Life Science
Level 1

SAMPLE

Familiar Plants & How They Grow

By Bonnie Rose Hudson

Write Bonnie Rose

SAMPLE

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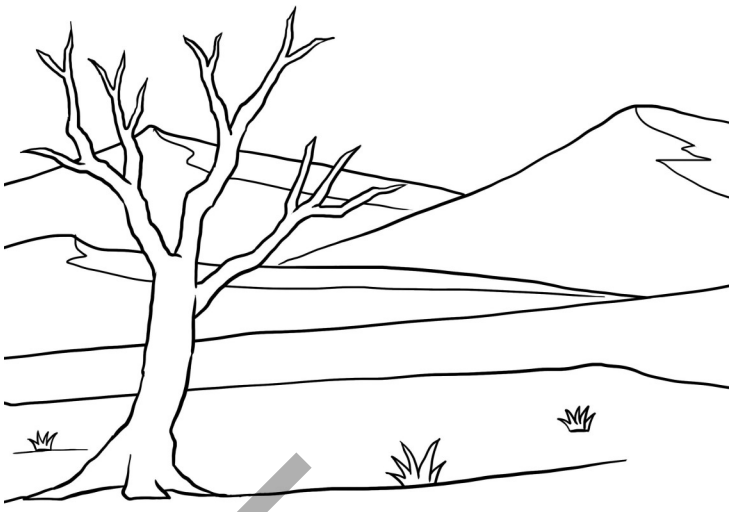
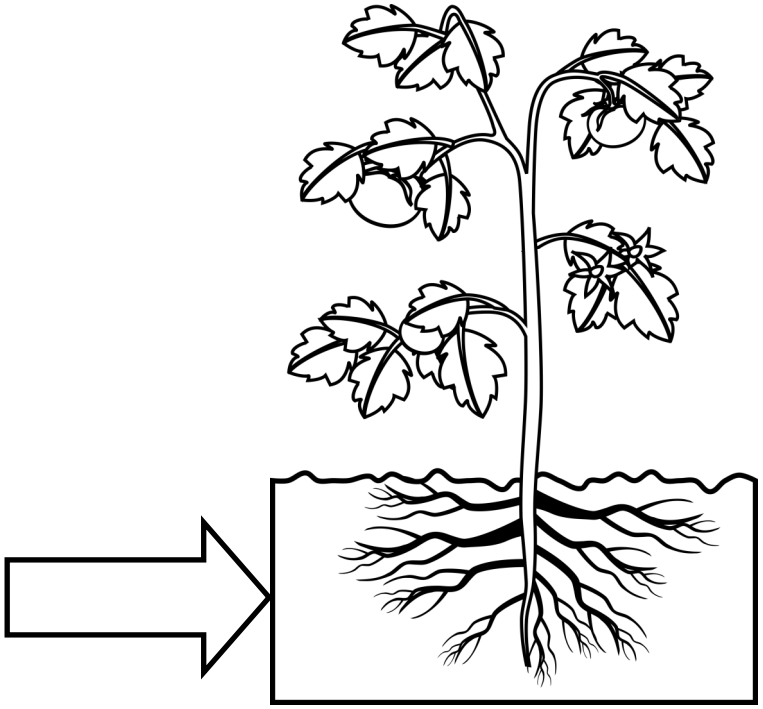
Familiar Plants and How They Grow

Plants grow almost everywhere. It doesn't matter whether you are in the desert or on a mountain, in a city or out in the country, you can probably find plants there. Plants can be extremely tiny, like a flower that grows in a crack in a sidewalk, or grow to be incredibly large, like the giant sequoia trees that can be more than 290 feet (88 meters) tall and are bigger across than a house! So if plants can be big or small and can grow just about everywhere, how can you tell if something you see is a plant or not?



Plants

One thing all plants have in common is that they do not need to eat. Animals and humans need to eat, but plants make all the food they need. Wouldn't it be fun to not need to eat every day? But there's something else that most plants have—**roots**. Roots hold them in the ground. Plants never get to move their entire lives. That would not be so fun! Roots take water and minerals out of the soil the plant needs to be healthy.



Roots

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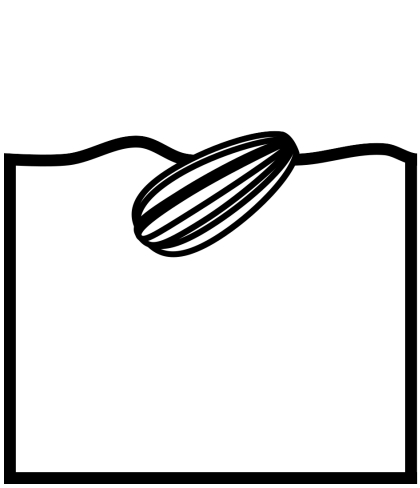
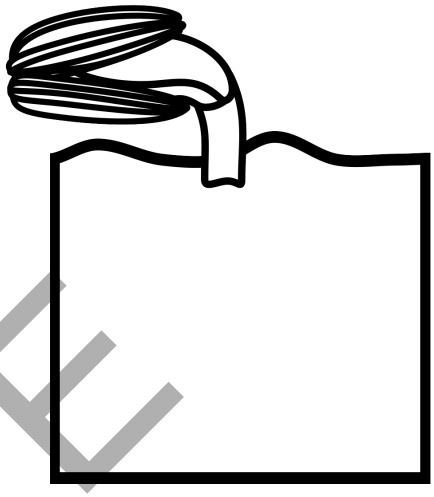
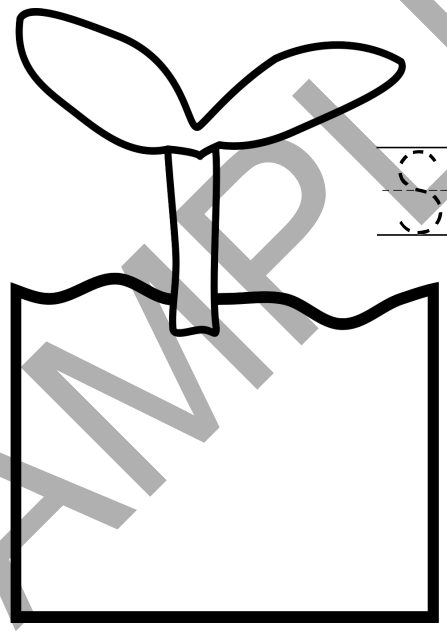
When the seed finds a new home in the ground, it starts to soak up water. When it gets big enough, it opens up and a tiny plant—called a **seedling**—is born. One part of the seedling grows into the ground and makes a root. The rest grows up, bigger and bigger, until the plant has a strong stem with leaves on it. When the plant is ready, it can grow flowers, and the whole cycle starts over again!



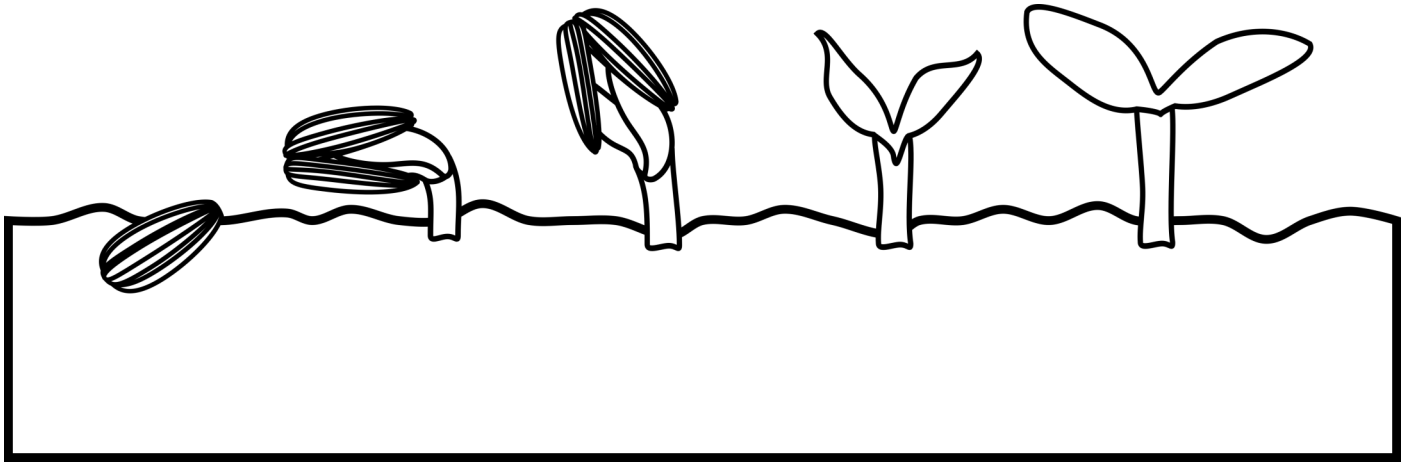
Seed



Seedling



Plant



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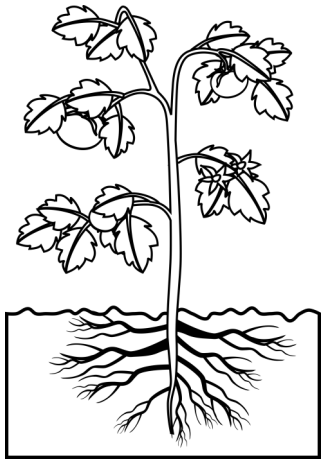
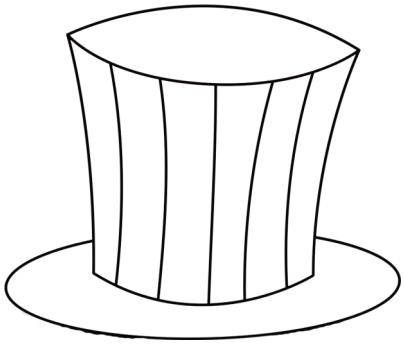
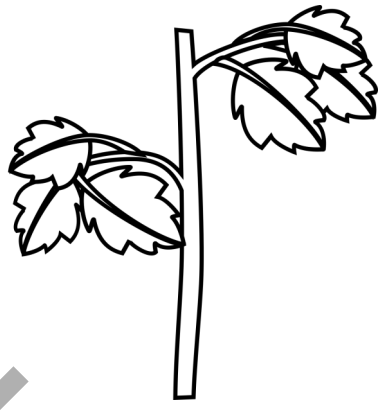
Review

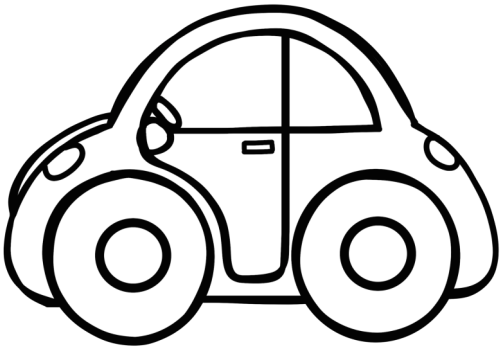
Which of the following is NOT a part of a plant? Draw an X through it.







Which of the following is NOT a way pollen moves from the stamen to the pistil of a flower? Draw an X through it.



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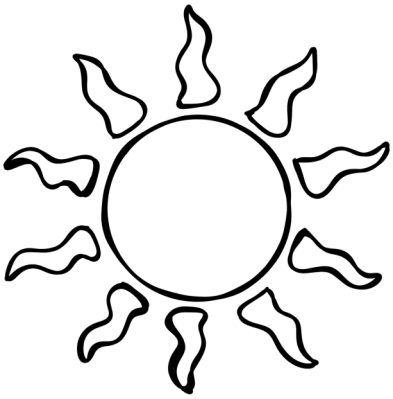
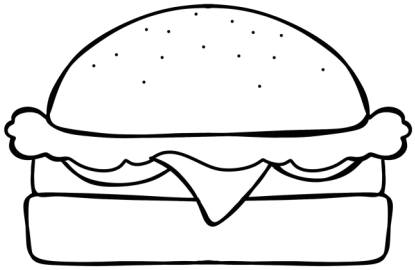
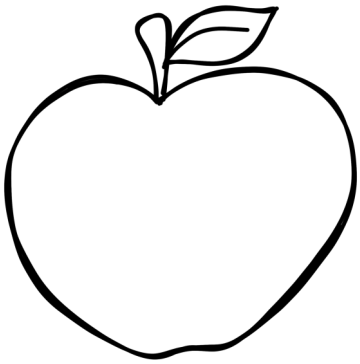
Which of the following is the source of the energy plants use to make their own food? Draw a circle around it.







Review Answer Key

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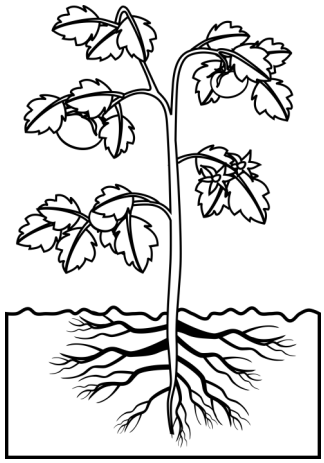

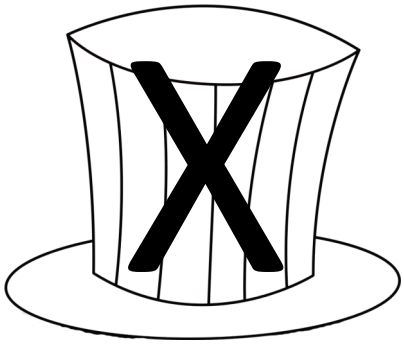

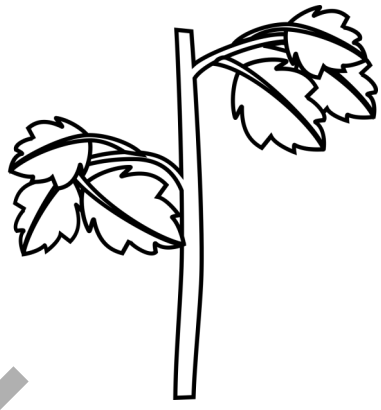

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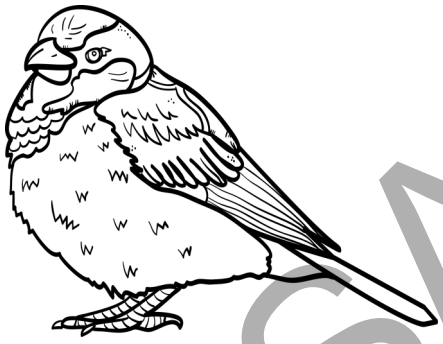

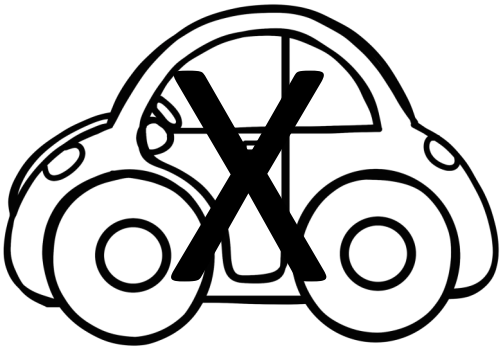

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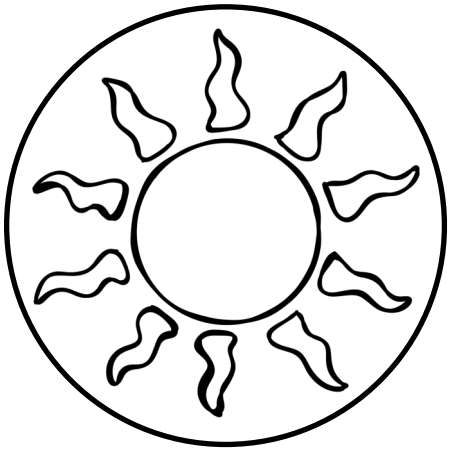

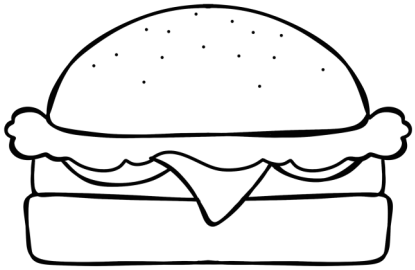

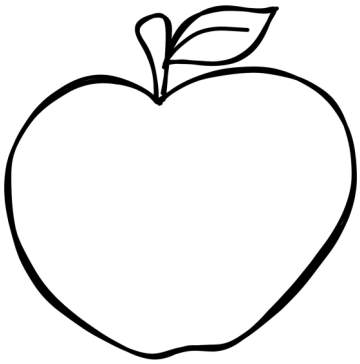

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Fruits & Vegetables Around the World

By Bonnie Rose Hudson

Write Bonnie Rose

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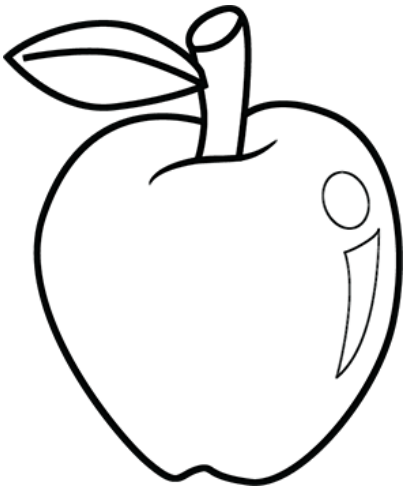
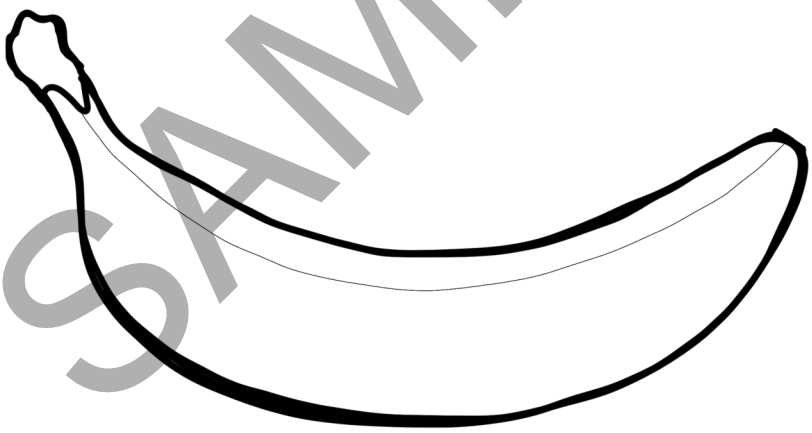


Apple

The **apple** is one of the world's most popular fruits. It comes in all shades of red, green, and yellow, and in thousands of varieties. It is grown all over the world including China, the United States, Turkey, Poland, India, Italy, Iran, France, Chile, Russia, and Brazil. It is a great source of fiber, which is very healthy for our bodies.



Banana

Bananas need hot places to grow that have lots of moisture and sandy loam soil, so they grow best in the tropics in countries like India, China, the Philippines, Brazil, Ecuador, Costa Rica, and Indonesia. Bananas grow on plants that look like trees but aren't really trees because they don't have woody trunks or limbs. Banana plant leaves grow so large that people sometimes put them together to make roofs for houses! Bananas are full of healthy vitamins like vitamins A and C.

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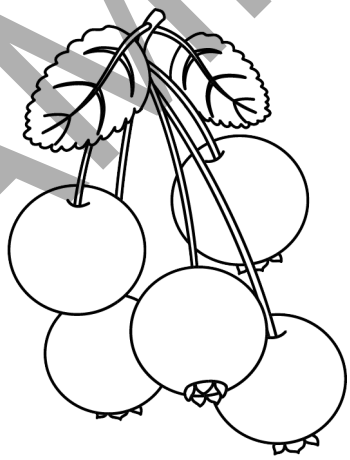
Blackberry

Did you know the **blackberry** isn't really a berry at all? A real berry has a single juicy part with the seeds inside. But the fruit of a blackberry plant is actually lots of little fruits, each with seeds inside. Blackberries are grown in the United States, China, Hungary, Mexico, Serbia, and lots of other places. Blackberries are great in jams, preserves, jellies, and pies.



Blueberries

Blueberries grow best in places where there is a season of cold temperatures when the plants do not have to be growing. But, they don't grow well if it gets too cold, around –20°F (-29°C) Most of the blueberries sold in the world are grown in the United States and Canada. Blueberries can be different shades of blue or black, so you have to look at their shape to know if they are blueberries or a blackberries. Blueberries are used to make many tasty things including pancakes and ice cream.

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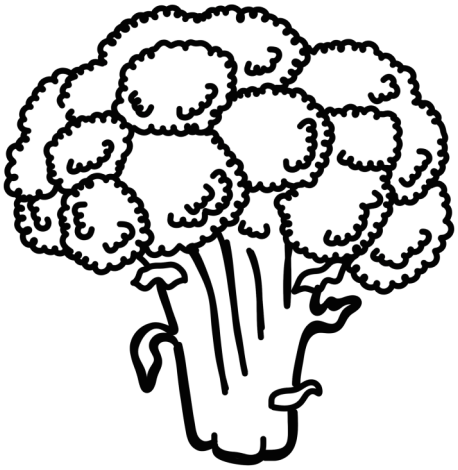

Broccoli

Broccoli is related to cauliflower and cabbage. The flower buds grow close together and form the green heads of broccoli we eat. If the heads aren't picked at the right time, they can open up into yellow flowers. Broccoli is grown from seeds and grows best in places with cool weather and damp soil. The kind of broccoli usually grown in North America is called Italian broccoli.

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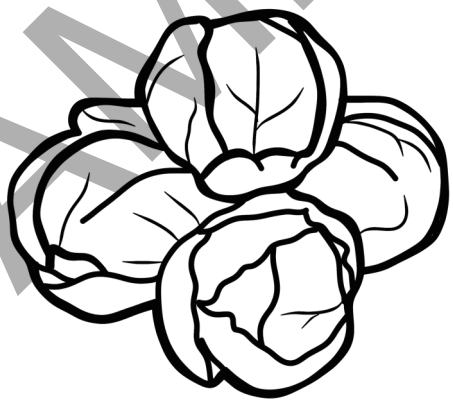
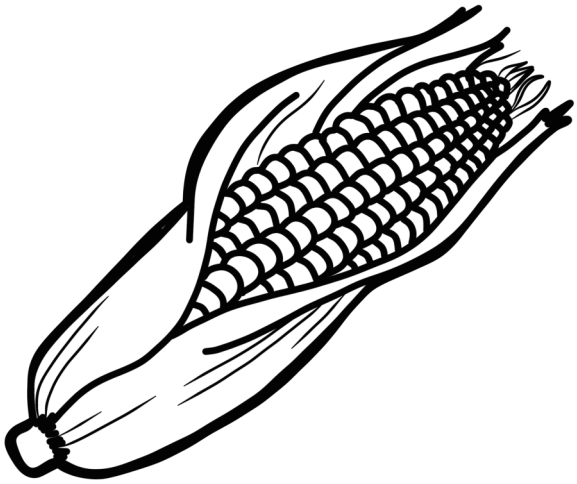


Brussels sprouts

Brussels sprouts grow in small balls that look like tiny heads of cabbage. They are related to cabbage and cauliflower, and they taste a little bit like cabbage, too. Brussels sprouts are full of vitamins A, B, and C. Brussels sprouts grow along a tall stalk, with the first sprouts growing near the ground. They need a long, cool growing season to grow well.



Corn

Corn is one of the most important crops we have. People around the world use it as food for people, food for animals, fuel for vehicles, and to make things like cloth and paint. Corn grows from seeds called kernels. The stem of the plant is called a stalk, and small groups of flowers at the top of the stalk make a tassel. Thick leaves called husks cover the corn ear.

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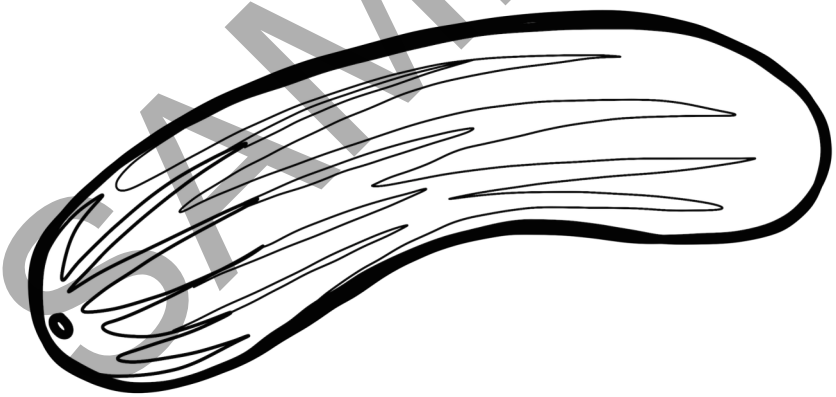


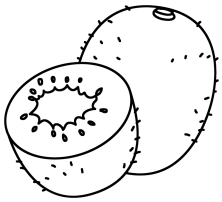
Cucumber

The **cucumber** grows on a hairy vine with leaves shaped like triangles. Its green skin can be smooth or prickly. Inside, the cucumber is white or yellow. People eat cucumbers raw, cook them with a meal, or make pickles from them. One cucumber can grow to be 1-36 inches (2.5-90 centimeters) long, and one cucumber plant can grow as many as 100 cucumbers! Cucumbers are easily killed by frost, so gardeners have to take very good care of them to get them to grow.

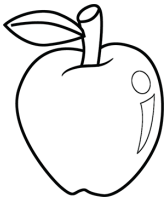
Review

Which of the following fruits is usually brown on the outside? Draw a circle around it.

Blackberry

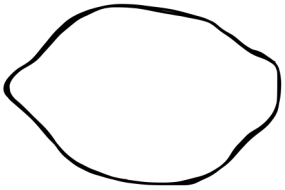


Kiwi

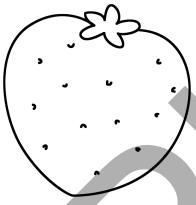


Apple

Which of the following fruits is usually yellow on the outside? Draw a circle around it.



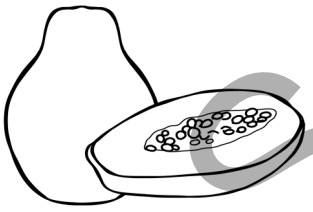
Lemon



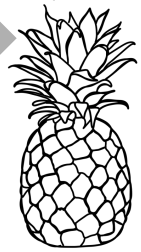
Strawberry

Plum

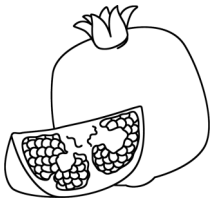
Which of the following fruits is usually dark gold-red on the outside? Draw a circle around it.



Papaya

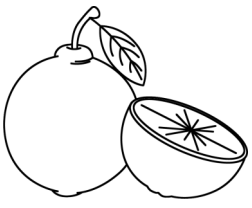


Pineapple

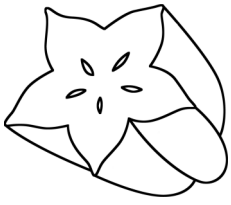


Pomegranate

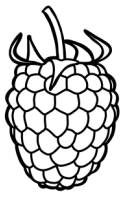
Which of the following fruits is usually green on the outside? Draw a circle around it.



Lime



Star fruit



Raspberry

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Review Answer Key

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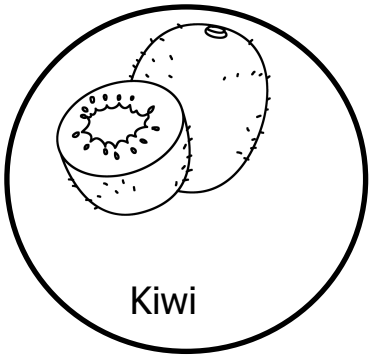
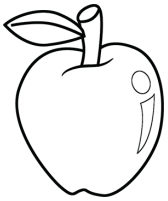


Kiwi



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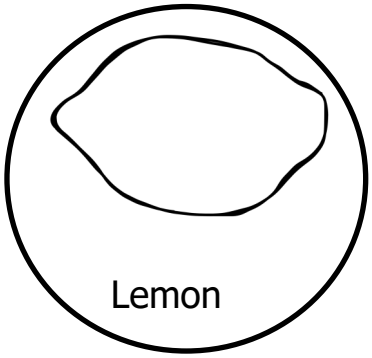
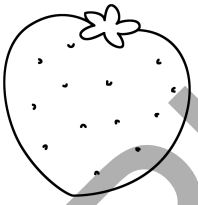


Lemon



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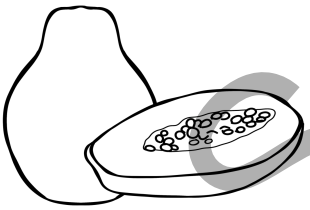
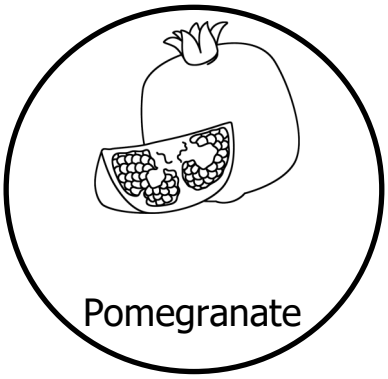


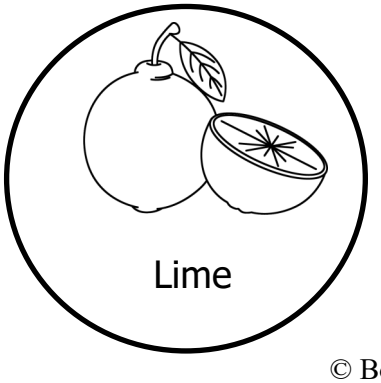
Papaya

Pineapple



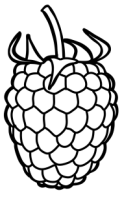
Pomegranate

Which of the following fruits is usually green on the outside? Draw a circle around it.



Lime

Star fruit

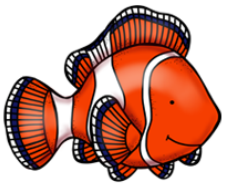


Raspberry

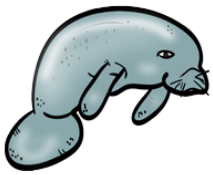
SAMPLE

Life Science
Level 1

SAMPLE



Animal Habitats of the World



By Bonnie Rose Hudson

Write Bonnie Rose

SAMPLE

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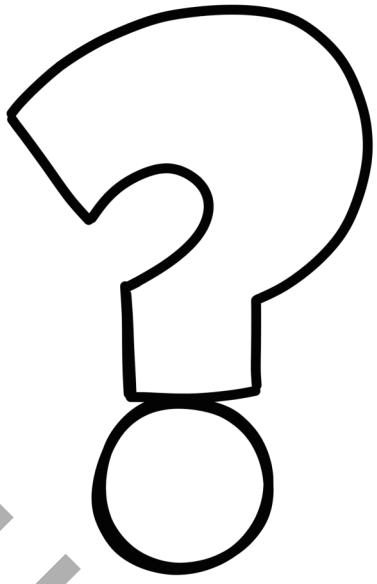
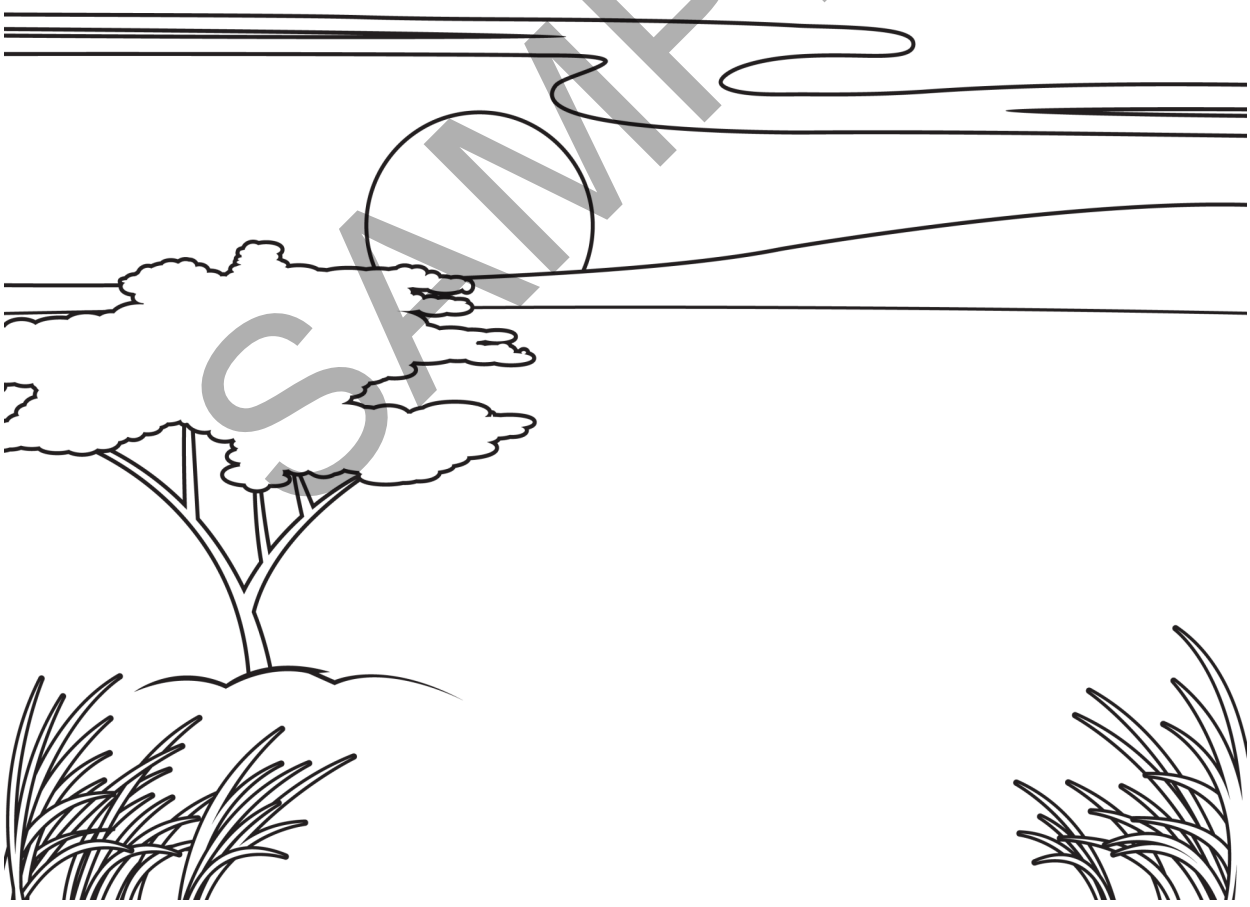
Animal Habitats of the World

What is a **habitat**? A habitat is a type of place that an animal usually lives. Every type of animal in the world has a place that is best designed for that animal to live and grow strong and healthy. Some animals need hot, dry deserts. Others need an ocean full of water. Some animals need very special places to live, like the koala who eats eucalyptus leaves and plants. Other animals can live almost anywhere you can imagine, like certain types of birds. Your home is even a habitat for your pets!



Because plants and animals are nearly everywhere in the world, habitats are everywhere, too. From the frozen arctic to the hot jungle, you can find habitats and the animals who live in them. Let's look in Africa for our first habitat.

Habitat



African savanna

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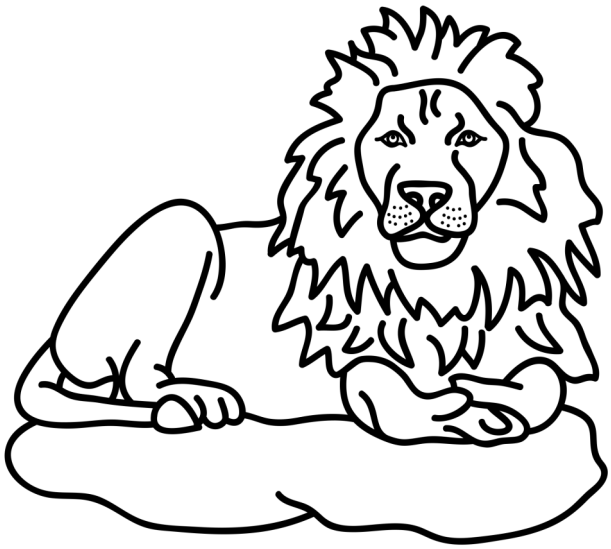
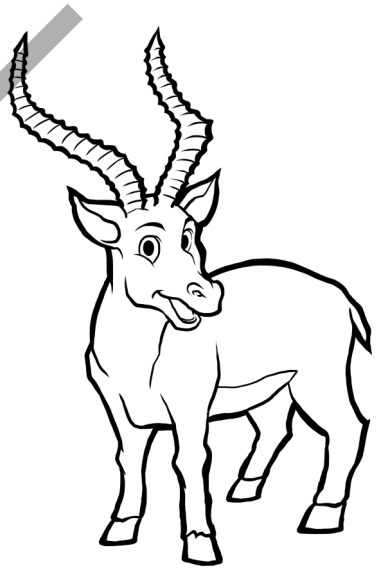


More than two-fifths of Africa is savanna. There are wide open areas of tall grass with only a few trees scattered around, and there are woodland areas that have many more trees. Many incredible animals live in the **African savanna**. Perhaps one of the most famous is the **African lion**, one of the largest of the world's "big cats." Groups of lions are called prides.

African lion

The **impala** is an antelope that might be lunch for the lion if it's not careful! Thankfully, it is very good at running and jumping, which helps keep it safe. It can run up to 50 miles (80 kilometers) per hour and jump as far as 30 feet (9 meters) in one leap! The male impalas also have horns that grow up to 3 feet (90 centimeters) long that it uses to fight off enemies. Impalas enjoy eating the fruit, grass, and leaves they find in the savanna.



Impala

The **African wild dog** is not the kind of dog you would want for a pet! As a matter of fact, it's one of the animals that hunts impalas. It might seem strange that a small dog could bring down an antelope as large as the impala, but African wild dogs hunt in groups called packs that make them very dangerous. Their coats are spotted with different colors such as yellow, grey, black, and white. A mother can give birth to up to ten pups at a time, which is more than any other kind of dog has in one litter.

African wild dog

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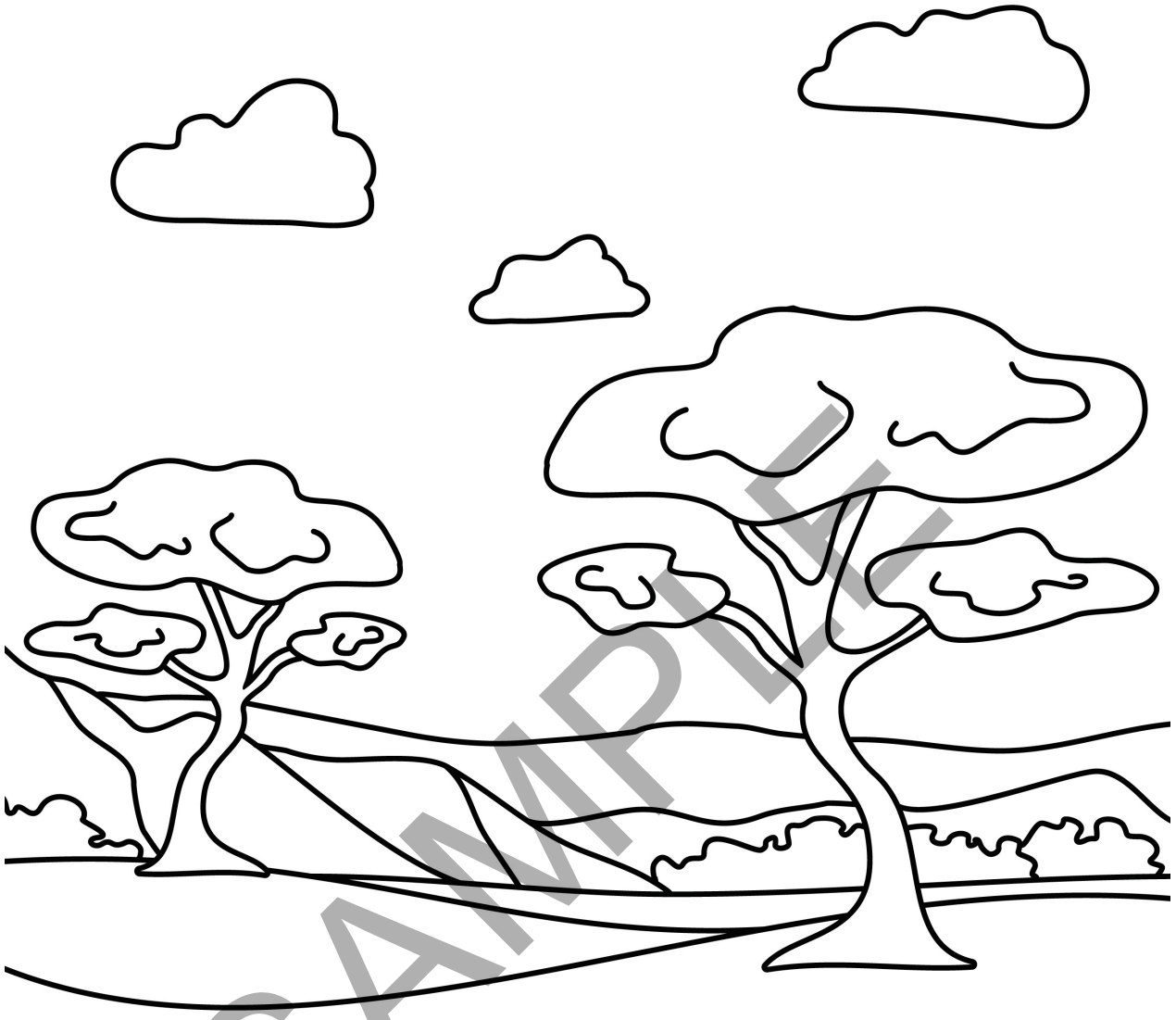
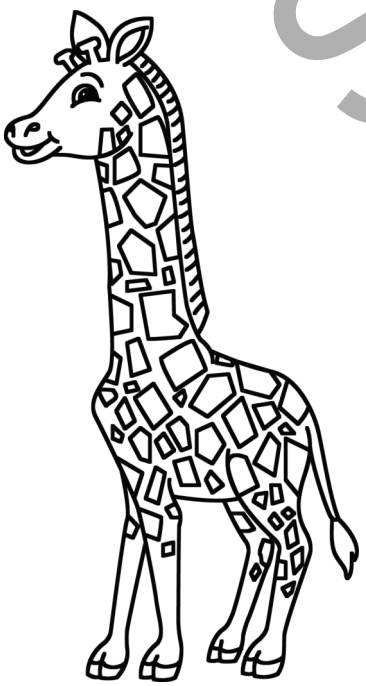
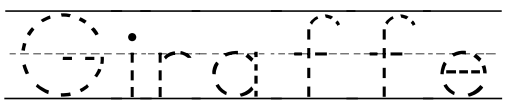




If you take a look around the more wooded areas of the African savanna, you'll find many more amazing animals. One I'm sure you've seen lots of pictures of is the **giraffe**. The giraffe is the tallest animal alive! It can grow to be 18 feet (5.5 meters) tall! Just its legs can be 6 feet (1.8 meters) long. Its neck can be even longer, even though it is made up of only seven bones—the same number of bones we have in our necks.



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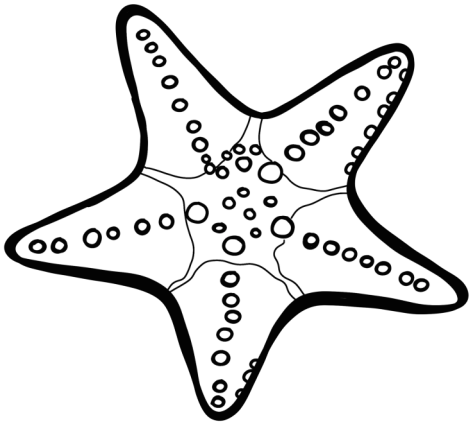
Beach

SAMPLE

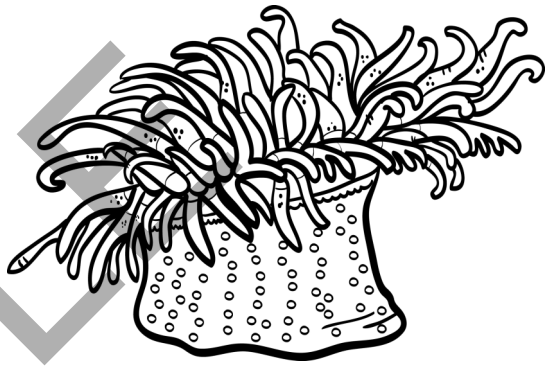
A **beach** happens just about anywhere land and water meet, so as you can imagine, there are all different kinds of beaches in all different parts of the world. Some are hot; some are cold. Some are sandy; some are rocky. On rocky beaches, when the tide goes out, water is left behind in tide pools. Tide pools are a special habitat all their own, giving ocean animals a place to live until the tide comes and washes them back out to the open water. Let's look at some of the animals that make their home in tide pools on the beach.



Despite its name, a **starfish** (or a sea star) is not a fish. Most starfish have five "arms" that reach out from their bodies. These arms have grooves in them full of tube feet. The tube feet have small disks that can grab onto other things using suction. All these tiny tube feet help starfish crawl and find food.

Starfish

A **sea anemone** looks more like a plant than an animal. It can be very small, only 1/4 inch (6 millimeters) wide or very large, more than 3 feet (90 centimeters) across. One side of the anemone has a foot it uses to hold onto rocks or shells. The other side has tentacles it uses to catch the small animals it eats.



Sea anemone

A **hermit crab** is not what you'd call a friendly animal. It makes its home in the shell of another animal, like a snail. Usually, it waits until the snail is done using the shell, but sometimes, it will pull a snail right out of its shell and move in! The hermit crab uses two limbs to hold onto the shell and uses its other legs and claws to walk.

Hermit crab

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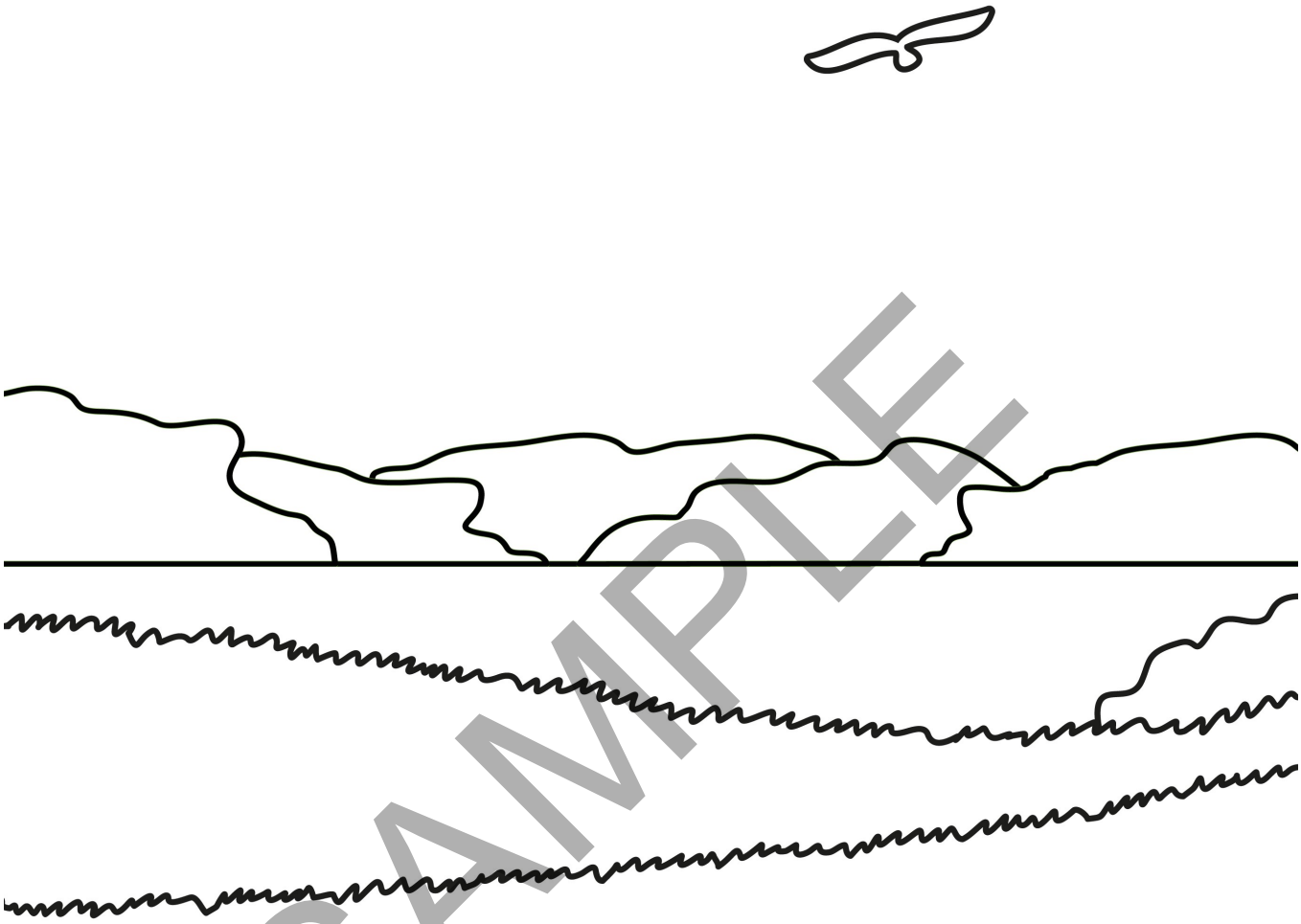

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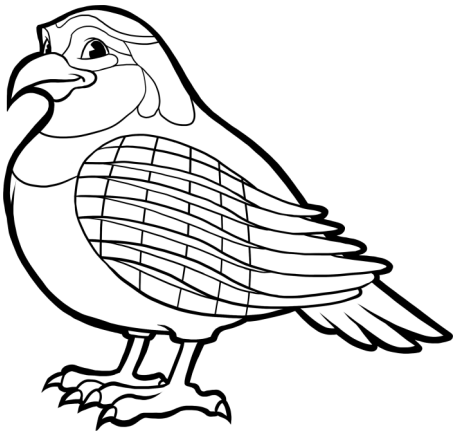
Prairie

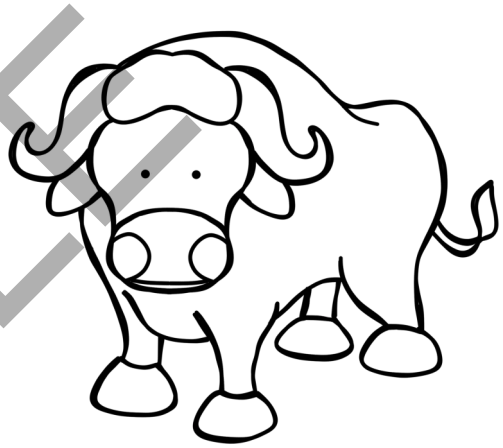
A **prairie** is a place that is mostly covered by tall grasses. The land can be flat or hilly. It can look like a sea or carpet of grass. The grass can grow taller than a person! There are prairies in different parts of the world, including the American Midwest, the Prairie Provinces of Canada, the Pampas of Argentina, the veld of South Africa, the Canterbury Plains of New Zealand, and parts of Europe. We're going to learn about three types of animals who call the prairie home.



Quails are small birds that live on every continent except Antarctica. They are usually around 8 to 12 inches (20 to 30 centimeters) long. Males are often brown or gray with patterns of reddish-brown, blue, white, or black feathers. Females are usually brown, tan, or gray. They blend in well with the grasses they live in. Quails live in groups called coveys during the autumn and winter.

Quail

The **bison**, which in America is often mistakenly called a buffalo, has a large head and neck and humped shoulders. Unlike true buffaloes, which have 13 pairs of ribs, the bison has 14 pairs. Bison are brown and black and have horns like cattle. An adult male bison, called a bull, can be 10 to 12.5 feet (3 to 3.8 meters) long and weigh between 1,600 to 2,000 pounds (726 to 910 kilograms), though very large bison can weigh as much as 3,000 pounds(1,400 kilograms).



Bison

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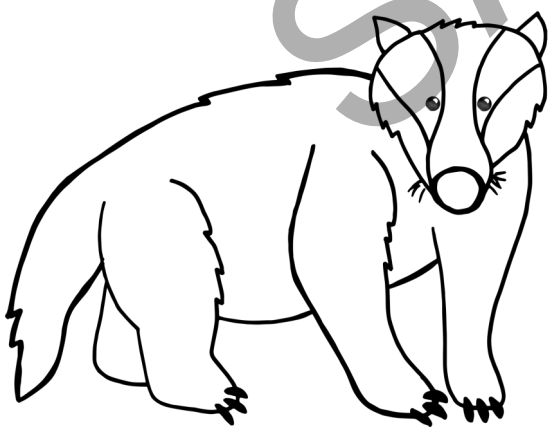


Badgers are mammals that live in North America, Europe, and Asia. They have short bodies, black feet with long claws, and short, bushy tails. Badgers can dig very fast and dig burrows to live in or use to escape predators. Badgers come out mostly at night and like eating squirrels, birds, lizards, rabbits, some rodents, and insects. Female badgers have anywhere from one to five badger cubs at one time.

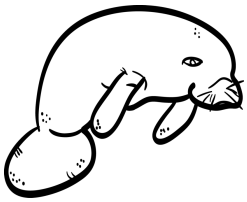
Badger

Review

Which of the following animals does not live in the African savanna? Draw an X over it.

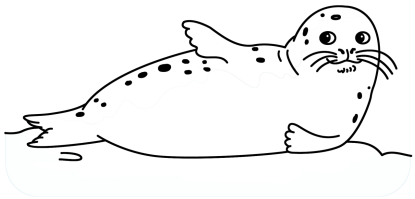
Impala

Giraffe

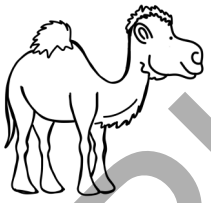


Manatee

Which of the following animals live in the arctic? Draw a circle around it.



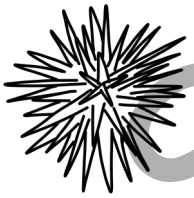
Harp seal



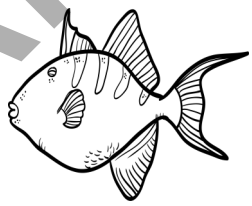
Camel

Wombat

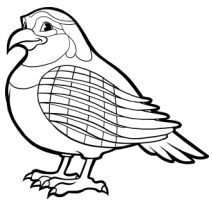
Which of the following animals does not live in coral reefs? Draw an X over it.



Sea urchin

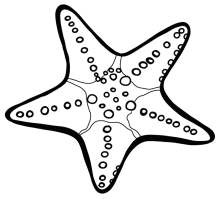


Triggerfish



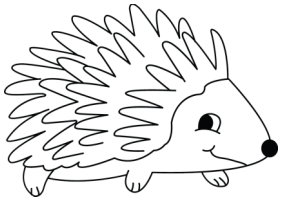
Quail

Which of the following animals could you find on the beach? Draw a circle around it.



Starfish

Rooster



Hedgehog

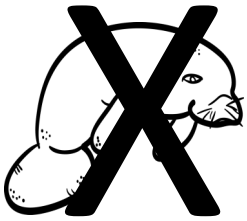
SAMPLE

Review Answer Key

Which of the following animals does not live in the African savanna? Draw an X over it.

Impala

Giraffe



Manatee

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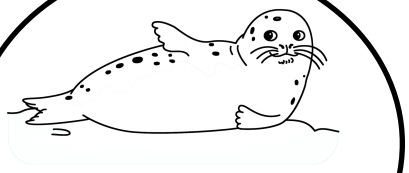
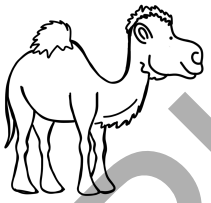


Harp seal



Camel

Wombat

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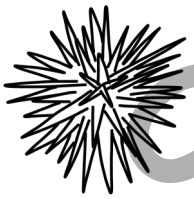
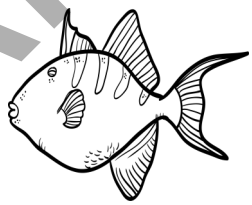
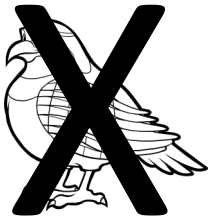


Sea urchin



Triggerfish



Quail

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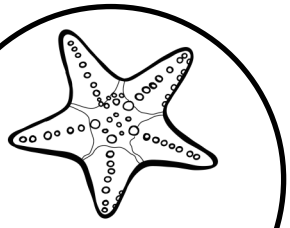
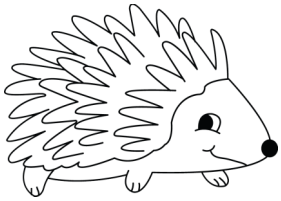


Starfish

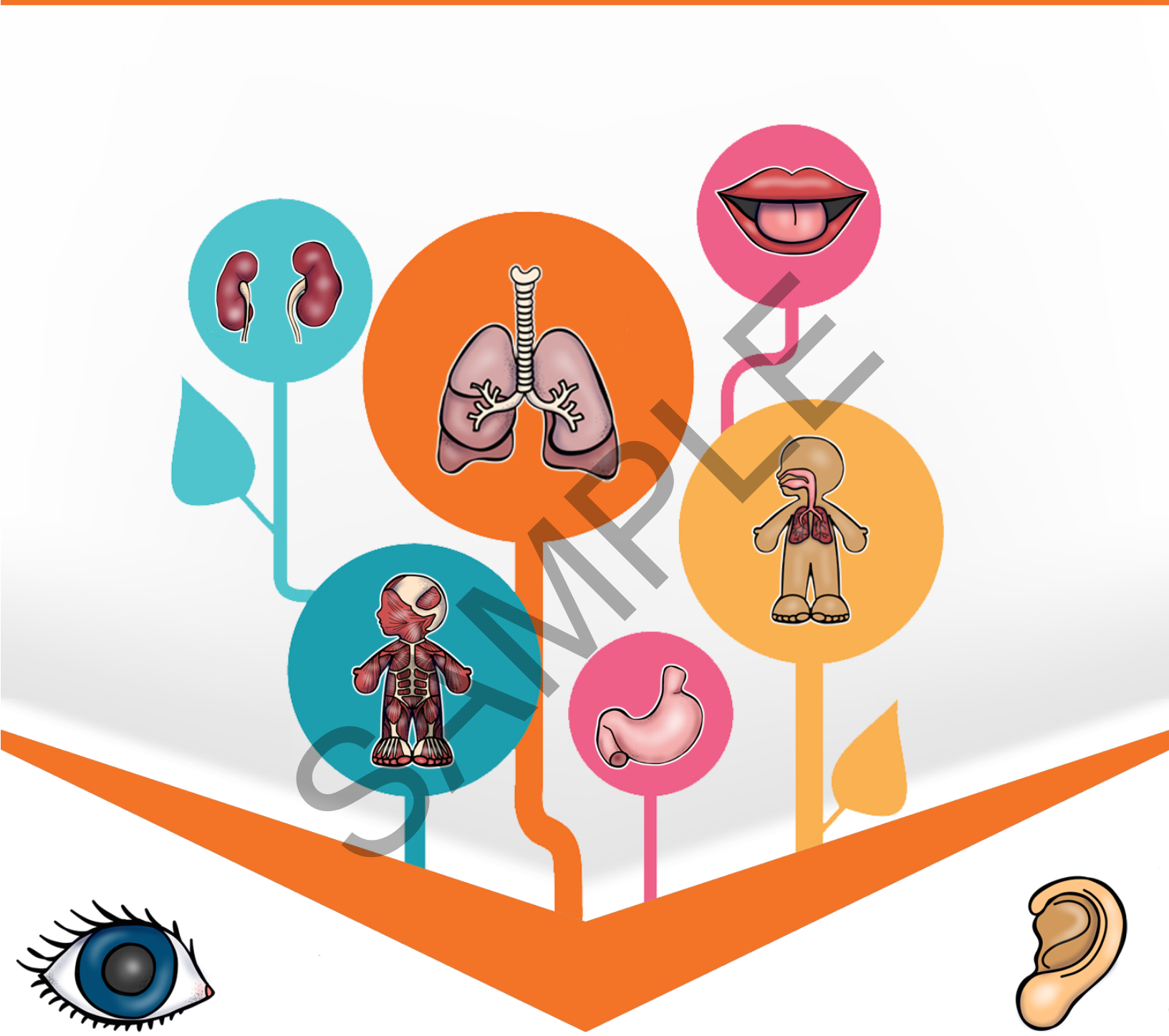
Rooster



Hedgehog

SAMPLE

Life Science
Level 1



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Our Senses & Systems & How They Work

By Bonnie Rose Hudson

Write Bonnie Rose

SAMPLE

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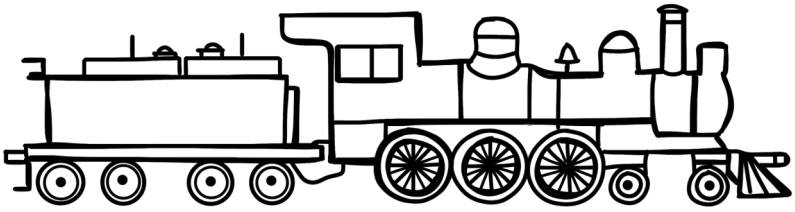
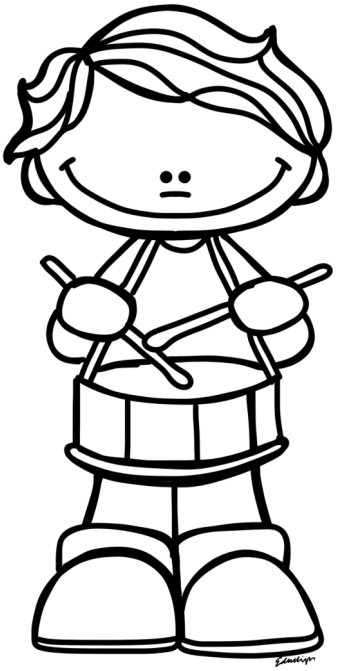
Our Senses and Systems and How They Work

Our bodies are pretty amazing! We have ears to hear with, eyes to see with, a nose to smell with, taste buds to taste with, and fingers and nerves to touch with, and that's only the beginning! What's even more incredible is that our bodies do all those things without us telling them to. As a matter of fact, babies can hear and feel and sense things even before they are born! Let's start learning about our bodies by discovering the five senses.

Our ears allow us to **hear** what is going on around us. Think about all the things you hear in one day. You can hear your alarm clock ringing, your family talking, the breeze rustling leaves on a tree, birds singing, your pet calling for you, cars and trucks running outside, and someone setting the breakfast table—and that's all before you get out of bed! We hear our favorite songs as well as sounds of danger, like a fire alarm or someone shouting. We use our ears all day, every single day, and we never have to stop and tell ourselves to hear (though sometimes we need to remind ourselves to listen and pay attention better).

What are some other things you can think of that you hear everyday? What about when you visit the park, go to the grocery store, or go for a walk?





Hearing

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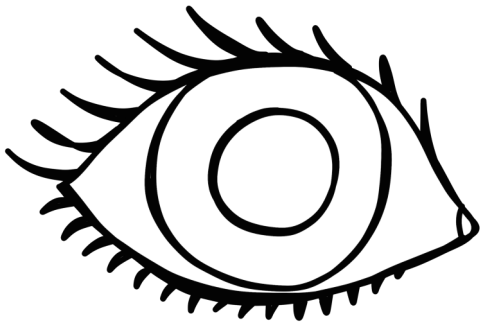
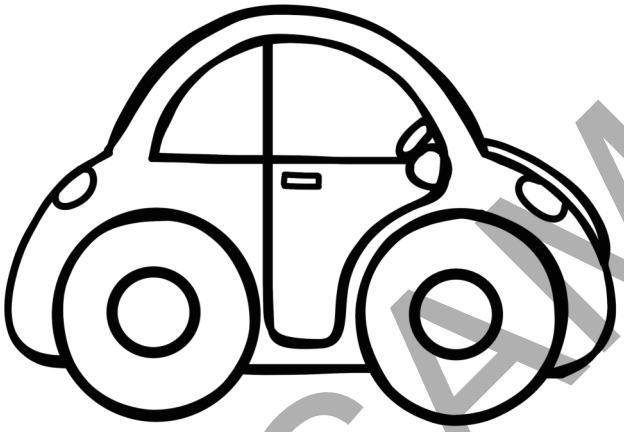
Our eyes are responsible for our sense of **sight**. It would be impossible to think of every single thing you see in just one day. We see without thinking about it; our bodies and our brain know what to do, and they look around and see things all day long.

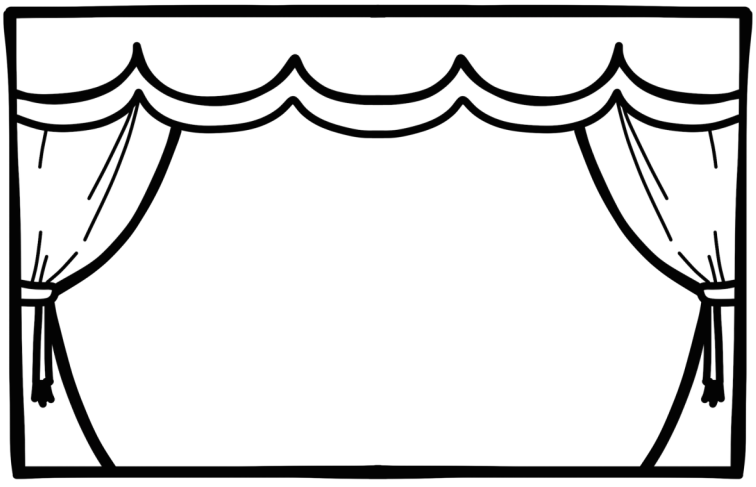


You use your eyes to read a book, watch a movie or a play, check if it is safe to cross the street, find things you have lost, play games, and see what food is on your plate.

What are some other things you can think of that you see everyday? What can you see around you right now?

Sight

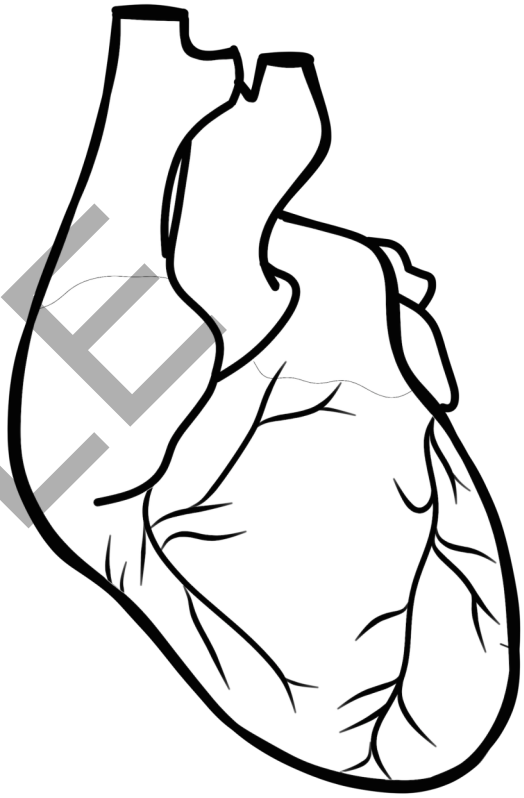




SAMPLE

Circulatory System

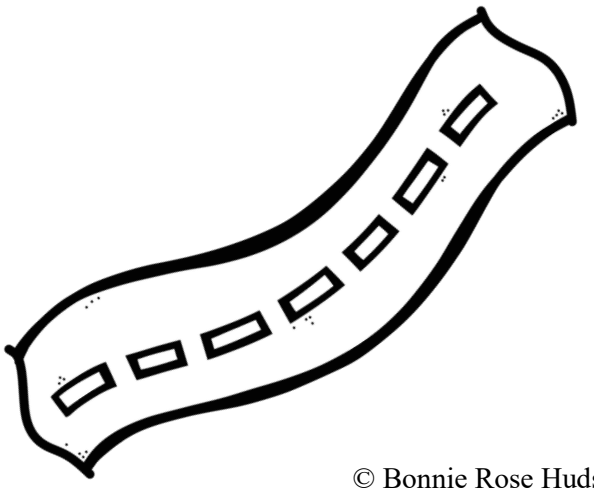
Not only do our bodies have senses, they also have systems. A system is just a group of parts that work together to get a job done. We're going to learn about a few of the amazing systems in our bodies. The first one we're going to discover is the **circulatory system**.



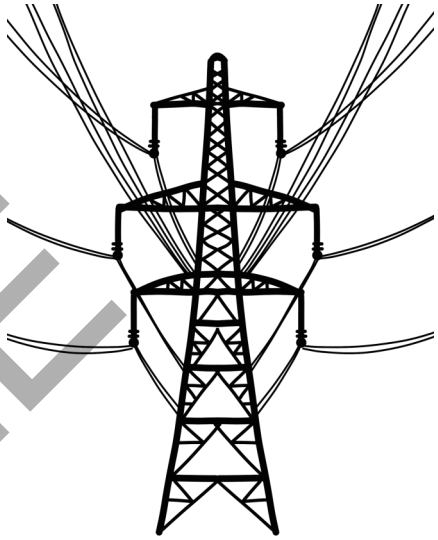
Heart

The circulatory system has three main parts: the **heart**, blood vessels, and blood. Think of the circulatory system like a huge system of roads that reach every part of our bodies. The circulatory system's job is to carry oxygen and nutrients to all the cells in our bodies so they can produce energy. Our human cells are so small they can only be seen with a microscope, but trillions and trillions of them come together just right to make our bodies. Think of a house that you build with plastic blocks. Each of those blocks has a job to do, just like each of our cells has a job to do. In order to do their jobs, our cells need oxygen and nutrients, which is their food. Our blood carries the food to the cells. It uses blood vessels, which act like roads, to do that. All these parts together make up our circulatory system. Our heart is the main pump that keeps all the blood moving through our bodies.

SAMPLE

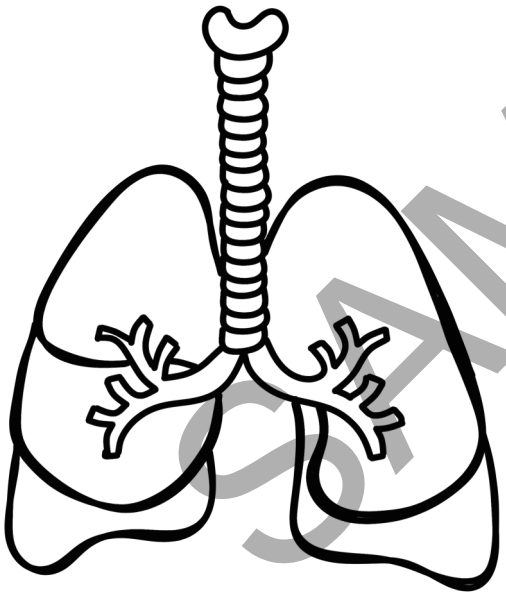


Digestive and Respiratory Systems

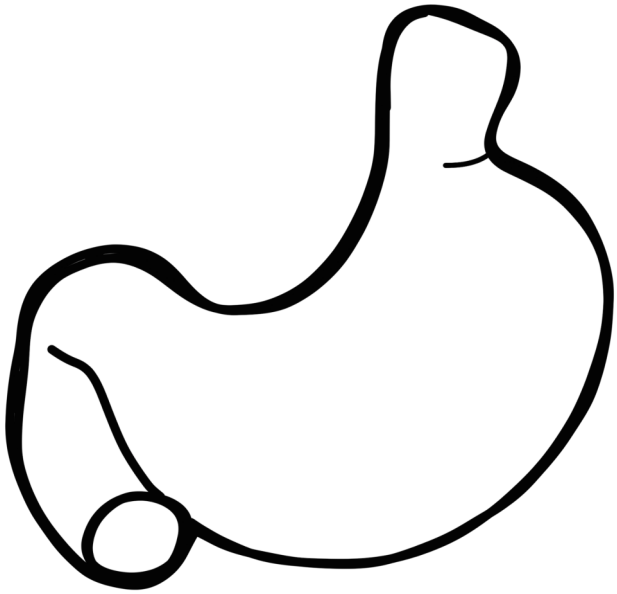


Now we know the cells in our bodies need oxygen and nutrients to produce energy, but where do we get those from? That's why the jobs of the **digestive** and **respiratory systems** are so important. They work together to give the cells what they need to produce energy, like a power plant for our bodies. The most important part of our respiratory system is our **lungs**, and one of the most important parts of our digestive system is our **stomach**.

SAMPLE

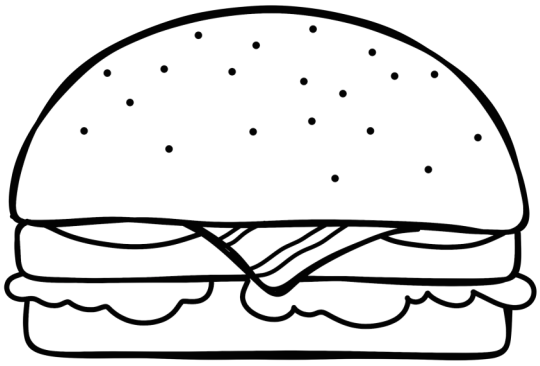


Lungs



Stomach

When you breathe in, your nose and mouth filter the air and get rid of dust or dirt that might be in it. From there, the air is sent to your lungs. Your lungs take care of sending the oxygen your cells need through the blood. They also get rid of another part of the air, called carbon dioxide, when you breathe out.

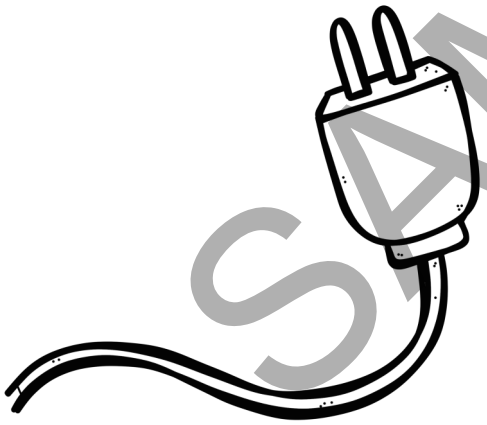


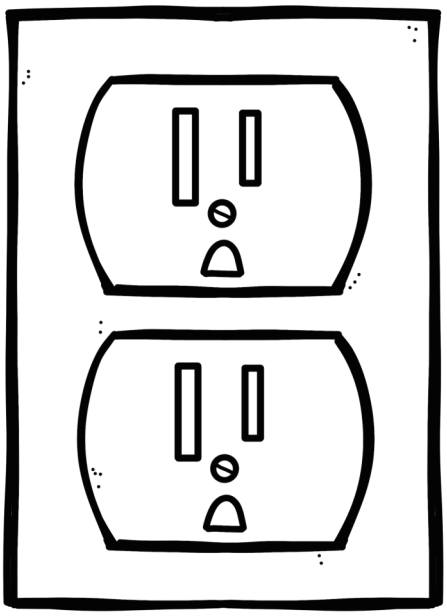
Your digestive system has an awfully big job to do. Your cells need food, but they need the food to be broken down into nutrients first. After all, since your cells are so tiny you can only see them through a microscope, they can't exactly take bites out of a hamburger, can they?

Several different parts of the digestive system work together to do the job of breaking our food down into nutrients. While food is in the stomach, strong muscles work the food back and forth and all around, mixing a special acid into it that breaks food down into smaller parts.

When the respiratory and digestive systems have done their jobs, our cells get the oxygen and nutrients they need to produce energy!

SAMPLE

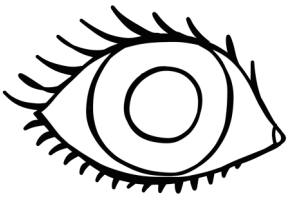




Review

Which of the following is part of our sense of smell? Draw a circle around it.

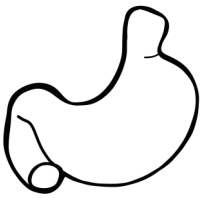
Ear



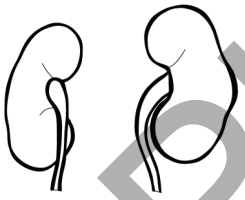
Eye

Nose

Which organ is part of the circulatory system? Draw a circle around it.



Stomach



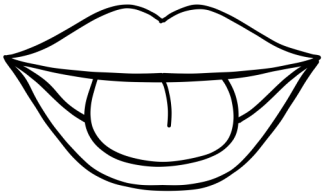
Kidneys

Heart

Which of the following is part of our sense of taste? Draw a circle around it.

Ear

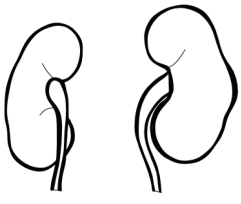
Fingertips



Tongue

What organ is in charge of sending messages through our bodies? Draw a circle around it.

Brain



Kidneys

Muscles

SAMPLE

Review Answer Key

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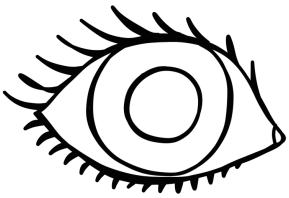
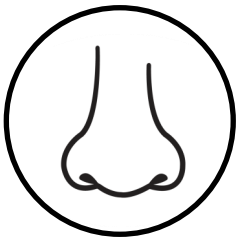
Ear



Eye



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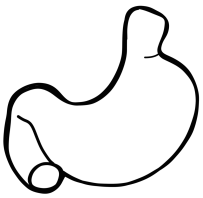
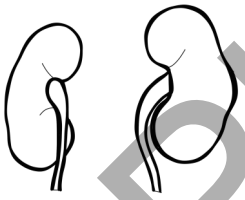
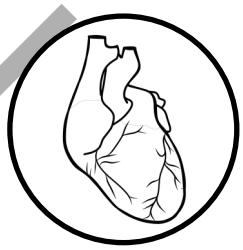


Stomach



Kidneys



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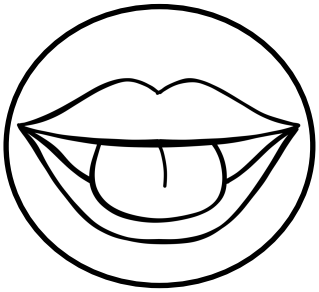

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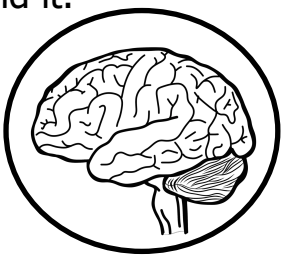
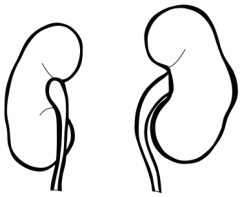


Brain



Kidneys

Muscles

SAMPLE

Life Science
Level 1

SAMPLE

Learning About Life Cycles

By Bonnie Rose Hudson

Write Bonnie Rose

SAMPLE

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Learning About Life Cycles

What is a life cycle? A cycle is the steps something takes, so a life cycle is the steps something living takes, from when it is first formed until it dies. Everything that lives has a life cycle, but life cycles can look very different. Sometimes, an animal that is a baby looks an awful lot like what it will look like as an adult. It won't change much, just get a lot bigger. Even humans are like this. After it starts to grow in its mother, a baby person has a body just like an adult, only much smaller. It has eyes, ears, a nose, a mouth, arms and legs, fingers and toes. It looks like a person, just a tiny person, even before it's born. But some animals, like a butterfly, don't start out looking anything like they will when they are older. A butterfly changes a lot as it goes through its life cycle. Let's take a look at the life cycles of some animals and see what happens to them.

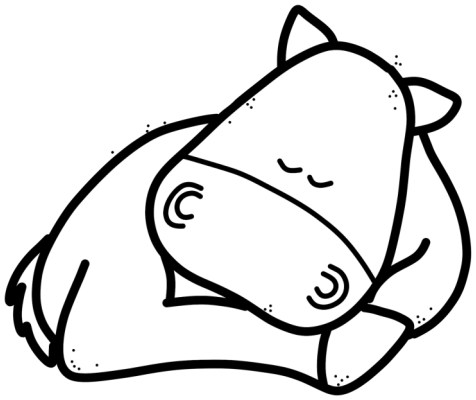
Arctic foxes live near the Arctic Ocean. When they are born, they are called cubs or **pups**. Pups stay with their mother in their den for the first three weeks, and both the mother and father bring the pups food. After they are about eight to ten weeks old, they can leave the den and hunt for food with their parents.

Pup

Arctic fox

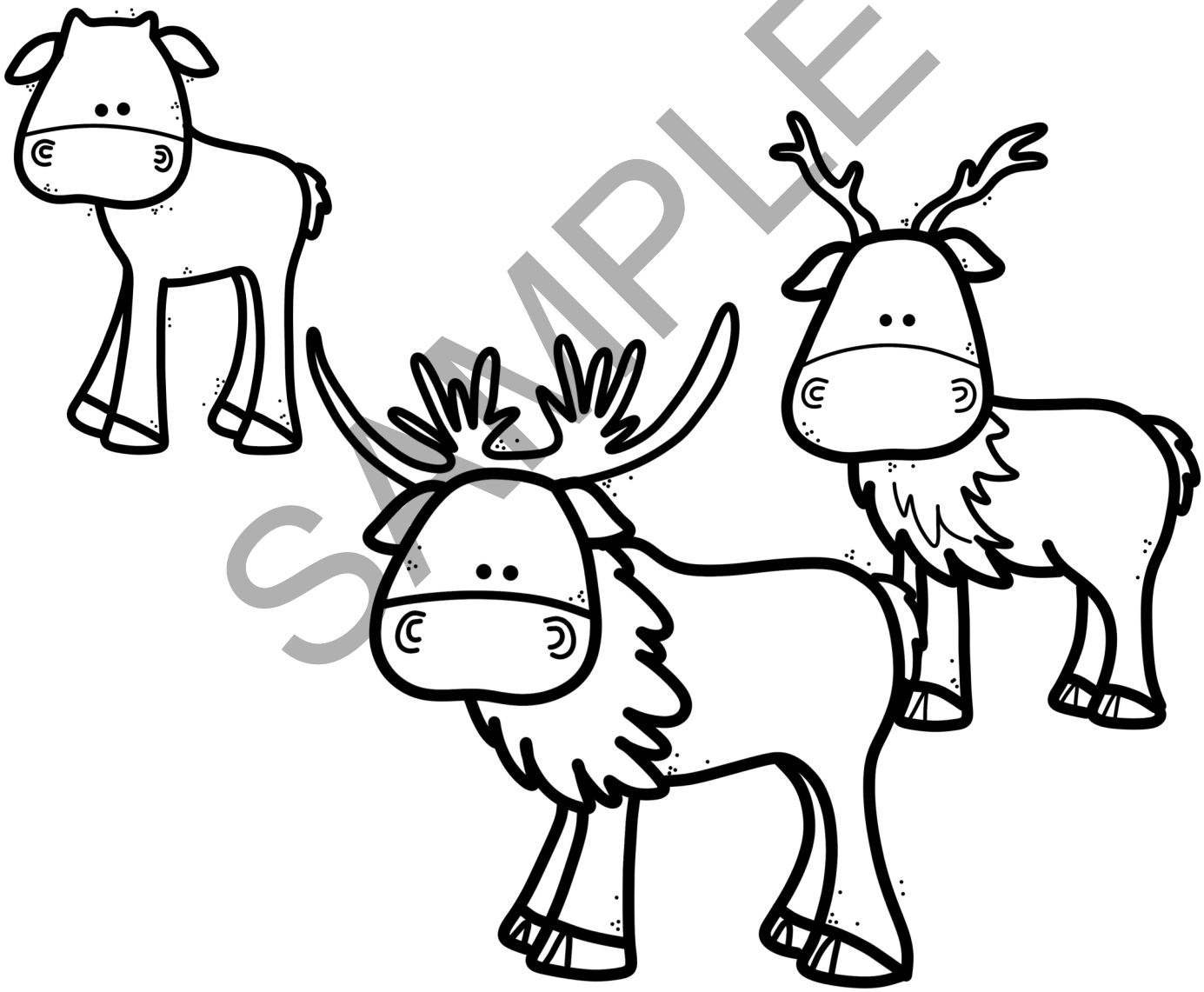
SAMPLE

Reindeer are a type of deer that live in the very northern parts of Europe and Asia. Reindeer are different from other deer in many ways. Their antlers are larger, their hooves are wider, and their coat is heavier. All these things make it easier for them to live in the cold arctic.



A young reindeer is called a **calf**. A calf is strong enough to follow its mother around after just one hour, and it can run faster than a person after just one day. Both male reindeer (called *bulls*) and female reindeer (called *cows*) have antlers, but the female's antlers are much smaller.

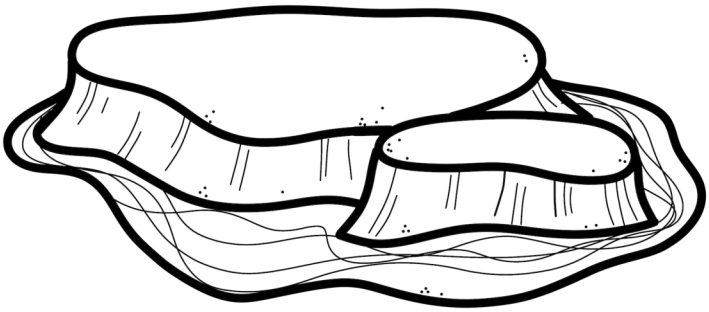
Calf



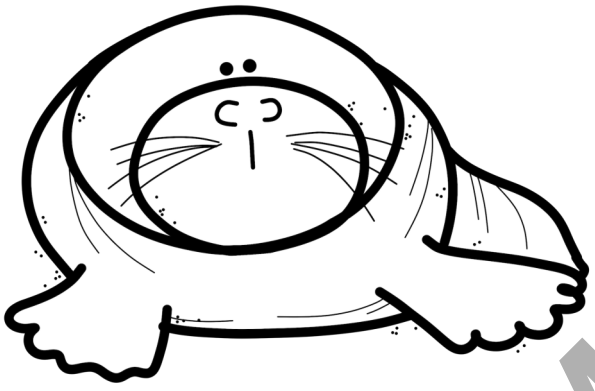
Reindeer

SAMPLE

The **walrus** lives in the waters of the Arctic, North Atlantic, and North Pacific Oceans. A baby walrus is called a **calf**, and it is grayish-brown when it is born. It lives with its mother for several years.



As the walrus grows up, it turns to a rusty-brown color and develops tusks. Both male and female walruses grow tusks, but the male's tusks are longer and thicker.

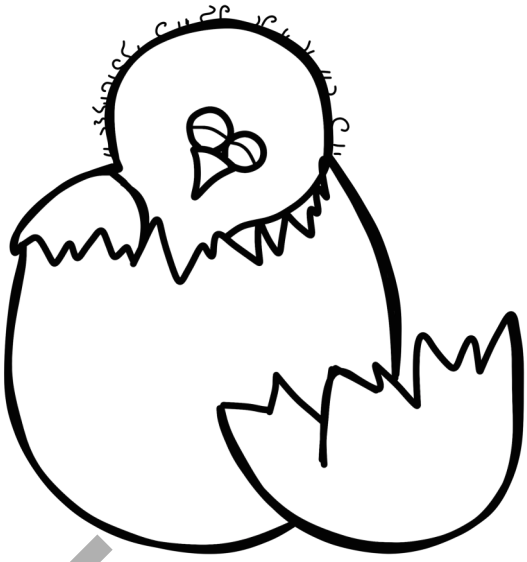


calf

Walrus

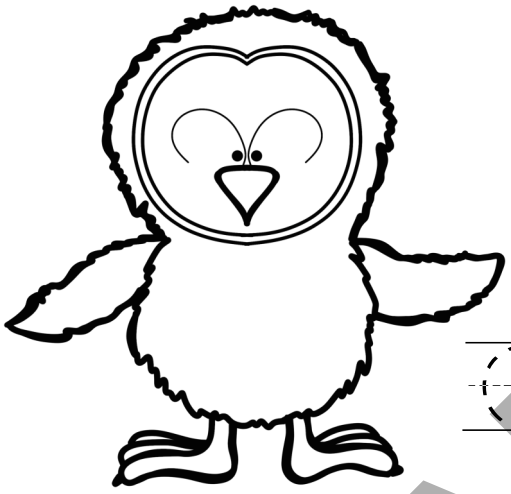
SAMPLE

Barn owls live in warm and moderate climates all around in the world. They live in barns, holes in trees, steeples, attics, and many other places. Barn owls lay around four to seven eggs in a nest, with two or three days in between each egg. The **chick** hatches, and when it is seven or eight weeks old, it learns to hunt.



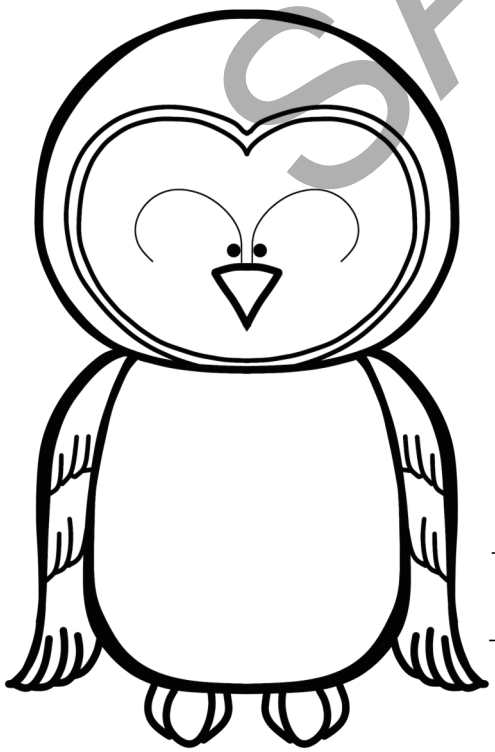
Next, the chick gets bigger and becomes an **owlet**. It still can't fly, and it will grow and lose coats of feathers. When its flight feathers finally grow in and it can fly, it is called a **fledgling**. An adult owl can live more than twenty years.

Chick



Owlet

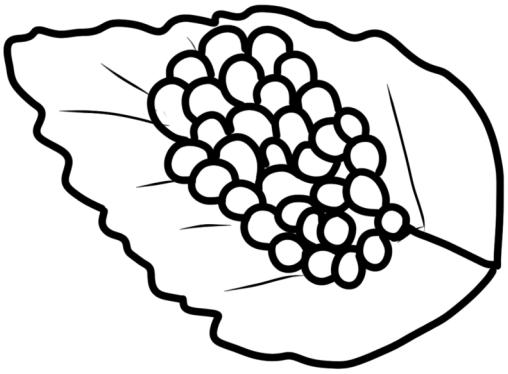
Fledgling



Barn owl

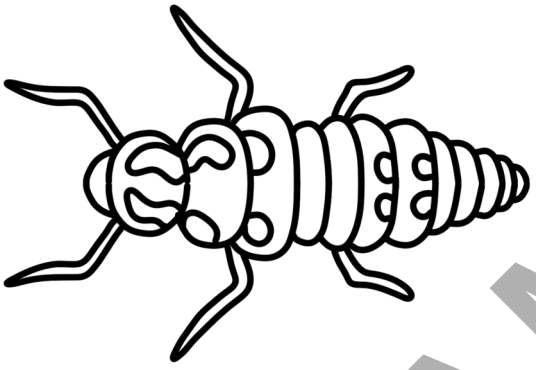
SAMPLE

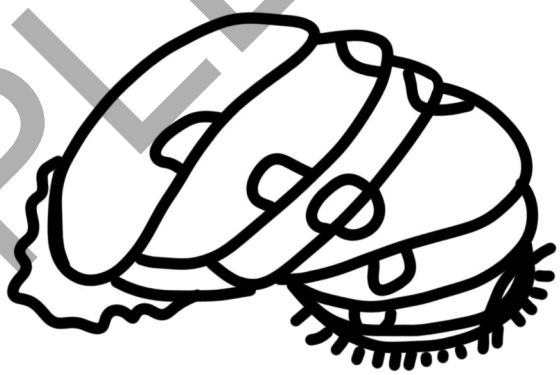
There are thousands of different types of **ladybugs**, and they live all around the world. Mother ladybugs lay their eggs on the underside of leaves, which is the perfect spot because there will be tiny bugs there for the babies to eat when they hatch.



When the ladybug hatches, it is called a **larva**. Once the larva is big enough, it attaches itself to a leaf and looks like it has gone to sleep. During this time, the ladybug is a **pupa**, and it is changing into an adult ladybug.

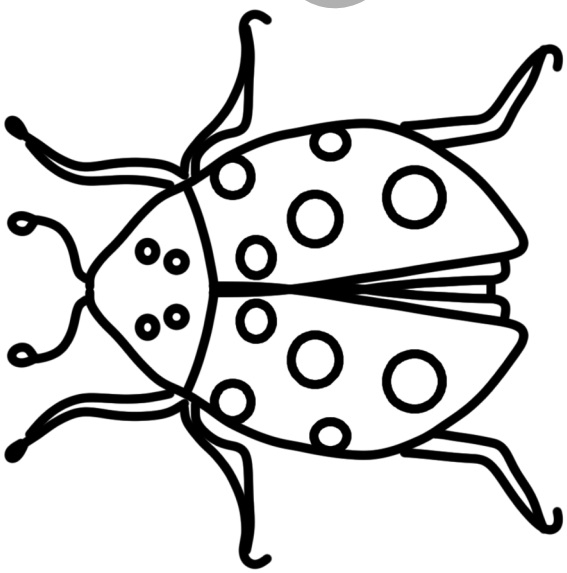
When the pupa is done growing, it will open up, and a ladybug will come out. A few hours later, its shell turns hard and bright red. The change is complete!





Larva

Pupa



Ladybug

SAMPLE

Review

Which animal does not have a pupa stage? Draw an X over it.

Mosquito

Honey bee

Barn owl

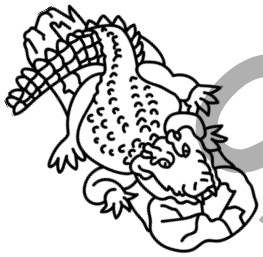
Which animal has babies called chicks? Draw a circle around it.

Penguin

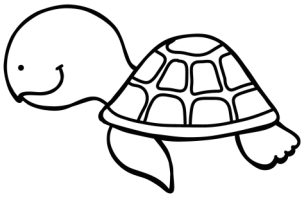
Arctic fox

Rabbit

Which animal does not make its nest in the sand? Draw an X over it.



Crocodile



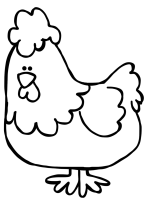
Sea turtle

Barn owl

What animal has a baby called a kit? Draw a circle around it.

Butterfly

Rabbit



Chicken

SAMPLE

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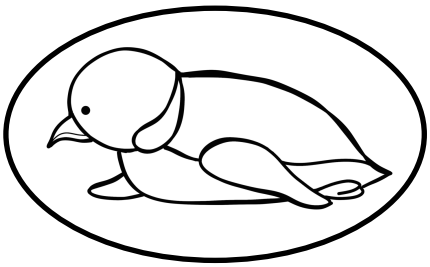

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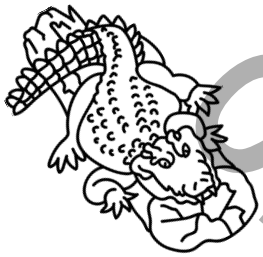
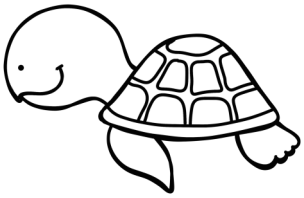


Crocodile



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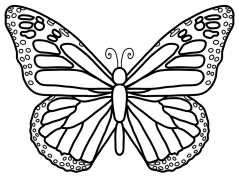
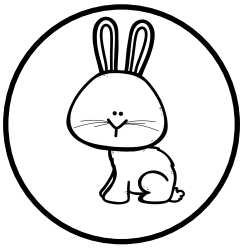
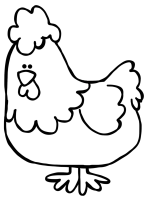


Butterfly



Rabbit



Chicken

SAMPLE

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Earth Science
Level 1

SAMPLE

Earth: Layers, Earthquakes & Volcanoes

By Bonnie Rose Hudson

Write Bonnie Rose

SAMPLE

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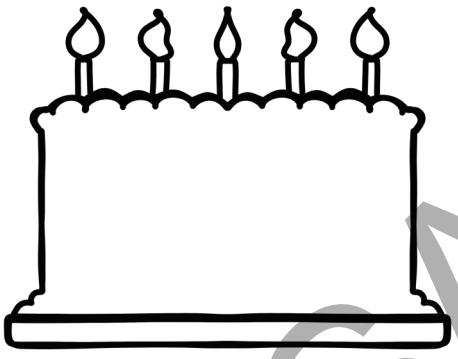
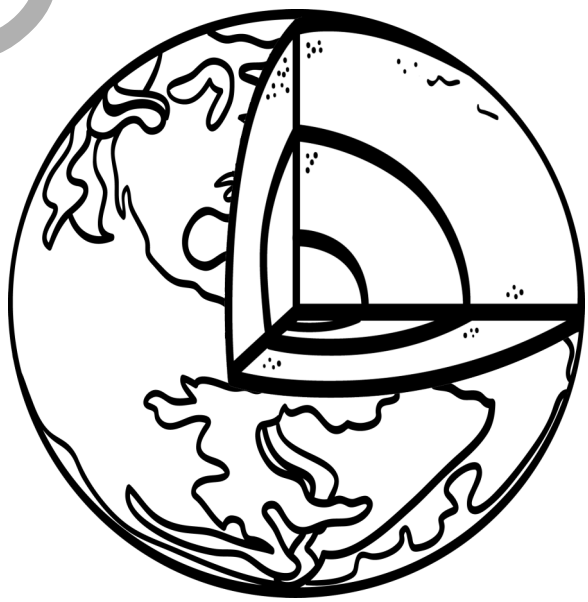
Earth: Layers, Earthquakes, and Volcanoes

earth

Where do you live? We all answer that question differently. We live in different countries, regions, cities or towns, and different homes. But all of us live on the planet **Earth**. Have you ever wondered what makes our planet special? Why do we live on Earth and not on Mars or Jupiter? There are many ways our planet is special. We are just the right distance from the sun to have the heat and light we need without burning up or freezing. We have an atmosphere that protects us from harmful things in space. We are in a small part of our solar system that helps protect us from asteroids hitting the surface. We have a moon that has many jobs to do, and we have layers. Most planets have layers, and Earth's layers may not seem very special at first, but they work together to make this planet a place where people can live and work and grow.

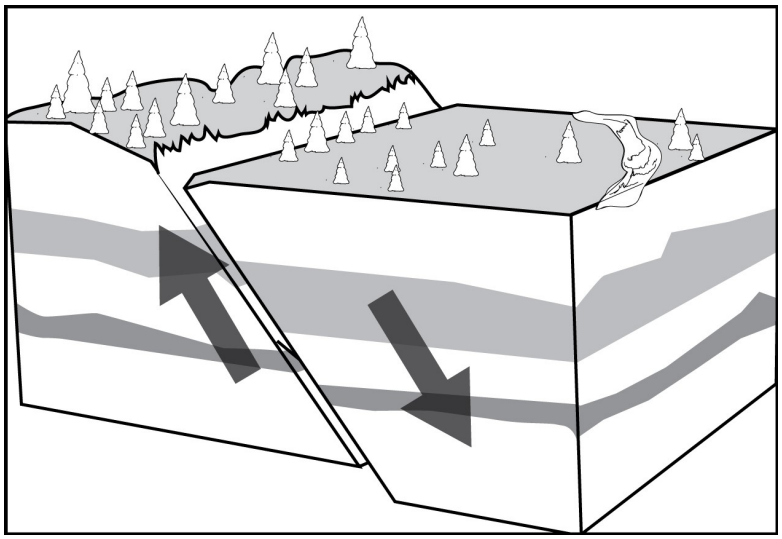


We're going to take a look at the layers of the earth, and we're going to start by talking about cake. Have you ever had a cake that had pudding inside? The cake probably had icing on the outside; then lots of thick, spongy cake; and then pudding in the center. Keep that picture of a cake in your mind, because it's going to help us understand how the layers fit together.



SAMPLE

The place where the plates of the earth meet is called a **fault**. This picture shows what it might look like inside the earth when the plates get stuck at the fault line and then move. There is a crack, and when towns or roads are built on top of that crack, they can be damaged.

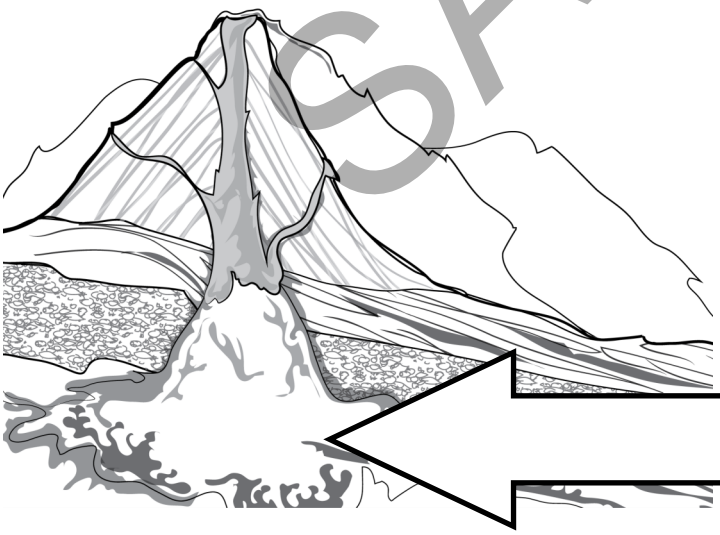


Sometimes, earthquakes are very small and no one even feels them. Other times, the force of the two plates finally getting unstuck moves everything, and the earthquake is very big!

fault

volcano

What about **volcanoes**? Do you think they have anything to do with the earth's plates?



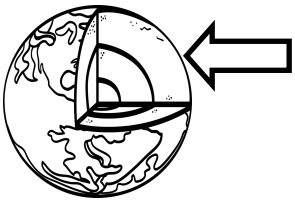
Sometimes when the plates move, melted rock called magma can escape from the mantle layer and start to work its way toward the surface. Many times, the magma cools and forms more rock. Sometimes, it finds its way into a place beneath or inside a volcano called a **magma chamber**.

magma chamber

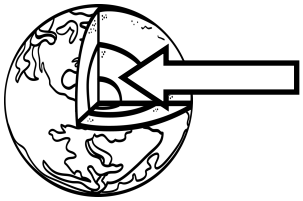
SAMPLE

Review

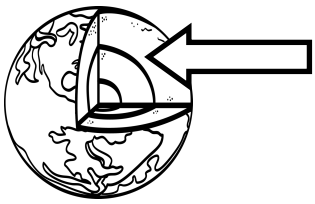
What is the name of the top layer of the earth? Draw a circle around it.



Crust

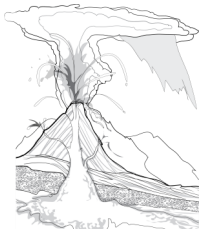


Outer Core

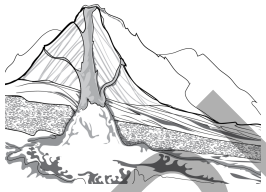


Mantle

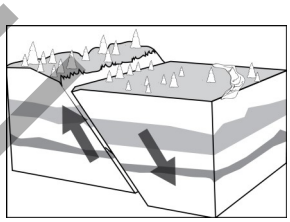
What is the name for where two plates rub together? Draw a circle around it.



Eruption

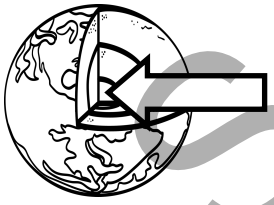


Magma Chamber

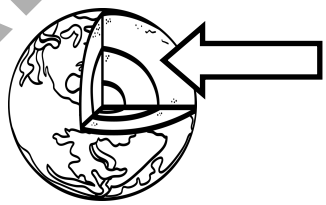


Fault

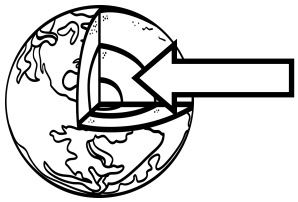
What is the name for the sticky, gooey part of the earth? Draw a circle around it.



Inner Core

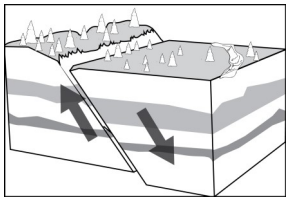


Mantle

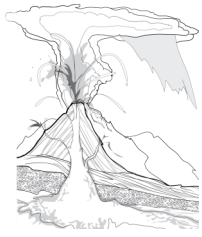


Outer Core

What is the name for the place where magma collects beneath a volcano? Draw a circle around it.



Fault



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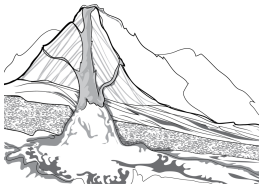
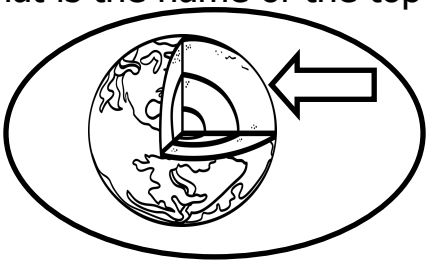


Magma Chamber

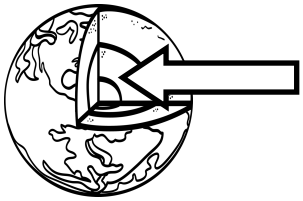
SAMPLE

Review Answer Key

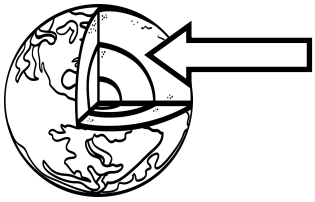
What is the name of the top layer of the earth? Draw a circle around it.



Crust



Outer Core



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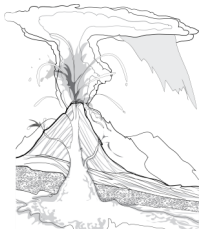
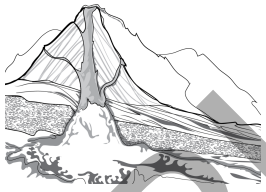


Eruption



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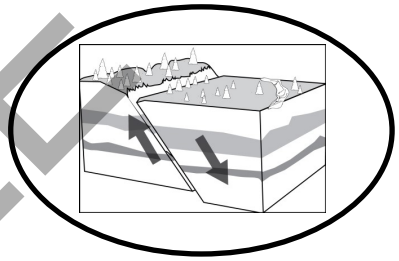

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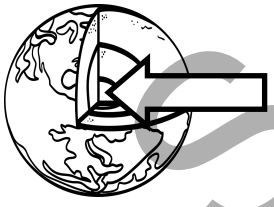
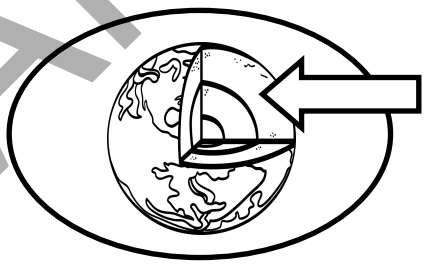
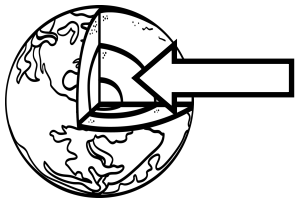


Inner Core



Mantle



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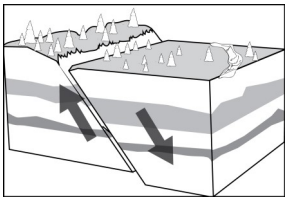
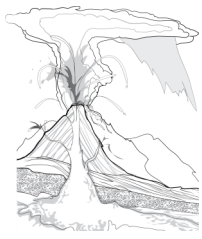


Fault

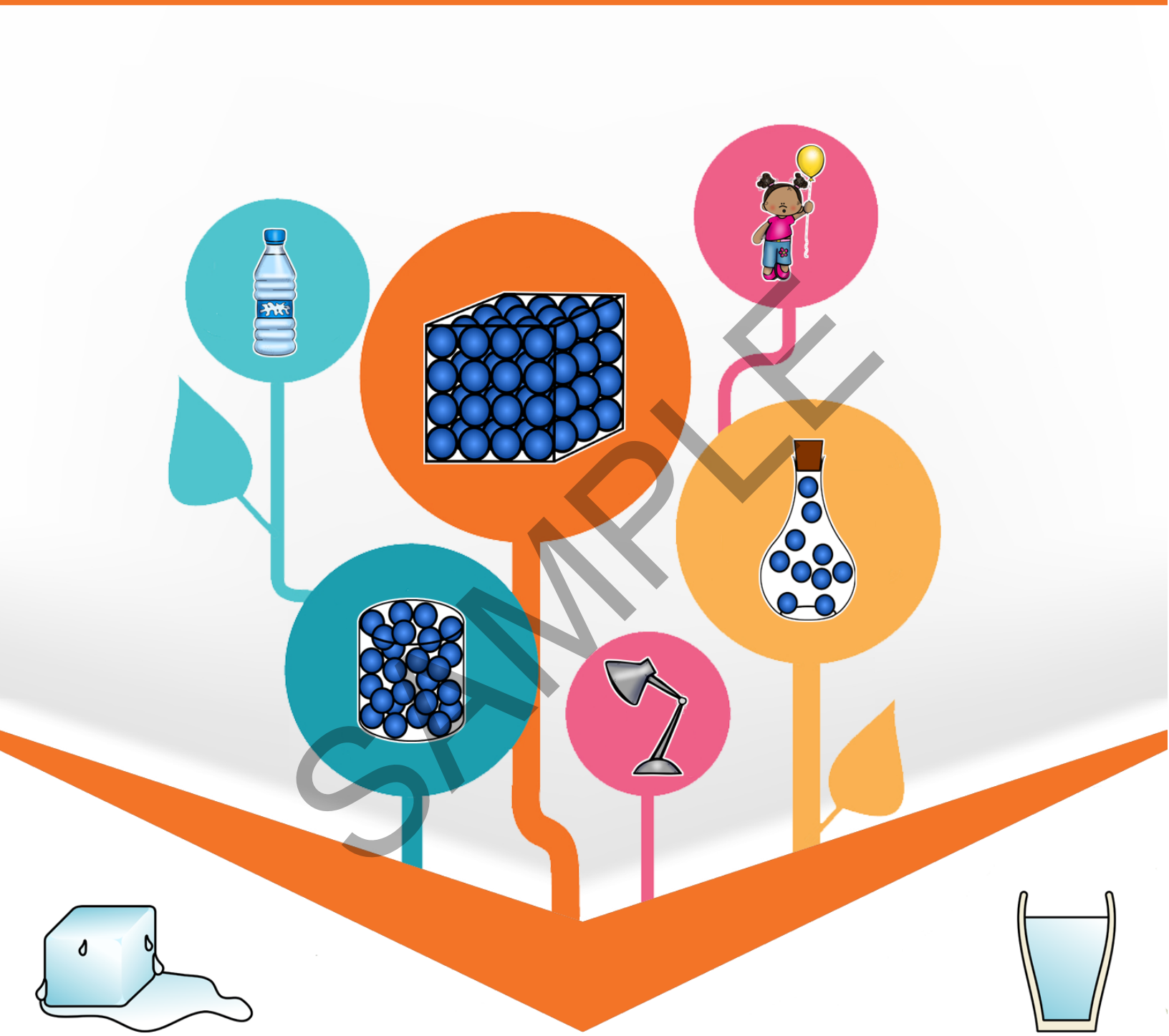


Eruption

Magma Chamber

SAMPLE

Physical Science
Level 1



SAMPLE

Exploring States of Matter

By Bonnie Rose Hudson

Write Bonnie Rose

SAMPLE

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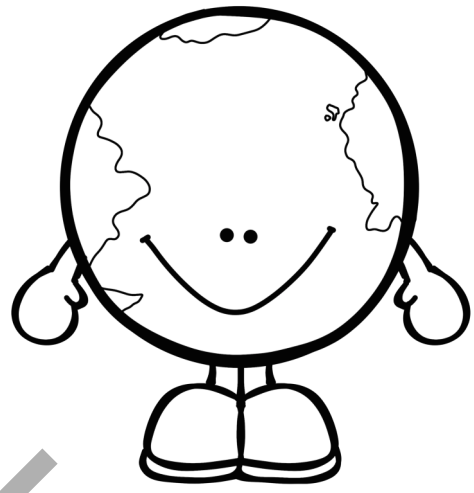
Exploring States of Matter



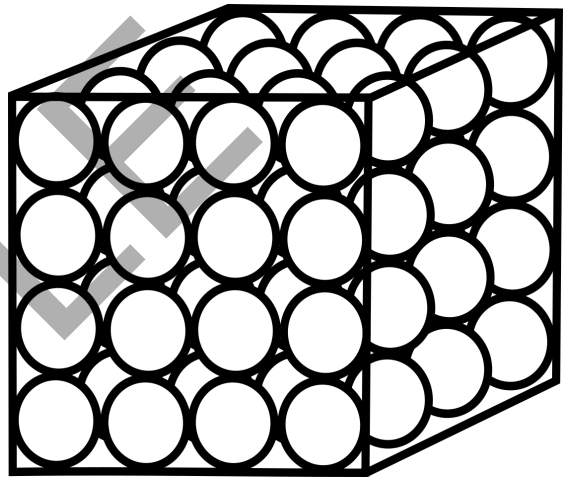
We're going to learn about the three states of **matter**. But what exactly *is* matter? Matter is what everything in the world is made of. Everything we can see, and even some things that we can't see like air, is made up of matter. A piece of paper is made of matter. The milk you drank with lunch is made of matter. *You* are made of matter. Anything in the physical world that takes up space and has weight is made of matter.

Matter

Now that we know what matter is, let's learn about the three states of matter. No, we aren't talking about states like Alabama or Wisconsin. A state of matter is the form the matter exists in. Think about the things we've already mentioned—a piece of paper, air, milk, and you. All of those are made of matter, but they are very different. What makes them different? One thing is what state they are in.

SAMPLE

Solid

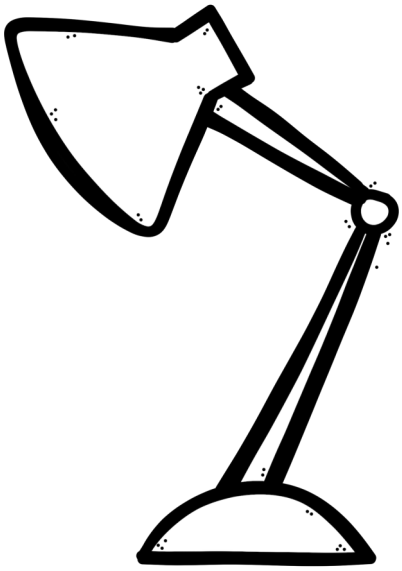


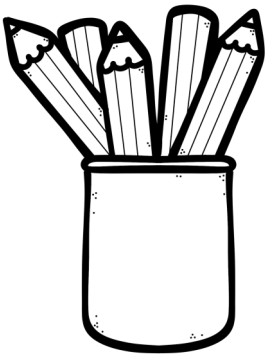
If everything in the physical world is made of matter, what is matter made of? Matter is made of tiny particles that are too small to see without a microscope, but these particles are very important. How they act and what they do determines a lot about the matter we can see and touch.

In a **solid**, these particles are packed very tightly together. They can't really move around; they are locked in place. This is why a solid object, like a wall, keeps its shape. A wall wouldn't do us much good if it could bend and fold whenever it got warm or cold or whenever someone touched it, would it?

A solid object always takes the same amount of space and stays the same shape unless you damage it. You could cut a hole in the wall, but the wall didn't change. You made a hole. And whatever you cut out of the wall is still a solid.

What are some solids in the room you are in right now?



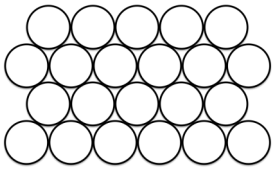


Solid

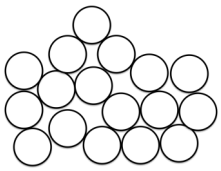
SAMPLE

Review

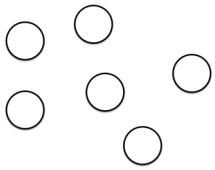
Which state of matter has particles that are packed together but still move past each other? Draw a circle around it.



Solid

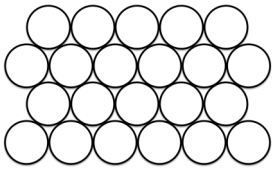


Liquid

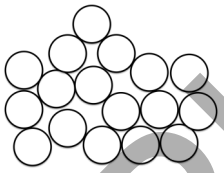


Gas

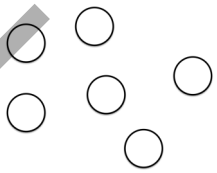
Which state of matter has particles that are packed together very tightly? Draw a circle around it.



Solid

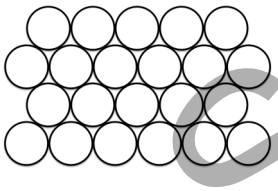


Liquid

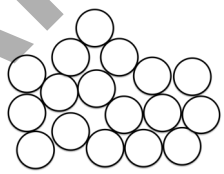


Gas

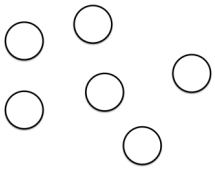
Which state of matter has particles that are free to move around? Draw a circle around it.



Solid

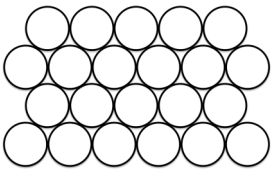


Liquid

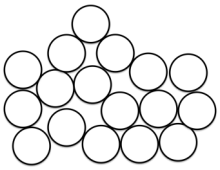


Gas

What state of matter cannot change its shape? Draw an X through it.



Solid



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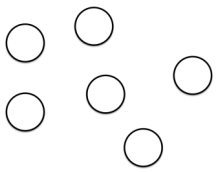
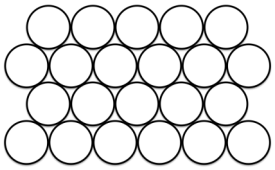


Gas

SAMPLE

Review Answer Key

Which state of matter has particles that are packed together but still move past each other? Draw a circle around it.



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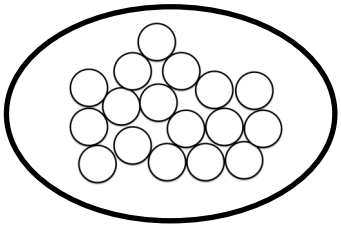

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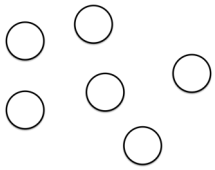
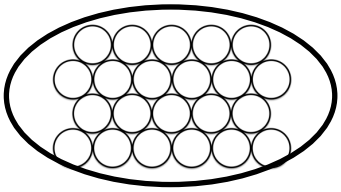


Gas

Which state of matter has particles that are packed together very tightly? Draw a circle around it.



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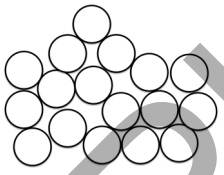

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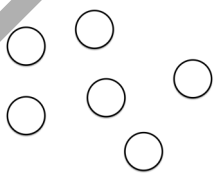
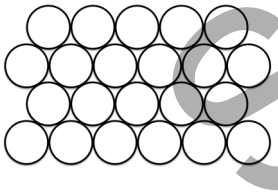


Gas

Which state of matter has particles that are free to move around? Draw a circle around it.



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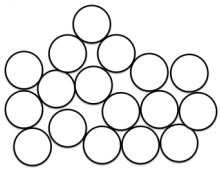

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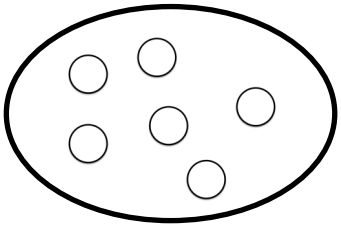
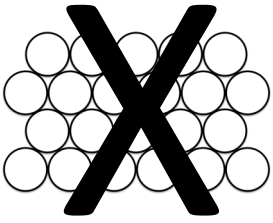


Gas

What state of matter cannot change its shape? Draw an X through it.



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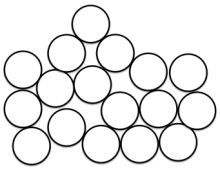

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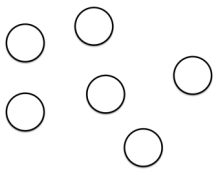

Gas

SAMPLE