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**QARSHI DAVLAT UNIVERSITETI**

# Texts concerned with geography & ecology

Qarshi-2019

The given English textbook is aimed to teach reading skills to the students who are majoring in the fields like Ecology and Geography. Students are anticipated to read texts about these themes and do tests on them.

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# Elementary

## THE OCEAN

The ocean is made up of salt water. There are four main oceans. They are the Pacific, the Atlantic, the Indian, and the Arctic Ocean.

The top of the earth is made up mostly of ocean. Many fish and plants live in the ocean. Sharks swim through the water. Whales and seals live in the ocean, too.

The ocean gives us fish for food. It lets us sail boats from one place to another place. We can even surf on ocean waves.

We need the ocean in order to live. You can help to keep the beach clean when you visit. Then, we can all enjoy the ocean.

**1.** What is the ocean made up of?
a. sharks c. boats
b. salt water d. plants
**2.** What does not live in the ocean?
a. sharks c. tigers
b. whales d. fish
**3.** Why do we need the ocean?
a. It gives us food. c. It is cold.
b. It is pretty. d. It is big.
**4.** How can you help the ocean?
a. You can surf.
b. You can sail.
c. You can fish.
d. You can keep the beach clean.

## MOUNTAINS

A mountain is a very tall hill. It climbs high into the sky. There are mountains all over the world.

The tallest mountain in the world is Mount Everest. It is in Nepal. People climb to its top. It is very cold.

The highest mountain in the U.S. is in Alaska. People call it Denali. It is lovely.

Mountains are fun to explore. Bears and birds live there. So do trees and plants. Have you ever walked up a mountain?

**1.** A mountain is a very tall . . .
a. bear. c. hill.
b. tree. d. plant.
**2.** If you walk up Mount Everest, you need a . . .
a. swim suit. c. pair of sandals.
b. bear. d. snow suit.
**3.** The highest mountain in the U.S. is in . . .
a. Nepal. c. New York.
b. Alaska. d. California.
**4.** What does not live on a mountain?
a. whales
b. birds
c. trees
d. bears

## TREES

A tree is a tall, woody plant. Some trees can grow to 350 feet. Trees can live for thousands of years.

Trees have a few parts. They have a trunk. They have branches. They also have roots.

Some trees have needles. These trees are called evergreens. Some of these are pine, fir, spruce, and cedar.

Other trees have leaves. Some of these are elm, maple, ash, and apple. These leaves turn red and yellow in the fall.

We need trees. They give us air. They also give us shade. Some trees give us fruit. So plant a tree today!

**1.** In this story, the word *trunk* means . . .
a. suitcase.
b. the nose on an elephant.
c. a woody stem.
d. a chest.

**2.** Trees with needles are called . . .
a. evergreens.
b. trunks.
c. wood.
d. elm.

**3.** What color are maple leaves in the fall?
a. blue
b. red
c. purple
d. black

**4.** Trees do not give us . . .
a. fruit.
b. shade.
c. air.
d. dogs.

## RIVERS

We need rivers. They bring water from mountains to oceans. They also bring water to lakes.

Snow falls on mountains. Then it melts. The water runs down the mountain. Now, it becomes a river. It travels to oceans or lakes.

The longest river in the world is the Nile. It is in Africa. You can take a boat down the Nile.

Some rivers flood. This can be good for farmland. But it is bad if a river floods your house. Some people pollute rivers. This hurts the water, plants,
and animals.

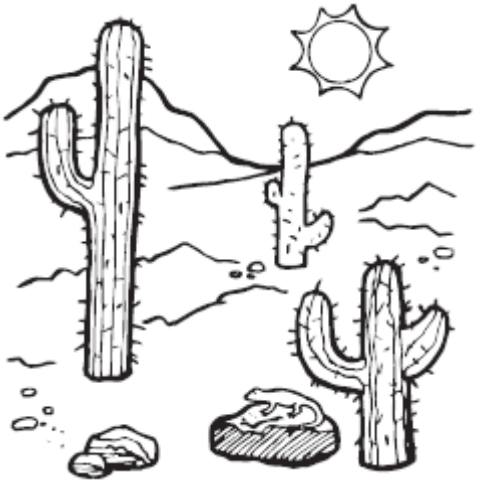
Do you have a river in your town? Where did it come from? You can help to keep it clean. Pick up trash in the river. Thank it for bringing you water.

**1.** Rivers bring water to . . .
a. lakes. c. floods.
b. mountains. d. trash.
**2.** What happens to snow when it melts?
a. It floods. c. It runs down mountains.
b. It pollutes water. d. It hurts animals.
**3.** Where is the longest river?
a. in the mountains c. in the ocean
b. in California d. in Africa
**4.** How can you help to keep a river clean?
a. pick up animals
b. pick up trash
c. pick up water

d. pick up boats

## DESERTS

Can you live in the desert? Yes, but it can be very hot. It can also be very cold.



Deserts are made up of sand or rock. Some do not get much rain. Others are covered in frozen snow. These deserts are called tundra.

Plants can live in the desert. They store water in their roots and leaves.

The cactus is a desert plant. It can live for 200 years. Birds live in holes in the cactus.

People can live in the desert, too. But, watch out for the hot sun and always carry water!

**1.** Deserts can be very . . .
a. rainy. c. ugly.
b. hot. d. wet.
**2.** Tundra is a desert that is covered in . . .
a. rocks. c. leaves.
b. sand. d. snow.
**3.** What lives in the cactus?
a. birds c. water
b. snow d. tundra
**4.** In this story, *store* means . . .
a. a place to shop.
b. a market.
c. groceries.

d. save.

## WETLANDS

How are a bog, a marsh, and a swamp the same? They are all wetlands.

A wetland is land that is very wet at least some of the time. Plants and animals live there.

The crocodile lives in swamps in Florida. A yellow fly lives in bogs in England. This fly is called the "hairy canary."

People are working to save the wetlands. They try not to build houses on them. They also try not to build roads over them.

Wild grass and birds and bugs live in wetlands.

We must keep their homes safe.

**1.** What is not a kind of wetland?

a. a bog c. an ocean
b. a marsh d. a swamp

**2.** A wetland is land that is wet . . .

a. all the time. c. never.
b. some of the time. d. in the spring.

**3.** The hairy canary is a . . .

a. crocodile. c. wild grass.
b. wetland. d. fly.

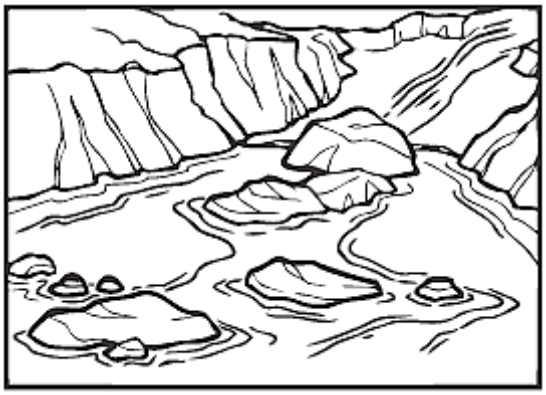
**4.** We should protect wetlands to . . .

a. keep plants and animals safe.
b. build roads over.
c. build houses on.
d. drink water.

## GLACIERS

What do you call a long, blue river of ice? A glacier!

Most fresh water on Earth is in glaciers. Some glaciers never melt. You can find glaciers in the mountains. Others cover big areas of continents. They are home to snow fleas and ice worms.



The top part of a glacier is snow. The middle part is mixed snow and ice. The bottom part is ice.

You can take a class to learn how to walk on a glacier. You need special boots. You also need a rope and an ice axe. Then, you can walk on a river of ice!

**1.** Where is most fresh water on Earth?
a. in oceans
b. in lakes
c. in rivers
d. in glaciers

**2.** In this story, the word *cover* means . . .
a. spread over.
b. a bedspread.
c. a quilt.
d. put your hands over your head.

**3.** Glaciers are made up of . . .
a. snow, ice, and sand.
b. snow and ice.
c. snow, fleas, and ice worms.
d. rivers and mountains.

**4.** What do you need to walk on a glacier?
a. slippers and a rope
b. boots and an ice axe
c. snow fleas
d. boots and a raft

## RAINFORESTS

Rainforests give us air. They give us plants and animals and medicine.

A rainforest has many trees. It gets a lot of rain. Many kinds of animals and plants live here.

Wild pigs live in rainforests. So do snakes. It is also home to bugs and birds.

Trees here can grow to be 150 feet tall. Plants have big, bright flowers. Some rainforests are home to tall bamboo.

People make pills out of tree bark and plants in the rainforest. These pills help many people. We must save our rainforests.

**1.** Rainforests do not give us . . .
a. plants.
b. medicine.
c. bamboo.
d. burgers.

**2.** What animals live in rainforests?
a. whales
b. wild pigs
c. sharks
d. ice worms

**3.** In this story, the word *bark* means . . .
a. what a dog says.
b. to skin your knee.
c. a tree covering.
d. woof.

**4.** The rainforest gives people . . .
a. medicine.
b. snow.
c. ice.

d. sand.

## VOLCANOES

Where does the word *volcano* come from? It comes from the Roman god of fire. His name was Vulcan.

A volcano is a mountain that blows its top! Hot lava pushes through the mountain. Then, it flows down the side.

Some volcanoes are millions of years old. Some sleep. Others are active. It is hard to tell when a volcano will blow.

Many volcanoes have snow. If they blow their tops, hot lava melts the snow. It burns up trees and plants, too, just like a fire.

**1.** The word *volcano* comes from the Roman god of . . .
a. heat. c. fire.
b. burn. d. sun.
**2.** What pushes through a mountain to make a volcano?
a. ice c. snow
b. fire d. lava
**3.** In this story, the word *hard* means . . .
a. difficult. c. wood.
b. solid. d. mean.
**4.** Who is Vulcan?
a. a volcano

b. a tree
c. a mountain
d. a Roman god

## CANYONS

Have you ever heard of the Grand Canyon? It is one of the largest canyons in the world.

A canyon is a deep crack in the earth. There are cliffs on each side. Sometimes, a river flows through it.

Many animals live in canyons. Grey squirrels make their homes there. Rabbits and mice live there. So do hawks and owls. Long ago, people used to live in caves above canyons.

The Grand Canyon is pretty. It is red and orange and yellow. You can take a train to see it. You can ride a mule down to the bottom of it. You can even raft on the river that goes through the Grand Canyon.

**1.** In this story, the word *grand* means . . .
a. small. c. large.
b. tiny. d. ugly.
**2.** On each side of a canyon, you will see . . .
a. cliffs. c. mountains.
b. rivers. d. trains.
**3.** Who used to live in caves?
a. mules c. owls
b. rafts d. people

**4.** What can you ride to the bottom of the Grand Canyon?
a. a train
b. a mule
c. a river
d. a rabbit

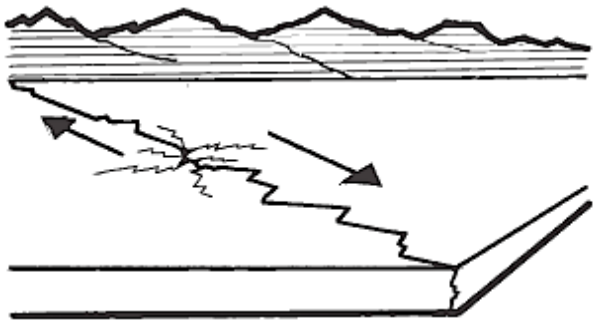
## EARTHQUAKES

The floor shakes. Dishes fall and break. It's an earthquake!

The surface of the earth has plates. These plates bump into each other. Then, there is an earthquake.

Earthquakes can be small. Others are big. They knock down houses. They also knock down trees.

Earthquakes mean danger. When you feel one, get under a table or desk. Cover your head with your hands. Stay calm. Soon, the shaking will stop.



**1.** In this story, *plates* mean . . .
a. dishes.
b. rocks in the earth.
c. bowls.
d. floor.

**2.** Earthquakes happen when . . .
a. dishes break.
b. houses fall.
c. floors shake.
d. plates in the earth bump into each other.

**3.** If there is an earthquake, get under a . . .
a. table.
b. tree.
c. house.
d. floor.

**4.** In an earthquake, you should . . .
a. go outside.
b. cry.

c. stay calm.
d. bump into each other.

## TORNADOES

Have you ever seen a cloud that spins? This is a tornado.

Tornadoes come from storms. Wind blows a cloud across the land. It can blow 300 miles per hour.

Tornadoes can hit the earth. They pick up houses and cars. Then, they drop them somewhere else.

Most tornadoes happen during spring and summer. If a tornado comes to town, go to the safest place you can with an adult.

Come out when the tornado is gone. Tornadoes can damage houses and hurt animals and people. Be careful!

**1.** A tornado is a cloud that . . .
a. dances. c. spins.
b. runs. d. hits.
**2.** Tornadoes can blow . . .
a. 300 miles an hour. c. 3,000 miles an hour.
b. 30 miles an hour. d. 3 miles an hour.
**3.** Most tornadoes are in . . .
a. winter. c. fall and summer.
b. spring. d. spring and summer.
**4.** In a tornado, you should stay in . . .

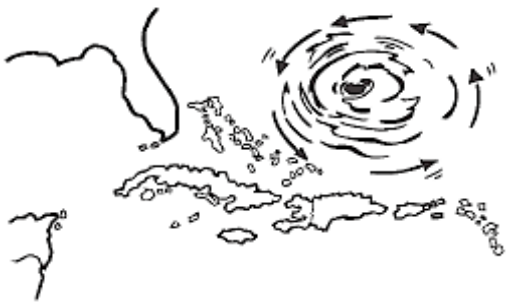
a. a tree.
b. a safe place.
c. a playground.
d. a tent.

## HURRICANES

What kind of storm has an eye? A hurricane!

A hurricane is a big storm. It gets heat and energy from warm water in the ocean. This makes a strong wind.

Hurricanes spin around an eye. It is the center. It is calm and quiet. But watch out! The wind will start again.



Hurricanes bring a lot of rain and big waves. Sometimes, they flood streets and houses. They rip down trees.

Stay inside if there is a hurricane. Stay away from glass. Get ready to leave if the police ask you to!

**1.** In this story, *eye* means . . .
a. watch something.
b. something on your face.
c. a hurricane.
d. the center of a hurricane.

**2.** Hurricanes get energy from . . .
a. houses.
b. the ocean.
c. the storm.
d. their eyes.

**3.** Hurricanes bring . . .
a. earthquakes.
b. tornadoes.
c. big waves.
d. big trees.

**4.** In a hurricane, you should . . .
a. stay inside.

b. stay outside.
c. go surfing.
d. sit by a window.

## TSUNAMI

"Surf's up!" You might want to say this in a tsunami. This is not a good thing.

Earthquakes and volcanoes can happen under the sea. They cause a tsunami. Then, ocean waves get very big. A tsunami is not just one wave. It is many waves. They can move as fast as 450 miles per hour.

These waves can hit land. Then, houses and stores are smashed. People and animals are hurt.

If you live near the ocean, be aware. If there is an earthquake, wait until it is safe. Then, move to high ground. You don't want to surf these waves!

**1.** Tsunamis happen because of . . .
a. tornadoes. c. earthquakes.
b. rocks. d. fire.
**2.** A tsunami is . . .
a. one small wave. c. many big waves.
b. one big wave. d. many small waves.
**3.** In this story, *wave* means . . .
a. water. c. squiggly line.
b. bye-bye. d. surfboard.
**4.** What should you do before a tsunami?

a. surf
b. swim
c. float
d. move to high ground

## BLIZZARDS

Snow is pretty. It is fun to play in snow. But too much snow can cause a blizzard.

Cold and strong wind makes a blizzard. A lot of snow falls or blows. Sometimes, you can't see in front of you!

Blizzards can last for hours. They can shut off your power. Make sure you have a flashlight and a radio with a battery.

In a blizzard, go home. Stay inside and stay warm. If you can't get inside, build a snow cave. Never eat snow in a blizzard. It will make you even colder!

**1.** A blizzard is caused by . . .
a. wind and rain.
b. cold and waves.
c. cold and wind.
d. wind and waves.

**2.** In a blizzard, you would wear . . .
a. pants, a coat, and a hat.
b. pants and a T-shirt.
c. a T-shirt and a warm hat.
d. a bathing suit.

**3.** In a blizzard, make sure you have a . . .
a. flashlight.
b. snowboard.
c. sled.
d. snowball.

**4.** If you eat snow in a blizzard, you will get . . .

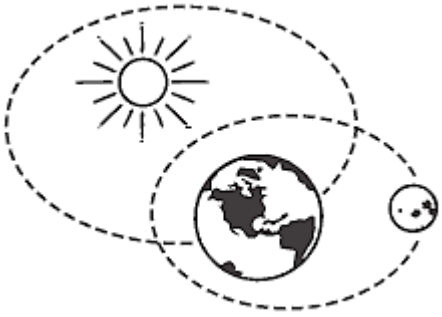
a. warmer.
b. hungry.
c. colder.
d. sleepy.

## SUN, EARTH, AND MOON

The sun comes up in the morning. The sun goes down at night. This is because Earth spins on its axis.

It takes Earth one day—twenty-four hours—to spin once on its axis. When we see sunlight, our part of Earth faces the sun. When it is dark, we are facing away from the sun.

The moon revolves around our Earth. The sun is bright, so we don't always see the moon in the day. But sometimes, we can see the moon and the sun in the same sky.



Earth follows a big circle around the sun. It takes Earth a year to go all the way around the sun. It is a long trip of 365 days!

**1.** Earth revolves around the . . .
a. moon. c. Earth.
b. sun. d. morning.
**2.** There are twenty-four hours in a . . .
a. month. c. day.
b. year. d. week.
**3.** The moon is hidden in the day because . . .
a. Earth is bright. c. it is too cold.
b. it is shy. d. the sun is bright.

**4.** Earth circles the sun in . . .
a. a day.
b. 2 years.
c. 365 days.
d. 24 hours.

## CLASSIFYING ANIMALS

Did you know that there are over 1,000,000 different species, or types, of animals? With so many species, scientists have to find a way to sort them into groups. Two of the main groups are vertebrates and invertebrates.

Vertebrates are animals that have a backbone. Humans are in this group. Also in this group are whales, monkeys, birds, and frogs. Just about any pet you have in your home is a vertebrate. Dogs, cats, goldfish, hamsters, and snakes are vertebrates.

Invertebrates have no backbone. Many of them live in the ocean. Clams, jellyfish, squids, and octopuses are invertebrates. Those that live on land are spiders, worms, and insects.

Scientists are finding new species of animals every day. Every one of them can be put into one of these two groups.

**1.** What are two ways, according to this passage, animals are classified or sorted?
a. land and water animals
b. mammals and jellyfish
c. invertebrates and vertebrates
d. color and shape
**2.** Based on the passage, which is the best definition of invertebrates?
a. animals that have several backbones
b. animals that have one backbone
c. animals that have no backbones

d. animals that prefer to swim in the ocean
**3.** Human beings are in the category of . . .
a. invertebrates.
b. vertebrates.
c. neither of these.
d. both of these.
**4.** Which of the animals below would fit into the category of invertebrates?
a. giraffe
b. bird
c. squid
d. pig

## PLANTS

It is important for scientists to sort animals into groups. It just as important to sort plants. Scientists sort them by how they make another plant like themselves. This is called reproduction. Scientists have decided to sort plants into three groups.

The first group of plants reproduces with spores. Spores are parts of the plant that break away and travel in the wind. Each one grows into a new plant if it lands on soil that is wet and rich. Ferns and mosses are plants that make a copy of themselves with spores.

Other plants reproduce with seeds. They are the second group. Seeds fall from the trees. They become part of the soil and grow into new plants. Evergreens, pine trees, and fir trees are plants that reproduce with seeds.

The third group is the plant that reproduces by flowering. Before seeds can form, the pollen inside the flower needs to move from one part of the flower to another. The seeds form inside the flower. Birds and insects help this by moving the pollen when they land on the flower. Some of the flowering plants grow into fruits to eat. The seeds are hidden inside the fruit. Apples, oranges, cherries, daisies, and roses are plants that have flowers

**1.** Which group of words mean the same as the word *reproduction*?
a. make a copy of itself c. plants the flowers
b. helps us understand d. flowering and pollen
**2.** Scientists have broken plants into three different groups:
a. colors, sizes, and shapes.

b. spores, flowers, and seeds.
c. vertebrates, invertebrates, and seeds.
d. cherries, grapes, and oranges.
**3.** How do the plants that have spores reproduce?
a. by seeds falling on the ground
b. by floating in the wind from place to place
c. by bees moving the pollen inside the flowers
d. by pushing their roots into the ground
**4.** Which type of plant group needs help from birds or insects?
a. plants that reproduce with spores
b. plants that reproduce with flowers
c. plants that reproduce with leaves
d. plants that reproduce with sunlight

## FORESTS

Forests can be found all around the world. There are many different plants and animals that use the forest as their home.

In the forest, small animals eat the fruits, nuts, mushrooms, and insects. They race around from tree to tree and jump from branch to branch. Larger animals eat smaller animals. Other animals eat seeds and shrubs. Even though most animals are scared of humans, they are never far away. An ant, bat, robin, snake, deer, or turkey may be hiding among the leaves. They may be sitting in the trees. They might be running on the ground.

Many different types of trees live in the forest. Trees drop their leaves during the fall to save water on the floor of the forest. The soil is made up of fallen leaves, dirt, and animals that have died. After the animals and plants die, their bodies break down. This makes the earth
rich with nutrients.

Forests are fun places to visit. A person who wants to see and hear the real sounds of the forest must sit quietly and listen with his or her eyes and ears.

**1.** Which type of area is the article describing?
a. mountains c. desert
b. ocean d. forest
**2.** If you were to close your eyes in the forest, which one of these sounds might you hear?
a. a squirrel chattering with its friend
b. breaking glass

c. waves crashing on the rocks
d. sea gulls screeching
**3.** The purpose of this passage is . . .
a. to entertain the reader with forest crafts he or she can make.
b. to inform the reader of interesting facts about a forest.
c. to persuade the reader to travel to a forest on vacation.
d. to encourage the reader to create his or her own forest.
**4.** A good **synonym** for the word *shrub* could be . . .
a. dog.
b. bush.
c. bird.
d. sand.

## OCEANS

Are you looking for some place new to explore? The ocean is an amazing part of our earth. There are many parts to the ocean and many different types of animals that live in it.

Coral reefs give food and shelter to small animals that live near the top of the water. Coral reefs are warm and usually have plenty of light. Starfish, sea anemones, and clams live here.

The seashore is the part of the ocean most of us know best. It includes the sand but also tide pools along the rocks. Animals that live on the rocks have special arms and legs that help them when the waves crash over them. They use these arms and legs to hold onto the rocks around them. Other animals, like crabs and some birds, move every time the waves crash back and forth. Smaller animals stay alive by quickly digging holes into the sand.

Many sea animals live in the open ocean where the waters still have some light. Many types of plants, as well as sharks, fish, turtles, and seals live here.

Deep down in the ocean it is very cold. There is very little light. In the deepest parts of the ocean, it is completely dark. Some animals that live down there actually create their own light to attract other fish!

**1.** Why would you probably not find a coral reef in the deep ocean?
a. Reefs need cold water to live.
b. Reefs need light and warm water to live.
c. Reefs need to live in dark parts of the ocean.

d. Reefs wouldn't have enough food in the deep.
**2.** How do some of the smaller sand animals survive on the seashore?
a. They grab onto the coral reef.
b. They roll with the waves.
c. They hold on to rocks.
d. They tunnel quickly down into the sand.
**3.** According to the passage, what can some animals that live in the deep ocean do?
a. They can go for long periods of time without eating.
b. They can create their own light.
c. They can swim with their eyes closed.
d. They can eat animals larger than themselves.
**4.** If you were to explore the seashore, which of these would you probably feel beneath your
toes?
a. sand, ice, and snow
b. ice, snow, and mud
c. sand, small pebbles, and shells
d. large rocks, clay, and chunks of dirt

## DESERTS

It might seem that very few things can survive in the desert. Most plants and animals that you see in your town probably wouldn't. But there are many different types of plants and animals that are perfectly suited to the hot, dry climate.

In the desert, there is very little water. The plants and animals that live in the desert have special features for living with little water. Plants like the cactus have short leaves. These leaves trap and store water. The cactus also has spines on its leaves. This is to keep animals from taking its water.

Animals that live in the desert are often nocturnal. This means they sleep during the day. They come out to eat at night when it is cool. Other animals, like the camel, are awake during the heat of the day. They have special eyelashes that keep the sand out of their eyes. They have nostrils that can close to keep the sand out of their noses. They can go for many days without drinking. Many animals that live in the desert can get all the water they need from the foods they eat.

**1.** Which of these could be a title for this passage?
a. "A Cold Day in the Desert"
b. "How to Stay Cool in the Desert"
c. "Plant and Animal Life in the Desert"
d. "When You are Hot, Drink Water"
**2.** What makes camels a unique or special animal?

a. They are used to humans so they eat from our hands.
b. They are awake at night when it's cool.
c. They have special eyelashes and nostrils to help keep sand out of their bodies.
d. They live under rocks.

**3.** Animals that sleep during the day are called . . .
a. lazy.
b. desert creatures.
c. camels.
d. nocturnal.

**4.** If you wanted to visit the desert in the daytime, you might wear . . .
a. a heavy jacket, mittens, and a hat.
b. shorts, a tank top, and sunglasses.
c. long jeans, a sweater, and rain gear.
d. a swimsuit and goggles.

## TUNDRA

Do you think the desert is the only place that has very little rain? The tundra doesn't get much rain either. It is different from the desert, though. The tundra is almost always frozen!

The tundra is one of the coldest habitats on the earth. Summer only lasts for two months. During this time, the ground thaws, or melts, a little. It is never very warm, though. During the winter, there are times when the sun doesn't shine at all.

Only a few plants are able to stay alive in this habitat. When the icy winds blow, they are only safe because they grow close to the ground. Animals such as reindeer, polar bears, and musk oxen are the only ones that can stay alive in this cold weather. They have very thick fur that keeps them warm. Some of these animals hibernate in the winter while others migrate south.

The plants and animals of the tundra have adapted to this harsh environment.

**1.** Summer in the tundra is . . .
a. hot and dry.
b. very busy.
c. two months long.
d. cold and rainy.

**2.** If you were to visit the tundra, you might expect to see . . .
a. parks, benches, and swing sets.

b. flowers, trees, and large bushes.
c. low-lying plants and a few animals.
d. birds, cats, and dogs.
**3.** A person who plans to visit the tundra should probably wear . . .
a. shorts and sunglasses.
b. a light jacket and a baseball cap.
c. a heavy jacket, warm hat, and gloves.
d. skis.
**4.** How are the tundra and a desert similar?
a. They are not similar at all.
b. They both have lots of different types of plants.
c. They have the same types of plants and animals.
d. They both get very little rain.

## TROPICAL RAINFORESTS

Rainforests are very warm, wet forests. Rain falls for days and even months. Rainforests have millions of different types of plants and animals. They live in the four different zones of the rainforest.

The first zone is called the emergent zone. This is high above the rainforest. Here, giant trees stretch higher than the average height of any of the other plants. Many birds and insects live here.

The second zone is the canopy. This is the leafy area of the tops of the trees. Most of the animals in the rainforest live here. You can find monkeys, parrots, and frogs up here. You can also find butterflies, snakes, and sloths. A sloth is a very slow-moving animal that hangs upside down from the trees.

The understory is the third zone. It is made up of mostly young trees and shrubs. It is dark and cool. It is under the leaves, but not on the ground.

The forest floor is the final zone of the rainforest. The largest animals, such as jaguars and even elephants usually live here. The forest floor is also home to millions and millions of insects!

**1.** In which zone would you most likely find a large animal, such as a jaguar?
a. emergent zone c. understory
b. canopy d. forest floor
**2.** According to the passage, how many types of plants and animals live in the rainforest?

a. trillions c. kazillions
b. millions d. thousands

**3.** Which is the highest zone in the rainforest?
a. forest floor c. canopy
b. emergent d. understory

**4.** In this passage, *zone* probably means . . .
a. time zone.
b. area under water.
c. part or section.
d. area where no animals live.

## BRAIN POWER

In 2001, Matt Nagle was a 25-year-old football star. Then one night he had a bad accident that resulted in his spinal cord being cut.

Matt was paralyzed from the neck down. He could not do anything alone. Matt couldn't even breathe by himself. Doctors kept working to make better equipment for people like Matt to stay alive. Science labs kept doing research to try and find answers. They were trying to make machines to help paralyzed patients. A company who does research on brains was searching for ways to use brain waves. They chose Matt as the first person to try a new technology. They wanted to do an experiment that used machines to carry out instructions from inside the brain.

In June 2004, the doctors implanted a chip into Matt's brain. This chip could run machines with his thoughts. Matt could send simple messages to a computer with this chip. He could change channels on the TV. Matt could play computer games and turn lights on and off. All of these things he could do just by thinking about them.

Matt worked for months to get the messages to move from his brain to the computer. It was very hard. The technology was difficult. The doctors were worried that the chip might injure Matt's body. They also worried that it might hurt his brain and his thinking. Matt wanted to fight to get better. Matt kept fighting in hopes of trying to help make things better for other people like himself.

**1.** "Implanted a chip into Matt's brain" means . . .
a. planted a flower in his brain.
b. placed a computer chip into his brain.
c. added cookies to his brain.
d. placed tortilla chips in his brain.
**2.** What did the doctors worry would happen when they put the chip into Matt's brain?
a. There would be damage to his mind and to his body.
b. He would get cancer.
c. He would start singing and dancing.
d. He would start swimming and golfing.
**3.** What can Matt use his mind to do?
a. type letters, dial the phone, and play cards
b. run, jump, and dance
c. turn lights on and off, switch TV channels, and play computer games
d. play football
**4.** From reading this passage, we can guess that Matt was a person who . . .
a. didn't like to do hard things. c. never gave up.
b. was a show off. d. yelled a lot.

## NEW PLANET?

On January 8, 2005, three scientists were studying the solar system. They were surprised to see something new in the sky. It was large and bright. Even people who studied the stars for fun were able to see it. These people are called amateur astronomers.

The object was much bigger than Pluto. Its orbit, or path, around the sun was different from the other planets. People started asking questions. Was it a planet or not? No one knew for sure. Everyone had his or her own opinion.

Michael A. Brown, one of the three scientists, believed it was a planet because of its size and distance. A man named Alan Boss did not agree. Alan is a theorist, a person who studies guesses. He believes that if we call it a "planet," we are not being fair to the bigger planets in the solar system.

Michael Brown has continued to collect information on the bright object. He feels sure it is a planet. He is trying to find out about how big it is. He wants to know how much it weighs. He wants to know what it is made of.

Michael has made up a name for the planet. However, he is keeping the name a secret. He won't tell until it is known if it is really a planet or just another bright light in the sky.

**1.** What is an *amateur astronomer?*
a. a person who likes stars, ice cream, and cookies

b. a person who has a college degree in astronomy
c. a person who studies the stars and the sky for fun
d. a person who sits on his porch to catch snowflakes
**2.** A *theorist* is someone who . . .
a. enjoys talking about stars.
b. chats with friends about things they do not know.
c. studies guesses to find out if they are true.
d. studies the stars.
**3.** Why hasn't Michael told everyone the name he wishes to give the planet?
a. It hasn't been proven yet that it is a planet.
b. He might change the name.
c. He is too embarrassed.
d. He wants someone else to name it now.
**4.** Why were amateur scientists able to see this new object in the sky?
a. It cut off the sun for 10 minutes.
b. They knew it was coming.
c. They had read science fiction novels about it.
d. It was very bright and large.

# Pre-intermediate

## JUPITER

Jupiter is the biggest planet in our solar system. It is 1,000 times larger than the planet Earth. That is pretty big! Jupiter is bigger than all the other planets combined. Jupiter is described as a big ball of gas. That is because it is made up mostly of gases. Jupiter is mostly hydrogen with a little helium.

We see mostly the outer layer of clouds when we look at Jupiter. Gas planets do not have a solid surface. The inner core of Jupiter is rocky and solid. Jupiter is the fourth-brightest object in the sky. People have been seeing Jupiter in the night sky for many years.

Many years ago, people thought Jupiter was a "bright, wandering star." A man named Galileo developed the telescope. The telescope helped him see Jupiter's four large moons. This observation helped Galileo realize that Earth was not the center of the universe.

The great red spot on Jupiter has been seen for over 300 years. This spot is big enough to hold two Earths. Jupiter also has rings. They are made up of particles of rocky materials. The rings are dark in color. Jupiter is the fifth planet from the sun.

**1.** What would be the best title for this passage?

a. "Jupiter: The Largest Planet"
c. "Cool Planets"
b. "Outer Planets"
d. "Planets with Moons"

**2.** Which of the following is not a fact about the planet Jupiter?

a. Jupiter is the largest planet.
b. Jupiter is one of the outer planets.
c. Jupiter has a great red spot.
d. Jupiter does not have rings like Saturn.

**3.** What was meant by the "bright, wandering star?"

a. Jupiter was at first a star that moved across the sky at night.
b. Jupiter couldn't be found in the night sky.
c. Jupiter was located in a star's position.
d. Jupiter was first thought to be a star that moved in the night sky.

**4.** How did the telescope change what people thought about Jupiter?

a. Jupiter was the first planet viewed through a telescope.
b. Galileo discovered that Jupiter had moons.
c. It was determined that Jupiter was not located in a star's position.
d. Jupiter was discovered to be the center of the universe.

## THE CENTRAL NERVOUS SYSTEM

The adult brain weighs about three pounds. This doesn't seem like much, but it is one of the most important organs in the human body. The brain is made up of millions of nerve cells. These nerve cells tell the rest of the body what to do. Without a brain, we could not live. The spinal chord is connected to the brain. It runs from our neck down through our back. The spinal chord and the brain make up what is called the central nervous system.

The brain is like the body's computer. It controls body temperature and reminds us to breathe. The brain allows the body to have voluntary movement, thought, language, and reasoning. Different parts of the brain have different jobs. The brain tells us when we are hungry and thirsty. It also is responsible for memory and emotion.

Our brain relies on food to give it energy. You need to eat healthy foods to keep your brain and the rest of your body working right. Healthy foods like fruits, vegetables, cereals, grains, milk, and other dairy products are all important foods for us to eat. We also need to keep our brains active. Research has shown that the less active our brain is, the less we are able to remember and do. So keep thinking, moving, and doing. It's great for your brain.

**1.** After reading the passage, what do you think would happen if your brain was injured?

a. It would immediately double in size.

b. Our bodies might not be able to perform certain things.
c. The heart would begin to take over the body.
d. Doctors have not yet determined what happens in this case.

**2.** The main idea of this passage is . . .

a. to inform the reader about what happens when they are thinking.
b. to inform the reader about the connection between the heart and brain.
c. to inform the reader about how important healthy food is to the brain.
d. to share general information about the brain and the spinal chord and how they work.

**3.** Where can you find information about the spinal chord?

a. second paragraph
b. not in the passage
c. third paragraph
d. first paragraph

## MERCURY

Did you know that Mercury is the closest planet to the sun? It is also the eighth-largest planet. This means that it is not a very big planet. Mercury has been visited by one spacecraft. The name of the spacecraft was the Mariner 10. It flew by Mercury three times. In many ways, Mercury is very similar to the moon. There are a lot of craters on Mercury. Mercury does not have any known moons.

When looking up at the sky, it is sometimes possible to see Mercury with a pair of binoculars around sunrise or sunset. The temperature on Mercury can be very extreme. It is so close to the sun that it gets very hot during the day, but very cold at night. Mercury is about 36 million miles away from the sun. As far as we know, Mercury does not have any water, and it is black and brown in color. Mercury rotates on its axis very slowly but orbits the sun very quickly.

The surface of Mercury seems to show that there may have been volcanoes at one time on Mercury. Mercury orbits so close to the sun that sometimes it can be hard to see. Mercury is never far from the sun in the sky. The glare of the sun is so bright that you can see Mercury best at twilight.

**1.** Which of the following statements is not found in the reading passage?

a. Mercury is the closest planet to the sun.
b. Mercury orbits close to the sun, so it is hard to see at times.
c. Mercury is one-third the size of Earth.

d. It is believed that there were once volcanoes on Mercury.

**2.** What inferences can you make about Mercury, being it is the closest planet to the sun?

a. There are probably glaciers there.
b. It is very hot in temperature.
c. It is the most likely planet to have life on it.
d. It is made up of all gases.

**3.** Mercury revolves very _____ around the sun.

a. quickly c. steadily
b. inverted d. slowly

**4.** The purpose of the third paragraph is to . . .

a. inform the reader about Mercury's surface.
b. inform the reader about Mercury's temperatures.
c. inform the reader on how best to see Mercury in the sky.

## URANUS

Uranus sits at the far end of the solar system, between Saturn and Neptune. These outer planets are made of very different material than the inner planets. Uranus is mostly made up of frozen gas. The inside of Uranus is made up of methane gas. The methane gas gives the planet a blue-green color. Uranus is also covered with clouds.

Uranus is the fourth-largest object in the solar system. It is the seventh planet from the sun. It has been discovered that Uranus has 27 moons and lots of rings. These rings are shaped differently than the rings of Saturn or Jupiter. Uranus has partial rings. The rings are very faint and hard to see. The moons are icy and have no atmosphere. There is not much possibility that there is life on Uranus.

The Voyager II flew by Uranus and was able to get 7,000 pictures of Uranus, its rings, and its moons. The Voyager II was launched in 1977 and arrived in 1986. That is one long trip!

**1.** What does the word partial mean?

a. related to particles c. orbits the sun in one year
b. incomplete d. see-through

**2.** Why did it take so long to get pictures of Uranus?

a. Uranus does not have an atmosphere
b. Uranus has just recently been discovered.

c. It takes a very long time to get to Uranus.
d. The Voyager II had difficulty getting to Uranus.

**3.** What does the passage say about how the rings of Uranus compare to the rings of Jupiter and Saturn?

a. They are shaped differently.
c. They are longer rings.
b. They are made up of different materials.
d. They are made up of methane gas.

**4.** Which of the following statements is not a fact about Uranus?

a. It is the fourth-largest planet in the solar system.
b. It is made up of methane gas.
c. It has 27 moons.
d. There is the good possibility of life on Uranus.

## EARTH'S ATMOSPHERE

What do you know about Earth's atmosphere? Earth's atmosphere is a thin layer of gases that cover the outer edge of Earth. It is mostly made up of nitrogen and oxygen. There are other gases in the atmosphere as well. This layer of gases is very important. It protects Earth from extreme temperatures. The atmosphere also traps heated air. It protects Earth from the sun's ultraviolet rays. These rays can be very harmful.

The atmosphere is about 300 miles thick. It slowly becomes thinner the farther it is from Earth and fades off into space. There isn't a real defined boundary between the atmosphere and space.

Oxygen in the atmosphere is important. Oxygen allows us to breathe. Without oxygen in the air, we would not be able to live. Some of the oxygen has changed over time. This is called the ozone layer. Some experts believe that humans have caused a hole in ozone layer.

The atmosphere is divided into five layers. The weather we experience on Earth takes place in the first layer. Weather happens because the atmosphere is constantly moving and changing.

**1.** Where does the weather we experience on Earth take place?

a. in the atmosphere
b. in the first layer of the atmosphere
c. in the second layer of the atmosphere

d. in the ozone layer

**2.** Which paragraph helps you answer the previous question?

a. second paragraph
b. first paragraph
c. fourth paragraph
d. third paragraph

**3.** Without the atmosphere, what would happen to Earth?

a. It could not withstand the sun's ultraviolet rays.
b. There would be no weather patterns.
c. There would be less pollution.
d. The ozone layer would not have a hole in it.

## EARTHQUAKES

Have you ever been in an earthquake? How did it feel? An earthquake can be a scary experience. What is an earthquake? An earthquake is really Earth's way of getting rid of stress. The earth has plates that shift back and forth. This stress and strain causes the surface of the earth to crack. It is like pushing against the two ends of a stick. The stick will eventually bend and break from the pressure. The earth's crust reacts the same way. As the plates move, they put pressure on each other. When the force is strong enough, the crust breaks. The stress is released as energy that moves through the earth in the form of waves. These waves are what we call earthquakes.

Did you know that there are different types of earthquakes? They are called tectonic, volcanic, and explosion earthquakes. A tectonic earthquake is the most common. These happen when the rocks on Earth's crust break because of the tectonic plates shifting. A volcanic earthquake takes place during the eruption of a volcano. Explosion earthquakes happen when there has been a chemical or nuclear detonation. These earthquakes take place in underground mines.

Earthquakes can be measured in many ways. One of the ways is to measure how intense an earthquake is. Magnitude is another way to measure an earthquake. The Richter scale is used to measure the magnitude. Seismic measurement is measured by using seismic waves.

**1.** Why are earthquakes likened to waves?
a. Earthquakes begin out in the ocean.
b. The waves of the ocean cause the earthquakes.
c. The force of energy released when the crust breaks is called a wave.
d. Nuclear chemicals form a wave.
**2.** What is the purpose of the third paragraph?
a. to explain how earthquakes are measured
b. to explain how earthquakes are formed
c. to explain how earthquakes are prevented
d. to explain how earthquakes are survived
**3.** Where would you read to find out about the three types of earthquakes?
a. first paragraph
b. end of the third paragraph
c. second paragraph
d. end of the second paragraph

.

## AMPHIBIANS

What is an amphibian? An amphibian is an animal that spends part of its life underwater and part on land. When amphibians are underwater, they breathe with gills. When they are on land, they breathe with lungs. They are cold-blooded. This means that their body temperature changes depending on the temperature around them.

There are three different kinds of amphibians. The first group is newts and salamanders. These animals are about three inches long. They have four legs and four "fingers" on each leg. They are red-orange and transform to the color green.

The second type is frogs and toads. Frogs and toads are very similar. Toads have a warty back and spend less time in the water. They eat insects and other small animals. Frogs begin as tadpoles. They spend time close to the water so that they can lay their eggs.

The last group is caecilians. These are worm-like creatures. Millions of years ago, there were other types of amphibians, but they are now extinct.

**1.** How is an amphibian different than most mammals?
a. An amphibian eats different foods.
b. An amphibian breathes underwater with gills.
c. The amphibian is very territorial.
d. An amphibian can swim.

**2.** Why is the word fingers in quotation marks in the passage?
a. The author isn't sure it is the right word to use.
b. The author is using it to show that they look and work like fingers.
c. They don't become fingers until later.
d. The author is unsure of what to call these things.
3. What are the similarities between a frog and a toad?
a. They both eat insects and other small animals.
b. They are both endangered species.
c. They are both worm-like creatures.
d. They both have tadpoles.
**4.** What does the passage say about some amphibians millions of years ago?
a. There is not enough information about them.
b. There are new species being discovered every day.
c. They are now extinct.

## THE EAR

Did you hear that? If you did, then you heard it with your ear. The ear is a very important part of the body. Sounds can be soft or loud and the ear can hear almost all sounds. The ear takes in sounds, then sends this information to the brain. Ears also help you keep your balance so that you don't fall over.

The ear is made up of three main sections. These parts are the outer ear, the middle ear, and the inner ear. Each part of the ear plays an important role in hearing. The outer ear is the part that you can see. If you whisper in someone's ear, you are whispering into the outer ear. The outer ear holds the ear canal. This is where the wax is made. This earwax keeps infections from getting inside the ear. Earwax also collects dirt and keeps the ear clean.

Sound waves enter the ear and travel to the middle ear. Within the middle ear is the eardrum, which the sound waves strike and cause to vibrate.

The inner ear receives the vibrations into the cochlea. This is a small tube in the inner ear. The small tubes are filled with liquid. Tiny hairs line the tube. When the vibrations cause the hair to move, it creates nerve signals that the brain understands is sound. The brain understands the signal and hears the sound.

**1.** Which paragraph explains how the eardrum works?
a. first paragraph
b. last paragraph

c. third paragraph
d. fourth paragraph

**2.** What inferences can you make about the ear after reading this passage?

a. Hearing is a fact of life for most people.
b. Hearing aids are important tools for the elderly.
c. Hearing is learned after the first year of life.
d. The ear plays an important role in our being able to hear.

**3.** What is the author's opinion about the ear?

a. The author thinks the ear can be used in a transplant.
b. The author thinks there has not been enough research about the ear.
c. The author is interested in sharing the fascinating process of hearing.
d. The author is learning how the brain understands sound.

## INSECTS

Insects are animals that do not have backbones. They have a hard exoskeleton, three body parts, two antennae, three pairs of jointed legs, and compound eyes. Some insects have wings. Insects hatch from eggs. They also breathe through special holes called spiracles.

There are millions of different types of insects. Insects are the largest group of animals. Scientists say that insects have been around since long before the dinosaurs. Insects are found all over the world. They live on all continents, in backyards, and even in the walls of homes. Insects live right alongside humans.

Many people are afraid of insects, but not all insects are harmful. Insects may look scary to humans, but that does not mean they are harmful. For example, daddy long-leg spiders, June bugs, dragonflies, moths, and butterflies are all harmless insects.

There are some insects that are harmful to humans. These insects include centipedes, ticks, lice, bees, hornets, and mosquitoes.

**1.** Why do humans fear insects?

a. They eat human food.
b. They look scary.
c. They are all dangerous to humans.
d. They are more powerful than humans.

**2.** What is the purpose of the third paragraph?

a. to explain how insects bite

b. to explain how insects are hatched
c. to explain how the insect body is constructed
d. to explain that not all insects are harmful

**3.** Which paragraph would you read to find out about the types of harmful insects?

a. first paragraph
b. third paragraph
c. fourth paragraph
d. second paragraph

**4.** Which sentence explains how insects breathe?

a. Insects breathe through their eyes.
b. Insects breathe through special holes called spiracles.
c. Insects breathe through the spiracles in their feet.
d. Insects breathe through their antennae.

## THE CIRCULATORY SYSTEM

The circulatory system is an extremely important part of your body. This system transports blood throughout your body. At any given time, your body has five liters of blood flowing through it. The heart, the lungs, and the blood vessels all play an active role in blood flow.

Over the course of a person's life, the heart beats about 3 billion times. That is a lot of very important beats. The beating of the heart means that blood is being sent to the body. The heart is a muscle. It is a very strong muscle. It is divided into four main parts. The blood leaves the heart and enters the aorta. Fresh blood from the aorta goes to the brain.

The brain needs the oxygen in the blood. The brain could not live without this. Blood also travels through the lungs. Carbon dioxide is taken out and oxygen is put in its place. The arteries and veins take the blood to all parts of the body. The blood returns back to the heart through the veins.

You can hear your heart pumping blood in your body by using the stethoscope. One end of this tool is placed on your heart, and the earpieces go in your ears. The stethoscope works like a mini microphone so that you can hear the heart beating.

**1.** What could be a different title for this passage?

a. "Blood in the Body"
b. "The Heart and Lungs"
c. "How the Circulatory System Works"
d. "Arteries and Veins in the Body"

**2.** Which of the following is not a fact about the circulatory system?

a. The heart beats about 3 billion times in the average lifetime.

b. The blood contains oxygen for the brain.

c. The blood returns to the heart through the veins.

d. The brain helps the body move and have feelings.

**3.** What was meant by the use of the words "active role" in the first paragraph?

a. Without the heart, the body would die.

b. The brain, heart, and lungs are connected.

c. The brain, heart, and lungs play an important role.

d. The heart, lungs, and blood vessels work together to get blood flowing through the body.

**4.** How did the stethoscope help doctors learn more about the heart?

a. They could hear the heart at work.

b. They could use the stethoscope to measure the amount of blood flow.

c. They could use the stethoscope to hear if a person has a heart or not.

## THE MUSCULAR SYSTEM

We all use our muscles to move our bodies. Without muscles, you would not be able to talk, eat, walk, sleep, or move at all. There are over 650 muscles that your body uses. These muscles are attached to the skeleton.

There are three types of muscles. They are the skeletal muscles, the cardiac muscles, and the smooth muscles. All of these muscles can tighten.

Some of these are voluntary muscles, and others are involuntary muscles. Voluntary muscles move only when we think about it. The muscles in our arms and legs work like this.

Involuntary muscles move when we aren't even thinking about it. The heart is an example of an involuntary muscle. If we had to think about it to make our heart beat, we might forget.

**1.** Doctors who work with the muscles would be most interested in a machine that . . .

a. helps damaged muscles move.

b. explains the function of each muscle.

c. demonstrates how muscles work.

d. takes pictures of muscles.

**2.** According to the passage, how do involuntary muscles differ from voluntary muscles?

a. There is no difference.

b. They work together to get the heart moving.
c. We move involuntary muscles without thinking about it.
d. Voluntary muscles move on their own.

**3.** What is the main idea of the passage?

a. to show how muscles help us talk
b. to explain the types of muscles and how they work
c. to show how muscles help our body move
d. to show how involuntary muscles work

**4.** What do the three types of muscles have in common?

a. They are all involuntary muscles.
b. They are all voluntary muscles.
c. They carry the blood flow to all parts of the body.
d. They are all able to tighten.

## TORNADOES

Have you ever been in a tornado? Have you heard about a tornado? Tornadoes are defined as a rotating column of air. A tornado can be weak, strong, or violent. Most tornadoes are weak. Only 30% become strong or violent tornadoes. A tornado usually comes down from a funnel-shaped cloud. The wind of a tornado can move as quickly as 110 to 200 mph.

Sometimes a tornado is called a twister. Some people like to chase tornadoes. They use equipment to measure how fast the tornado is moving. Unless you are an expert, you should never chase a tornado. You should not even get in a car during a tornado. The tornado can pick up a car and toss it aside.

What should you do to be safe in a tornado? A tornado can toss and throw things all over. It is important to get to a shelter. A tornado shelter might be in a basement or underground. The shelter needs to be sturdy and not a building that can be torn down by the intense winds of a tornado. Stay away from any windows or doors. Protect yourself from flying debris. All of these things can help you stay safe.

**1.** A likely reason people are fascinated with tornadoes is because . . .

a. it is not known how they are made.
b. they are a powerful force.
c. it is a predictable weather pattern.

d. it easy to follow a tornado.

**2.** Which of the following would be the best place to be during a tornado?

a. in a strong building c. in a tent

b. in a car d. under a desk

**3.** What is a reason to stay away from windows during a tornado?

a. to avoid feeling the intense wind

b. to avoid getting hit from flying debris

c. to avoid being seen by the tornado

d. to stay warm during the cold winds of the tornado

**4.** The tornado has different names such as . . .

a. storm.

b. disturbance.

c. twister.

.

## CONSTELLATIONS

Have you ever looked up at the night sky and wondered about the stars? Did you know that these stars have been there since long before you were born? People have looked at the stars in the night sky for millions of years. Some of these stars seem to be in groups that form shapes. A group of stars is called a "constellation." Names were given to these groups of stars.

The best known group of stars is the Big Dipper. It is a group of seven stars. Three stars form the handle, and four stars form the dipper. The Big Dipper is actually part of a bigger group of stars called the Great Bear, or Ursa Major. Some say that this big group of stars forms the shape of a bear.

Another well-known group of stars is Orion. Orion was a Greek hunter from long ago. He wore a belt with different tools hanging from it. If you look closely, you can see Orion's Belt.

The Little Dipper is a group of stars that looks a bit like the Big Dipper. The North Star sits at the end of the Little Dipper s handle.

**1.** What is this passage mainly about?

a. how the stars can be seen to form pictures in the sky

b. how the stars were discovered in the night sky

c. how each star was named

d. how the Little Dipper can be found

**2.** Why was the constellation named the Ursa Major?

a. It was not as small as Ursa Minor.
b. It looked like a bear.
c. It was one of the tools on Orion's belt.
d. It is a constellation.

**3.** According to the passage, who was Orion?

a. He was the leader.
b. He was the king.
c. He was a scientist studying constellations.
d. He was a hunter.

**4.** Based on information in the passage, how can you find the North Star?

a. Look for the Ursa Major.
b. Look for Orion's Belt.
c. Look for the Little Dipper's handle.
d. Look for the constellations towards the north.

## VENUS

Venus is the second planet from the sun. Venus was named after the goddess of beauty and love. It is the sixth-largest planet. It has been known as the brightest planet. For millions of years, humans have noticed Venus.

The first spacecraft to Venus was in 1962. There have been many visits since then. The rotation of Venus is very unusual. It rotates very slowly and in a direction opposite that of the other planets. Venus is very similar to Earth. It is about the same size. They are also made of similar materials. The surface of Venus, however, has too much carbon dioxide to have any life.

Venus is quite dry. It used to have water (like Earth), but it has dried up. On the surface, Venus has slow winds. There are strong winds on the top of the clouds. Venus does not have a moon. Venus is almost always covered with clouds. The surface of Venus has small craters all over it. Venus also has lots of volcanoes on it. Venus is a fascinating planet.

**1.** What are the author's feelings about Venus?

a. indifferent c. unsure
b. disapproves d. interested

**2.** Which sentence shows how the author feels about Venus?

a. Venus is a fascinating planet.
b. Venus has lots of volcanoes on it.
c. The first spacecraft went to Venus in 1962.

d. Venus is the brightest planet.

**3.** Which question cannot be answered after reading this passage?

a. How big is Venus compared to other planets?
b. Is Venus similar to Earth?
c. What is the temperature on Venus?
d. How did Venus get its name?

**4.** What is the meaning of word noticed in this passage?

a. wondered about
b. been aware of
c. recognized
d. understood

## THE ASTEROID BELT

An asteroid is a piece of rock. Most asteroids are made of rock, with some parts being nickel and iron. Many people say that an asteroid is what was leftover after the planets were formed. These rocks orbit around the sun.

Most of these asteroids are orbiting between Mars and Jupiter. This is known as the asteroid belt. It circulates as a belt of rocks around the sun. Sometimes these rocks run into one another. This changes their course and can break them into smaller pieces.

Some experts believe that these floating asteroids were actually part of another planet that never formed. Some experts call them "minor planets." It is said that if all of the asteroids were pulled together to form a planet, it would not be much bigger than the moon. If one of these asteroids gets into the gravitational pull of a planet, it will orbit it like a moon would.

There have been times when an asteroid has fallen into Earth's gravitational field and crashed into Earth, but this is very rare.

**1.** Why does the author say that an asteroid hitting Earth is rare?

a. It happens quite frequently.
b. It can cause a lot of damage.
c. It doesn't happen very often.
d. It can be tracked using satellite photos.

**2.** What is the main idea of the second paragraph?

a. what the asteroid belt is made up of
b. the relationship between Mars and Jupiter
c. what happens when an asteroid gets in the gravity of a planet
d. the fact that an asteroid is a piece of a planet

**3.** What is the meaning of the term "minor planets" in the third paragraph?

a. smaller or lesser
b. unconcerned
c. bothered
d. unsettled

**4.** Most asteroids are made of . . .

a. planets.
b. stars.
c. air.
d. rock.

## THE OCEANS

What would it be like to live in the ocean? Many sea animals have found this to be the perfect place to live. Oceans cover more than 75% of Earth's surface. This means that the ocean is the largest habitat on Earth.

There are four oceans. They are the Pacific, Indian, Atlantic, and Arctic Oceans. The four oceans all connect to each other. There are also many seas. Seas are smaller branches of oceans. Some examples of seas are the Caribbean Sea and Mediterranean Sea.

Have you wondered why the ocean is salty? Rivers collect salt as they travel over rocks. The salt filters out into the seas and oceans. It dissolves in the ocean but doesn't evaporate. This means that the salt just builds up over time.

Waves on the surface of the ocean are caused by the wind. The stronger the wind, the stronger the waves will be. Waves only move up and down. Waves do not represent a flow of water

**1.** Why is the ocean salty?

a. Salt is generated in the ocean.
b. The salt lies at the bottom of the ocean.
c. The ocean collects salt from rivers.
d. The waves create the salt.

**2.** What is the meaning of the word dissolve?

a. build up c. refuse to discuss
b. encourage d. dissipate

**3.** Why is the ocean Earth's largest habitat?

a. It fights gravity.
b. It emits a powerful force.
c. It makes up 75% of Earth's surface.
d. It is part of the Caribbean Sea.

**4.** Which of the following statements was not mentioned in the passage?

a. The wind makes the waves.
b. The waves only move up and down.
c. The waves keep things in the ocean moving.

# INTERMEDIATE

## SATURN

Saturn is the sixth planet from our sun. This amazing planet is best known for its rings. We may think that these rings are small in number, but when seen through a telescope, there are hundreds of them. The rings of Saturn are made up of very tiny pieces of matter. There are so many objects floating that from a distance, they look like solid rings. The rings are also very thin. The rings are made up of rocky ice particles and dust. Saturn also has many moons.

Galileo was the first person to look at Saturn through a telescope. The year was 1610. He was amazed at what he could see, but he didn't understand it. The telescopes today are much better and can reveal the intricate details of the rings and moons.

Another interesting fact about Saturn is that it could float. That seems surprising because Saturn is the second-largest planet. Even though it is big, it doesn't weigh very much. It is less dense less than water. Saturn rotates very quickly, which means that a day on Saturn is only about 10 hours long. Saturn is made up mostly of hydrogen and helium. There have been many unmanned trips to get a closer look at Saturn. Four spacecrafts have taken pictures and visited Saturn. These were the *Pioneer 11, Voyager* 1, *Voyager* 2, and *Cassini.*

**1.** What would be the best title for this passage?

a. "Saturn: The Planet with Rings"
b. "Outer Planets"
c. "Low-Density Planets"

d. "Planets with Moons"

**2.** According to the passage, which of the following is not a fact about the planet Saturn?

a. Saturn is the second-largest planet.
b. A day on Saturn is about 10 hours long.
c. Saturn has a great red spot.
d. Saturn rotates very quickly.

**3.** What is one reason why humans cannot live on Saturn?

a. Saturn has more rings than other planets.
b. Saturn is so light it could float.
c. Saturn rotates quicker than Earth.
d. Saturn is made up of mostly hydrogen and helium.

**4.** How did the telescope change what people thought about Saturn?

a. Saturn was the first planet viewed through a telescope.
b. Galileo discovered that Saturn had rings.
c. It was determined that Saturn was not located in a star's position.
d. Saturn was discovered to be the center of the universe.

## GEOLOGY

Geology is the study of the history of Earth. It is thought that Earth is about 4.6 billion years old. It has a very long history. Rocks provide a lot of important information about what happened in the past. Geologists study rocks to determine how they were made.

There are a few rocks that are made of just one mineral-such as marble or quartzite-but most rocks are made up of more than one mineral. Most rocks have elements such as silicon, carbon, iron, and oxygen.

The outer layer of the Earth is called the crust. At this point, we are not able to directly study anything below the Earth's crust. We are only able to drill down a few miles. This makes it difficult to study what is going on inside the Earth, but rocks and the ground are constantly being shuffled and pushed around through the years.

One way that rocks are formed and built up is from volcanic activity. Magma lies beneath the Earth's crust and is forced to the surface. Rocks are moved and overturned from earthquakes. All rocks are broken down by a process called weathering. The weather plays a role in erosion and the breakdown of rocks. Water, rain, ice, and wind all contribute to the breaking down of rocks.

**1.** Which statement explains how scientists learn about the history of the Earth?

a. All rocks break down by being exposed to the weather.

b. Geologists study rocks to determine how they were made.
c. All rocks are combinations of one or more minerals.
d. One way that rocks are formed and built up is from volcanic activity.

**2.** The main idea of this passage is ...

a. to inform the reader about what happens when a volcano explodes.
b. to inform the reader about the connection between the earth's crust and rocks.
c. to inform the reader about how important erosion is to breaking down rocks.
d. to share general information about the geology and the study of rocks.

**3.** Where can you find information about how rocks are formed and broken down?

a. second paragraph
b. not in the passage
c. fourth paragraph
d. third paragraph

## STATIC ELECTRICITY

Have you ever seen your hair sticking straight up in the air all by itself? Or how about the last time you dragged your foot across the floor and got a shock? This was probably static electricity. But how does static electricity work?

Everything is made up of atoms. Particles called electrons are part of every atom. These electrons have an electric charge. This charge is negative and is the cause of electricity.

Static electricity isn't really static at all. It involves electrons that move from one place to another. Static electricity is different because it doesn't flow from one place to another in a current like most electricity.

Electrons move from one object to another by vigorous rubbing or brushing. There is an electric field around each object. The field affects objects and produces unlike charges in them. The unlike charges are attracted to each other. Sometimes static electricity makes a popping sound.

**1.** Which of the following statements is true but not found in the reading passage?

a. This charge is negative and is the cause of electricity.
b. Static electricity is more common in the dry, winter air.
c. Sometimes static electricity makes a popping sound.
d. Static electricity gets its name because it involves electrons that move from

one place to another.

**2.** Which of the following statements can you infer after reading the passage?

a. Static electricity does not last long, but ends quickly.

b. Static electricity is very dangerous.

c. Scientists still do not know how static electricity works.

d. Static electricity only happens to certain people.

**3.** There is an electric _____ around each object.

a. charge

b. span

c. shortage

d. field

**4.** The purpose of the third paragraph is to ...

a. inform the reader about how static electricity begins.

b. inform the reader about how static electricity works.

c. inform the reader on how best to prevent static electricity.

## VOLCANOES

What is a volcano? Volcanoes are mountains, but they aren't typical mountains. Volcanoes are formed when magma (hot, liquid rock) rises up from beneath and leaks into the Earth's crust, or surface level. It forms a pool beneath the surface called a magma chamber. As this pool gets bigger, it swells the earth on top of it upwards and outwards.

The term *volcano* comes from Vulcan, the Roman god of fire and metalworking. It was originally believed that smoke and fire from volcanoes was evidence that Vulcan was doing his metalwork inside of them. A small island was named Vulcano because of its many volcanoes.

Volcanoes erupt when the pressure of the magma beneath the surface becomes too great for the rock above it to contain. At this point, the magma breaks through the surface-sometimes in a great explosion-at which point it is called lava.

The temperature inside a volcano is very hot. Scientists say it can get as hot as 2,120 degrees Fahrenheit. Molten rock turns an orange-yellow color when it reaches 900 degrees. When it cools to 630 degrees, the color becomes dark to bright cherry red.

**1.** What does the word evidence mean as used in the passage?

a. argument c. instruction

b. proof d. plan

**2.** What does a volcanic emption depend on?

a. It depends on the amount of air pressure around the volcano.
b. It depends on the amount of past action from the volcano.
c. It depends on the pressure of the magma against the surface above it.
d. It depends on how many years it has been since it last empted.

**3.** Which paragraph helps answer the previous question?

a. first paragraph c. second paragraph
b. fourth paragraph d. third paragraph

**4.** Which of the following statements is a fact about volcanoes?

a. Volcanoes are made from erosion.
b. Volcanoes are mountains.
c. Volcanoes have a vent which is connected to molten rock.
d. The temperature inside a volcano is warm.

## THE RAIN FOREST

One of the most talked about places in the world is the rain forest. This amazing ecosystem has more species and plants than all the other ecosystems in the world combined. There are more than 10 million species. Scientists say that there are even species that haven't been identified yet.

The rain forest is a lush and green place. It is called the rain forest because it rains a lot. It may begin raining at a moment's notice. Constant thunderstorms lead to a lot of flooding and very wet soil. It is also a very hot and humid place. The climate remains the same all the time. This consistency in climate creates a stable environment for many plants and animals. The largest rain forests can be found in the African Congo, the Amazon Basin in South America, and Southern Asia.

There is a lot of concern about the amount of rain forest that is being destroyed. Animals and plant species become extinct when their environment is destroyed. Scientists say that over 500 square miles of the rain forest is destroyed every minute. That's a lot of destruction!

Why is the rain forest being destroyed? There are many different reasons. One of the reasons is so that farmers can make fields to grow plants. The rain forest is also chopped down to use the wood for things like furniture. Organizations have been set up to try and keep people from cutting down

any more rain forests.

**1.** Which of the following statements is contained in the passage about the rain forest?
a. Scientists use the rain forest to study plant and animal species.
b. The rain forest has been around for millions of years.
c. Money has been raised to save the rain forest.
d. The climate of the rain forest remains constant.
**2.** Which paragraph helps you answer the previous question?
a. second paragraph
b. first paragraph
c. fourth paragraph
d. third paragraph
**3.** Without the rain, what would probably happen to the rain forest?
a. It could not withstand the sun's ultraviolet rays.
b. There would be no weather patterns.
c. There would be more destruction of the rain forest.
d. It would dry up and some plants and animals could not survive.

## THE POLAR REGIONS

The polar regions are the coldest places on the Earth. The temperatures there have gotten as low as -126 degrees Fahrenheit. The sea is covered with a thick layer of ice. Days are very long in the polar regions. The sun doesn't set during three to four of the summer months. Though there is a lot of sun, it doesn't provide very much wannth. It doesn't rain very often, either, but there is snow on the ground.

The living conditions in the polar regions are extreme. Plants cannot grow, but there are some animals that are able to survive. Some of these animals are the seal, walrus, polar bear, wolf, caribou, whale, and the arctic fox. These animals have adapted to this climate. For example, the polar bear has a thick layer of fat under its fur coat. This helps keep it wann.

Along the outer edges of the polar region and the ice caps, the ground is frozen solid. In the warmer months, mosses and other plants can grow there. Reindeer live along the edges and eat some of the plants that grow on the outer edges. People who once lived in these frozen climates used reindeer.
Today, most of these people live in cities and towns instead of on the frozen countryside.

**1.** How are reindeer able to live along the outer edges of the ice caps?

a. The snow has melted off the ice caps.
b. The reindeer eat the moss and other plants that grow past the ice caps.
c. The people from long ago brought the reindeer to this region.
d. The reindeer feed on the animals that live in the polar regions.

**2.** What is the purpose of the second paragraph?
a. to explain how the polar regions were developed
b. to explain how the animals in this area survive
c. to explain how people in the past lived in the polar regions
d. to explain where the plants grow in the polar regions

**3.** Where in the passage would you read to find out about the temperatures in the polar regions?
a. first paragraph
b. end of the third paragraph
c. second paragraph
d. end of the second paragraph

**4.** What is the meaning of the word adapted as used in this passage?
a. arranged
b. distinct
c. modified
d. opposite

## THE TELESCOPE

Since the beginning of time. man has been trying to look beyond what the human eye can see. Hans Lippershey, a man from the Netherlands, invented the telescope in 1608. The Dutch government tried to keep the invention a secret, but it didn't work out that way. Galileo heard about it and built his own, more powerful telescope in 1609. A telescope uses a magnifying lens to focus light coming from things at a great distance. Today, astronomers still use telescopes to look at distant stars, planets, and other wonders in space.

There are two main types of telescopes. The first type is called the refracting telescope. This telescope helps you see things at a relatively short distance. This type of telescope is used at tourist sights to help you see scenic views. They were also used in the past by sea captains to help them find their way at sea. A refracting telescope has two lenses at either end of the tube. The largest lens is at the far end of the telescope. Light shines through to the smaller lens, which is called the eyepiece. The image is magnified. The image in a simple refracting telescope is upside down.

The other type of telescope is the reflecting telescope. Reflecting telescopes use mirrors instead of lenses. The mirrors focus the light onto the eyepiece. The reflecting telescope is much more set high up on mountains so that they will be above the clouds and can give people a clear view.

**1.** What does the word relatively mean as used in the passage?
a. extraordinary
b. rather
c. inhibited
d. progressive
**2.** What is the main idea of this reading passage?
a. to inform the reader about the early telescopes that were used in ancient times
b. to inform the reader about how a telescope is operated
c. to explain the difference between the two different types of telescopes
d. to explain the life of Galileo and his inventions
**3.** Which of the following statements is not true regarding refracting and reflecting telescopes?
a. The reflecting telescope is used to see things far away.
b. The refracting telescope shows the image upside down.
c. The refracting telescope uses lenses while a reflecting telescope uses mirrors.
d. Galileo invented the telescope.

## WAVES

How many times have you sat on a beach and looked at the ocean? It is an amazing sight. The waves are fun to splash in, but have you ever wondered what causes waves and how they work? Waves can be gentle and lapping, or they can be rolling and crash onto the shore. What makes the difference?

When you are sitting on the beach, it looks like the waves are rushing right at you. But that is really not the case. The water in a wave is actually rising up out of the water and then corning back down. It usually comes back down in the same or very similar position.

Out at sea, a wave can travel a great distance. Waves can move large ships and other large objects. But once a wave gets closer to the shore, it does not have as much power. It begins to slow down and drag. The top part of the wave keeps going. When you see the cap on a wave, it means that the wave is "breaking" before it goes down under water again.

The wind is usually what causes surface waves. The wind can be blowing hard or it can be blowing softly. The more intense the wind is, the higher the wave will be. The wind pushes the water.

**1.** Which paragraph does not explain how waves work?

a. first paragraph
b. second paragraph
c. third paragraph
d. fourth paragraph

**2.** What is the author's opinion about the ocean?

a. The author thinks the ocean needs to be cleaned up.
b. The author thinks there has not been enough research about how waves work.
c. The author is interested in sharing the wonders of animal life in the ocean.
d. The author thinks the ocean and the waves are amazing.

**3.** Which sentence expresses the author's feelings about the ocean?

a. Out at sea, a wave can travel a great distance.
b. Waves can move large ships and other large objects.
c. It is an amazing sight.
d. The more intense the wind is, the higher the wave will be.

## FOSSILS

Have you ever seen a fossil in rocks buried in the earth? It's like finding a treasure. Fossils are remains of plants and animals that lived a very long time ago. For example, any dinosaur fossil that is found is at least 65 million years old.

Fossils tell stories about the past. Many of these stories are surprising. For example, fossils of sea life have been found as high up as the top of Mount Everest. This means that at one point, the rocks in Mt. Everest were probably under water. Fossils from plants in the rain forest have been buried deep in the ice of the South Pole.

The oldest known fossil is a tiny bacterium. These fossils have been found in Southern Africa. These fossils are said to be as old as 3.5 billion years.

How are fossils formed? Bones and plant remains begin to decay with time. But sometimes, the bones and plant remains are covered with mud or sand. This makes it possible for the soft parts to decay, while the harder parts (such as wood, bones, and teeth) last a lot longer. Eventually, these hard parts become hardened or petrified.

**1.** What is the meaning of the word petrified as used in the passage?
a. scared
b. stiff
c. excitable
d. rotten
**2.** What is the purpose of the third paragraph?
a. to explain how fossils are formed
b. to mention the oldest fossil found
c. to explain how fossils are found
d. to explain what happens to fossils after they are found
**3.** Which paragraph would you read to find out about unusual places that fossils have been found?
a. first paragraph
b. third paragraph
c. fourth paragraph
d. second paragraph
**4.** Which sentence explains how fossils begin to be formed?
a. Fossils tell stories about the past.
b. Fossils are remains of plants and animals that lived a very long time ago.
c. But sometimes, the bones and plant remains are covered with mud or sand.
d. Fossils from plants in the rain forest have been buried deep in the ice of the South Pole.

## LATITUDE AND LONGITUDE

The Earth is a very large suIface, and at times it is very hard to explain exactly where you are. There are two types of directions that can be used. The first type is absolute direction. Absolute direction is when you are given a specific address of a location, such as a street address. The other type of direction is relative. Relative direction uses imaginary lines called latitude and longitude lines to explain location. These imaginary lines run from north to south and east to west across the Earth.

Latitude lines run east to west. These lines are used to tell you how far north or south you are from the equator. The equator is the imaginary line that runs horizontally along the center of the Earth. It is the exact midpoint between the North and South Poles.

Latitude lines are also called parallels because they go around the Earth without ever crossing or intersecting. They are numbered from 0 to 90 degrees. Zero degrees is found at the equator. The North Pole is 90 degrees north and the South Pole is 90 degrees south.

There are other imaginary lines that run north to south. These imaginary lines are called longitudinal lines. The very center line that runs through the

North and South poles is called the prime meridian. The prime meridian divides the globe into two half circles called the Eastern and Western hemispheres. Lines of longitude are also called meridian lines. Lines of latitude and longitude can help you find your location and place on this earth.

**1.** What would be the best title for this passage?
a. "Parallel Lines"
b. "Imaginary Lines of Direction"
c. "How Latitude Lines Work"
d. "Eastern and Western Hemisphere"
**2.** Which of the following is not a fact about latitude lines?
a. Latitude lines are also called parallels.
b. Latitude lines run east to west.
c. Latitude lines divide the Earth into two hemispheres.
d. Latitude lines run north and south of the equator.
**3.** Lines of latitude and longitude help you determine which type of direction?
a. relative
b. absolute
c. direct
d. none of the above

## DESERT LIFE

Living in the desert usually means extreme heat and dry, arid conditions. There are different types of deserts. Some deserts have more plant life than other deserts. The largest desert in the world is the Sahara Desert. This desert covers over a million square miles of land.

Like all deserts, the Sahara has very little vegetation. However, there are some plants that have learned to grow without very much rain. Cacti are examples of plants that can live for almost a year without rain. When a cactus does receive rain, it produces beautiful and striking flowers.

Many of the animals that live in the desert are the same color as the environment. These sand-colored animals often burrow into the sand to avoid the extreme heat. Many of these animals are nocturnal animals, which means they feed and are active mostly during the night. When there is a severe drought, many of these animals sleep to save water and their need for food.

Camels are another type of animal commonly found in the Sahara Desert. The camel is able to go for a week without any drinking water. The camel's hump serves as food storage. A camel will drink up to 16 gallons of water at one time.

**1.** Why are desert animals nocturnal?
a. The sun is too bright during the day.
b. They are trying to avoid the extreme heat.
c. The water comes at night.
d. They are able to move faster.
**2.** According to the passage, why are camels good animals for working in the desert?
a. There is no specific reason listed.
b. They work together to help each other in extremely hot conditions.
c. They are able to store food and water and go without water for a long time.
d. They have always been used in the desert.
**3.** What is the main idea of the passage?
a. to show how camels store food and water
b. to list the types of animals found in the desert
c. to explain what plant life and animal life is like in the desert
d. to show how cacti can survive a drought
**4.** What do animals that live in the desert have in common?
a. They are all reptiles.
b. They are all nocturnal animals.
c. They have learned to adapt to the heat.
d. They are brightly-colored animals.

## PLUTO

Pluto used to be considered the planet farthest from the sun in our solar system. A scientist named Clyde W. Tombaugh accidentally discovered Pluto in 1930. At the time, Clyde was working at the Lowell Observatory in Flagstaff, Arizona and discovered Pluto after doing a very thorough search of the night sky. Pluto's moon, Charon, was discovered in 1978. Pluto orbits a star, our sun, every 248 years. It is a round body that is about 1,429 miles (2300 kIn) wide. There has been controversy over Pluto ever since it was discovered. Many wanted it classified as a comet or asteroid rather than a planet. Pluto was always considered a planet until a vote by astronomers on August 24, 2006 reclassified it as a dwarf planet.

The International Astronomical Union (lAU) defined a planet as "an object that orbits the sun and is large enough to have become round due to the force of its own gravity." It also stated that the object has to have cleared its orbit of other objects, namely, that it is larger than its surrounding objects. Charon, Pluto's one moon, is about half its size, whereas the moons of the traditional planets are much smaller than their planets. Therefore, Pluto does not "dominate" its area of space. It also has an unusual orbit that overlaps the orbit of Neptune, making it closer to Earth than Neptune for 20 years out

of its 248-year orbit.

Many astronomers disagree with the new classification of Pluto. Although Pluto is much smaller than any of the other planets in our solar system, it is more like Earth than Jupiter or Saturn. Pluto and Earth have solid surfaces, while Jupiter and Saturn are made of gas. Some astronomers also bring up the point that less than 5% of astronomers worldwide voted on the new definition of a planet that demoted Pluto to a dwarf planet. There are already petitions being made to reinstate Pluto to its previous status.
What do you think? Is Pluto a planet?

1. Pluto was reclassified as a dwarf planet after a vote by ...
a. less than 25% of astronomers
c. less than 35% of astronomers
b. less than 15% of astronomers
d. less than 5% of astronomers
2. Other words that can be used in place of accidentally are ...
a. by protection.
c. by structure.
b. by mistake.
d. by formation.
3. If you wanted to study about the orbit of Pluto, would this passage be helpful?
a. Yes, it is very helpful.
b. No, there is not enough information.
c. Yes, it provides a little information on that topic.
d. No, it is not reliable information.
4. Pluto has one moon named ...
a. Neptune.
c. Charon.
b. 10.
d. Charlie.

## ON THE MOUNTAIN TOP

It is an exhilarating feeling to stand at the top of a mountain and look down. There are amazing views. You can tell by looking at a mountain which plants can grow at different heights. The higher you go up the mountain, the colder it is. For every 820 feet you climb, the temperature drops one degree. If you look at the very top of a high mountain, there is usually no or very little vegetation or plants there. Icy wind blows and prevents trees from growing. When mountains get higher than 8,200 feet, there is a timberline. Trees cannot grow above the timberline.

The trees along the mountainside help to protect the mountain soil. This prevents the mountain soil from eroding. When there is too much erosion, there are problems with flooding and landslides. In the wintertime, these cleared-off areas can trigger avalanches.

It is very cornmon to see conifer trees growing on mountains. Most conifers are called evergreens, which means they stay green all of the time. They do not lose their leaves like other trees. The leaves on evergreens are needles. When old needles fall off, they are replaced with new ones. Conifers are able to handle the harsh weather conditions of the mountains. They can survive the cold and the elements.

There are also other types of trees that grow on mountains. In lower portions of the mountain, you can find chestnut, oak, and maple trees.

**1.** What is this passage mainly about?
a. how tall mountains can get
b. how trees grow below the timberline
c. how conifer trees lose their needles and then replace them
d. the different types of trees that can grow on mountains
**2.** Why does the temperature get cooler the higher you go up the mountain?
a. The temperature drops as air pressure rises.
b. The temperature drops because there are no trees.
c. The temperature drops because of the higher elevation.
d. The temperature drops because conifer trees can't grow above the timberline.
**3.** According to the passage, what are the two main factors that create harsh conditions?
a. snow and hail
b. sleet and snow
c. wind and cold temperatures
d. cold temperatures and hail

## ACIDS AND BASES

Have you ever heard the tenns *acid* and *base*? Acids and bases play important roles in your life. Acids and bases can be found in just about everything. Almost every liquid you see is either an acid or a base. The only liquid that is not an acid or a base is distilled water.

An acid has more hydrogen ions. The word *acid* comes from the Latin word *acidus*, which means "sharp." Acids usually have a sour taste. Examples of acids are lemon juice and vinegar. Most citrus fruits have a lot of acids, as do teas and yogurt. Not all acids can be eaten. Some of them can be very harmful. Some acids can bum holes in clothing or skin. These strong acids are used to produce dyes, plastic, fertilizers, and more.

A base is a bitter-tasting chemical. Egg whites and ammonia are bases. Soap is also made from a base. Did you know that your blood is a base? There are many bases that can be eaten, but there are many that are very dangerous to touch, taste, or smell.

Acids and bases are opposites. So when you mix them together, they can neutralize each other. Mixing them together takes a bit of potency away and makes them weaker. When there is too much of an acid, a base will be added to

counteract the acidity. Gardeners are constantly working to get the right balance in the soil. If there is too much acid, plants won't grow.

**1.** Which of the following statements is true?
a. Acids and bases are both dangerous to your body.
b. Bases are the weakened form of acids.
c. Acids and bases should never be mixed together.
d. Acids and bases can be found in just about everything.
**2.** Which sentence from the passage supports the previous statement?
a. The only liquid that is not an acid or a base is distilled water.
b. Almost every liquid you see is either an acid or a base.
c. Most citrus fruits have a lot of acids, as do teas and yogurt.
d. These strong acids are used to produce dyes, plastic, fertilizers, and more.
**3.** Which question could be answered after reading this passage?
a. What are some examples of acids and bases?
b. Does a banana have acids in it?
c. How do I neutralize the acids and bases in the food I eat?
d. What is the pH scale?
**4.** What is the meaning of word potency in this passage?
a. influence
b. strength
c. speed
d. understood

## CRICKET TEMPERATURE

Have you ever listened to the chirping of the crickets on a summer evening? Did you know that the cricket's chirp can help you deternrine the temperature outside?

Crickets are black or brownish insects. They are cold-blooded, which means their body temperature is the same as the temperature of their surroundings. Ifthe temperature outside is warm, then the cricket's body temperature is warm.

During the hot summer months, the crickets are more active. You can hear them chirping or "singing." This noise is made when the cricket rubs the bases of its back legs together. The hotter it is, the faster the cricket will rub its legs together.

You can figure out the temperature outside by following a simple formula using the chirps of the cricket. First, you count the number of cricket chirps per minute. You divide that number by the number four. Then you add that number to 40. Surprisingly enough, the answer you get is pretty close to the actual temperature outside. It is usually only one or two degrees off. Try it sometime!

**1.** Why does the author say, "Surprisingly enough, the answer you get is pretty close to the actual temperature outside"?
a. Because it seems too easy to figure out the temperature that way.
b. Because it seems to be a very precise formula.
c. Because it doesn't seem like it would be a very accurate way to deternrine the temperature.
d. Because it does not seem very probable that the cricket chirp will be predictable.
**2.** What is the main idea of the second paragraph?
a. to explain the cricket and how its body adjusts to temperature
b. to explain how the cricket makes the chirping noise
c. to explain how to deternrine the temperature using the cricket chirps
d. to explain why the cricket chirps only in the summer months
**3.** What is the meaning of the term "singing" in the third paragraph?
a. smaller or lesser
b. disconcerting
c. bothering
d. tweeting
**4.** Crickets are more active in the ...
a. outdoors.
b. kitchen.
c. cooler months.
d. warmer months.

## WAIT UNTIL 2061

A visitor is returning. We haven't seen this one in ages. In 2061, Halley's Comet will streak past Earth. It is named for Edmund Halley. He deduced that comets seen in 1531, 1607, and 1682 were all one in the same. He predicted its appearance in 1758. But he did not live to see it. The most ancient record of Halley's Comet comes from 1057 BCE. A Chinese book mentions it. Astronomers have noted each appearance since 239 BCE.

A comet begins as a small, icy mass far beyond Pluto in a region called the Oort Cloud. There, billions of chunks of ice water, ice ammonia, ice methane, and dust circle the solar system. Pluto's or Neptune's gravity causes the comet to start falling toward the sun. A trail of solar particles creates a visible tail of glowing gases. The tail can stretch for thirty-five million miles! The comet goes around the sun. Then it slingshots away and races once more toward the outer solar system. Most comets never return to the solar system. However, a few are short-period comets. They return at regular intervals. Halley's Comet appears every seventy-six years. Comet Encke goes by every 3.3 years.Interesting Places and Events

**1.** From the context of the passage, what is the meaning of a short-period comet?

a. It returns at regular intervals.
b. It is never seen but once.
c. It is made of solar particles.
d. It lasts less than a year.

**2.** Where do comets form?

a. near the sun
b. near Jupiter
c. in the Oort Cloud region
d. near Earth

**3.** Which of the following is a topic sentence?

a. Then it slingshots away and races once more toward the outer solar system.
b. A comet begins as a small, icy mass far beyond Pluto in a region called the Oort Cloud.
c. The most ancient record of Halley's Comet comes from 1057 BCE.
d. Comet Encke goes by every 3.3 years.

**4.** Which event occurred after Halley's death and was seen as proof that the comet returned every seventy-six years?

a. The appearance in 1984.
b. The appearance in 2061.
c. The appearance in 1057 BCE.
d. The return of the comet in 1758

## AROUND THE WORLD IN SEVENTY-TWO DAYS

When Jules Verne published his popular book, *Around the World in Eighty* Days, travel was still slow. To travel around the world in eighty days seemed impossible in the real world. In 1889, America's first female reporter, Nellie Bly, convinced her editor that she could beat that time and any man who tried to compete with her. On November 14, 1889, Nellie got on board the steamship *Augusta Victoria*, leaving Hoboken, New Jersey. The race against the clock began at 9:40 a.m.

She traveled to France where she met Jules Verne. They mapped out Nellie's **itinerary** to match the route in Jules Verne's book. Nellie went on to Italy. She then sailed through the newly dug Suez Canal. She sailed from Yemen to Ceylon (now Sri Lanka) to Singapore. There, she bought a monkey who traveled the rest of the route with her. She learned that a young female reporter had been sent by a magazine and was ahead of her. This did not stop Nellie. She continued on to Hong Kong and Japan before crossing the Pacific Ocean to San Francisco.

Nellie then traveled across the southern part of the United States by train to New Jersey. She set foot on the Jersey City train station seventy-two days, six hours, and eleven minutes after starting her journey. Her

**1.** From the context of the passage, what is the meaning of itinerary?

a. a list of books
c. a list of steamships
b. a list of destinations on a trip
d. a list of people to meet

**2.** What do you think Nellie did on the trip so that people knew where she was and how she was doing?

a. She sent dispatches and articles to her newspaper to be published.
b. She sent letters to the president of the United States.
c. She gave interviews to television reporters.
d. She made telephone calls to her parents.

**3.** What did Nellie and Jules Verne discuss?

a. how he wrote the book
c. people to meet on the way
b. the route around the world
d. how to write a novel

**4.** What can you infer from the passage about the success of Nellie's competitor?

a. She didn't finish the race.
c. She didn't win the race.
b. She quit and went home.
d. She won the race.

## ANTARCTICA

Antarctica is an ice-covered continent. It lies near the South Pole. It is larger than Australia and just a bit smaller than South America. Antarctica covers 5.4 million square miles. That is about 9.7 percent of Earth's land area. It is not a nation, and there are no citizens. No one lives there permanently. However, several nations have scientific research posts there.

About 98 percent of the continent is covered with ice. Its ice cap holds about 70 percent of all of the fresh water on Earth. At its thickest point, the ice covering Antarctica is about three miles in depth. The ice sheet is so thick and heavy that it keeps most of the land underwater!

Antarctica is the coldest continent on Earth. Average temperatures rarely climb over -31°F. That is still 63°F below freezing! The lowest temperature recorded on Earth was in Antarctica. It was a bone-chilling -128°F. It is also one of the driest places on the planet. There is a great deal of wind but hardly any rain or snow.

Until about eighty million years ago, Antarctica was connected to

Australia. We know this because of the fossil record. Fossils of plants, reptiles, and other creatures prove that the continent was actually a tropical paradise at that time. Check Your Understanding

**1.** Which continent is slightly larger than Antarctica?

a. Australia
b. Asia
c. South America
d. Greenland

**2.** Why do you think there are no native settlements or permanent cities on Antarctica?

a. The climate is too cold.
b. Food would be hard to find.
c. There are no edible plants.
d. all of the above

**3.** How do you know that Antarctica was not always as cold as it is today?

a. Australia is not covered with ice.
b. Fossil plants and animals found in Antarctica are from warmer climates.
c. People are living on Antarctica today.
d. Antarctica looks like it will warm up.

**4.** How many degrees below freezing was the lowest recorded temperature on Antarctica?

a. -128°F
b. -160°F
c. -96°F
d. -200°F

## DINOSAUR PROVINCIAL PARK

Would you like to visit a park entirely dedicated to dinosaurs? Then you should go to Dinosaur Provincial Park. For dinosaur enthusiasts, it is the park to visit. It is in Alberta, Canada.

In 1884, a scientist went searching for coal and oil deposits. This was in the mostly unexplored lands of western Canada. He found a huge dinosaur skull along the Red Deer River. Scientists realized it was a new dinosaur. They called it the Albertosaurus. Why? It was found near the city of Alberta.

Explorers and scientists soon discovered that the area was a **treasure-trove** of dinosaur remains. A mixture of mud, sand, and minerals had perfectly preserved them. More than 150 complete dinosaur skeletons have been found there. Thousands of individual bones have been uncovered, too.

In 1955, the Canadian government created Dinosaur Provincial Park. This was done to display many of the skeletons and protect the remaining bones. In some parts of the park, scientists still search for bones. Visitors are not allowed to search for bones and remove them.

The park has displays of many dinosaurs, including the Styracosaurus. Its name means "spiked lizard." It was an eighteen-foot-long, six-foot-high horned species. It weighed 600 pounds. The Albertosaurus was thirty feet long and weighed 4,000 pounds. It walked on two legs.

**1.** From the context of the passage, what is the best meaning of treasure-trove?
a. hidden treasure
b. gold deposits
c. worthless junk
d. a dinosaur skull

**2.** From your prior knowledge of dinosaurs and the context of the passage, which well-known dinosaur appears to be a close relative of the Albertosaurus?
a. Brontosaurus
b. Tyrannosaurus rex
c. Iguanodon
d. Triceratops

**3.** Which word refers to a mixture of mud, sand, and minerals?
a. dinosaur
b. sediment
c. riverbed
d. specimen

**4.** Where is Dinosaur Provincial Park located?
a. Mexico
b. the United States
c. Canada
d. California

## DEER CAVE, MALAYSIA

You probably wouldn't want to visit Deer Cave in Malaysia. The cave is massive—so massive that it can hold more people than the largest football stadium on Earth. However, millions of bats live inside. Each night as dusk falls, hundreds of thousands of bats from twelve different species fly out. They use echolocation to find and devour insects in the Malaysian rain forest. Each bat eats about one-third of an ounce of insects. Altogether, the bats eat about sixteen tons of insects every night! After the bugs are digested, the bats produce about five tons of fresh guano. That's the name for bat waste.

The guano falls to the cave floor. It is the largest pile of bat dung in the world. This dung supplies food to tens of millions of cockroaches, flies, worms, centipedes, and millipedes. The dung is rich in nutrients. That's why Deer Cave has the biggest population of cockroaches on Earth. There are so many roaches that the cave floor looks like a moving river of roaches. For this reason alone, Deer Cave is not likely to become a tourist attraction any time soon. However, the roaches and other small creatures provide food for millions of

spiders, scorpions, and snakes.

**1.** From the context of the passage, which of the following means the same as "guano"?

a. dung c. waste
b. manure d. all of the above

**2.** What do bats eat?

a. insects c. guano
b. flowers d. snakes

**3.** Which of the following is an opinion and not a fact?

a. Bats eat one-third of an ounce of insects every night.
b. Bats produce guano.
c. Bats are interesting creatures.
d. Bats hunt at night.

**4.** What can you infer from the passage?

a. Bats have lived in Deer Cave for a long time.
b. Bats hatch from eggs.
c. People would be comfortable spending time in Deer Cave.
d. both a and c

## NIAGARA FALLS

Niagara Falls is one of the world's most famous waterfalls. It forms part of the border between the United States and Canada. Water in the thirty-five-mile-long Niagara River flows east from Lake Erie. It goes over Niagara Falls. Then it goes into Lake Ontario.

Actually, Niagara Falls is two sets of falls. Goat Island lies between them. American Falls is about 1,060 feet long and 170 feet high. Horseshoe Falls is about 2,600 feet long and 176 feet high. Horseshoe Falls is named for its shape. It carries about nine times more water than American Falls. The thunder of the falling water can be heard more than twenty miles away. When the sun shines on the ever-present mist rising from the water, a rainbow glitters in the air.

Niagara Falls is a popular destination for tourists and honeymooners. Over the years, it has drawn plenty of daredevils, too. An American teacher was the first person to go over Niagara Falls in a barrel. In 1901, Annie Taylor was sealed into a barrel and dropped into the Niagara River. She

was swept over Horseshoe Falls. When the barrel was retrieved near the base of Niagara Falls, she was alive but battered and bloody. Others who have tried the same stunt have been badly injured or killed. Often, a daredevil's vessel smashes on the rocks at the bottom. Now anyone who tries such a feat is arrested.

**1.** Which of the following is an opinion and not a fact?

a. second paragraph, first sentence
b. second paragraph, last sentence
c. first paragraph, last sentence
d. none of the above

**2.** What is the author's attitude toward anyone going over Niagara Falls in a barrel?

a. admiration
b. humor
c. disapproval
d. encouragement

**3.** Which of these titles would best express the main idea of the passage?

a. "American Falls"
b. "Be Careful!"
c. "Two Sets of Falls"
d. "Daredevils Are Dangerous"

**4.** From the context of the passage, which elements are necessary to create rainbows?

a. fine droplets of water in the air
b. sunlight
c. snow
d. both a and b

## KRAKATOA

One of the most powerful volcanic explosions in human history occurred in 1883. It happened on the island of Krakatoa near Java. This is in Indonesia. On August 27, after half a million years of inactivity, Krakatoa awoke with a roar. Three volcanic mountains on the uninhabited island exploded. The massive blast sent a cloud of ash, dust, steam, and volcanic debris fifty miles high into the atmosphere.

More explosions and violent earthquakes occurred. The explosive force created winds that circled the globe seven times. But the worst was yet to come. The explosion caused giant waves called **tsunamis**. They roared across the water and blasted the shores of nearby islands. Just one of these waves killed 10,000 people on a neighboring island thirty miles away. At least 36,000 people were killed altogether.

Ships that were far from shore were safe from these waves. But near the coast, the waves picked up boats and threw them onto the land. Waves from the volcanic eruption and earthquake were felt as far away as the English

Channel. Tsunamis were recorded in South America, too.

A tremendous noise occurred when three-quarters of the island collapsed into the sea. (It was an island about the size of New York's Manhattan Island.) The sound was so loud that people heard it 3,000 miles away. The people in Texas who heard the explosion thought it was gunfire. They were shocked to learn that it came from half a world away.

**1.** Which event occurred second in the sequence of events at Krakatoa?
a. Three-quarters of the island collapsed into the sea.
b. Tsunamis hit neighboring islands.
c. Three volcanic mountains exploded on Krakatoa.
d. A cloud of debris blasted into the atmosphere.

**2.** Which of the following is a topic sentence?
a. paragraph one, first sentence
b. paragraph two, last sentence
c. paragraph one, last sentence
d. paragraph three, last sentence

**3.** From the context of the passage, what are tsunamis?
a. giant earthquakes
b. giant ocean waves
c. giant waves of sound
d. giant waves of lava

**4.** Which of these is the best summary of the entire passage?
a. An earthquake occurred on Krakatoa, putting many lives and homes at risk.
b. A violent volcanic eruption combined with earthquakes destroyed the island of Krakatoa and caused enormous damage.
c. Waves of sound could be heard thousands of miles away.
d. Tsunamis are giant waves that cause a lot of damage.

## MYSTERIOUS EXPLOSION IN RUSSIA

The Tunguska River is in central Siberia, Russia. It was the site of the most mysterious explosion in world history. On June 30, 1908, a violent blast slammed into the area with the force of a hydrogen bomb. Yet this was almost forty years before such a bomb was invented. The explosion leveled thousands of square miles of forest in seconds. It was a mostly unpopulated area. However, eyewitnesses described a fiery, explosive sky, waves of intense heat, and a thunderous noise. The blast knocked cows and people right off their feet more than thirty miles away. The sound was heard more than six hundred miles away.

What caused this blast? Even now, scientists aren't sure. Several suggestions have been made. Some have suggested that a large meteorite or asteroid burst through Earth's atmosphere and exploded. But there is no **crater** in the area. Meteorites and asteroids are composed of rock and metal. It seems there would have been an impact crater.

Other scientists believe that a small asteroid exploded in the air

before hitting the ground. That's why there is no crater. The event did occur at the same time that Earth was passing through the orbit of Comet Encke. The explosion could have resulted from an atmospheric collision with a large piece of the comet's tail. That would explain no crater. Still, the mystery remains. Since it happened more than one hundred years ago, will it ever be solved?

**1.** How many years ago did the mysterious explosion occur?
a. more than 1,000 years ago
b. more than 100 years ago
c. during a world war
d. in 1970

**2.** From the context of the passage, what is a **crater**?
a. a gigantic hole in the earth
b. a long ditch in the ground
c. a new lake
d. a kind of planet

**3.** Which of these did not happen during the Tunguska event?
a. Scientists recorded the crash during the event.
b. A hydrogen bomb exploded.
c. The explosion leveled thousands of square miles of trees.
d. both a and b

**4.** What can you infer from the passage?
a. Scientists are deeply divided over the cause of the explosion.
b. Scientists don't want to know the cause of the explosion.
c. A hydrogen bomb exploded in the region.
d. Alien spacecraft caused the explosion.

## THE GRAND CANYON

The Grand Canyon is one of the world's great natural wonders. It extends about 277 miles through northern Arizona. The Colorado River begins in the Rocky Mountains of northern Colorado. It flows for 1,450 miles through the base of the canyon it carved. It eventually empties into the Gulf of California, which is a part of the Pacific Ocean. It took this river billions of years to form the Grand Canyon. Slowly, it wore away the rock, exposing ancient rocks and fossil specimens. Rocks at the base are two billion years old, among the oldest found on Earth.

The Grand Canyon is more than a mile deep in some places. In width, it varies from four to eighteen miles. The top of the canyon is mostly flat. It is covered with a forest of oak, spruce, and pine trees. A few bushes and small pines cling to the walls of the cliffs. Bushes dot the canyon floor. Many different animals live in the Grand Canyon, including mountain lions, bighorn sheep, mule deer, and bobcats.

The Grand Canyon was the site of two different mountain ranges that

rose and were worn away during the long period of its existence. At times, ancient seas flowed in from the oceans. The rock walls contain remains of **prehistoric** plants and animals from both land and sea. For scientists studying Earth's natural history, the Grand Canyon is a giant laboratory.

**1.** Which of the following statements would not be relevant information about the Grand Canyon?

a. The Grand Canyon was first explored by John Wesley Powell.
b. The Colorado River can pick up rocks as large as cars.
c. The Colorado River keeps digging deeper into the canyon floor.
d. There are canyons in several states.

**2.** From the context of the passage, what is the best meaning of prehistoric?

a. older than 200 years
b. older than the history of man's life on Earth
c. before 1,500 CE
d. older than your parents

**3.** Which of the following sentences is a topic sentence?

a. The Grand Canyon is one of the world's great natural wonders.
b. The top of the canyon is mostly flat.
c. The rock walls contain remains of prehistoric plants and animals from both land and sea.
d. At times, ancient seas flowed in from the oceans.

**4.** What is the oldest age of rocks in the Grand Canyon?

a. 4.6 billion years old
b. two billion years old
c. 2,000 years old
d. 200 years old

## THE APPALACHIAN MOUNTAINS

The Appalachian Mountains run through eastern North America. They extend from Newfoundland, Canada, all the way to Alabama. Four mountain ranges are included in the Appalachian system. They are the Alleghenies of New York, the White Mountains of New Hampshire, the Blue Ridge Mountains of Virginia and North Carolina, and the Great Smoky Mountains of Tennessee and North Carolina.

Geologists know that parts of the Appalachian Mountains formed from 750 million to one billion years ago. These mountains are not nearly as tall as the Rocky Mountains in the American West or the Himalaya Mountains in Asia. In fact, Mount Mitchell in North Carolina is the tallest peak. It is 6,684 feet high. That's just 25 percent as tall as Mt. Everest.

You can walk the length of the Appalachian Mountains along the Appalachian National Scenic Trail. American Indians once used its winding path. It is 2,144 miles long. The trail starts at Mount Katahdin in Maine and goes to Springer Mountain in Georgia. Along the way, hikers

pass through fourteen states, eight national forests, and two national parks. Most
people hike just a section of the trail. A few thru-hikers do the whole route. Hiking starts in March and ends in October.

**1.** Where are the Appalachian Mountains located?
a. the western United States c. in eastern North America
b. in Asia near Mt. Everest d. in the center of the United States
**2.** Which people first made the path along the Appalachian Trail?
a. park rangers c. lumbermen
b. thru-hikers d. American Indians
**3.** Which of the following is an opinion and *not* a fact?
a. The tallest peak is 6,684 feet high.
b. The Great Smoky Mountains are in Tennessee.
c. The Appalachian Mountains are the most beautiful mountains in America.
d. Many rivers begin in the Appalachians as small streams.
**4.** What can you infer from reading the first paragraph?
a. The Appalachian Mountains are new and tall.
b. Mountain ranges are larger than mountain systems, such as the Appalachians.
c. Mountain ranges are smaller than mountain systems, such as the Appalachians.
d. The Appalachian Mountains have three ranges

## THE HIMALAYAS

The Himalayan mountain range contains the highest mountains in the world. These mountains are young compared to other ranges. They began forming about 60 to 65 million years ago. By comparison, the Appalachian range is 250 to 300 million years old. **Tectonic plates**, which are huge slabs
of rock on which continents sit, often bump together. They cause earthquakes and push up mountains. The tectonic plate on which India sits is pressing into the giant landmass of Eurasia. This pushes up the landmass, forming massive wrinkles. These wrinkles are the foundation of the Himalayas.

The plate is still pushing up against Asia. So the Himalayan Mountains are still growing at about one inch every five years. The land at the top of these mountains was once a part of the ocean seabed. Fossils of sea creatures are still stuck in the rocks at the top of these mountains.

Mount Everest is the tallest mountain in the world at 29,028 feet. It is in the Himalayas, as is K2 at 28,250 feet. There are six other mountains in the

range over 26,500 feet. All of them are still growing. These mountains are often called the "Rooftop of the World." The word "Himalaya" comes from a word meaning "house of snow." The range stretches more than 1,500 miles through many countries in central Asia.

1. Which two continents form the landmass of Eurasia?
a. Africa and Asia
b. Europe and America
c. Asia and Europe
d. Asia and India
2. What is a **tectonic plate**?
a. an instrument for measuring mountains
b. a continent-sized slab of rock
c. an ocean
d. a mountain
3. What is the meaning of **Himalaya**?
a. the opposite of what might be expected
b. ironing a continent
c. pushing down on the earth
d. house of snow
4. How do scientists know that the Himalayan mountaintops were once on the ocean floor?
a. They found tectonic plates.
b. They learned it from native legends.
c. Ocean fossils were found on the tops of mountains.
d. A book said they were.

## ELLIS ISLAND—GATEWAY TO AMERICA

The first United States immigration center was on Ellis Island. It was located near the Statue of Liberty in New York Harbor. The center was opened on January 1, 1892. There were more than thirty-five buildings to help people who wanted to become Americans. These included a Great Hall where more than 5,000 people a day entered the country over many years. Many of these were children. The center was very busy in its first twenty years. Then it had long periods of limited use before it was closed.

Between 1892 and 1924, more than twelve million people passed through the center. It became the doorway for many new citizens to enter the nation. However, it was also a place of tears and pain for some. People who were not wanted were not allowed to enter the country. They were sent back home. Some of them were told they had dangerous diseases. They might make others sick. Some were unable to work or care for themselves. However, fewer than 1 percent of all who came were not allowed to stay.

The center was closed in 1954. In 1990, it reopened as a museum. It honors over four hundred years of the country's immigrant **history**. The museum has many interesting historic papers and passenger lists from ships. It displays photos of many kinds of ships. There are many old pictures of people in the center. There is a great deal of information about more than twenty-five million immigrants, as well as a Wall of Honor. *Letters from Rifka* by Karen Hesse is an excellent children's book describing one young girl's efforts to get through the center and join her family.

**1.** From the context of the passage, what is the best meaning of historic?
a. something fresh
b. something from the past
c. something recent
d. something delivered by ship

**2.** Which materials are housed in the Ellis Island Museum?
a. passenger lists
b. photos
c. historic papers
d. all of the above

**3.** Which reason(s) could be used to exclude an immigrant?
a. having a dangerous disease
b. being able to work
c. having little money
d. both a and b

**4.** When was the immigration center closed?
a. 1990
b. 1892
c. 1954
d. 1924

## VERMIN OF THE SKIES

Some space scientists have called asteroids "vermin of the skies." They got this nickname because of their small size and the danger they can cause. "Vermin" is a term usually used for unpopular pests, such as rats, roaches, and lice. Asteroids are a large group of miniature planets. They orbit the sun between Mars and Jupiter. They are where most meteorites come from. These small space rocks travel through the solar system and sometimes hit Earth. On occasion, they cause great destruction.

Scientists first believed that asteroids were the remains of a planet. They thought that it had been destroyed when it hit another planet. Now asteroids are believed to be the pieces of a planet that never actually formed between Mars and Jupiter. It didn't become a planet because of the enormous pull of Jupiter's gravity.

Ceres, the largest asteroid, was first seen in 1801. It is about 580 miles in diameter. Pallas, the second largest asteroid, was discovered the

following year. About 1,000 asteroids are twenty miles wide or greater. Astronomers estimate that as many as one million asteroids are between half a mile and twenty miles wide. Asteroids got their name because they look like points of light when
seen through a telescope. Have you ever seen an asteroid?

**1.** How big is the largest asteroid ever seen?
a. 580 miles in diameter c. half a mile wide
b. 850 miles in diameter d. twenty miles wide
**2.** Why are asteroids called "vermin of the skies"?
a. They are known to have mice and rats living on them.
b. They sometimes have a smaller size and cause damage.
c. They look like mice through a telescope.
d. People don't like asteroids.
**3.** What is the main idea of the passage?
a. Astronauts should visit asteroids.
b. Asteroids look like points of light in a telescope.
c. Jupiter has a lot of gravitational force.
d. Asteroids are small mini-planets that can produce meteorites.
**4.** Which piece of information about asteroids is least relevant to understanding asteroids?
a. There are more than one million asteroids.
b. Asteroids look like points of light in a telescope.
c. Asteroids have been featured in some space movies.
d. Parts of asteroids break off and become meteorites.

## THE LOST PLANET

Many Americans were upset when astronomers removed Pluto from the list of planets. It is no longer the ninth planet in the solar system. They labeled it a dwarf planet along with a larger object named Eris. Both objects are located in a zone beyond Neptune called the Kuiper Belt. Dwarf planets are much smaller than the other eight planets.

Pluto was the only planet discovered by an American. An astronomer from Kansas named Clyde Tombaugh found it. He had carefully compared photos of an area of space beyond Neptune. This area was thought to contain a ninth planet. He spent more than 7,000 hours over more than two years
comparing photographs of light. He was trying to discover the movement of a planet against the background stars. On February 18, 1930, Tombaugh discovered this movement. An eleven-year-old English schoolgirl won

a contest to name the planet. She suggested Pluto, who is the god of the underworld in ancient myths.

Why was Pluto removed from the list of major planets? In a word—size. Charon, a moon orbiting Pluto, was discovered. It was about half the size of Pluto. Moons are not that large compared to the planets they orbit. Scientists were also able to determine Pluto's actual size, which was quite a bit smaller than originally thought. Pluto was found to be smaller than several moons, including our own. Its orbit was also very different from the other planets. Pluto is, of course, still there. It just doesn't have as big of a reputation Anymore.

**1.** What is the main idea of the passage?
a. Pluto got smaller.
b. Pluto is not a planet.
c. There are reasons Pluto is no longer considered a planet.
d. Pluto was discovered by an American.

**2.** Which of the following statements is an opinion and *not* a fact?
a. Pluto was found to be smaller than several moons.
b. Pluto was the only planet discovered by an American.
c. Pluto should be considered a planet.
d. A schoolgirl won the competition to name the planet.

**3.** What inference can you make about the description of a dwarf planet?
a. Planets have to be bigger than most or all moons to be considered a conventional planet.
b. Planets should be much larger than their own moon to be considered a regular planet.
c. Planets should have conventional orbits, rather than eccentric ones, to be labeled a regular planet.
d. all of the above

**4.** How did Pluto get its name?
a. It was named for a child's pet.
b. It was named for a cartoon dog.
c. It was named for a god of the underworld.
d. all of the above

## RAIN

Rain is created in clouds when water vapor has evaporated from oceans, lakes, or wetlands. The clouds are filled with trillions of tiny specks of water vapor. These specks become attached to very small specks of dust, smoke, sand, pollen, salt, and other small bits in the air. A single rain droplet is formed by millions of these small water droplets hitting together.

The proper name for rain is *precipitation*, which includes snow, sleet, and hail, as well as rain. Most rain starts out as snow that melts before it hits the ground. Snow is ice crystals that form in clouds where the temperature is below zero. Sleet is a mixture of rain and melted snow. Rain starts when water drops inside clouds grow too large for air to support them. Cloud drops grow when wet air is swept higher into the air. There, it cools and gets heavier, causing it

to fall. Raindrops can also grow by colliding with each other in tropical clouds or by growing on ice crystals in cooler air.

The world's rainiest place is a mountain in Hawaii that receives rain 350 days a year. The wettest land area is located in an area of Colombia in South America. It gets an average of over 463 inches a year. The longest known period without rain was from October 1903 to January 1918 in Arica, Chile.

1. Which of the following is not an example of precipitation?
a. rain
b. snow
c. wind
d. sleet
2. Which of the following is an opinion and not a fact?
a. The world's rainiest place is a mountain in Hawaii.
b. Rain is created in clouds when water vapor has evaporated.
c. Rain should make people feel good.
d. Raindrops can grow by colliding with each other.
3. Which of the following will cause water droplets to condense and fall as rain?
a. the sun
b. clouds sweeping into cooler air
c. lightning
d. airplanes
4. What is the main idea of the second paragraph?
a. Rain forms in clouds and falls when water condenses and becomes heavier than the surrounding air.
b. There are places with a high average rainfall.
c. Some places have little rain.
d. Rain can fall in large amounts.

## NATURAL CHIMNEYS

Black smokers are natural chimneys on the bottom of the ocean floor. They form on the seabed along ridges in the middle of an ocean where tectonic plates are moving apart. These are the giant plates that cause continents to drift slowly apart. They can also cause earthquakes or volcanoes.

Black smokers are hot water tubes affected by liquid rocks below the ocean. Seawater seeps through cracks along the ocean floor. This water is heated by the intensely hot liquid rock. This super-heated water dissolves minerals from the rocks. When the water is heated to these very high temperatures, the water is shot through tall stone tubes into the cold sea. Mineral deposits are left in these tubes. Some of them rise over 150 feet high on the ocean floor.

A large variety of creatures live in these totally dark ocean smokers. Tubeworms more than five feet long live there. They have no mouth or gut! They have more than 200,000 feathery tentacles and live on bacteria. Other creatures include shellfish and giant clams. Seawater travels through these black smokers just as it does throughout the oceans. Every drop of ocean water flows through a black smoker about every ten million years.

**1.** From the context of the passage, what is a **black smoker**?
a. a hot water tube on the ocean floor c. a tectonic plate
b. a fiery smoking hole in the ocean d. a kind of sea creature
**2.** How often does all ocean water circulate through a black smoker?
a. every year c. every ten million years
b. every million years d. never
**3.** What is heating the water near black smokers?
a. an earthquake c. the sun
b. liquid rock d. tubeworms
**4.** Why would it be hard for scientists to personally touch and examine the tubeworms and black smokers?
a. The hot water would be dangerous.
b. The tubeworms might try to eat them.
c. The pressure of the oceans at this depth would injure the scientists.
d. both a and c

## THREATS TO EARTH

Life as we know it exists on Earth because of special circumstances. Water and air are two important substances that support life. Temperatures are moderate over much of the planet. A huge variety of life exists in the form of both plants and animals. However, there are several things that could destroy life on Earth as we know it.

An unknown volcano, as much as one hundred times greater than any known in history, could erupt anywhere at any time with little or no warning. Large amounts of ash, dirt, deadly smoke, and lava would be pumped into the air. Sunlight would be shut out for many years by the clouds. Millions of plant and animal species would die. A volcano like this blew up thousands of years ago. It left only a few thousand humans alive.

A meteor is an asteroid that hits Earth. About six tons of meteorites fall into Earth's **atmosphere** every year. Most of them are burned up by the friction that is created when the speeding meteor blasts into the atmosphere. A few survive and hit Earth. They often create craters. About every 10,000 years, a large and highly damaging asteroid hits Earth. About every fifty to one hundred million years, an asteroid about six miles wide hits Earth. The dinosaurs were likely destroyed this way about sixty-five million years ago.

**1.** From the context of the passage, what is the best meaning of **atmosphere**?

a. land and water
b. air and gases above a planet
c. meteor landing
d. dust and ash

**2.** Which information would be relevant to the passage?

a. Comet collisions can cause enormous damage.
b. There is a super-volcano under Yellowstone National Park.
c. A gamma ray burst in space could boil away Earth's atmosphere.
d. all of the above

**3.** Use the context of the passage to determine which fact stated below is not accurate.

a. Not all asteroids become meteors.
b. Some meteors do no damage to Earth.
c. Super-volcanoes happen about every ten years on Earth.
d. Blocking out the sun causes enormous damage to life on Earth.

**4.** Which of the following is essential to human life?

a. water
b. air
c. sunlight
d. all of the above

## THE FIRST PROFESSIONAL WOMAN ASTRONOMER

The first woman astronomer helped discover the planet Uranus. Caroline Herschel and her brother William were, at first, musicians. They were born in Germany. However, they lived and worked in England for most of their lives. William became **fascinated** by the telescope. At that time, it was a new invention. Because they were poor, William decided to build his own telescope. He even had to use horse manure as the mold for the telescope mirrors. He built his own four-foot wide, forty-foot long telescope. It was the largest telescope in the world at the time. Caroline helped her brother by spoon-feeding him while he ground the lenses for his telescopes.

In 1781, William discovered a new planet—Uranus. He did this using a telescope he built. It was the first planet discovered with a telescope. It

was the first planet that had not been known to people in ancient times. It was much farther away than Saturn. So the discovery of Uranus doubled the known size of the solar system. During her lifetime, Caroline herself used the telescope. She discovered eight comets. Both Caroline and her brother were awarded honors. They were also given yearly pensions by King George III for their findings. Because of these awards, Caroline became the first professional female astronomer.

1. Which of the following ideas can you infer from the passage?
a. William and Caroline were trained at a university to study astronomy.
b. Caroline and William were close friends who worked well together.
c. Music and astronomy are similar subjects.
d. William and Caroline were rich members of the nobility.
2. Which event made Caroline a professional astronomer instead of just an amateur student of the
skies?
a. helping William build a telescope
b. getting a pension from King George III
c. using a telescope
d. discovering Uranus
3. Which detail in the passage strongly suggests that Caroline and her brother were very close friends and collaborators?
a. William discovered Uranus.
b. William made the largest telescope of its time.
c. The king gave them both a pension.
d. Caroline spoon-fed William while he ground the lens for a telescope.
4. From the context of the passage, what is the meaning of **fascinated**?
a. lazy
b. very interested in
c. happy
d. both a and b

## YOU WOULDN'T WANT TO LIVE ON VENUS

Venus has the highest average temperature of any planet in the solar system. It reaches temperatures of 878°F. This is about eight to ten times as hot as Earth. Temperatures this high would melt lead and most other metals, not to mention people. The surface pressure of Venus is ninety times greater than Earth's. No human could stand the pressure without being smashed flat. It would equal the pressure felt by a human standing under half a mile of ocean water on our planet. The atmosphere is about 96 percent carbon dioxide. There is no breathable air. Any human would be burned to ashes and crushed to fragments immediately. An early Russian space probe landed on Venus. It was destroyed by the pressure and heat within thirty minutes.

Venus is the second planet in the solar system. Its average distance from the sun is about 67,000,000 miles. It is about a third closer than Earth's 93,000,000 miles. Venus is hotter than Mercury, the closest planet to the sun. Venus's carbon dioxide atmosphere traps heat and doesn't allow it to escape. It acts like a greenhouse, which traps heat and doesn't cool off. Because of this atmosphere, Venus is the brightest object in our sky, besides the moon and the sun. You might also get bored on Venus. A Venus day is equal to 243 Earth days. A Venus year is equal to 225 Earth days. Out of all the planets in the solar system, this is one planet you wouldn't want to visit.

**1.** What is the most common gas in the atmosphere of Venus?
a. oxygen c. carbon dioxide
b. nitrogen d. argon
**2.** Which are the three brightest objects in our night sky?
a. the sun, the moon, Mars c. Venus, the moon, Mars
b. Mercury, Venus, the sun d. the moon, the sun, Venus
**3.** Why does the heat remain on Venus?
a. It is held in by the carbon dioxide in the atmosphere.
b. Gravity keeps the heat from escaping.
c. It is very close to the sun.
d. There are a lot of forest fires on Venus.
**4.** What would happen to astronauts landing on Venus?
a. They would be crushed to bits by the pressure.
b. They would be incinerated by the heat.
c. They would be unable to breathe.
d. all of the above

## LIGHTNING

A lightning bolt is a huge electric spark created in a thundercloud. The spark leaps across the sky. Water droplets and ice crystals crash together in a thundercloud. They create static electricity. There are two electrical charges in the cloud. Lighter positive charges whirl around at the top of a cloud, and heavier negative charges are at the bottom of the cloud. Lightning is created when a positive charge from the ground and a negative charge at the bottom of the cloud jump together. Then electrical energy is released. A flash of lightning can contain one billion volts of electricity. Lightning heats the area around it even hotter than the sun. Forked, zigzag, and sheet lightning are the most common shapes.

About 1,000 people a year are injured by lightning, and about one hundred people a year are killed. People die from burns, shock, or heart attacks. To protect yourself from lightning during thunderstorms, try to get inside a building. If you can't find protection, stay away from trees, especially from a single tree. A tree or pole is the highest point. It will attract lightning because it provides the shortest path to the ground. Do not hold umbrellas or other metal objects because they attract the electric charge. Lightning does strike the same place twice and often many times. For example, tall structures like skyscrapers and towers are struck many times a year. As long as you know what to do when there's lightning in the sky, you will be safe.

**1.** What two charges of electric energy are necessary to create lightning?

a. two positive charges
b. a neutral charge and a positive charge
c. two negative charges
d. a negative charge and a positive charge

**2.** From the context of the passage, which of the following should you stand next to during a thunderstorm?

a. a huge tree
b. a flagpole
c. a tractor in an empty field
d. none of the above

**3.** Which of the following is a good example of a topic sentence?

a. paragraph one, last sentence
b. paragraph one, first sentence
c. paragraph two, first sentence
d. both b and c

**4.** Is this sentence correct?

Lightning is created when a positive charge on the ground is attracted to a negative charge at the bottom of a thundercloud.

a. yes
b. no
c. sometimes
d. never

## THE LARGEST VOLCANO ON EARTH

The largest volcano in the world is located in the western United States. The last explosion occurred 600,000 years ago. It blew away about sixty miles of mountains. It buried nineteen western states under several feet of ash. It also covered parts of Canada and Mexico with ash. The blast wiped out almost every living thing in a wide area. That explosion was 1,000 times greater than when Mount St. Helens blew.

This giant volcano is sitting under Yellowstone National Park. It is just about the size of the two-million-acre park. The first known blowup happened over sixteen million years ago. This volcano has blown up about a hundred

times since. The blasts occur about 600,000 years apart. No known volcano in history compares to the explosions that have occurred in Yellowstone. The damage caused by yet another explosion would be hard to imagine.

A thin rock surface in Yellowstone covers a huge lake of hot liquid rock beneath the surface. This boiling hot pool of liquid rock is about forty-five miles across and eight miles deep. It has lifted Earth's crust about one-third of a mile higher than it would normally be. This heat creates the hot springs, geysers, and mud pots in this popular national park.

**1.** Where is the lake of hot liquid rock?
a. sixty miles beneath the surface
b. in Canada
c. beneath the rock crust in Yellowstone
d. above the rock crust in Yellowstone

**2.** Where is the largest volcano in history located?
a. Mount St. Helens
b. Yellowstone National Park
c. Canada
d. both a and b

**3.** Which of these features is present at Yellowstone for people to observe?
a. geysers
b. mud pots
c. exploding volcanoes
d. both a and b

**4.** What is the purpose of the passage?
a. to inform readers
b. to ask questions
c. to entertain readers
d. to stop a volcano

## JUPITER—THE PLANETARY GIANT

Jupiter is the fifth planet in the solar system in distance from the sun. It is by far the largest object in the solar system, other than the sun. Jupiter contains more than twice the mass of all the other planets combined. If Jupiter were hollow, more than 1,000 Earths could fit inside this gas giant. Jupiter's mass is about 318 times the mass of Earth. Jupiter is sometimes considered to be a "failed sun." However, it is at least eighty times too small to ignite as a star.

There are four main gases in Jupiter's atmosphere. Beneath layers of these gases, Jupiter has oceans of liquid nitrogen about 12,000 miles deep. Beneath the oceans, there is probably a solid core of rock and iron about

the size of Earth. Jupiter spins on its axis so fast that its day is only about ten hours long. However, the rapid spinning makes belts of winds circle the planet. These belts created a giant storm called the Great Red Spot, which has been blowing over the planet for more than three hundred years. The average temperature on Jupiter is about 225°F colder than Earth.

Jupiter has sixty-three known moons and thousands of huge rocks orbiting the planet. The first four moons were discovered by Galileo. Two of them are a little smaller than Earth's moon in diameter. One of them is the largest moon in the solar system. It is larger than the planet Mercury. Jupiter's fourth moon is about the size of Mercury. The remaining moons are much smaller.

**1.** According to the passage, what is probably at the center of Jupiter?
a. helium c. ammonia
b. rock d. methane
**2.** What produced the Great Red Spot?
a. oceans c. rapid spinning of the planet
b. belts of wind d. both b and c
**3.** According to the passage, how many moons orbit Jupiter?
a. sixty-three c. twenty-four
b. ten d. fifty-one
**4.** Why would Jupiter be impossible for humans to live on?
a. It has the largest moon in the solar system.
b. Its days are ten hours long.
c. The average temperature is too cold.
d. all of the above

## TIDE POOLS

Tide pools are pockets of ocean water left on the coastal edges of the oceans when the tide goes out. They are sometimes small puddles in sand or mud with deeper pools between rocks. Tides are created by the gravitational pull of the moon and sun on ocean water. The ocean water reaches its highest point on the coast during high tide. Water fills most pools and covers most tide-pool life during high tide. During low tide, ocean water reaches its lowest point, and you can see many animals in the pools or stranded on the sand. The tides are particularly low during new moon and full moon periods.

There are three main types of algae living in tide pools: green,

brown, and red. Sea lettuce is a kind of green and leafy algae. Irish moss is the name of one type of red algae. Rockweed is a type of common brown algae. Clams and snails are kinds of mollusks found in tide pools. Red, green, pink, and purple sea anemones, looking like flowers, often cling to rocks in the pools. Jellyfish shaped like small umbrellas float across the surface of water. They sting and eat small ocean animals. Crabs, barnacles, sea stars (starfish), sea urchins, and worms of many colors can be seen.

Do not remove any tide-pool creatures. Many of them are now endangered species because they have been gathered by people and taken from their native environment. Tide pools are natural laboratories for people of all ages to study nature.

**1.** Which kind of tide-pool life is classified as a mollusk?
a. a sea star c. algae
b. a clam d. a sea urchin
**2.** When is the best time to see many forms of ocean life in tide pools?
a. during high tide c. anytime
b. during low tide d. at night
**3.** Which of the following is an opinion and not a fact?
a. Tide pools are natural laboratories for people of all ages to study nature.
b. There are three main types of algae living in tide pools.
c. The ocean water reaches its highest point on the coast during high tide.
d. Rockweed is a type of common brown algae.
**4.** What are sea anemones compared to in the passage?
a. sea stars c. umbrellas
b. flowers d. Rocks

## THE KT EVENT

Scientists believe that a terrible disaster occurred about sixty-five million years ago. A meteor about six miles wide crashed into Mexico. It formed a crater more than one hundred miles wide. This giant meteor was traveling more than thirty miles per second when it hit Earth. The energy from this collision would have equaled at least one billion megatons of dynamite. (A *megaton* is one million tons.) It is called the KT event.

This KT collision created huge fragments of the meteor that were thrown back into the atmosphere. These giant pieces reentered like more meteors in

other places on the planet. The temperature of Earth's atmosphere was superheated for several hours. Plants and animals that were out in the open were burned to ashes. This created thick clouds of black soot in the air. The air was choked for weeks with thick layers of smoke, dust, and other debris. This layer is seen in the fossil record.

Sunlight could not get through this layer for months. This caused a very long winter that lasted all over the world and harmed even more species. At least 70 percent of all living species, including the dinosaurs, were wiped out by this event. Some large crocodiles and other water-based creatures survived. The KT event eventually led to many new species. These included mammals, which developed rapidly.

**1.** What would scientists examine in the fossil record?
a. rocks c. books
b. fossils d. both a and b
**2.** Why might water-based animals be more likely to survive the KT collision?
a. Deep water might have protected them from the fires.
b. Some sea creatures can tolerate wide ranges of temperature.
c. Some sea creatures get oxygen from the water.
d. all of the above
**3.** Which of these facts is relevant to the passage?
a. There have been several other giant extinctions on Earth.
b. Many snakes and crocodiles survived the KT event.
c. Every dinosaur was destroyed.
d. all of the above
**4.** What can you infer from reading the passage?
a. The KT event changed Earth forever.
b. We can avoid future collisions like the KT event.
c. Scientists are sure of all the results of the collision.
d. People would survive a KT event today.

## MERCURY

Mercury is the closest planet to the sun. It is much smaller than Earth and has only one-third the gravity of Earth. Therefore, a one hundred-pound person would only weigh thirty-eight pounds on Mercury. It has very little atmosphere because of its lower gravity. It is strongly affected by being so close to the sun. The daytime temperature of Mercury reaches 800°F above zero. At night, it drops to 350°F below zero. This is twice as cold as the coldest temperature ever known on Earth. Mercury does not really have seasons. Unlike Earth, Mercury has almost no tilt to its axis. In addition,

the sun shines strongest on the equator of Mercury all year long.

Mercury looks a little like the moon because of the many craters formed when it was hit by asteroids billions of years ago. One crater was formed when a large asteroid smashed into it. It had such force that the impact formed mountains on the other side of the planet.

Mercury moves fast and makes four journeys around the sun in the course of one Earth year. (The Romans named the planet after the swift messenger of the gods called Mercury.) It moves so rapidly that it is only seen from Earth six times a year for two-week periods. It can be seen either just before or after sunset. When Mercury moves between Earth and the sun, it looks like a tiny black dot crossing the sun's path.

**1.** What is the author's purpose in writing the passage?

a. to convince a reader to go to Mercury
b. to inform the reader about Mercury
c. to offer advice on space travel
d. to encourage space travel

**2.** From the context of the passage, what is an asteroid?

a. a massive piece of rock moving through space
b. a kind of spaceship
c. a part of the sun
d. a planet

**3.** What is the gravity on Earth of a person weighing one hundred pounds?

a. 38 pounds
b. 100 pounds
c. 800 pounds
d. 350 pounds

**4.** Which of the following pieces of information would be relevant to the passage?

a. Mercury passes directly between the sun and Earth only thirteen times each century.
b. A day on Mercury lasts 136 Earth days.
c. If Earth were the size of a baseball, Mercury would be the size of a golf ball.
d. all of the above

## SNOW

Snow is composed of ice crystals. These crystals fall from clouds in cold weather when the air is too cold to melt the ice crystals into rain. In most of the world outside the very hot tropics, most rain starts to fall as snow but melts to rain on the way down. The heaviest snowfalls occur when the air temperature is close to the freezing point at 32°F.

For this reason, more snow falls on the northern United States than at the North Pole because it is too cold at the North Pole for snow to fall. Snow can be as much as 90 percent air. For this reason, snow helps to keep the

ground warm and protect some plants from extreme cold. Because so much of the snow is composed of air, it takes about ten inches of snow to equal the amount of water in one inch of rain.

All snowflakes are six-sided crystals, with some occasional needles or columns. One farmer and amateur scientist photographed thousands of snowflakes through a microscope. He was trying to find two identical flakes. Neither he nor anyone else ever has. Snow often melts slowly because the white color reflects sunlight away. The most snow in a single storm in the United States was 189 inches. It occurred at Mount Shasta, California, in February 1959. Antarctica is buried in an average of two-and-a-half miles of snow.

**1.** According to the passage, most rain starts to fall as snow but melts to rain on the way down in most of the world except

a. the desert.
b. the tropics.
c. the city.
d. Antarctica.

**2.** When does the heaviest snowfall usually occur?

a. when the temperature is near 0°F
b. when the temperature is as cold as the North Pole
c. when the temperature is just about freezing
d. when the temperature is above 50°F

**3.** About how much air is in snow?

a. 90 percent
b. 10 percent
c. none
d. 100 percent

**4.** Which of the following would be the best title for the passage?

a. "How Snowflakes Are Formed"
b. "Facts About Snow"
c. "Ice and Snow"
d. "The Heaviest Snowfall"

## TORNADOES

A tornado is a whirling mass of air. It is a long tube of wind constantly turning around at very high speeds. It reaches down from the bottom of a storm cloud to the ground. The circling wind sucks up dust, loose material, and other things into a large funnel cloud. This cloud is shaped like a giant cone. It's less than two miles across and often as small as 240 feet across the center. ornadoes are far smaller than hurricanes, but they can be very powerful. A terrible tornado in March of 1925 traveled 219 miles through the states of Missouri, Illinois, and Indiana. It blew at speeds as high as seventy-three miles per

hour. This tornado killed 695 people and an unknown number of animals. The storm also destroyed 15,000 homes. It is considered the worst tornado in our history.

The highest wind speed ever recorded on Earth was 318 miles per hour. This was inside the cone of a tornado in Oklahoma in May 1999. It killed four people and ruined 250 homes. Tornado season in the United States runs from February to May. Tornadoes are most common in the central and plains states, as well as the gulf states. Tornadoes are ranked by a system called the Fujita Scale. A mild F0 rating indicates little damage. A powerful F4 rating means severe damage. This damage includes houses destroyed, cars thrown around, and many objects hurled like missiles. The rare F5 rating occurs when buildings are lifted off their foundations and blown away and cars become weapons. F6 tornadoes are even more rare and destructive.

**1.** From the context of the passage, which of the following is the least destructive tornado on the Fujita Scale?

a. F6
c. F1
b. F4
d. F5

**2.** Which of the following is a feature of a tornado?

a. a rotating tube of wind
c. a narrow path of great destruction
b. a great deal of rain
d. both a and c

**3.** From the context of the passage, which is the best antonym for rare?

a. unknown
c. evil
b. awful
d. common

**4.** From the context of the passage, which of the following creates the destructive force of a tornado?

a. heavy rain
c. cold air
b. the whirling wind in the center
d. flying cars

## CLOUDS

Clouds are classified by their shapes and their heights above the ground. Although there are ten identified cloud types, there really are only three basic types of clouds: cumulus, stratus, and cirrus. Cumulus comes from the Latin word for "heap" or "pile." *Cumulus* clouds look like fluffy, whipped mashed potatoes. The size of the cloud depends on the amount of moisture in the air, as well as how quickly the air rises. Most cumulus clouds don't bring rain and lie below 6,000 feet. They are sparkling white at the top and sometimes have

a light gray hue at the base.

*Cirrus* comes from a Latin word, which translates to a "lock of hair." Cirrus clouds are very high, often three to seven miles above the ground, and are wispy, thin, and look like there is little substance to them. They are formed by ice crystals, and sunlight can pass through these crystals with ease. *Stratus* gets its name from a Latin word meaning "spread out." Stratus clouds are flat, thick, and usually the lowest of the three types of clouds. Thick fog, for example, is a stratus cloud.

The rest of the cloud names are combinations of the three basic types. Nimbostratus clouds are dark, low-lying, and bring a lot of moisture as rain or snow. Cloud types such as altostratus and altocumulus are high in the sky. Cumulonimbus clouds look like an upside-down clothing iron high in the sky and can produce heavy precipitation, thunderstorms, tornadoes, and hail. What kinds of clouds are in the sky today?

**1.** What kind of weather comes with clouds that have "nimbus" or "nimbo" in them?

a. sunny
c. dry
b. wet and stormy
d. foggy

**2.** Which clouds are formed of ice crystals high in the sky?

a. cumulus
c. nimbostratus
b. stratus
d. cirrus

**3.** Which clouds can bring tornadoes and thunderstorms?

a. cumulonimbus
c. cumulus
b. cirrus
d. altocumulus

**4.** Which of the following would be irrelevant to the passage?

a. In 1888, twenty-six people were killed by a hailstorm in India.
b. Clouds do not always bring storms.
c. Altostratus clouds are thin and create a colored ring around the sun and the moon.
d. Nimbostratus clouds often bring rain.

## WATER

Water is among the most important compounds on Earth. Plants, animals, and people could not live without many sources of water. The oceans of the world are giant engines that produce fresh water as rain and snow through the water cycle. Only 3% of the water on Earth is fresh water. The other 97% of the water is salt water in the oceans. Even most of the fresh water is locked up in glaciers and ice caps.

Water is the only substance that can be found as a solid (ice), liquid

(water), and gas (steam or water vapor) within the normal range of Earth's temperatures. Water freezes at 32°F and boils at 212°F. Between those two temperatures, water flows as a liquid. The density of water is greatest at 39°F. This means that the most water can fit into a specific space at this temperature.

Ice is much less dense than liquid water. This is why ice forms on the surface of lakes and why icebergs and ice cubes float rather than sink. Water is unique in that it expands when it freezes. This causes water pipes to break during extremely cold winter weather. Water expands in an ice cube tray when it freezes, and the ice cube rises over the surface of the tray.

**1.** What is the author's purpose in writing the passage?
a. to encourage water usage
b. to inform readers about the value and properties of water
c. to compare water to air
d. to entertain the reader

**2.** What does water do when it freezes?
a. It expands.
b. It gets more dense.
c. It gets less dense.
d. both a and c

**3.** Which of the following would be the best title for the passage?
a. "Water Is Wet"
b. "The Importance and Nature of Water"
c. "Save Water"
d. "Why Water Is Dense"

**4.** Which of the following offers true comparisons of liquid water and ice?
a. Liquid water is denser than ice.
b. Ice expands more than liquid water.
c. Ice will not float.
d. both a and b

## TSUNAMIS

Tsunamis are extremely high waves. They occur when the sea floor is shaken by a major earthquake or volcano. These waves have nothing to do with tides and are not tidal waves. The name *tsunami* is a Japanese word for "harbor wave." Waves of a tsunami may travel almost unnoticed in deep water away from an earthquake or volcanic eruption. They travel along the seabed as fast as a jet plane. They can travel over four hundred miles an hour. As they near shallow coastal waters, the water rears up into waves of one hundred feet or

higher. These waves smash into harbors and coasts. They destroy boats and buildings as if they were toys. They drown most living things in their paths. The water may come in a series of a dozen or more waves. They can hit every few minutes.

Local quakes may generate a tsunami in as few as fifteen minutes. But if a quake occurred near Japan, the tsunami may hit across the Pacific Ocean hours later. The highest tsunami wave ever recorded was over 1,700 feet high. It struck the Alaskan coast in 1958. A powerful tsunami in 2004 hit coasts in Asia, killing more than 200,000 people. Be aware of tsunamis and know what to do in case one is forecast near you.

**1.** Which of these titles would be best for the passage?

a. "Tidal Waves Hit Japan"
b. "Tsunamis Cause Some Damage"
c. "How Tsunamis Occur and What They Do"
d. "Japan and Tsunamis"

**2.** Which of the following events cause tsunamis to occur?

a. earthquakes
b. tidal waves
c. volcanoes
d. both a and c

**3.** Where do tsunamis cause most of their damage?

a. far out in the ocean
b. near harbors and coasts
c. near deserted beaches
d. both a and c

**4.** From the context of the passage, what can you infer that you should do when news of a tsunami is forecast?

a. Go to the beach and watch it hit.
b. Get as far inland away from harbors and coasts as possible.
c. Watch the tsunami from your hotel room.
d. Get into a boat and sail away.

# ADVANCED

## MICROBURSTS

One of the least known weather phenomena is the microburst. It is a wind occurring beneath certain clouds that is strong enough to damage buildings, knock down trees, and crash airliners. Microbursts can produce wind speeds higher than 175 miles per hour, which is greater than many tornadoes and hurricanes.

Microbursts are fast-moving columns of air that develop beneath cumulonimbus clouds. These are the same clouds that produce thunderstorms and tornadoes. The air develops quickly and moves straight down from the cloud base. It then moves along the ground and curls back up and around in a circular

manner. They are also called “cloud sneezes.”

Since 1975, eight airline crashes have been directly attributed to microbursts. The crashes occur during either takeoff or landing. Let’s consider an aircraft landing as an example. Flying low in its approach, the aircraft encounters the outer area of the microburst’s curling wind. The pilot senses the updraft and forces the nose of the airplane down to compensate. As the
airplane continues, it encounters the strong downdraft at the center. Because the nose of the plane is already lowered, the down-moving air forces the nose rapidly lower, and the pilot is unable to compensate. This forces the airplane down to the ground.

The most famous microburst airline crash was Delta Airlines Flight 191 at Dallas/Fort Worth International Airport on August 2, 1985. The airliner crashed on approach due to a microburst, and 137 passengers and crew members died.

As a result of that airliner crash, the government sought ways to detect microbursts with various types of weather radar. This and other precautionary measures have lessened the number of airline crashes due to microbursts.

**1.** What primary structure does the author use to organize the thoughts in the text?
a. cause and effect
b. compare and contrast
c. problem and solution
d. sequential or chronological approach
**2.** What is the main idea of the second paragraph?
a. how people can avoid a microburst
b. how a microburst is formed
c. how a microburst affects airlines
d. how the government has stopped microbursts from happening
**3.** Based on what you read in the text, what is the best way to describe the effect a microburst has on aircraft?
a. A microburst limits a pilot’s visibility during landings.
b. The extreme shifts in wind direction make it difficult to navigate the plane safely.
c. The force of wind in a microburst prevents a plane from taking off.
d. The extreme wind speeds knock aircraft sideways, and they crash.
**4.** What does the word *compensate* mean as it is used in the third paragraph?
a. to make equitable with financial return
b. to make amends
c. to counteract or make allowance for
d. to navigate

## HOW ARE MOUNTAINS FORMED?

Many people enjoy the mountains for the recreational opportunities they offer, but have you ever wondered how all those mountains were formed? Not all mountains were made by the same process; each way produces different types of rock and other characteristics.

Some mountains are considered volcanic. This type of mountain occurs mostly around the Pacific Ocean. A tectonic plate along the rim of the ocean is forced under another plate. As it sinks down, it melts and is then pushed up through the crust and

erupts as a volcano. A good example of this is the Cascade Range along the western coast of the United States. Another type of volcanic mountain is called a hotspot. As a plate of Earth's crust moves over molten material, the magma pushes to the surface through weak spots in the crust
and forms into a mountain. One good example of this is the Hawaiian Islands.

Another type of mountain is a folded mountain. This occurs when two plates collide, and one rides on top of the other. The plate that goes over the other will fold and buckle and create mountains. The Rocky Mountains in the western United States are one example of this type of mountain range.

Mountains can also be formed when a plate of Earth's crust breaks. One side rises to create mountains, and the other drops and creates a valley. This process is called fault block and can be seen in the Sierra Nevada Range in the western United States.

Mountains are also formed by erosion. When a volcano erupts, large areas of volcanic magma can be created. Water and winds wear down the material to
form mountains. Sometimes, these mountains are called plateau mountains. The Catskills in New York fall into this category.

Left in their natural state, mountains provide us with valuable natural resources as well as recreation.

**1.** Which of the following is not a term to describe a process by which mountains are formed?

a. volcanic
b. folded
c. fault block
d. glaciation

**2.** What do all types of mountains have in common?

a. They are the result of shifting tectonic plates.
b. They are formed by changes in Earth's crust.
c. They are covered by forests.
d. They are formed from magma beneath the surface of Earth.

**3.** What does the word *collide* mean as it is used in the third paragraph?

a. attack one another
b. come into contact with each other
c. come into conflict
d. have opposing views

**4.** Which of the following is an example of mountains formed by erosion?

a. the Rocky Mountains
b. the Hawaiian Islands
c. the Catskills
d. the Sierra Nevada Range

## ANTARCTIC ICE - SHEET

The South Pole is on the continent of Antarctica. On average, this land mass is windier, drier, and colder than any other place on Earth. It also has some of the highest elevations on Earth. The polar ice cap is larger than that of the North Pole. The ice cap covers almost the entire continent, stretching across millions of square miles. The permanent ice is thousands of feet deep.

Scientists believe the icing of Antarctica is ancient. The ice has glaciated, which means it has formed from snow. Snow falls onto the ice, which is

compacted, and then becomes glacial ice. Ice streams flow downhill towards the ocean. Large amounts of glacial ice move out over the ocean creating ice shelves. The ice shelves can break off, creating icebergs that eventually melt. The glacial ice floating on the ocean surface is called sea ice. In contrast, land ice covers the continent.

Recently, researchers have been trying to determine if the ice of Antarctica is growing in size or shrinking.

They want to understand what factors might be causing any changes in the ice.

For several years, the amount of land ice has been decreasing. Scientists attribute part of this to recent record warm winter events. A section of the northern ice shelf recently collapsed, alarming scientists. The Antarctic sea ice has grown over that same time period. While both the growth and loss of ice is occurring at a very slow rate, the exact reasons for the changes are not fully known. Changes in temperature and winds play an important role. It is also possible this is a normal Earth weather cycle, and the loss of ice is typical. It's too early for scientists to be certain about long-term causes and effects.

Generally, scientific observations indicate lower temperatures in the Antarctic than in the Arctic. For now, climate changes appear to be affecting the South Pole more slowly than the North Pole.

**1.** What is the primary comprehension skill you need to understand this passage?

a. compare and contrast
c. making connections
b. making inferences
d. cause and effect

**2.** What does the word *collapsed* mean as it is used in the text?

a. suddenly broken into pieces
c. shrunk in size
b. lost its defenses
d. melted quickly

**3.** Which statement best summarizes the current state of land ice in Antarctica?

a. The Antarctic sea ice has grown over that same time period.
b. The exact reasons are not fully known, but changes in temperature and winds play an important role.
c. Both the growth and loss of ice is occurring at a very slow rate.
d. For several years, the amount of land ice has been decreasing.

**4.** Which of the following statements is an opinion?

a. The polar ice cap is larger than that of the North Pole.
b. It is also possible this is a normal Earth weather cycle, and the loss of ice is typical.
c. Large amounts of glacial ice move out over the ocean creating ice shelves.
d. The glacial ice floating on the ocean surface is called sea ice, as opposed to land ice, which covers the continent.

## GARBAGE TO GOOD

According to the Environmental Protection Agency, Americans create millions of tons of garbage per year. Of this amount, one-third is either recycled or composted, and just over 10 percent is burned. Over half of all garbage goes to landfills. Landfills are costly to build and can be a source of pollution.

Efforts have been made to reduce the impact of solid waste on landfills. Many innovative uses for waste have been developed. One use for waste is

to create energy.

When waste is used to create energy, it results in heat or combustible gases. The most common way to achieve this result is through burning, or incineration. But burning waste can have hazardous emissions, so strict guidelines must be followed. Before such guidelines were developed, gas emissions were heavily acidic. This created acid rain that was harmful to both people and structures. Now filters are used, which make emissions cleaner than most home fireplaces.

Aside from the emissions that are produced, the residue that remains can be highly toxic and must be handled very carefully.

The most common method of creating energy from incineration is by using the heat created from burning the waste to boil water. The boiling water powers steam generators, which make electricity for homes and businesses.

Today, new ways of using waste to create electricity or fuels are being developed. They are very complicated. One example is the thermal method, which uses extremely high temperatures without burning.

The goal is to transform waste into a benefit for us. Sweden has run out of waste to transform into energy. Now they purchase waste from other countries. Perhaps someday we will also be able to make total use of our waste.

**1.** According to the passage, how much of our garbage goes to landfills?

a. one-third
c. 50 percent
b. 10 percent
d. more than half

**2.** What is does the word *innovative* mean as it is used in the second paragraph?

a. renewed
c. altered
b. new methods
d. unimaginative

**3.** What is a positive result of burning waste?

a. Burning waste results in heat or combustible gases.

b. Without filters, burning creates acid rain that is harmful to both people and structures.

c. The heat created from burning waste is used to boil water, which powers steam generators to
make electricity.

d. The residue that remains from burning waste can be highly toxic and must be handled very carefully.

**4.** Which title would be a good alternative for this text?

a. “Waste Equals Energy”
c. “A New Way to Generate Heat”
b. “A Model Country”
d. “Burning Our Garbage”

## MEN ON MARS?

In our ongoing quest to explore the place in which we live, we have reached beyond Earth into outer space. First, people dreamed of traveling to the moon. That has been accomplished. Now, scientists at NASA are investigating what it would take to send people to Mars.

According to NASA, a primary concern with a Mars landing is

astronaut safety. Mars lacks the ozone layer of Earth's atmosphere, increasing the amount of solar ultraviolet radiation that reaches the planet. Scientists also want to learn more about the chemical aspects of the Martian soil before exposing people to that environment. Also, more studies need to be conducted on the prolonged effects of low gravity on the human body. After spending several weeks in space on shuttles or the space station, some astronauts reported experiencing blurred vision. Finally, there is the question of the psychological effect of being so far from Earth for an extended period of time.

Currently, NASA plans to use robots to explore the Martian environment. Robots will analyze the radiation in the atmosphere and search for water resources. Before humans travel to the red planet, technology will need to be developed for descent and landing to keep the level and effect of g-forces safe for humans.

Why are agencies such as NASA putting time and money into research? In the past, the development of technology for the space program has had benefits here on Earth. Some areas include medicine, recycling, solar energy, and others.

News sources cite reports of people signing up to go to Mars, a multibillion-dollar venture. Why? Humans are, by nature, explorers, and the pull to the unknown is strong to the human spirit. Those who take a slightly more scientific approach would like to investigate possible life forms on Mars. They wonder what Mars can teach us about Earth.

**1.** Which of the following is <u>not</u> a concern for astronaut safety?
a. ultraviolet radiation
b. psychological effects
c. low gravity
d. improved vision

**2.** How would you describe the structure the author uses to organize the text?
a. argumentative
b. persuasive
c. narrative
d. informative

**3.** What is a synonym for the word *cite* as it is used in the last paragraph?
a. commend
b. mention
c. summon
d. rehearse

**4.** What is the main idea of the third paragraph?
a. It explains the technology we will need to go to Mars.
b. NASA will study Mars before sending a manned space flight.
c. Space technology benefits people here on Earth.
d. People like to explore the unknown.

## THE PHILIPPINES

The nation of the Philippines is an archipelago. That means the nation is a group of islands. More than 7,000 islands make up the nation, but only about 2,000 are occupied. The capitol of the nation is Manila, on the island of Luzon. Manila has over 1.6 million people in the city—the most people per square mile than any other major city in the world. Almost 100 million people live in

the Philippines.

During the 16th century, the Spanish landed and made Manila the capital of the Spanish West Indies. Since then, the Filipino people have fought for independence from various nations including Spain, Japan, and the United States. Today, the Filipinos have their own democracy under President Benigno Aquino III.

The Philippines is on the Pacific Ring of Fire and has many natural disasters. Every year, the nation has an average of between six and nine typhoons that hit land. The last major typhoon was Typhoon Yolanda, which was the strongest typhoon ever recorded on land. Many were killed or injured, and hundreds of thousands more people were displaced after high winds and floodwaters destroyed their homes. An average of twenty earthquakes also occur daily, although most are not felt.

Because of their varied past, the Philippines is a mix of East, West, Spanish, and Asian cultures. The two official languages of the Philippines are Filipino and English. Their colorful culture makes the Philippines a popular tourist destination.

**1.** According to the text, what type of land form is an *archipelago*?
a. a mountain range
b. a chain of islands
c. a series of canyons
d. a large glacier

**2.** Which natural disaster does the Philippines <u>not</u> experience?
a. typhoons
b. earthquakes
c. floods
d. tornadoes

**3.** According to the text, what is one reason the Philippines is a popular tourist destination?
a. There are millions of people in the Philippines.
b. Many countries have influenced the culture of the Philippines.
c. Some of the islands are uninhabited.
d. It is exciting to witness a typhoon.

**4.** What is the best way to define a *typhoon*?
a. a violent tropical cyclone
b. a snow storm
c. a large wall of water
d. a meteorite

## GLOBAL WARMING

A widely debated subject in the last decade is global warming. Have humans really caused our planet to become warmer?

Scientists agree that global temperatures have risen by about one degree Fahrenheit over the last 150 years. In parts of the Arctic, the temperature has risen about two degrees. However, temperatures have fluctuated over

that time span as well.

Due to limited data, scientists use several strategies to approximate temperature changes. Tree rings and sediment layers from oceans and lakes provide us with clues. Drilling cores through Earth's polar ice sheets also gives us information regarding the past thousands of years.

However, some scientists question if such evidence is valid. Some argue the data and computer-enhanced climatic programs are too vague to make definite claims regarding global warming. They note major temperature fluctuations throughout history. These changes are unrelated to anything man-made and could be just another weather cycle.

As a result, the debate continues as to whether or not any global warming is caused by man and if anything can or should be done about it.

The term "greenhouse gases" refers to changes in the atmosphere caused by human activity. Regardless of such gases contributing to global warming or not, from an environmental perspective, reducing these gases is a wise course to follow. One way to do this is to find alternate sources of energy other than burning coal. Emissions from automobiles, industrial plants, and power facilities can be more strictly regulated. Individuals can help by recycling and using environmentally friendly methods of travel.

The potential threat and reality of global warming is being taken seriously by scientists worldwide.

**1.** Which evidence is stated in the passage to support the theory of global warming?

a. melting polar ice
c. rising temperatures worldwide
b. changes in animal populations
d. decreased ozone in the atmosphere

**2.** What would be a good resource to learn more about this topic?

a. a scientific climate research site
c. a talk show on television
b. a book about the Arctic
d. your friends at school

**3.** In the second paragraph, what does it mean to say that temperatures *fluctuated* over time?

a. They vary in different parts of the world.
c. They changed dramatically.
b. They change frequently.
d. They rose and fell with the tides.

**4.** Which of the following statements is an opinion?

a. Global temperatures have risen by about one degree Fahrenheit over the last 150 years.

b. Drilling cores through Earth's polar ice sheets gives us information regarding the past thousands of years.

c. Computer-enhanced climatic programs are too vague to make definite claims regarding global warming.

d. There have been major temperature fluctuations throughout history.

## IS RECYCLING WORTH IT?

Some people claim recycling is the best way to conserve our raw natural resources. They believe that reducing waste will, in turn, reduce the amount of landfill space required. We primarily recycle plastic, glass, paper, and metal. It is said that recycling saves money, landfill space, and helps the environment. On the other

hand, many people wonder if recycling is worth the effort.

One factor to consider regarding recycling is the cost. Those who argue against it wonder if it is cheaper to create more landfill space and bury the recyclables. It takes a lot of energy to recycle. The energy used in recycling processes can be both expensive and damaging to the environment by producing harmful greenhouse gas emissions.

Another cost factor is curbside recycling. It costs money and requires transportation. Vehicles create pollution. However, over the past few decades, the process has been streamlined. Now, in many cities, the process is less expensive.

Others argue that it depends on how many recyclables make it to the recycle stations. If more recyclables are on hand, it is more cost-efficient to sort and recycle the items into reusable materials. For example, plastics are coded based on their type. Often different types of plastics cannot be recycled together. Until recently, separating them by hand was very time-consuming and expensive. Now, plastics are cleaned and used together to make new types of products.

Another issue is the demand for recycled items. If the demand is low, the recyclables sit and begin to decay. The good news is that through new technology and new products, the demand for recycled material and items is
on the rise. This makes recyclables more valuable and cost-effective to produce.

Inefficiencies and legitimate questions regarding recycling remain, but the processes have improved to the point that the cost-effectiveness has become clear. Recycling is better for the environment than producing from new, raw materials.

**1.** Which of the following is not a factor to consider regarding recycling?
a. cost of producing recycled products
b. amount of recyclable material on hand
c. demand for recycled products
d. the effort to put scratch paper in the recycle bin

**2.** Based on the passage, what can you infer happens to items that are not recycled?
a. They are burned.
b. They go to a landfill.
c. They are left at the curb.
d. They sit and remain in their present form.

**3.** In the fourth paragraph, what does it mean to say something is *cost-efficient*?
a. It produces an end result.
b. It works well.
c. It uses a minimum of expense.
d. It produces the desired effect.

**4.** How would you summarize the author's opinion in this passage?
a. There are costs associated with recycling, but improvements in the process make it worth the effort.
b. Recycling is too inefficient and doesn't do any good.
c. It is too expensive to recycle, and we should put things in existing landfills.
d. Plastics should always be sorted carefully.

## METEORITES ON EARTH

On February 15, 2013, a meteorite exploded over the Ural Mountains of Russia. The Chelyabinsk Meteor was estimated to be 49 feet wide and weigh 10 tons. Before crashing into Earth, it was traveling at over 41,000 miles per hour.

That is nearly 60 times the speed of sound. The meteorite entered Earth's atmosphere at a great speed and shallow entry. It exploded in the air at a height of 76,000 feet, which is over 14 miles. The blast was 20 to 30 times stronger than the atomic bomb used in World War II. It was brighter than the sun.

More than one thousand people were injured as a result of debris from sonic waves caused by the explosion. More than one million square feet of building glass shattered. Some meteorite fragments fell in a reservoir outside the town of Chebarkul, but no people were struck by the meteorite or fragments. The crash left a 26-foot-wide crater in the ice.

How many meteors strike the Earth? No one knows how many impacts have occurred over time, but more and more recordings are being made. The Meteoritical Society and other agencies track meteorites that strike Earth's surface. At least two impacts were recorded for 2012.

A major impact event is one that could cause the end of civilization. Some scientists believe that 65 million years ago, meteor strikes were the primary cause of the extinction of dinosaurs. This violent event is now known as the Late Heavy Bombardment.

Every year, NASA publishes dates when meteor showers are visible. Meteors become meteorites when they impact Earth, which happens rarely.

**1.** What made the meteorite impact in 2013 newsworthy?

a. its size c. its explosion
b. its speed d. all of the above

**2.** Which of the following describes how the impact affected people?

a. The meteorite entered Earth's atmosphere at a great speed and shallow entry.
b. More than one thousand people were injured as a result of debris from sonic waves.
c. Some meteorite fragments fell in a reservoir outside the town of Chebarkul.
d. The crash left a 26-foot-wide crater in the ice.

**3.** You can tell from the context of this passage that *impact* means . . .

a. to hit with force. c. to strike together.
b. to have an effect on. d. the power of an event to produce changes.

**4.** What is the main idea of the third paragraph?

a. It describes the meteorite impact in Russia.
b. It describes specific effects of the Russian meteorite.
c. It discusses how we keep track of meteorites.
d. It summarizes how meteorites affected the dinosaurs.

## ELECTRIC CARS

Electric cars seem to be everywhere in the news. They do not cause as much pollution as gasoline-powered vehicles. This means they are more environmentally friendly. However, the source of their electricity may not be.

Electric cars are powered by electric motors instead of gasoline engines. The electric engine derives its power from a controller. This controller gets its power from rechargeable batteries. If you look under the hood of a gas-powered car, it has hoses and valves. Conversely, the electric motor has wires and electric motors.

The first electric car was made in Germany in 1888 and was popular for many years. Electric cars started gaining popularity again toward the end of the twentieth century. Today, most major auto manufacturers have at least one electric car in their product line. Others, such as Tesla, produce nothing but electric cars.

Electric cars do not produce greenhouse gas emissions. They are also nearly silent. One drawback is that they are more expensive to design and produce. This cost gets passed along to consumers. Another negative aspect of these cars is the challenge of disposing the old batteries.

Some gas-powered vehicles can go about 350 miles before refueling, but many electric cars have a range of about 65 miles before needing to be recharged. Although, one electric car has a range of 300 miles. Maintenance for an electric car is generally more expensive. The battery packs are scheduled for
replacement every seven years and can cost thousands of dollars.

At home, it takes over twelve hours to recharge the batteries on an electric car, although at a charging station, it takes only about 20 minutes.

Electric car technology continues to improve. If we find answers for cost and environmental factors, they may someday be the most prevalent cars on the road.

**1.** Which is a synonym for the word *prevalent* as it is used in the text?
a. dominant c. frequent
b. accepted d. common

**2.** What is one way in which electric cars differ from gasoline-powered cars?
a. Electric cars are less expensive.
b. Electric cars need refueling.
c. Electric cars create less pollution.
d. Electric cars have a longer driving range.

**3.** Which statement describes why electric cars might not be better for the environment?
a. They are nearly silent.
b. The electric motor has wires and electric motors.
c. Electric cars do not produce greenhouse gas emissions.
d. The battery packs are scheduled for replacement every seven years and must be disposed of.

**4.** What can you infer from the passage about what affects the popularity of electric cars?
a. They became more popular as people started becoming concerned about the environment.
b. They became more popular when people had more money to spend on vehicles.
c. They became more popular when more companies started producing electric cars.
d. They became more popular when public charging stations became available.

## WEATHER IS A CURRENT EVENT

Weather is a current event. People talk about the weather more than almost anything else. Some hurricanes make national news, due to the loss of lives and the

amount of property damage they can cause. Tornadoes also leave devastation in their wakes. These types of severe storms often affect a specific geographic area. However, weather that affects people across large geographic areas becomes a national weather event.

The winter storm that swept across the country in December of 2013 may not hold the record for amoun of snow, but it made the news for the number of states that were impacted. Within the same two-to-three-day period, severe weather affected much of the nation. This included snow, ice, sleet, wind, and record cold temperatures. The Pacific coast saw rare snow—up to two inches in some places. The western United States received blasts of Arctic air accompanied in some locations by gusty winds. This led to dangerous windchill factors. The icy path of the storm stretched across two thousand miles, affecting at least nine states. Temperatures were expected to drop considerably below normal across the Midwest and across the nation. The National Weather Service posted alerts for winter storm activity in the western and eastern United States. The eastern United States had a forecast for heavy snowfall. At the same time, an alert for extreme wind chill was issued across the Pacific Northwest and the Midwest. One news report listed effects of the storm in 23 states. That's almost half of the United States!

This winter storm example is no longer current, but weather affects us every day. Scientists and climate researchers constantly monitor temperatures and weather trends. Their goal is to predict the weather. Their forecasts and observations affect more than our daily activities. Climate data gives us information on national and worldwide trends, such as global warming. This, in turn, informs the choices we make as a people and a society.

**1.** Why did this story include a weather event that has already happened?
a. It was an example to show how weather can affect many people at the same time.
b. It was an example of an event that caused great property damage.
c. It illustrated a current trend in climate or climate change.
d. It made the national news.
**2.** What is the main idea of the third paragraph?
a. It describes major weather events.
b. It describes an example of a national
weather event.
c. It summarizes how weather is a current event.
d. It describes ways weather affects us.
**3.** Which statement does not explain how weather is a current event?
a. People talk about the weather more than almost anything else.
b. The winter storm of 2013 made news for a number of states.
c. Weather affects us every day.
d. Scientists and climate researchers constantly monitor temperatures and weather trends in their efforts to
predict the weather.
**4.** What does the word *devastation* mean as it is used in the text?
a. emptiness c. helpless
b. destruction d. overwhelmed

## TRAVEL OF THE FUTURE

Sometimes, invention is born out of frustration as much as necessity. Elon Musk has been playing with a new form of high-speed transportation. He sees

it as an alternative to current high-speed rail projects. Musk works with an electric car company and a solar energy company. He calls his invention the Hyperloop.

Using the Hyperloop, people would travel in pods through low-pressure steel tubes. The capsules would reach speeds of about 760 mph. Existing high-speed rail systems in Asia reach speeds of 300 mph.

One way to think about how the Hyperloop would work is to think about a roller coaster. It's possible the capsules would receive an initial boost of power from spinning steel balls. The momentum would move the pod toward an electromagnet that would pull the unit forward. The magnet would then repel the pod, sending it toward the next magnet along the track.

The efficiency of the system comes from a couple of factors. Pods would be suspended on a cushion of compressed air, which would reduce friction. Musk also plans to use solar energy to power his system, making it environmentally friendly. The solar panels would be mounted on top of the tubes.

The Hyperloop would be efficient up to distances of about 900 miles. Beyond that, air travel would probably be more cost effective. Initially, he would propose transit between San Francisco and Los Angeles. The commute time between the two cities would be reduced to a little over 30 minutes. The trip would cost commuters about $20. Musk's plans include elevating the system on pylons in close proximity to a major freeway. He says this would
reduce the need for land acquisition, thus cutting down on the overall cost of the project.

Whether or not the Hyperloop is feasible, one thing is certain—it adds new interest to the ongoing debate about efficient transportation.

**1.** What is one factor that would increase the efficiency of the proposed system?
a. It will only travel short distances.
b. It would rely on magnetic principles.
c. The pods would be lightweight.
d. The pods would travel on a layer of compressed air which would reduce friction.

**2.** What does the word *acquisition* mean as it is used in the text?
a. something that is obtained
b. something that is shared
c. something that is added to the system
d. something that is given away

**3.** Which current method of transportation is most like the Hyperloop?
a. airplanes
b. light rail
c. high-speed rail
d. automobiles

**4.** Which paragraph gives an overview of the principles that could make the Hyperloop work?
a. the first paragraph
b. the third paragraph
c. the fourth paragraph
d. the fifth paragraph

## THE STATE OF HAWAII

In 1959, Hawaii became the fiftieth state. In recent years, there has been a

movement in Hawaii to secede from the United States and become a separate country.

Over a century ago, Hawaii was a separate country with its own monarchy. During that time, American missionaries and landowners brought about many changes with respect to politics, culture, economy, and religion. As a result, a constitution was adopted. Much of the power belonging to the ruler was taken away. At the end of the century, a group of Marines threw out the last monarch of Hawaii. A few years later, Hawaii became a trust territory of the United States. Fifty years after that, it became a state.

Today, there is a movement among several groups in Hawaii to secede from the United States and return to a sovereign nation. Hawaii has a population of over one million. About 200,000 are native Hawaiians. Many believe they were wronged throughout their history and would like such wrongs corrected.

Do they have a legal case? Some say they do. A professor of international law said he believes the Hawaiian Kingdom Government has a valid claim. He claims that international law provides for sovereign governments. Such law defines this as people living on their land and asserting their rights. He believes this is what the Native Hawaiians are doing.

The state has set up the Office of Hawaiian Affairs. They have petitioned the federal government to allow some form of self-government on ancestral lands. This would be similar to some Native-American reservations.

What the Hawaiians seek to do has widespread international and national implications. It will take a while to reach solutions. Resolving the issues could involve both the Supreme Court and the United Nations. For the moment, Hawaii retains valid statehood, enjoying the rights and duties of a member of the United States.

**1.** What is the main issue discussed in the passage?
a. whether Hawaii is currently a state
b. whether the Office of Hawaiian Affairs is a valid organization
c. whether Hawaii should become a separate entity from the United States
d. whether the monarchy should have been overthrown

**2.** Which of the following was the final event leading to the United States' control of the islands?
a. The Marines overthrew the monarch.
b. Some people from the United States acquired land in Hawaii.
c. There were more non-native people living there than native Hawaiians.
d. A constitution was adopted.

**3.** A good way to find the answer to the second question is to . . .
a. search online for articles containing similar information.
b. reread the entire passage and look for clues.
c. identify the order in which each statement occurs in the passage.
d. reread the second paragraph and identify the main idea.

**4.** Which is a synonym for the word *implications* as it is used in the last paragraph?
a. assumptions
b. inferences
c. suggestions
d. Involvement

**O‘QUV-USLUBIY NASHR**

# Texts concerned with geography & ecology

**USLUBIY QO‘LLANMA**

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