in the water cycle through transpiration. 3. true; 4. true; 5. false; The water cycle affects the weather. **Day 4:** 1. As the largest source of water on Earth, seawater is the majority of the water that goes through the water cycle. 2. Answers will vary.

## Page 62

1. D; 2. B; 3. Clouds are made with water vapor. Because they have water, they are part of the hydrosphere. 4–5. Answers will vary.

## Page 63

**Day 1:** 1. moving air created by areas of high and low pressure; 2. water that falls to Earth's surface; 3. a tool for measuring atmospheric pressure; 4. the amount of moisture in the air; 5. a tool for measuring wind speed; **Day 2:** 1. Answers will vary. **Day 3:** The water cycle affects weather because it causes the formation of clouds, which affects the amount of precipitation

and sunlight an area gets. **Day 4:** Weather is the changes in atmospheric conditions over a short period of time. Climate is the general behavior of the atmosphere for an area over a long period of time.

## Page 64

1. Answers will vary.

## Page 65

**Day 1:** 1.  $18^{\circ}\text{C}$ ; 2.  $[(t \times 9) \div 5] + 32$ ; 3.  $64^{\circ}\text{F}$ ; **Day 2:** 1–2. Answers will vary. **Day 3:** 1. Earth is a sphere, so the sun's rays hit it differently. The rays are focused on the equator but spread out toward the poles. 2. The tilt of Earth creates the seasons. The amount of sunlight striking Earth changes throughout the year. Areas tilted toward the sun get more light and have warmer temperatures.

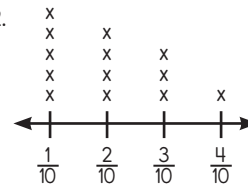
**Day 4:** 1.



2. Air above the ocean is full of water vapor. It blows toward land and rises up the mountain. As it rises, the air cools, and the vapor condenses, forming clouds. The vapor changes states and falls as rain or snow. The air is cool and dry when it crosses over the mountain. The cool air sinks, heating as it falls. The air is now warm and dry.

## Page 66

1. Answers will vary. 2.



3. 2.6 inches; 4. Answers will vary but may include that the most common amount of rain is a tenth of an inch.

## Page 67

**Day 1:** 1. Answers will vary but may include that the lava from a volcano burns the land as it flows. It also builds new land when the lava flows into the cold ocean water and hardens. 2. Answers will vary but may include that an earthquake can make large cracks in Earth. 3. Answers will vary but may include that a flood can wash away buildings and roads, as well as move dirt and rocks to new places, making the land look different. **Day 2:** 1. C; 2. P; 3. C; 4. P; 5. P; 6. C;

**Day 3:** 1. Weathering is the process where rocks are broken down into smaller pieces. Erosion is moving rocks and soil to new places. 2. The forces are water, wind, and ice. 3. As a glacier moves across the land, its weight pushes rocks and soil. **Day 4:** 1. Deposition; 2. slows; 3. nutrients; 4. dunes; 5. beaches; 6. delta



## Answer Key

### Page 68

1. Answers will vary but may include that rocks are weathered by water, wind, ice, and plants. The flow of water chips off tiny grains and pieces. Wind carries pieces of sand that hit bigger rocks, causing them to chip. Water also gets in cracks and freezes. As the ice expands, it forces the cracks to grow and can break the rock. Plant roots grow in the cracks of rocks. As they get bigger, they break the rocks. 2. Answers will vary but may include disagree because a river can change the land because flowing water is a powerful force. It erodes the banks and bed, making the river wider and deeper. The river often becomes curvier too. 3. C

### Page 69

**Day 1:** 1. about 3,443 kilometers; **Day 2:** 1. The water in parts of Earth closest to the moon is pulled more strongly by the moon's gravity, so the tide rises in those areas. On the opposite side of Earth, the land is pulled more strongly than the water, causing high tides in these areas also. 2. The tides are higher during a new moon because the Earth, moon, and sun are aligned, having a stronger force of gravity. **Day 3:** 1. Drawings will vary. **Day 4:** 1. An eclipse is when one celestial body blocks another. 2. A lunar eclipse occurs when Earth is between the sun and the moon, and Earth casts a shadow over the moon. A solar eclipse occurs when the moon is between the sun and Earth, and the moon casts a shadow on Earth.

### Page 70

1. C; 2. A; 3. B; 4. Days and years are the same length on the moon, because the moon's rotation on its axis and revolution around Earth take the same amount of time. 5. Answers will vary but may include that early farmers needed to know when to plant, how long they would have to tend their crops, and when they should harvest.

### Page 71

**Day 1:** 1. a large heavenly body that revolves around the sun; 2. a ball of burning gases; 3. a rocky object that revolves around the sun; 4. a rocky object from space that travels through the atmosphere and lands on the surface of Earth; 5. a ball of ice, gas, and dust that moves around the sun; 6. a group of stars that form a pattern in the night sky; 7. a large group of stars surrounded by gas and dust; **Day 2:** 1. false; 2. true; 3. true; 4. false; 5. true; 6. false; **Day 3:** 1. Answers will vary but may include that scientists need to be able to categorize celestial bodies to be able to predict patterns of behavior. Check students' underlining. **Day 4:** 1. A. meteorite; B. asteroid or meteor; C. comet; D. galaxy; 2. Answers will vary but may include that an asteroid is a rocky object and can be about the size of a planet. A meteoroid can be rock or metal and is much smaller.

### Page 72

1. Answers will vary. 2. Answers will vary but may include an atmosphere, a good distance from the sun, and water. 3. B; 4. C

### Page 73

**Days 1–4:** 1. Answers will vary. Check students' citations.

### Page 74

1. The space suits needed to withstand harsh conditions, such as heat, to protect astronauts leaving the spacecraft. The cool suit kept the astronaut cool and comfortable so that the body would not overheat. 2. Drivers might crash, and the cars could catch fire. But, the suit would protect the driver from skin burns. 3. Answers will vary but may include that the heat from the body is transferred to the cool liquid. 4. Answers will vary. 5. NASA is sharing information about advanced technologies. People are finding ways to use the information to make their lives better and safer.

### Page 75

**Day 1:** 1. A natural resource is something found in nature that is useful. 2. Answers will vary. **Day 2:** 1–3. Answers will vary. **Day 3:** 1. Answers will vary. 2. 2.7 square inches; **Day 4:** 1–2. Answers will vary.

### Page 76

1. A; 2. B; 3. Answers will vary but may include yes, that if monitored and conserved, some renewable resources can be inexhaustible. For example, lumber companies cut trees and replant them. If they continue the process, trees can be an inexhaustible resource. 4. Answers will vary.

### Page 77

**Day 1:** 1. Answers will vary but may include that they construct buildings. They dig minerals from the ground. They build roads. 2. Answers will vary but may include that buildings provide shelter and places to purchase products. Minerals can be used to make useful products. Roads make it easy to move from place to place. **Day 2:** 1. Answers will vary but may include that trees are often cut when building, taking away some of the oxygen-making supply. Minerals are nonrenewable and will someday be used up, which means that some products may not be available anymore. Road construction results in air pollution, with excess dust and vehicle fumes. 2. Answers will vary. **Day 3:** 1. Answers will vary but may include that ozone gas is a barrier to ultraviolet rays, which can cause cancer. 2. Answers will vary but may include that fumes from cars and power plants, produced from burning fossil fuels, are destroying the ozone. 3. The temperature on Earth will rise. More people may get cancer. **Day 4:** 1. Answers will vary but may include that people destroyed the bluebirds' habitat, making it impossible for them to find places to nest or food to eat. People helped the population by building places for the birds to nest and kept the birds from becoming extinct.

## Answer Key

### Page 78

1. Kudzu killed many trees, shrubs, and flowers. For a while, kudzu stopped erosion and was used as a food source for some animals. People use it to make useful products. 2. People changed their views because it began killing the native plants. 3. Yes, kudzu is a resource because people have found ways to make it into products that people use. 4. Answers will vary. 5. 110.4 meters

### Page 79

**Day 1:** 1. pollution; 2. land; 3. noise; 4. water; 5. air; 6. noise;

**Day 2:** 1. true; 2. false; 3. true; 4. true; 5. false; 6. true;

**Day 3:** 1–2. Answers will vary. **Day 4:** 1. Answers will vary but may include that the land can get polluted when farmers use chemicals on their crops, people toss their trash on the ground, or landfills seep toxins that people throw in with their waste. 2. Answers will vary.

### Page 80

1. A. about 2 times louder; B. Answers will vary but may include that it may cause hearing and sleep problems for residents. 2. Answers will vary. 3. D; 4. A

### Page 81

**Day 1:** 1. 640 lb; 2. 288 lb; 3. 256 lb; 4. 112 lb; 5. 112 lb; 6. 192 lb;

**Day 2:** 1. The three R's are reduce, reuse, and recycle. Answers will vary. **Day 3:** 1. A. 4; B. 3; C. 2; D. 5; E. 1; **Day 4:** 1. Answers will vary.

### Page 82

1. Answers will vary but may include that a compost pile is made of food scraps, yard clippings, and other organic materials that rot and decay. Worms, maggots, bacteria, and other decomposers work to release the stored energy from these materials so that the nutrients can be returned to the soil to aid plant growth when spread as a blanket on the ground. 2. A. 64.67 kWh; B. Answers will vary but may include that it helps them make informed choices about the environment.

### Page 83

**Day 1:** 1. Alternative energy is energy sources other than fossil fuels and other pollution-causing energy sources. 2. Answers will vary but may include that people are interested in improving Earth for future generations. **Day 2:** 1. Wind pushes windmills attached to turbines to create electric energy. 2. Solar panels capture solar energy and transform it into electrical energy. 3. Hydroelectric dams use the water flowing

through them to power turbines, which transform the power into electric energy. **Day 3:** 1. false; All energy sources have some drawbacks. 2. true; 3. false; Cars can be powered by many energy sources; 4, true; 5. false; Fossil fuels are nonrenewable and pollute Earth. **Day 4:** 1. Answers will vary.

### Page 84

1. Answers will vary.

### Page 85

**Day 1:** 1. scientist who discovered the benefits of radium and radioactive therapies; 2. author of the theory of relativity; 3. author of the three laws of motion; 4. inventor, draftsman, and engineer instrumental in improving lighting; 5. anthropologist who studied women's roles in various societies; **Day 2:** 1. The scientists had some proof that validated their research and would be more motivated to prove their theories. **Day 3:** 1. Answers will vary but may include that they were alike because both vehicles could carry passengers. They were different because one used steam as a power source and the other used batteries. **Day 4:** 1. Answers will vary but may include they were good scientists because they communicated the ingredients they used in their medicines.

### Page 86

1. Answers will vary but may include that Einstein was Jewish. He moved from Europe to the United States to avoid the Holocaust. Moreover, he would have the freedom of choice to experiment freely. 2. Answers will vary but may include that inventors should patent their inventions to protect their ideas and get credit for their research. 3–4. Answers will vary.

### Page 87

**Day 1:** 1. diagnoses and treats hearing loss and imbalance problems; 2. identifies and evaluates precious stones and minerals; 3. studies the chemical, mechanical, and physical makeup of organisms; 4. prepares and dispenses medicines; 5. cultivates fruits, flowers, and other plants; 6. works with Earth's atmosphere and everything in it; **Day 2:** 1–6. Answers will vary. **Day 3:** 1–5. Answers will vary. **Day 4:** 1. Answers will vary.

### Page 88

1–3. Answers will vary.



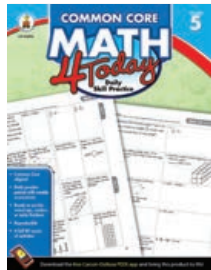


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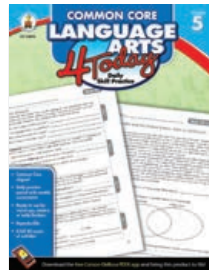


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