A Snowy Day

Lexile 650L - B

1 Genesis woke up with a shiver. It was cold! It was a Friday in the middle of January, but Genesis lived in Houston, Texas. Even in the middle of winter, it usually did not get very cold in Houston. She could tell this day was going to be different.

2 Quickly, Genesis changed into her school uniform and headed to the kitchen. While she was eating breakfast with her family, Genesis looked out the window and gasped with surprise. A soft, white substance was falling from the sky!

3 “Look!” she cried. “Snow!”

4 The snow continued falling as Genesis walked to school with her brother and sister. They stuck out their tongues to catch the cold flakes in their mouths. The snow was heavy enough that their coats and jackets were dusted with the white, powdery flakes by the time they got to school. Genesis kept holding her scarf out in front of her face and trying to peer at the tiny, six-sided flakes.

5 When she got inside the classroom, her scarf was a wet mess.

6 “Mrs. Taylor!” she said to her teacher. “I am all wet!”

7 Mrs. Taylor smiled. “Do you know what snow is?”

8 Genesis had never seen snow before, so she had never really thought about it. “Well... I guess it is just like rain, but frozen.”

9 “That is right,” said Mrs. Taylor. “Snow is just water in a solid form. Remember what we learned about solids? They keep their shapes.”

10 Genesis thought for a moment. “When I was outside, I was covered with white flakes. They did keep their shapes. I kept looking at them. They were like little stars.”
“When you came inside,” said Mrs. Taylor, “the heat melted the flakes. So, now you are all wet. The flakes became liquid. Liquid does not hold its shape. That is why your scarf is dripping now!”

Genesis looked at her scarf. Sure enough, she could squeeze drops of water from the wool.

Genesis and her friends put their wet clothes near the heater to dry.

After an hour or so, the air felt steamy and smelled like damp wool.

“Now,” said Mrs. Taylor, “the water has become a gas called water vapor. A gas spreads out into the space available. That is why the air seems so damp now.”

“Yuck, I do not like it!” said Genesis.

“Well,” said Mrs. Taylor, “you will be glad when you go home and you have a dry scarf.”

Genesis had to agree. At the end of the day, the snow had stopped. It was still cold, so she fastened her scarf around her neck. The water had fallen from the sky in the form of a solid, turned into a liquid when she got inside the room, and then became a gas as it heated up. She was glad that matter could change states if that meant she would go home with a dry scarf.
1. In the first paragraph, it says:

*She could tell this day was going to be different.*

What was different about this day?
A. It was Genesis’ birthday.
B. Genesis had a new scarf.
C. It was especially cold.
D. Genesis did not have to go to school.

(Fig. 19D)

2. What caused Genesis’ scarf to become wet?
A. A friend threw water on her.
B. It was raining.
C. The snowflakes melted.
D. Snow is always wet.

(3.13C)

3. What goes in the empty box?

(Fig. 19D)

A. The snowflakes fell onto the ground.
B. The snowflakes melted and became liquid.
C. Genesis borrowed a friend’s scarf.
D. School was canceled due to snow.

(3.13D)

4. Which of the following is true about solids?
A. They keep their shapes.
B. They spread out to fill the space available.
C. They take the shape of their containers.
D. Snowflakes are never solids.

(3.13A)
5. Which of these is a solid?

A. a raindrop
B. a snowflake
C. a rainbow
D. a breeze

(3.13A)
LOOK at this picture:

THINK about a time you played with sand. What did it feel like in your hands?

WRITE about why you think sand can sometimes behave like a liquid. What are some things that can be made out of sand?

Notes
WRITING SCIENCE

Classifying Matter
Matter and Energy

Topic: ____________________________________________
A Summer Experiment

1. Joey and Connor were neighbors. They liked to have a cool treat after playing outside all day in the summer sun. Joey liked lime popsicles. Connor liked ice cream bars. One day, Joey and Connor took their treats outside to eat in the sun. They were enjoying the snack, but soon the boys saw that their treats were melting.

2. Joey frowned when he saw his melting popsicle. “I wonder why it is melting so fast?” he said. “I can normally eat the whole thing before it really melts.”

3. Connor said, “We usually eat in the kitchen. It is pretty hot out here. Maybe it is melting faster because the temperature is different.”

4. “Connor, you may be right,” said Joey, “but maybe we can do a science experiment to find out for sure!”

5. Joey’s mom said they could use her kitchen for the experiment, but she wanted them to use ice cubes instead of popsicles. That way, they would not waste food. She told them the results would be close since ice cubes and popsicles are both frozen liquids. The boys understood and got to work. They got three bowls. Then, they put an ice cube in each bowl.

6. “Now, all of the ice cubes are solid,” said Joey’s mom. “They keep their shapes even when you take them out of the ice cube tray.”

7. Joey and Connor put one bowl in the sun, one bowl in the shade, and one bowl in the kitchen. They would check the samples every five minutes. Which environment would cause the frozen treats to melt fastest? They made a hypothesis or educated guess. Joey and Connor thought the bowl in the sun would melt the fastest, but they were not sure if the one in the shade or the one in the kitchen would be second fastest.
Continued

8 The first time they checked the bowls, the ice cube in the sun was melting fastest. The cubes in the kitchen and in the shade were both starting to drip a little.

9 After ten minutes, Joey and Connor checked the samples again. Joey checked the samples outside. Connor checked the bowls inside. Joey found that the cube in the sun was totally melted. It had become a liquid and no longer kept its shape. Instead, it had spread out to fill the bowl. The cube in the shade was also melting, but not all the way. There was still a lump of solid in a pool of liquid. Inside, Connor saw that the cube in the kitchen still had most of its shape.

10 The ice cubes outside were both melted by the third time they checked, but the one in the kitchen still held some of its original shape.

11 “Why don’t you leave them a few more hours?” said Joey’s mom.

12 “But why?” asked Joey. “They are already liquids.”

13 “I think something neat will happen,” she said.

14 Joey and Connor went to play video games. A few hours later, they came back. They found that the two bowls outside were both empty, but the one in the kitchen had some water left.

15 “Mom, are you tricking us?” asked Joey.

16 “No. You boys are good scientists. You found that the heat can turn a solid like ice into a liquid. Heat can also turn a liquid into a gas. This is called evaporation. The liquid from the ice cubes is now in the air.”

17 “Cool!” said the boys. Then, they ran off to think of some more experiments they could try.
1. The author probably wrote this passage to:
A. tell you how you could do an experiment with ice cubes
B. persuade you that experiments can be fun
C. explain the states of matter
D. tell a story about two boys who learn something about heat

2. Why did the boys use ice cubes, instead of popsicles, for their experiment?
A. Joey’s mom did not want them to waste food, and ice cubes are frozen like popsicles.
B. Popsicles would not melt fast enough.
C. Joey’s mom thought popsicles would be too messy, but she wanted them to be able to try the experiment.
D. They ran out of popsicles.

3. What caused the ice cube in the sun to melt fastest?
A. wind
B. The boys blew on it.
C. heat
D. Joey’s mom took the ice cube and replaced it with water when they weren’t looking.

4. The boys made a hypothesis (seventh paragraph). A hypothesis is:
A. a wild guess
B. a guess made with some evidence
C. an untrue statement
D. a lie
5 What would happen if the boys returned the bowl in the kitchen to the freezer?

A The water would evaporate and become a gas.
B The water would stay in liquid form.
C The water would become ice.
D The water would turn into a popsicle.

(Fig. 19D)
LOOK at this picture:

THINK about a time you colored with crayons. Crayons are made out of wax. What do they smell like?

WRITE about what you think the wax was like before, during, and after making the crayons. What do you think would happen to the crayons if you left them outside on a hot day?
WRITING SCIENCE

Topic: ____________________________________________

Changes from Heat
Matter and Energy
Kristen wants to be a chef someday. She gets a lot of practice helping her dad in the kitchen. He watches over her while she slices, dices, measures, pours, mixes, and stirs.

One night, Kristen asks her dad what they are cooking for dinner. Dad says they will have marinated chicken, rice, and salad.

First, they will have to make a mixture for the marinated chicken. The marinade will be made of pineapple juice, brown sugar, garlic, pepper flakes, and soy sauce. This will give the chicken the sweet and sour flavor that Kristen loves.

Kristen gathers the ingredients. She measures them out. Then, she pours them in a bowl. She stirs until all the sugar has dissolved into the liquid. This means that it has spread out evenly. She cannot even see it anymore. She remembers studying this in science class. When one substance dissolves in another, it makes a solution.

Kristen can still see the garlic and the pepper flakes. They do not dissolve. She thinks of science class again. When two or more substances are put together and they keep their original physical properties, it is called a mixture. The garlic still looks like garlic. The pepper still looks like pepper. She has made a mixture. She pours the mixture over the chicken. Then, she puts it in the refrigerator to be grilled later.

Now, it is time to make the rice. Kristen pours one cup of rice, two cups of water, and one teaspoon of salt into a pot. She puts a lid on the pot. Then, she places it on the stove to cook. It will take about 20 minutes for the rice to be ready.

While the rice is cooking, Kristen and her dad prepare the salad. They choose red leaf lettuce, cherry tomatoes, cucumbers, and carrots. They toss the vegetables into a bowl. Then, they place the bowl in the refrigerator. Once more, Kristen remembers science class. She decides the salad is a mixture. All of the ingredients are in one bowl, but each ingredient has the same properties as it did when it was separate.
Continued

8 Next, Kristen decides to make a salad dressing. She uses oil, vinegar, and lemon juice. As she stirs them together, the oil and vinegar seem to dissolve. When she stops mixing, they separate. Another mixture!

9 Now that the rice is almost done, it is time to cook the chicken. Kristen takes the chicken out of the refrigerator. Her dad places it on the grill. It only needs to cook for a few minutes on each side. Kristen checks the rice. She sees that it has absorbed all the water. This means it is perfectly cooked. Then, she takes out the salad. She pours the dressing over it. Everything looks delicious. It is now ready to be put on the table.

10 Kristen is hungry. Before she starts to eat, she thinks about how cooking is like science. It is easy if you really enjoy it and give it a lot of practice!
READING SCIENCE

1. Which of the following is the best meaning of the word **dissolve** (fourth paragraph)?
   A. to spread out evenly into another substance
   B. to keep the same physical properties
   C. to mix together in a bowl
   D. to sweeten a marinade

   (3.4B)

2. According to the passage, what is the definition of a **mixture** (fifth paragraph)?
   A. a substance that can be dissolved in water
   B. two or more substances that keep their original properties when combined
   C. two substances that can be melted together
   D. a substance that, when stirred into another, spreads out evenly

   (3.4B)

3. Which of these is most likely a **solution** (fourth paragraph)?
   A. cereal in milk
   B. peas and carrots
   C. food coloring in water
   D. gravel and sand

   (Fig. 19D)

4. The author probably wrote this passage to:
   A. tell a funny story about a girl who likes to cook
   B. describe some of the common mixtures you might find in cooking
   C. explain how marinating chicken causes solutions
   D. tell you how to make dinner

   (3.12)
5 Kristen thinks that cooking is like science: it is easy if you really enjoy it and give it a lot of practice!

What is another way that cooking is like science?

A When you cook, you should wear goggles just like when you do experiments.
B Cooking and science are only for grown-ups.
C Both cooking and science involve mixtures and solutions.
D Cooking is not really like science.

(Fig. 19D)
LOOK at this picture:

THINK about this pile of tires. Does being in the pile cause any of the tires to change in any way? How easy would it be to separate the tires?

WRITE a description of the tires in the pile. What are some ways you could separate and classify these tires? Is the pile of tires a mixture?

Notes
Writing Science

Topic: ________________________________

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Sample
John woke up at 7:00 AM on Saturday morning. He could not sleep anymore because he was excited that his mom was going to take him to the Alta Wind Energy Center. His teacher had told him that it was the biggest wind farm on Earth, and now he was going to get to see it for himself.

“Why do they call it a farm?” he asked his mom.

“Well, a farm is a place where you raise things,” his mom said. “Usually, you raise chickens or corn or something you can eat. But at Alta, they raise wind.”

“But you cannot eat wind,” John said.

“That is true,” his mom said with a laugh. “But you can use it for energy.”

“Energy? I thought you got energy from the socket in the wall,” he said.

“Most of the time, you do,” she said. “But that energy has to come from somewhere. It has to be made. Sometimes it is made with coal. Miners will dig up the coal and send it to a power plant. Then, workers will burn the coal to heat water and make steam. That steam will cause a big fan to turn around a magnet and electrify a wire. Then, the electricity can flow along the wire from the power plant to homes and buildings.”

“So why do we need a wind farm?” John asked.

“Well,” his mom said, “burning coal works well, but it also produces a lot of pollution. Wind farms are a way of making energy with less pollution.”

At that moment, the wind farm came into view. The land was flat, and there were huge white turbines, or fans, as far as the eye could see.
“How do they work?” John asked.

“First, the wind turns the fan blades,” his mom said. “Then, the blades turn a shaft that is connected to a generator that turns around a magnet to electrify a wire. It’s pretty much the same as a coal plant, but instead of burning coal to turn the fan, you just use the wind. That way there is no pollution.”

“But why are there so many?” John asked.

“Each one can only produce a small amount of electricity,” she said. “But when you put them all together, you get enough energy to power half a million homes.”

“That is a lot!” John said.

“It sure is,” said his mom, as they continued to drive past one turbine after another turbine.
READING SCIENCE

1. What is the main idea of this passage?
   A. Wind farms are dangerous.
   B. Wind farms are a way to create electricity with less pollution.
   C. Farms grow many things.
   D. Coal cannot be used to create energy.

(3.13A)

2. According to John’s mom, what is wrong with coal-burning power plants?
   A. They do not work.
   B. They give people jobs.
   C. They create pollution.
   D. It is hard to grow coal.

(3.13C)

3. What is another word for turbine (tenth paragraph)?
   A. tire
   B. fan
   C. turn
   D. wire

(3.4B)

4. What causes the turbine to turn?
   A. coal
   B. a generator
   C. wind
   D. electricity

(3.13C)
5. Why are there so many turbines?
   A. They look cool.
   B. They break down a lot.
   C. They help each other turn.
   D. You need a lot of them to produce enough electricity.

   (3.13A)
Look at this picture:

Think about what this family is eating for breakfast. What do you like to eat for breakfast?

Write about the forms of energy that are involved in making breakfast. Can you find examples of mechanical, light, sound, and heat energy?

Notes
WRITING SCIENCE

Forms of Energy
Force, Motion, and Energy

Topic: __________________________

[Blank lines]

Sample
It’s a Bird! It’s a … Fish?
Lexile 680L - B

1 I bet that you have seen an airplane flying through the air. Maybe you have even thought that it looked like a bird. But have you ever thought that an airplane looks like a fish? Well, engineers have. Engineers are the people who design machines. They observe both birds and fish when they are figuring out how airplanes should be built.

2 Forces that cause birds to glide through the air also cause airplanes to fly. An airplane’s wings are shaped like a bird’s wings. Air goes over the top of the curved airplane wing. The air on the bottom pushes up on the wing. It lifts the airplane. The force of the air will keep the airplane flying as long as the airplane moves fast enough.

3 The shape of the airplane body is important too. The airplane’s wing is shaped like the wing of a bird. But the airplane body is shaped like a fish. This body shape helps the airplane to move through the air like a fish moves through water. It moves swiftly and smoothly. The streamlined body of the airplane makes the friction caused by air less. Friction is when two things push against each other.

4 Scientists and engineers learn a lot about force and motion by looking at animals and how they move. Just look at the airplane. Do you see how it is modeled after both a bird and a fish?
READING SCIENCE

1. This passage is mainly about:
   A. an airplane’s wing
   B. the shape of a bird’s wings
   C. how airplanes are like both birds and fish
   D. the body shapes of fish
   
2. An engineer (first paragraph) would probably:
   A. figure out how to make cars go faster
   B. test different motors
   C. take machines apart and put them together
   D. all of the above

3. According to Diagram 1 above:
   A. Air moves fastest as it moves under the wing.
   B. Air moves fastest as it moves over the wing.
   C. Air moves equally over and under the wing.
   D. The movement of air is not important to how airplanes fly.

   (3.13A, 3.13D)
Diagram 2 above shows:

A how fish and birds are similar
B how fish fins are like airplanes
C how the body of the fish and the airplane are similar
D the differences between fish and airplanes

(Fig. 3.13D)

5 When there is too much friction (third paragraph), an airplane would probably:

A keep going at the same speed
B speed up
C slow down
D crash

(Fig. 19D)
LOOK at this picture:

THINK about what the forklift driver has to do to get the boxes into the truck.

WRITE about the force that is being used to get the boxes into the truck. What is an example of an object that does NOT need this force to move? How else could the driver get the boxes into the truck?
Sample
1. Isaac Newton was born in England on Christmas day in 1642. He was a sickly child and was not allowed to play outdoors. Instead, he made up games, drew, wrote poetry, read, and studied.

2. Still, Isaac's teachers did not think that he was a very good student. Isaac did not do his homework, so they thought that he wasn't learning. But Isaac was learning in his own way. In fact, he was always thinking and building. He learned how to make a sundial, a water clock, and even a windmill that could grind corn.

3. Isaac had many great ideas, too. The most famous of these was his study of gravity. This is how it happened.

4. One day while Isaac was sitting in the garden, he saw an apple fall to the ground. He had seen this happen before. But this time, he started to wonder. Why did the apple always fall right to the ground? Why didn't it fall sideways? Or just float away?

5. After some thinking, Isaac had an idea! He felt that there had to be some invisible force that pulled things towards the ground. This force is called gravity. He also felt that this same force acted on the planets; it was what kept them going around the Sun rather than floating off into space.

6. Isaac's studies of gravity led him to study the ways that objects move. For example, he realized that a moving object will not stop unless a force acts on it. This is the First Law of Motion. He made three laws like this. They are still studied today.

7. Isaac came up with other inventions as well. He made a telescope with mirrors instead of lenses. He discovered the properties of light. And he came up with a type of math called calculus. He even got a job as the head of the Royal Mint. A mint is a place where money is made.
Continued

8 Queen Anne of England knighted Isaac Newton in 1705 because of his great accomplishments. This is how he got the “Sir” in his name. Being knighted is an honor for a lifetime of good work.

9 Sir Isaac Newton died in 1727 at the age of 85.
1. Which of the following was NOT a discovery of Sir Isaac Newton?
   A. the laws of gravity  
   B. the three laws of motion  
   C. the microscope  
   D. calculus  
   (3.13A)

2. Gravity (fifth paragraph):
   A. keeps objects from flying into space  
   B. makes an apple fall down instead of up  
   C. keeps the planets going around the Sun  
   D. all of the above  
   (3.13A)

3. A good way to describe Isaac Newton is:
   A. lazy  
   B. curious  
   C. rich  
   D. unhappy  
   (3.13B)

4. Which sentence from the passage tells you that Isaac loved learning:
   A. He learned how to make a sundial, a water clock, and even a windmill that could grind corn.  
   B. He had seen this happen before.  
   C. He even got a job as the head of the Royal Mint.  
   D. He was a sickly child and was not allowed to play outdoors.  
   (Fig. 19D)
Another good title for this passage would be:

A  Gravity  
B  The First Telescope  
C  A Man of Many Discoveries  
D  Sir Isaac and Queen Anne  

(Fig. 19D)
LOOK at this picture:

THINK about the dancers. Which one of them will soon feel the force of gravity?

WRITE about gravity. If the dancer wanted to stay off the ground longer, what would she need to do? Do some things come back down faster than others?

Notes
On the Job with Dad

My dad is a landscape designer. That means he helps people make their yards look good. He finds plants that will look nice. He also looks for ones that will grow well in the sun or shade that they have.

I love going to work with my dad. I get to be outside. I also help him dig holes for plants. He pays me $5 if I do a good job.

I went with him to a job last weekend. We went to the soil supply store. I had never been there before. It is a huge place with about 25 high mounds, or hills, of soil. Each mound is a different soil. The different soils come from different places. The soil is bulldozed out of the ground. Then, it is lifted into dump trucks that go to the soil supply store. People like us go there to buy the kind of soil we need.

I was amazed when I first saw all that soil! Some of the mounds were gray or brown. Others were red. Some were even greenish. The different types of soils came in different textures, too. Some soils were lumpy and others were smooth.

“I don’t understand,” I said to Dad. “Why do they need to have so many types of soil? Isn’t all soil just dirt?”

Dad smiled and said, “You might think so. But each type of soil is different based on where it was formed. Remember when you looked out of the airplane window on our way to see your Aunt Jane in Atlanta. You said that the earth looked red. That is because it had a lot of clay in it.”

Dad pointed to a mound of soil that was dark brown—almost black. “That very dark soil? That comes from areas where lots of plants have grown, died, and decomposed. It’s particularly rich in the things that plants need for growing. I might buy this type of soil when I’m going to create a yard for people who want to grow flowers or vegetables.”
Dad also said, “Some soil is light and sandy. I might use that kind of soil under a swing set. This would help cushion a child if he fell. I wouldn’t want a kid to fall on hardpacked clay, would I? Some people like their yards to look like the desert. Other people like a yard with lots of pebbles. I have to find the right soil for each job.”

I looked at all the mounds of soil. “How come all of the soils are so different? My teacher said soil is mostly broken-up rock.”

“That is true,” said Dad. “But rocks are not all the same. Rain and wind break down types of rock to create the different types of soil. Remember when we saw the black soil in Hawaii? That came from black volcanic rock. You would not see that soil here because we don’t have volcanic rock.”

I thought the different types of soil were interesting. The best part of the day was when Dad let me help him pick the right kind of soil for that day’s job. I might become a landscape designer just like my dad, if I keep learning things about soil, rocks, and landscapes.
1. What is the main idea of this passage?
   A. Becoming a landscape designer is hard work.
   B. There are many different types of soil.
   C. Going to work with a parent can be fun.
   D. Soil is made from rock.

2. Which of these could be formed into a mound (third paragraph)?
   A. water
   B. eggs
   C. salt
   D. milk

3. Which type of soil would you use if you wanted to grow flowers?
   A. red clay soil
   B. dark brown soil
   C. sandy soil
   D. soil with pebbles

4. Which phrase would go in the empty box?
   A. The rocks break down into small pieces which form soil.
   B. The rocks stick together to form larger rocks.
   C. The rain and wind can not affect the rocks.
   D. Flowers grow out of the rocks.
5. What is something you might be able to tell about soil from looking at it?

A. how much it would cost
B. how much you would need for a flower pot
C. how old it is
D. what type of rock it came from

(4.2C)
LOOK at this picture:

THINK about the soil in which these seedlings are growing.

WRITE about what the soil is made up of. What will happen to the remains of these plants when they die?
WRITING SCIENCE

Formation of Soil
Earth and Space

Topic: ____________________________________________

Sample
One day in 1943, a farmer named Dionisio was out in his fields. His farm was in Mexico. He shared it with his wife, Paula. The two of them were out in the cornfield. They were burning some branches.

Things had been strange in Dionisio’s village for a few weeks. People had heard thunder several times. But whenever they looked up to see if a storm was on the way, they saw that the sky had no clouds. Dionisio thought that this was strange, too. But he had work to do. So, he went back into the fields.

As he was working, he saw an amazing sight. The ground in front of him cracked. Then, it swelled about two meters in the air. Soon, smoke and ash began to stream out of the crack. And loud hissing noises came, too. The whole place smelled like rotten eggs.

What was going on? Dionisio looked around for his wife and son. They were nowhere to be seen.

He grew scared. The ground was still smoking, and he could not find his family. He did not know what to do, so he got his horse and rode into the village. To his happy surprise, his wife and son were there. They were waiting for him with their friends. When she saw the smoke, Paula had worried that Dionisio was dead, and she had gone to the village.

Even though the family was safe, things at the farm were not so good. The crack in the ground continued to smoke, and ash began to pile up around it. In just one day, the pile of ash was 50 meters high. This was not just a small fissure or crack. This was a volcano!

Soon, lava began pouring out of the volcano, too. Sometimes, large explosions were heard. One of the men in the village described the sight of the volcano like this: “Red flames of fire rose into the darkened sky, some rising 800 meters or more into the air that burst like golden marigolds, and a rain like artificial fire fell to the ground.”
Soon, the lava began to flow down the sides of the newly-formed volcano toward the villages.

After a year, the towns were covered. All that remained of them was a field of cooled lava with two church steeples poking up out of the rock.

The volcano continued to erupt for nine years. When it finally died, it had left a cone 424 meters high. It was named Paricutin, after one of the villages that had been swallowed by ash. It was the first time that scientists had been able to study a brand new volcano being formed by the forces of Earth.
1. Another good title for this passage would be:
   A. A Day on Dionisio's Farm
   B. All About Volcanoes
   C. A New Volcano
   D. Dionisio, the Lucky Farmer

   (Fig. 19D)

2. How do you think the villagers felt when they heard the thunder but did not see clouds?
   A. curious about the strange weather
   B. excited about the new volcano they knew would appear
   C. angry because it was going to rain
   D. frightened about the lava that was going to swallow their villages

   (3.8B)

3. A fissure (sixth paragraph) is another word for:
   A. a volcano
   B. a cloud
   C. lava
   D. an opening

   (3.4B)

4. Why could the church steeples be seen above the cooled lava?
   A. They were the tallest buildings in the villages.
   B. They were made out of material that would not burn.
   C. The lava flowed around the churches.
   D. The villagers protected the churches.

   (Fig. 19D)
5 When did the volcano stop erupting?
   A the day after it started
   B 1944
   C 1952
   D It is still erupting.

(3.13A)
LOOK at this picture:

THINK about how waves can change the Earth’s surface. Write about slow and fast changes that waves can cause to the Earth.

WRITE about the fast and slow changes that waves can cause to the surface of our planet. How do they change sandcastles, or holes dug on a beach? If a wave were very, very large, what kinds of changes could it cause to the land?

Notes
The Landforms of Texas

1 Let’s take a trip around Texas. Well, we cannot really take a trip. But we can travel in our minds! Texas is a big place. It stretches 800 miles from the north to the south. Because Texas is so big, it has many different types of landforms.

2 We will start our trip in the West. That is where Big Bend National Park is located. Big Bend has mountains where people hike and camp. Mountains are tall landforms with steep sides and pointed peaks or tops. Mountains can form in many ways. The mountains of West Texas were formed from volcanoes 35 million years ago.

3 We will leave Big Bend and head for the northern plains. Plains are broad, flat areas. Until about 35 thousand years ago, shallow seas covered much of Texas. These seas were pushed aside as the land rose. Over time, the flat sea floor became dry land. It is now known as the High Plains. Plains are usually covered with grasses and have few trees. The plains of Texas are used for farming and cattle ranching.

4 If we head south, we will come to another kind of plain. This kind of plain is called a coastal plain. Coastal plains are stretches of low land next to large bodies of water. These form when river sediments build up the sea floor. Texas has nearly 600 miles of coastline along the Gulf of Mexico. The Texas coast is one of the best places to bird watch in the United States.

5 If we travel along the coast, we will reach the area that we call the Rio Grande Valley. A valley is the low land between mountains or hills. Rivers or streams often flow from the mountains through the valley. The Rio Grande Valley is not a true valley because there are no mountains or hills. But we still call it a valley because of the Rio Grande River that flows there.
Continued

6 We have traveled in a circle all around the outer edge of Texas. But what is in the middle? The center of the state formed more than 600 million years ago. This area is called the Hill Country. Hills are high mounds that are smaller than mountains. Hills can form when Earth materials build up into piles. Hills can also form when softer rocks are weathered away from harder rocks. That is what happened in central Texas. Over millions of years, the high, flat Edwards Plateau (pla-toe) has been eroded into hills. Rivers then carried the rock downstream to form beaches.

7 No matter what kind of landforms you like, Texas has them all!
1 The main idea of this passage is —
A Texas is a big state.
B Texas has many different landforms.
C The Hill Country formed 600 million years ago.
D The Rio Grande Valley is not really a good example of a valley.

(3.13A)

2 Where would you find a peak (second paragraph)?
A in the Hill Country
B on a beach
C on top of a mountain
D in the plains

(3.4B)

3 How did the mountains of West Texas form?
A They formed from volcanoes.
B Wind and water wore down even bigger landforms.
C Waves pushed up the land.
D A sea was pushed aside.

(3.13C)

4 What type of fossil might you find in the north plains?
A a sea shell fossil
B the bones of a fox
C a leaf
D the bones of a big cat

(Fig. 19D)
5 Read this sentence from the passage.

Over millions of years, the high, flat Edwards Plateau (pla-toe) has been eroded into hills.

What does (pla-toe) tell you?

A what a plateau is

B what a plateau looks like

C where to find a plateau

D how to say the word plateau

(3.13D)
### Writing Science

**Look** at this picture:

![Man-made landform](image)

**Think** about how this man-made landform may have been built.

**Write** a description of this landform. What makes it different from an island? What other type of landform can be seen in the picture?

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WRITING SCIENCE

Topic: ____________________________________________________________

Earth's Landforms
Earth and Space
1 **Natural resources** are things that can be found in nature and used by humans. Can you see any of them right now? You probably can! That is because they are all around us.

2 Look out the window. Do you see any trees? Well, trees are a natural resource. We use them to make things like tables, desks, and chairs. We also use them to make paper. In fact, the paper that you are reading right now was made from a tree.

3 Water is another natural resource. We use water all the time. We use it to drink. We use it to cook food. We use it to clean. We also use it for fun. If you have ever gone to a pool or had a water balloon fight, you have used this natural resource.

4 The plants that we eat are also natural resources. This is because they grow in the ground. And they need water to grow. So, plants are a natural resource that use a natural resource!

5 Our clothes are made from natural resources, too. Many of our shirts, for example, are made of cotton, and cotton comes from a plant that grows in the ground.

6 Even your toothbrush is made from a natural resource. It is plastic, and plastic is made from oil. Do you know where oil comes from? That is right. It comes from the ground, too.

7 The truth is, almost everything uses natural resources. In fact, we use so many of them that it is important to think about how to **conserve** or save them. One way to do this is to remember the three R’s: reduce, reuse, and recycle.

8 When you **reduce**, you use fewer resources. You can use less water by taking shorter showers. You can turn off the water when you brush your teeth. You can use less electricity by turning off the lights when you leave a room. You can use less paper by using cloth napkins instead of paper ones.
9 When you *reuse*, you use things more than once. For example, instead of buying water in plastic bottles, buy a bottle that you can save and reuse over and over again. Or instead of using plastic bags at the store, you could use cloth bags that can be reused.

10 When you *recycle*, you take something that is used up and turn it into something new. Newspaper, cans, cardboard, bottles, tires, and glass can be broken down and made into new items. Recycling just one can saves enough electricity to run a TV for six hours!

11 We will never be able to stop using natural resources. But we can make a difference in small ways if we remember the three R’s. If everyone does his part, we will save a lot of our resources.
### READING SCIENCE

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>1. Which of the following is NOT a <strong>natural resource</strong> (first paragraph)?</td>
<td>A. wood</td>
</tr>
<tr>
<td>B. water</td>
<td></td>
</tr>
<tr>
<td>C. crayons</td>
<td></td>
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<tr>
<td>D. carrots</td>
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(3.13D)

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<tr>
<th>Question</th>
<th>Answer</th>
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<tbody>
<tr>
<td>2. Why did the author write this passage?</td>
<td>B. to persuade people that they should save resources</td>
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<tr>
<td>A. to tell about recycling stations</td>
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<tr>
<td>B. to persuade people that they should save resources</td>
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<tr>
<td>C. to inform people about how chairs and tables are made</td>
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<tr>
<td>D. to make people laugh about the funny places where everyday items come from</td>
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<tr>
<th>Question</th>
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<td>3. What is a synonym for the word <strong>conserve</strong> (seventh paragraph)?</td>
<td>D. save</td>
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<tr>
<td>A. use</td>
<td></td>
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<tr>
<td>B. recycle</td>
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</tr>
<tr>
<td>C. understand</td>
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<tr>
<td>D. save</td>
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(3.4C)

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<th>Question</th>
<th>Answer</th>
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<tr>
<td>4. Waiting until the dishwasher is full to turn it on is an example of:</td>
<td>A. reducing water use</td>
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<td>A. reducing water use</td>
<td></td>
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<tr>
<td>B. reusing water</td>
<td></td>
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<tr>
<td>C. recycling water</td>
<td></td>
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<tr>
<td>D. none of these</td>
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(Fig. 19D)
5 If you recycle ten cans, it would save enough electricity to:

A run a TV for 6 hours
B run a TV for 60 hours
C run a TV for 600 hours
D It would not save electricity.

(3.13B)
LOOK at this picture:

THINK about these turbines. They spin to help generate electrical power.

WRITE about how you think this technology could help save our other natural resources. Why is it important to save our natural resources?
WRITING SCIENCE

Topic: ________________________________

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To Surf or Not to Surf

It was the first week of summer vacation. Matt was excited about two things: surfing and going to visit his cousin Johnny in San Francisco, California.

Matt had lived on Galveston Island all of his life. His dad had taught him how to surf in the warm water in the Gulf of Mexico. It was a great place to learn how to surf. But sometimes the gulf waters near Matt’s home were too calm for good surfing. Luckily, Johnny lived near the water, too. Matt was hoping that he could catch some bigger waves when he visited him in San Francisco.

When Matt called Johnny to ask if they could go surfing during the visit, Johnny laughed. “The water is pretty cold here,” said Johnny. “If you bring a wet suit, I guess we can go surfing! You better bring jeans and a jacket, too!”

Matt was confused. How could the weather be so much different? Wasn’t California supposed to be a warm state like Texas?

When Matt got off the phone, he went into his dad’s office.

“Hey, Dad, I just talked to Johnny. He says it is going to be chilly when we visit next week.”

“It might be. We will be sure to pack some warm things.”

“But why is it so much colder there? I thought that summer is supposed to be hot.”

“Well, it certainly is here,” his dad said. “But that is because of our climate. The climate of a place depends on where it is located. Climate is the usual type of weather.”

Matt’s dad turned to the computer. He pulled up a map of the United States from the Internet.
This map shows the average temperatures for June. You see here?” Dad pointed to San Francisco. “It says the average temperature is 68 degrees Fahrenheit. But here in Galveston, the average temperature is 88 degrees.”

“Why?”

“Well,” said Dad, “when a town is near the water, the water temperature affects the air temperature. The Gulf of Mexico has warm water. In fact, that is why we have so many hurricanes. Hurricanes are formed over warm water. They do not have hurricanes in San Francisco. It is located on San Francisco Bay on the Pacific Ocean.” Dad pointed to the map. “See how the water here is darker blue than the water near Galveston.”

Matt and his dad used the map key to find out what the dark blue color meant. The water in San Francisco Bay was almost 30 degrees cooler than the water off Galveston.

“Brrr,” said Matt, shivering at the thought.

“The cold air over the water is one reason you will need a jacket. When air blows in over the water, the air becomes cooler, as well. There will also be a lot of fog in the mornings.”

“So I guess we won’t be going surfing,” Matt said.

“No,” said Dad. “Probably not. But there will be lots of other things to do.”
1. How do you think Matt felt when he heard about the weather in San Francisco?
   A. disappointed
   B. excited
   C. frightened
   D. foolish
   
2. How does water temperature affect the air temperature near the water?
   A. If the water is warm, the air will be cold.
   B. If the water is warm, the air will be warmer.
   C. If the water is cold, the air will be warm.
   D. Water temperature does not affect air temperature.
   
3. What can you guess the climate (paragraph 9 definition) is like in most of the northern states in the winter?
   A. hot and rainy
   B. hot and dry
   C. cold and snowy
   D. dry and windy
   
4. In what season do the most hurricanes probably happen?
   A. spring
   B. summer
   C. fall
   D. winter
5 Matt looks at the map again and sees that the Great Lakes are dark blue, while the waters near Florida are light blue. What can he tell from this?

A The Great Lakes are warmer than the waters near Florida.

B The Great Lakes and the waters near Florida are about the same temperature.

C The Great Lakes are colder than the waters near Florida.

D Matt can't tell anything from this information.

(3.16B)
LOOK at this picture of a weather map:

THINK about the weather where you live. What has the weather been for the last week?

WRITE about a weather forecast. If you were the weather man or weather woman on TV, what type of information would you need to share during your daily forecast? What types of tools would you need to gather your weather data?

Notes
The Sun: Important to Our Earth

1. Have you ever looked up into the sky on a clear night? Were you able to see the stars? Our galaxy has over 100 billion stars in it! But did you know that you can see one star during the day? You can because the Sun is a star!

2. Like other stars, the Sun is made up of gases. It is mostly made up of two gases. They are called helium and hydrogen. These gases release massive amounts of energy. This energy is the reason why the Sun shines.

3. The Sun is important to life on Earth. In fact, life could not exist without it. It provides us with light, energy, seasons, day and night, and our weather.

4. But let’s take a closer look at how the Sun affects our Earth.

5. **Energy:**
   The center of the Sun is called the core. This is where the Sun’s heat is created. The heat is so great that it makes light. This is the light that supports life on Earth. Plants on Earth use this light to create food that animals and humans then eat.

6. **Seasons:**
   The Earth orbits, or travels around, the Sun once every 365 days. During this time, some areas of the Earth are tilted toward the Sun. Those parts get more direct light and heat. This light and heat cause them to have spring and summer. The other parts are tilted away from the Sun. They get less direct light and heat. They will have fall and winter.
Continued

7 **Day and Night:**
   It takes the Earth almost 24 hours to make one full rotation or turn. This is why we have night and day. The parts of Earth that are facing the Sun will have day. The parts that are facing away will have night.

8 **Gravity:**
   Gravity is the force that keeps everything on Earth from floating out into space. Items with more mass have a stronger pull of gravity than items with less mass. Because the Sun is large and has so much mass, it has very strong gravity. Its gravity keeps Earth and all of the other planets in our solar system orbiting around the Sun.

9 **Weather:**
   The Sun is a major part of the water cycle. It heats up water on Earth’s surface until it evaporates. This means that it changes into water vapor. Then, as the water vapor rises, it begins to cool and form clouds. These clouds build up and get very heavy. Then, they release the liquid back onto Earth’s surface. When this water returns to Earth, the whole cycle starts over. Other weather conditions like floods, tornados, and hurricanes also depend on the Sun’s energy.

10 Scientists believe that our Sun will eventually burn out. But do not worry. It will still be around for about five billion more years!
1. Which one of these is NOT a way that the Sun affects Earth?
   A. The Sun heats Earth.
   B. The Sun provides light.
   C. The Sun causes Earth to wobble in space.
   D. The Sun's gravity causes Earth to orbit the Sun.

   (3.13A)

2. Which of these is the least massive (second paragraph)?
   A. a mouse
   B. a dog
   C. a giraffe
   D. a whale

   (3.4B)

3. The diagram in the passage shows:
   A. how the Sun creates energy
   B. how plants use the Sun's energy to make food
   C. how the tilt of Earth toward the Sun creates seasons
   D. how Earth's rotation causes day and night

   (3.15B)

4. To orbit (sixth paragraph) means:
   A. to move around something
   B. to spin
   C. to fly
   D. to sink

   (3.4B)
Why is the Sun important to the water cycle?

A The Sun creates water.
B The Sun heats water and causes it to evaporate.
C Rain comes from the Sun.
D We could not see the water if the Sun did not provide us with light.

(3.13B)
LOOK at this picture of the Sun:

THINK about the types of energy the Sun produces.

WRITE about the types of energy we get from the Sun. In what ways is the Sun important to the Earth? Imagine that the Sun went away. How would the Earth change?
WRITING SCIENCE

The Sun and Water Cycle
Earth and Space

Topic: ____________________________________________________________
Our Solar System

We live on planet Earth. But Earth is not alone in space. It is part of the Solar System. The Solar System is made up of the Sun and all the planets that orbit or travel around it. It is also made up of the moons, asteroids, and comets that orbit the Sun. These objects orbit the Sun because the Sun is larger than they are. This means it has enough gravity to hold them in orbit.

The main objects in our Solar System are:

1. **Mercury**
   Mercury is the planet closest to the Sun. It has the shortest orbit around the Sun. It only takes about three months for Mercury to move all the way around the Sun. It is also the smallest planet.

2. **Venus**
   Venus is the second planet from the Sun. It is also the closest planet to Earth. It is covered with clouds that reflect the Sun’s light. Because it reflects so much light, it appears very bright when seen from Earth. Many people think it is a star. Venus is also the hottest planet in our Solar System.

3. **Earth**
   Earth is the third planet from the Sun. It is believed to be the only planet with life on it. It has one moon which is held in orbit by Earth’s gravity. The Moon appears to shine at night. But what we see is actually the Sun’s light reflecting off the Moon’s surface. Since the Moon is so close to Earth, humans have been able to travel there and explore it.

4. **Mars**
   Mars is a very cold planet. It has ice caps that can be seen on its north and south poles. Scientists have found that the soil on Mars is rich in iron. The iron gives the soil a red color. This is why Mars is sometimes known as “the Red Planet.”
7 Astroids
Asteroids are large pieces of rock that orbit the Sun. Most of these asteroids are found in the area between Mars and Jupiter. Scientists think they are leftover chunks of rock from when the Solar System was formed. Some are large enough to have their own names. Others are just tiny pieces of rock.

8 Jupiter
Jupiter is our Solar System’s largest planet. It is made up of the same gases as the Sun. Jupiter’s atmosphere is very stormy. One storm is called the “Great Red Spot.” This is because the clouds appear red. Humans have watched this storm for over 400 years. It is still going strong!

9 Saturn
When we think of Saturn, we think of the rings that circle it. It has over 1,000 rings made of dust and ice. Saturn spins so fast that it flattens out at the top and bottom. Scientists believe it only takes about 10 hours for it to rotate or spin one time!

10 Uranus
Uranus is different from all the other planets. It rotates on its sides and its poles face the Sun. It has about 11 rings made up of dark boulder-sized particles.

11 Neptune
Neptune is the planet farthest from the Sun. It appears blue, like water. This is why it was named after the Roman god of the sea. It has thirteen moons.

12 Pluto
At one time, Pluto was considered the ninth planet. But, as scientists learned more about other small frozen worlds like Pluto, they decided that it was not really a planet. It is now known as a dwarf planet.

13 Just as scientists learned these new facts about Pluto, they are always learning more about our Solar System and what lies beyond it. Someday, humans might even visit some of these other objects in our Solar System. Then, we will learn even more!
1. Which of these is NOT part of the Solar System?
   A. the Sun
   B. other stars
   C. Earth
   D. Asteroids

2. Which is NOT something that orbits (first paragraph) the Sun?
   A. Earth
   B. Mars
   C. asteroids
   D. other stars

3. The author probably wrote this passage to:
   A. entertain you with stories about space
   B. persuade you that space science is interesting
   C. inform you about the objects in the Solar System
   D. tell you how to get more information about the planets

4. Another name for Mars is:
   A. the Great Red Spot
   B. the dwarf planet
   C. the Red Planet
   D. Vulcan

5. Sample
The only object in the Solar System besides Earth that humans have visited is:

A  Venus  
B  the Moon  
C  asteroids  
D  Mars

(Fig. 19D)
LOOK at this picture of the solar system:

THINK about the planets in our solar system.

WRITE the names of the planets in order of their distance from the Sun. How does the Earth move in our solar system? What about our Moon?
WRITING SCIENCE

Topic: ____________________________________________________________

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Sample
Drought!

Yesterday, park rangers Ted and Sarah took the jeep out to get a look at what was happening in the state park where they worked. They felt nervous about what they saw.

Usually, spring brought days of rain in their park. The rain made the flowers bloom and the leaves turn green. But this year, the park had not had rain in over a month. It was a real drought. A drought is a shortage of water, usually caused by a lack of rain.

As Sarah and Ted got into the jeep, they saw a family of deer near the station. The deer were eating the grass in front of the building. The grass was still green because humans had watered it.

Ted recognized the doe or mother deer and her fawns.

"I have never seen these deer so close to human buildings and cars," he said. "The drought must be making it hard for them to find water and food, if they are trying to find it this close to people."

Sarah agreed. "And, you know, the deer like to hide in the bushes and tall grasses. Since so many plants are dried up, their usual hiding places are probably disappearing."

"Right," said Ted. "This drought is affecting their water supply, food, and shelter."

Sarah and Ted drove down one of the forest trails to see how the drought was impacting the rest of the park. They saw plants that had dried up and were dying. The pond, where animals came for water, was shrinking and becoming muddy.

Ted and Sarah took pictures of what they saw so that they could report back to the other rangers. The dry plants concerned them. The plants are producers. They use energy from the Sun, soil, and water to produce food. Then other animals, like the deer, eat the producers. The animals that eat producers are known as consumers. If the plants did not produce food, the consumers would not have anything to eat.
10 Sarah and Ted stopped to get out of the jeep and look at some tracks they saw. Sarah looked closely.

11 “Uh-oh, Ted! These are mountain lion tracks! The meat-eaters are coming closer to the ranger station, too!”

12 “Must be following the deer,” said Ted. “The carnivores will follow the herbivores.”

13 “We will have to warn the park visitors,” said Sarah.

14 When the two rangers got back to the station, they were ready to tell the other rangers what they had seen. As soon as they entered the station, though, their friend José held up the newspaper.

15 “Guess what!” said José. “The forecast predicts rain all next week!”

16 Ted and Sarah smiled at each other. They knew that the drought might not be completely over, but a week of rain would be a great start to bringing their park back to normal.
1 What is an effect caused by a drought?
   A Ponds and streams dry up.
   B Animals travel farther to get food.
   C Plants dry out and stop producing food.
   D All of the above.
   (3.13C)

2 Why were the deer close to the ranger station?
   A They knew the rangers would feed them.
   B Deer are never afraid of humans.
   C The rangers were watering the grass at the station, so it was good food for the deer.
   D The deer were hiding from mountain lions.
   (Fig. 19D)

3 The word **concerned** (ninth paragraph) means:
   A excited
   B angry
   C sad
   D worried
   (3.4B)

4 Which of the following is a **producer** (ninth paragraph)?
   A grass
   B deer
   C a mountain lion
   D a park ranger
   (3.13A)
5 What do you think Ted and Sarah would have done if the newspaper had not predicted rain?

A They would have quit their jobs because the park was in danger.

B They would have talked to the other rangers to come up with a plan to help the park.

C They would have closed the park.

D They would have tried not to think about the drought.

(Fig. 19D)
LOOK at this picture:

THINK about these beavers that live near a river. How do the beavers interact with the environment?

WRITE about what the beavers need to survive. Describe their homes, what they do, and what they like to eat. What do you think would happen to the beavers if the river dried up?
WRITING SCIENCE

Topic: ____________________________________________________________

Environments
Organisms and Environments
Grandpa’s Farm
*Lexile 700L - B*

1 Every spring break, I like to visit my grandpa’s farm in Michigan. I have been visiting since I was five, and now I am nine. One of my favorite things to do on the farm is to go down to the reed-covered pond that is usually full of frogs. I like to wade in the shallow water and look for frogs. Sometimes they hide in the grass and mud, but I can always find them. Grandpa says I am a frog expert.

2 This year when I went to grandpa’s farm, however, something strange happened. The first night, when we sat on the porch, it seemed too quiet. The raspy voice of the Western Chorus Frog and the high-pitched peeps of the Spring Peeper were gone. Usually we could hear all sorts of frogs singing, but now we could not even hear the loud quack of the Wood Frog or the low snores of the Leopard Frog.

3 “Where are the frog songs?” I asked as I hopped over to the railing.

4 Grandpa frowned as he looked out towards the darkened field. “Well,” he said, ‘we have not had a lot of frogs this year.”

5 “Why?”

6 “There is an infection or illness that has been hurting the frogs,” he said. “In fact, a lot of frogs have died.”

7 I frowned, too. I did not like this news. ‘Does that mean that I will not see any down at the pond?”

8 “You will not see as many as last year. That is for sure,” said Grandpa. “But the decline in the frog population is bad news for other reasons, as well. Did you learn about food chains in school?”
“Of course!” I said. “The Sun creates energy that plants use to make food. Then animals eat the plants, and bigger animals eat the smaller animals.”

“That is right,” said Grandpa, “and when one part of the chain disappears, the other parts get out of balance.’

“What do the frogs eat?”

“One thing they eat is young mosquitoes. Frogs eat them before they can grow up to bite us — fewer frogs means more mosquito bites this summer!”

“So, what eats the frogs?”

“A few things: large fish and birds. The birds can fly to a new place to find food, but the fish in the pond are trapped. Since so many frogs have died, I have to feed the fish, or they will not have enough to eat.”

“Can we do anything to help the frogs?” I asked.

“Well,” said Grandpa, “there is no cure for the illness that has been hurting the frogs, but humans can help by being careful not to bring animals from one part of the world to places where they do not belong. That is how infections are spread.”

I yawned. Grandpa looked down at me. “I think you need to go to bed, kiddo,” he said. “But how would you like to go to the university tomorrow and visit my friend who is working to help the frogs?”

“I am not tired!” I said, but I yawned again. Grandpa was right. It was time for bed. But I was excited that the next day I was going to meet someone who might be able to help my favorite animals.
1. This passage is told in the:
   A. first person
   B. second person
   C. third person
   D. none of these

2. Which of these is an example of an infection (sixth paragraph)?
   A. a broken leg
   B. a headache
   C. a flu
   D. a sprained wrist

3. What belongs in the empty box?

   ![Diagram]( Fig. 19D )

   A. plants
   B. frogs
   C. birds
   D. the farmer

4. What caused the frogs to disappear?
   A. The large fish and birds ate the frogs.
   B. All of the mosquitoes were gone so the frogs had no food.
   C. The frogs got an infection.
   D. No one knows what happened to the frogs.
5. Which sentence is probably true of Grandpa?

A. Grandpa does not care what happens to the frogs because he has other things to worry about on the farm.

B. Grandpa wants the narrator to stay away from the pond because it is dangerous.

C. Grandpa has a lot of knowledge about the animals living on his farmland.

D. Grandpa works at the university to try to find a cure for the frogs.

(Fig. 19D)
LOOK at this picture:

THINK about how this eagle caught the fish he has in his talons.

WRITE about the fish. What do you think the fish ate to get its energy? What do you think the eagle could eat if there were no fish?
Darwin’s Finches
Lexile 630L - B

1 Charles Darwin was born in England in 1809. As a boy, he loved science and nature. In fact, he would often spend his days outside where he could collect plants and small animals.

2 His friend John knew that Charles loved nature. One day John sent him a letter. He told Charles that a ship was about to set sail on a journey to South America. The ship was called the HMS Beagle. The captain was looking for a naturalist or someone who studies nature.

3 Charles signed up at once. The crew’s job would be to make maps of the places they visited. Charles’s job would be to see what kinds of plants and animals he could collect.

4 The Beagle spent some time in South America. Then, it set sail for some smaller islands called the Galapagos Islands. These islands were rarely visited. There were even some animals and plants that had never been studied before. Charles was amazed by all the different kinds of flowers and plants he saw. He collected all that he could. He even collected different small birds called finches.

5 When Charles got back home, he showed these finches to a friend. This friend knew a lot about birds. He told Charles that they were all part of the same family of birds. But then, why did they look so different? Charles thought about this for a while. Then, he had an idea!

6 He realized that the birds were different because they had adaptations to their different environments. This means that they had developed traits that would help them to survive. For example, some of the finches had strong beaks. This let them crack nuts. Others had long skinny beaks. This let them grasp insects.

7 Charles wrote a book about what he discovered. It changed the way people think about how animals survive. It explained why animals can be similar in some ways but different in others.
Scientists still study these finches today. One finch has a beak that it uses to peck at other birds. Then, it laps up the blood. People call it the Vampire Finch. Another finch has a long beak that it sticks into cactus flowers to hunt for insects. Another is the Woodpecker Finch. It is one of the only birds in the world that is known to use tools. It finds a small twig or cactus spine. Then, it uses the tool to dig under tree bark for insects.

People still call the finches of the Galapagos Islands, “Darwin’s Finches.” They are little birds that have had a big impact on science.
READING SCIENCE

Adaptations
Organisms and Environments

1. A naturalist (second paragraph) would probably:
   A. observe plants and animals in their habitats
   B. take notes about animal behavior and traits
   C. read books about plants and animals
   D. all of the above

(3.4B)

2. Why do the finches (fourth paragraph) have so many different kinds of beaks?
   A. so they can tell each other apart
   B. because they all eat the same food but get it in different ways
   C. to help them survive in their different environments
   D. finches do not have different beaks

(3.13A)

3. An adaptation (sixth paragraph) is:
   A. a trait that does not serve any purpose
   B. a trait that helps an animal survive in its environment
   C. a special kind of beak
   D. a kind of finch

(3.4B)

4. Another good title for this passage would be:
   A. The HMS Beagle
   B. The Galapagos Islands
   C. Finches and their Adaptations
   D. Charles Darwin: Boy Wonder!

(Fig. 19D)
5. Why are the finches known as “Darwin’s Finches”?

A. because Charles Darwin owns them all

B. because the finches helped Charles Darwin make a great discovery

C. because Charles Darwin loved finches better than any other birds

D. because the finches needed a name

(Fig. 19D)
LOOK at this picture:

THINK about the characteristics this lizard has that help it live in a desert environment. How does its body covering help it in the hot, dry desert? Do any of the adaptations help it avoid predators?

WRITE about an animal that lives in the cold climate, like a penguin or a polar bear. What adaptations do they have that help them survive?
Off the coast of Florida, scientists found a pod of seven bottlenose dolphins that have figured out a smart way to fish. One female swims down to the bottom. Then, she flops her tail and swims in a circle. This causes the sand and mud to rise up from the sea floor. The fish that get caught in this circle of mud get scared and try to escape. They rise to the surface and jump into the air in a panic. But the other dolphins are waiting. Their heads are out of the water. Their mouths are open. And they are ready to catch the jumping fish!

Dolphins are not born knowing how to catch fish in this way. In fact, this pod is the only one that scientists have seen catch fish like this. So, how do these dolphins know what to do? They learn it. Just like other animals, these dolphins learned a behavior that can help them survive.

Here is how it works. There are two outcomes when an animal tries out a new action. The animal can get a punishment. Or it can get a reward. If the animal gets a punishment, it will not want to try that action again. But if it gets a reward, it will want to do it over and over again to keep getting the reward.

For example, the first time the lead dolphin stirred up the mud on the bottom of the ocean, she did not know what would happen. She just did it, and the pod received a reward. The jumping fish were easier to catch. But what if the fish had not started jumping and the pod went hungry? The lead female would not have tried stirring up the mud a second time.
5 Not all behaviors are learned, though. There are many traits that are inherited. This means that they are passed on from parents. Dolphins inherit eyes, tail flukes, and bodies that can move quickly through the water. Inherited traits also help animals survive.
1. A behavior (second paragraph) is:
   A. something you do
   B. something you inherit from your parents
   C. something that only dolphins can do
   D. something that you hear

   (3.4B)

2. Patty is a puppy. When Patty’s owner says, “Sit!” and Patty sits, she gets a treat from her owner. What is likely to happen?
   A. Patty will stop sitting when her owner asks.
   B. Patty will learn to roll over.
   C. Patty will sit when her owner commands her to.
   D. Nothing. Dogs can’t understand words.

   (Fig. 19D)

3. What caused the dolphins to keep trying their mud-ring fishing?
   A. They followed whatever the lead dolphin did.
   B. When they tried the mud-ring fishing, they did not get any fish.
   C. When they tried the mud-ring fishing, they had fun in the mud.
   D. When they tried the mud-ring fishing, they were able to catch a lot of fish.

   (3.13C)

4. Which is an example of an inherited (fifth paragraph) trait?
   A. A cat comes when it hears its owner opening food.
   B. A baby is born with blue eyes, just like its mother.
   C. A parrot says, “Polly want a cracker!”
   D. A young child stays away from a hot stove.

   (Fig. 19D)
5 What is the main idea of this passage?

A Some dolphins can catch fish by creating a mud ring.

B Dolphins are smart animals.

C Animals learn behaviors and inherit traits that help them survive.

D Dolphins are mammals.

(3.13A)
LOOK at this picture:

THINK about this panda and her cub. In what ways does the baby panda look like its mother? What things does the mother need to teach the baby panda so it can grow up to take care of itself?

WRITE about the traits you inherited from your parents. What are some examples of behaviors that you have learned since you were born?

Notes
The Life Cycle of a Frog

1 A tiny green frog swims across the pond back to land. She has just laid a cluster of eggs in a calm section of water. The eggs look like black spots inside a clump of clear jelly. The mother frog will never return to these eggs. When they hatch, the young ones will be on their own.

2 The frogs that hatch will go through many changes before they become adult frogs. The series of changes that a living thing goes through is known as its life cycle. Cycle is another word for circle. We call these changes a cycle or circle because they happen over and over again in the same way.

3 Stage 1: Egg

Most frogs lay many eggs at once. The more eggs the frog lays, the better chance they have to survive. There are many dangers that could destroy the eggs. Other animals might eat them, or a storm might create rough waters. If the eggs survive, it usually takes between 6 and 21 days for them to be ready to hatch as tadpoles.

4 Stage 2: Tadpole

You may have seen tadpoles swimming around in a pond or puddle. When a tadpole first hatches, it is quite fragile or weak. It tries to find a piece of grass or a weed to stick to until it is strong enough to swim on its own. After about 10 days, the tadpole is ready to explore. Tadpoles have gills, just like fish, that allow them to breathe underwater.

5 Stage 3: Froglet

The tadpole goes through many changes. Skin grows over the gills. The head gets longer, and legs begin to pop out. It looks like a frog with a long tail. During this time, the froglet will begin to eat different types of food, such as small insects or plants.
6  **Stage 4: Adult Frog**

Once the tail disappears, the frog is a true frog that breathes with lungs. The adult frog will look for a mate, and they will lay their own eggs. Then, the circle of life—or life cycle—will start all over again!
1. Which of the following things does NOT have a life cycle (second paragraph)?
   A. a tomato plant
   B. a butterfly
   C. a rock
   D. a person

(Fig. 19D)

2. What goes in the empty box?
   A. The tadpole becomes an adult frog.
   B. The tadpole grows legs.
   C. The tail disappears.
   D. The egg hatches.

(Fig. 19D)

3. What would happen to a tadpole if you took it out of water?
   A. It would grow legs.
   B. It would not be able to breathe.
   C. It would eat small insects.
   D. It would lay eggs.

(Fig. 19D)

4. If something is fragile (fourth paragraph) it is:
   A. strong
   B. young
   C. easily destroyed
   D. fierce

(3.4B)

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READING SCIENCE

5 An example of a subheading is:
Stage 1: Egg

The author uses subheadings to tell the reader:

A the main idea of the next paragraph
B how to pronounce the important words
C the meaning of important words
D the main idea of the entire passage

(3.13D)
LOOK at this picture:

THINK about what happens as a plant grows from a seed into a flower that can make more seeds.

WRITE about the life cycle of a plant. How do the life cycle stages of a plant compare to the life cycle stages of another organism you know?

Notes