Name: _____ Date: _____

Arctic Moss on the Tundra

The tundra is the coldest biome. Plants growing in the tundra have to survive in a harsh environment of freezing temperatures, little rainfall, and low sunlight. Summer is short, and winter is dark. Nutrient levels are low. Arctic moss is one of the few plants growing in the arctic tundra in the Northern Hemisphere. Most of the ground in the tundra is covered by frozen soil called permafrost. The permafrost creates many lakes and streams because water does not sink into the ground. Arctic moss covers the bottom of these lakes and streams like a blanket. This has a warming effect that helps other plants nearby. Because it grows underwater, it is protected from the cold air and drying winds. The moss has thin root hairs in place of regular roots. These tiny hairs suck nutrients from the shallow soil and hold the plants in place when high winds are blowing. Arctic moss lives longer and grows more slowly than any other freshwater plant in the world. The tiny leaves grow about one centimeter each year. They store nutrients when the plant is not growing, so new leaves use them during the next growing season. Arctic moss lives up to ten years.

1) According to the text, arctic moss can grow in a place with ---

A) lots of sunlight and wind
B) lots of darkness and cold weather
C) plenty of nutrients
D) freezing weather with lots of rain

2) Which words from the text help the reader understand the meaning of the word *permafrost*?

A) frozen soil
B) water does not sink
C) many lakes and streams
D) most of the ground

3) Why are there so many lakes and streams in the tundra?

A) Most of the animals that live there are aquatic.
B) The frozen land melts every summer.
C) Arctic moss needs a place to grow.
D) Water stays above the frozen ground.

4) Which adaptation protects arctic moss from the cold tundra temperatures?

A) a shape like a blanket
B) storing extra nutrients in the leaves
C) growing underwater
D) having thin roots hairs instead of regular plant roots

Name: _____ Date: _____

Buffalo Grass on the Prairies

Buffalo grass grows mainly in the middle of North America on the prairies. This part of the country is dry in the summer and cold and windy in the winter. It is a short grass that grows up to 5 inches tall. It turns a tan color in the winter and a lavender color in the fall. It handles very hot and very cold temperatures. It is drought resistant, which means it can survive for long periods of time without water. Buffalo grass is able to survive drought by becoming partly inactive. In the past, this grass was the main source of food for the large buffalo herds that grazed on the Great Plains. Now, it is eaten by animals such as livestock, deer, rabbits, and prairie dogs. Many grassland fires are caused by lightning strikes. In a prairie fire, the growing parts of buffalo grass are protected under the soil. Burs protect its seeds. After a fire, buffalo grass often grows faster and better. The plants send out new shoots from the roots. Buffalo grass is often used in dry areas that have problems with wind erosion. It is also popular for planting in parks, on school grounds, on golf courses, and on lawns.

1) Which of the following adaptations is most important for survival on the prairie?

A) Buffalo grass is short.
B) Buffalo grass is drought resistant.
C) Buffalo grass is different colors depending on the season.
D) Buffalo grass is a food source.

2) How is buffalo grass able to grow better and more quickly after a prairie fire?

A) Animals scatter the seeds all over the prairie.
B) It is positively affected by the energy from a lightning strike.
C) It is resistant to fire and flame.
D) The growing parts are protected and not burned up.

3) The main purpose of this text is to ---

A) explain reasons why buffalo grass is suitable for prairies
B) compare buffalo grass with other kinds of prairie plants
C) describe what buffalo grass looks like
D) tell why buffalo grass is the favorite food of many prairie animals

4) What is the meaning of *shoots* as it is used in the text?

A) to fire a bullet
B) to move rapidly
C) buds or sprouts
D) photography sessions

Name: _____ Date: _____

Cattails in the Wetlands

Wetlands are areas of land either soaked or covered by water. Cattails are plants that grow partly in and partly out of the water along the shores of ponds, marshes, and lakes. They are usually from 3-10 feet tall. This height helps them reach the sunlight. They are long and thin so they can sway with the wind instead of breaking. Their thick, white roots are called rhizomes. These roots grow underground and store a large amount of food. Cattail leaves look like thick blades of grass and have a waxy coating that protects the plant from the water. Tightly packed flowers near the top of the stems look like brown sausages. These flowers are seen in summer. In early fall, the brown flower heads pop open and release fluffy seeds that get carried away by the wind and the water. Cattails are useful in survival situations. They can be eaten for food during any season of the year. Their strong leaves can be woven together to make rafts, sleeping mats, or baskets. The roots can be cut open and used to make medicine for insect bites, scrapes, and burns. The fluffy insides of a brown cattail can be used to start a fire.

1) According to the text, the height of a cattail helps it ---

A) store a large amount of food
B) stay mainly under the water
C) stand straight during high winds
D) absorb the sun's rays

2) The word *sway* means ---

A) to move slowly from side to side
B) to rule or control
C) to enable
D) to influence

3) One main idea expressed in the text is ---

A) Cattails can be used to start fires.
B) Cattails make sausages that can be eaten.
C) Cattails have many practical uses.
D) Cattails are the tallest plants in the wetlands.

4) Which of the following adaptations helps cattails survive in the wetlands?

A) They make edible flowers.
B) They grow partly in and partly out of the water.
C) Extra food is stored in their leaves.
D) Their roots are used to make medicines.

Name: _____ Date: _____

Desert Cactus

Deserts are large, dry areas of land with very little rainfall. Living conditions are difficult for both plants and animals. Cactuses have many structural adaptations that help them survive in the desert. A cactus might be as small as three inches or as tall as forty feet. The skin of a cactus is thick and waxy to reflect heat and prevents water loss. The roots of a cactus are close to the surface of the soil. These long, skinny roots spread out over a large area to collect as much water as possible. Extra roots shoot out when it rains and break off when it stops. Many kinds of cactuses have pleats like an accordion. These pleats unfold to hold large amounts of water or fold up when the cactus is losing water. Large cactus stems store water for use during the long, hot summers. Stems grow bigger or smaller depending on the amount of water inside. A cactus has spines instead of leaves. Spines reflect light and provide shade. They collect dew from the air that drips down to the roots of the cactus. Their sharp tips protect the plant from thirsty animals trying to drink stored water or take a bite to eat.

1) During an unexpected rain shower, a cactus would most likely ---

A) grow extra roots
B) curl its leaves like small bowls
C) lose many of its sharp spines
D) shed its waxy skin covering

2) Which part of a cactus is compared to an accordion?

A) the stem
B) the roots
C) the pleats
D) the spines

3) Context clues help the reader know that *reflect* means ---

A) to show an image of
B) to represent something
C) to think deeply about
D) to cast back heat, light, or sound

4) One of the many adaptations of a cactus that help it survive in the desert is ---

A) leaves that reflect light and provide shade
B) deep roots that search for water under the ground
C) large, waxy stems that store water
D) spines that attract desert animals

Name: _____ Date: _____

Just Be Leaf

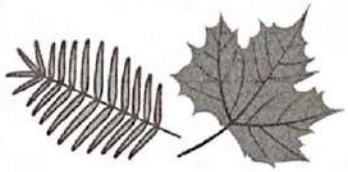
Green plants make food in their leaves using sunshine, carbon dioxide from the air, and water from the soil. Plants use those ingredients to make sugar during a process called photosynthesis. In addition to being food factories, leaves store food and water. Leaves come in different sizes and shapes depending on the climate and environment where the plants are growing. Some desert plants have hairy leaves or leaves with a waxy coating. Both of these adaptations stop water loss in a place with little water. Thorns protect a cactus from being eaten. Rainforest leaves have special tips that allow extra water to drip off. Other plants have leaf tendrils like threads that coil around objects and will enable the vine to climb up toward the sunshine. Plants that grow in cold climates have leaves shaped like needles. These long, thin leaves resist the wind and are better able to handle ice and snow. Needles also stop coniferous trees like pines and firs from being eaten by animals and insects. Forest trees have broad leaves to capture as much sun as possible during warm weather. All deciduous trees like elms and oaks drop their leaves as the weather gets colder. New leaves will grow in the spring.

1) Green leaves are compared to food factories because ---

A) the leaves store water
B) the leaves store food
C) the leaves make sugar
D) the leaves have a waxy coating

2) Which word from the text helps the reader understand the meaning of the word *tendrils*?

A) thorns
B) tips
C) threads
D) needles



3) How is a cactus like a pine tree?

A) Both have broad leaves designed to absorb large amounts of sunlight.
B) Both plants lose leaves in the fall.
C) Both plants grow in hot, dry places.
D) Both have sharp leaves that help prevent the plant from being eaten.

4) Which sentence best expresses the main idea of the paragraph?

A) Food is made in the leaves of green plants.
B) Leaf adaptations are determined by the place the plant is growing.
C) Leaves are mostly pointy or wide.
D) Leaves make and store food and water.

Name: _____ Date: _____

Kelp in the Oceans

Kelp are large brown algae growing along rocky coastlines in cool temperatures. The plants grow as much as 18 inches a day in the right conditions. Thick groups are called kelp forests. Kelp has holdfasts instead of roots. Holdfasts are like tiny anchors that keep the plant attached to large rocks. Stems are called stipes and leaves are called blades. The blades are shaped like swords. Kelp also has air bladders like little balloons located between the stipes and blades. The air bladders help float the kelp towards the water's surface so sunlight can be used for photosynthesis. Thick underwater towers of kelp provide food and shelter for a large number of ocean plants and animals. Sea urchins and sponges live near the holdfasts. Crabs hold onto the stipes while they search for food. An octopus camouflages itself among the blades. Many kinds of fish swim in and around the kelp forests. Otters attach to the kelp at the water's surface so they won't drift off while taking naps. Kelp is also a nutritious food source. It is used in soups and salads. Parts of kelp are used in other items like toothpaste and shampoo.

1) Holdfasts are compared to ---

A) anchors
B) swords
C) balloons
D) camouflage

2) The reader can infer that kelp leaves are called blades because ---

A) they look like propellers
B) they have very sharp tips
C) they are compared to balloons
D) they are shaped like swords

3) What is one way kelp is different from plants that grow on land?

A) Kelp grows in thick groups called forests.
B) Kelp provides food for other animals.
C) Kelp makes its own food.
D) Kelp has air bladders for floating.

4) According to information in the next, which of the following conclusions is true?

A) Kelp has long roots to help anchor itself to the ocean floor.
B) Kelp forests are very important ecosystems in the oceans.
C) Kelp forests are more important for food than for shelter.
D) Kelp forests are the tallest plants in the ocean.

Name: _____ Date: _____

Rainforest Orchids

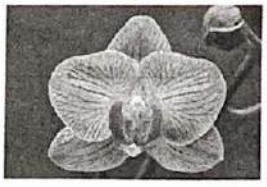
Orchids are the largest plant family in the world with over 25,000 known species. They are famous for their beauty. Orchids come in many colors, sizes, and weights. They might be as small as a penny or large enough to weigh several hundred pounds. All orchid flowers have three green outer sepals and three bright inner petals. Many orchids grow on rocks, under the ground, or in the soil. Most orchids in tropical rainforests are epiphytes. Epiphytes are plants that grow on other plants but do not steal nutrients. Rainforest orchids live high up in the canopy to get more sunlight. Their roots wave in the air to draw in water and nutrients. Some of them get food from fungi that live inside their roots. They have extra stems that store water to use in dry times. Many orchids can pollinate themselves. Others depend on certain insects and birds for pollination. Orchids make hundreds of thousands of tiny seeds that are easily carried by tropical winds over large areas. Rainforest orchids are used to make things like perfumes, spices, medicines. One species helps make vanilla flavoring.

1) What is one way all orchids are alike?

A) They grow in soil.
B) They all grow on other plants.
C) They have a total of six petals and sepals.
D) They all make vanilla flavoring.

2) According to the text, epiphytes ---

A) grow on rocks
B) steal nutrients from another plant
C) grow on other plants
D) make their own food



3) Based on information in the text, which of the following statements is not true?

A) Orchids come in many different sizes.
B) Orchids are many different colors.
C) Orchids can weigh a little or a lot.
D) Orchids are all epiphytes.

4) What is one adaptation that helps orchids succeed in tropical rainforests?

A) They make many seeds that get carried over large areas of land.
B) They are used to make vanilla flavoring.
C) They get food from fungi inside their roots.
D) They only grow on other plants.

Name: _____ Date: _____

Roots That Suit

Plants use roots for support and to absorb water and minerals from the soil. Roots are special adaptations that help a plant live and grow in a certain place. There are different kinds of roots. A taproot is one single, large root. Fibrous roots are several thinner roots all about the same size. Aerial roots are spongy roots that grow in the air instead of the soil and absorb moisture. Storage roots hold large amounts of sugar and starch. Prop roots develop on the stem above the ground and grow down into the soil. These provide extra support for the growing plant. Deserts are often hot and dry. The saguaro cactus has a taproot and fibrous roots. The fibrous roots near the surface of the soil pick up as much water as possible from any light rainfall. Tropical rainforests are hot and wet. The heavy rain causes poor soil quality. Because mangrove trees grow in muddy soil, roots grow from their trunks downward to anchor the trees. Some rainforest orchids live off other plants. They have aerial roots to absorb minerals from their host plants and water from the air. Temperate forests have four changing seasons. Plants like carrots, onions, and potatoes store food in their roots over the winter so they will have enough energy to sprout again in the spring.

1) Roots do all of the following jobs except ---

A) pick up water
B) give support
C) provide energy
D) store food

2) Which of the following definitions matches the word *light* as it is used in the text?

A) gentle or delicate
B) not dark
C) not heavy
D) low in amount

3) Why do mangrove trees grow prop roots?

A) They need extra support in wet soil.
B) Prop roots allow them to store more sugar and starch.
C) Their trunks are not strong enough to hold the trees up alone.
D) Rainforest soil is always dry.

4) According to information in the next, which of the following statements is true?

A) Most plants have a combination of two types of roots.
B) The type of roots a plant has depends on the plant's environment.
C) Aerial roots absorb more water than fibrous roots.
D) The changing seasons are the main influence on root adaptations.