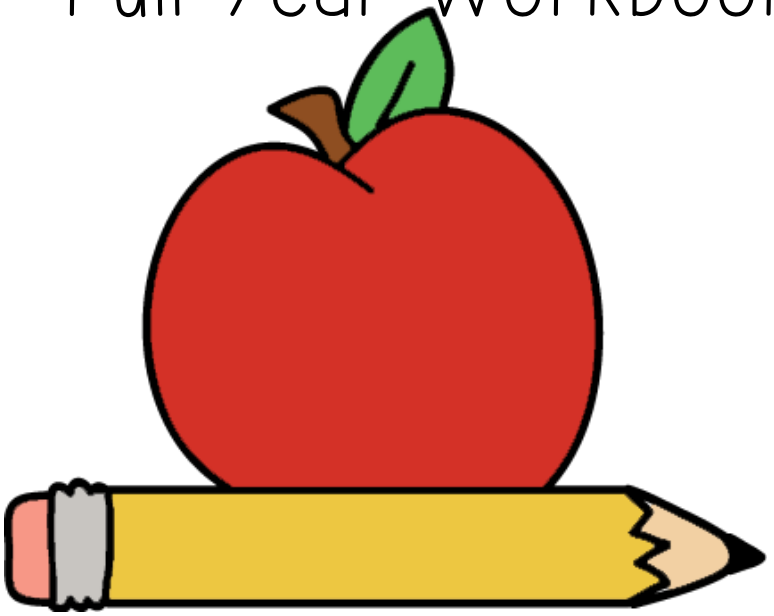
1st Grade Science

Full Year Workbook



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Name: _____

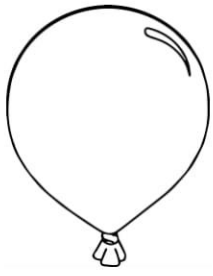
States Of MATTER

Read and think.

What is Matter?

Matter is anything that takes up space. It is everything around you. This paper is matter. The table is matter. You are matter. All matter has mass. **Mass** is the amount of matter in an object. Some objects have more mass than others. Mass can be measured in weight.

Think about a balloon and a baseball.



Which do you think has more matter in it?

The baseball maybe smaller but it actually has more weight to it. The baseball has a larger mass than the balloon.

Name: _____

Science EXPERIMENT

Materials needed:

Bowl of water

Pot

Stove

Fridge

Set up a hypothesis (a guess at what will happen):

What will happen when the water is placed in the fridge?

What will happen when the water is heated on the stove?

Set up experiment:

Split the water into a plastic bowl and a metal pot.

Have an adult place the metal pot onto the stove and let the water bowl.

Place the plastic bowl into the fridge and wait for it to freeze.

Conclusion (log findings):

How did the water change?

Draw or describe the water before the experiment.	Draw or describe the water after freezing.	Draw or describe the water after boiling.

Name: _____

Solid, Liquid, or Gas
STATES OF MATTER

Read and Answer.

From our experiment we observed water in three different states. What did the water feel like when it came out of the freezer? How did it change from before it was placed in the freezer? This is an example of how matter can change states. The states of matter are defined by the way their molecules act. **Molecules** are the smallest units of a substance that has all the properties of that substance.

There are three main states of matter.

Solid – solid objects keep their shape. Their molecules are packed together.

Liquid – liquid objects fit to the container they are put in. Their molecules move around.

Gas- gases shift to fit their container and fill it or can even be put into a smaller container. Their molecules are spaced far apart and always moving.

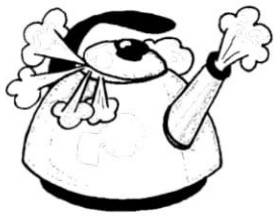
Which of the objects is a liquid? Solid? Gas?

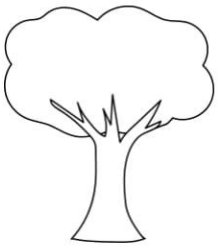
Name: _____

I Can Sort STATES OF MATTER

Cut out the pictures and sort them into the correct columns.

Solid	Liquid	Gas





Name: _____

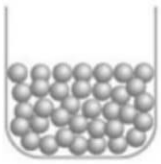
State of Matter CHANGES

Read, Think, and Answer.

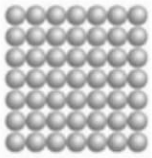
We have learned about the three main states of matter. Those states are solids, liquids, and gases. Matter can also change states. Matter changes states when it absorbs or loses energy. This happens when the matter is heated or cooled.

Processes in which matter changes between liquid and solid states are freezing and melting.

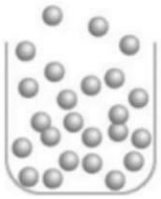
Liquid to solid



freeze

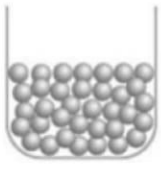


Processes in which matter changes between liquid and gas states are condensation, evaporation, and vaporization .



gas to liquid

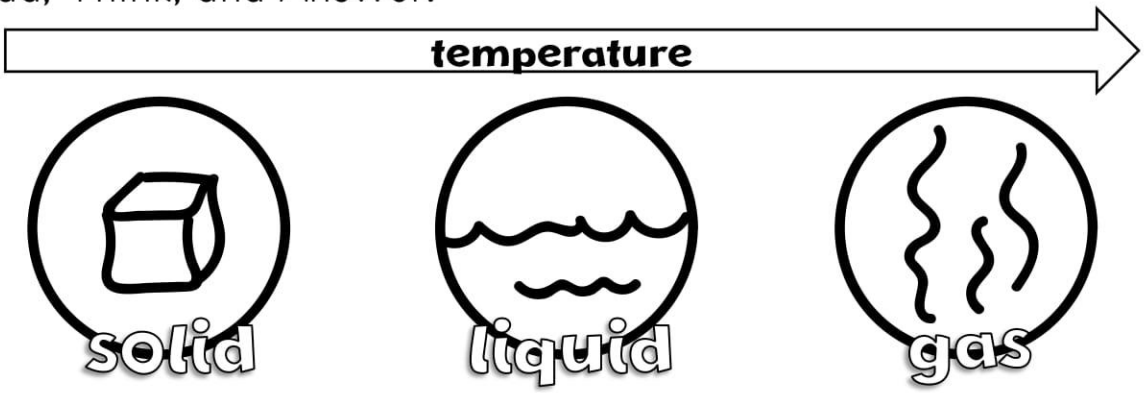
condensation



Name: _____

States Of WATER

Read, Think, and Answer.



We have seen water in three different states of matter. Solid, liquid, and gas. We also know that matter can change states by a change in energy. Now we are going to do a review of what we have learned.

Circle the correct answer.

1. How does water change from a liquid to a solid?

freeze boil condensation melt

2. How does water change from a solid to a liquid?

freeze boil condensation melt

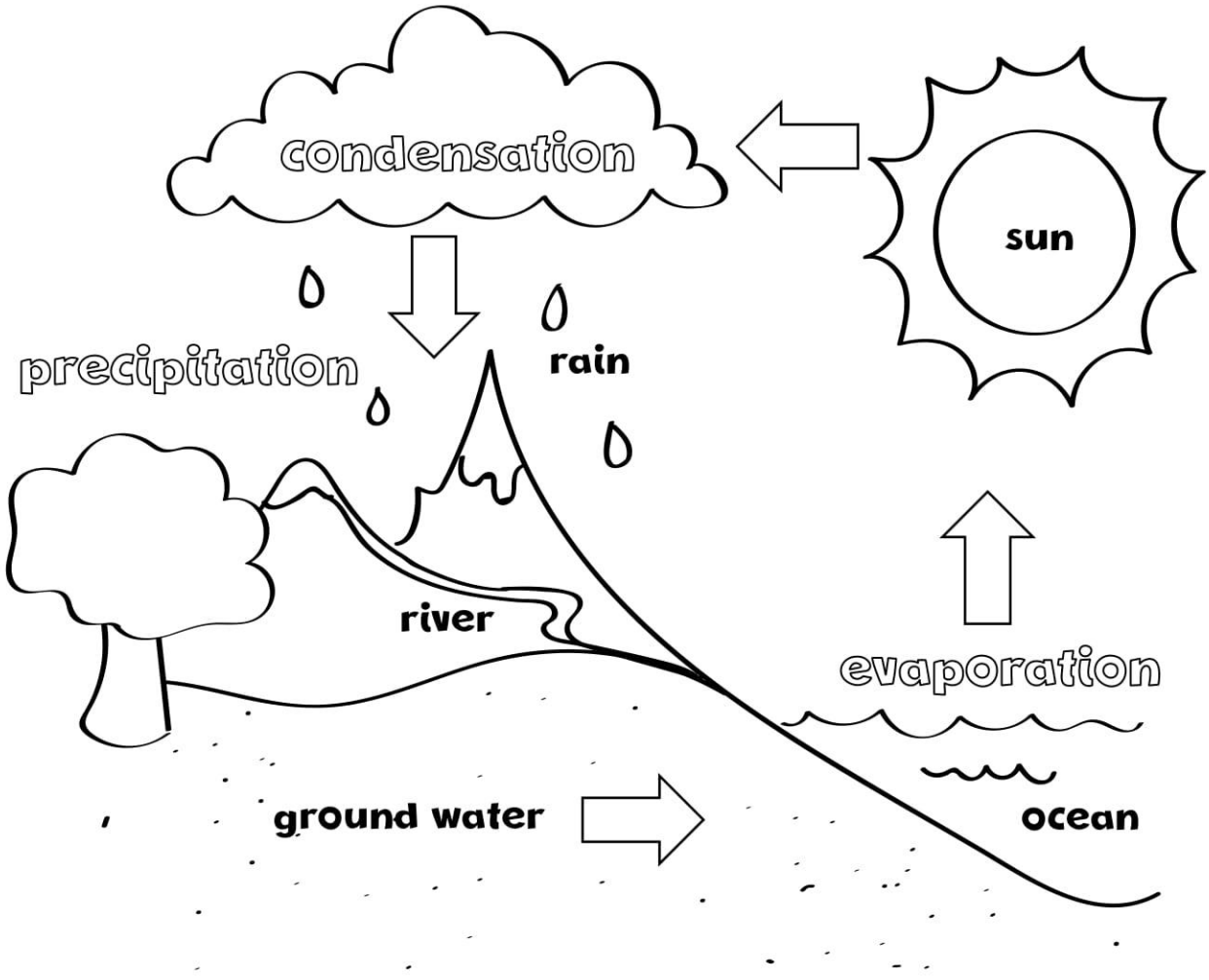
2. How does water change from a liquid to a gas?

freeze boil condensation melt

Name: _____

Water CYCLE

Color the water cycle.



Evaporation is a process where liquids change to a gas or vapor.
Condensation water vapor in the air turns back into a liquid form.
Precipitation release of water from the sky, such as rain or snow.

Name: _____

Living and Non Living THINGS

Read, Think, and Answer

Living things are things that are alive. People, animals and plants are living things.
Non Living things are not alive. Tables, chairs, cups are examples of non living things.

Living things have needs to stay alive such as air, water, food. They also grow and reproduce young. Living things can also move. Even plants will grown closer to the window where the sun comes through.

Non living things do not move unless they are moved by an outside force. They do not reproduce young. They don't feel pain or emotions.

What are the differences in living and non living things?

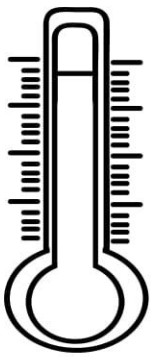
Name: _____

Living Things NEEDS

Read, think, and write.

Living things need certain things to survive. Those things are sunlight, water, air, food, and a habitat with the right temperature for the organism.

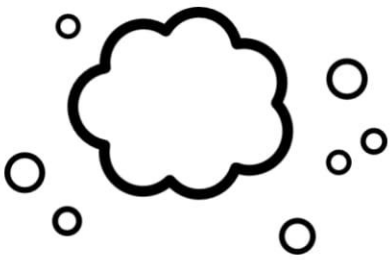
sunlight



temperature

water

food

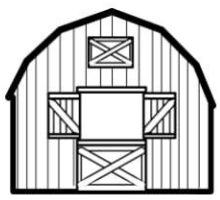


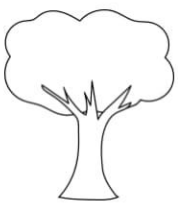
air

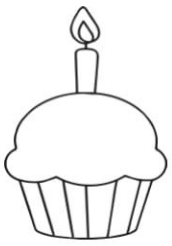
Name: _____

Sort The IMAGES

living thing	non living things



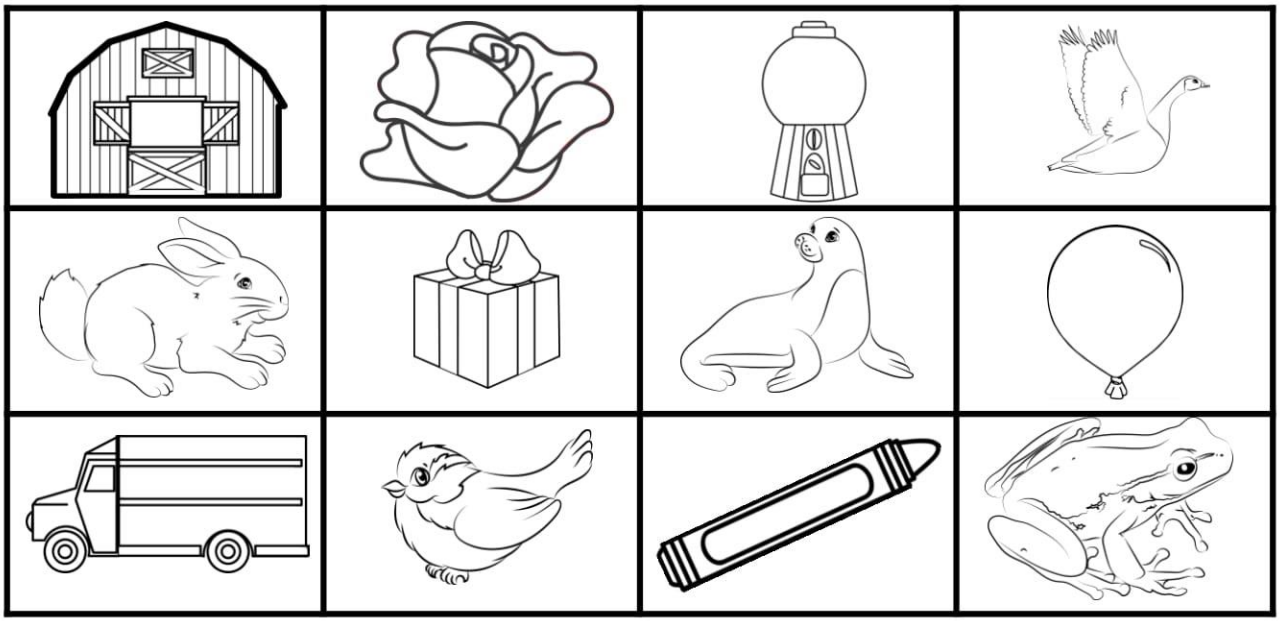




Name: _____

Is it Living?

Look at the pictures. Ask the questions about each. Color the box with living objects green and the non living objects yellow.



1. Does it breathe?

2. Does it need food or water?

3. Does it move by itself?

4. Does it reproduce?

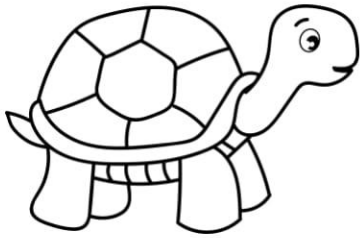
5. Does it grow and change?

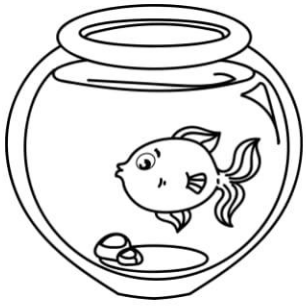
Name: _____

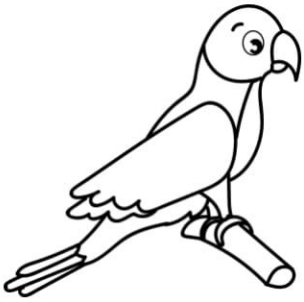
Living Things NEEDS

Look at each pets below.

What are some of the things they each need to live?
What needs do they have in common?
What needs do that have that are different?







What needs do they have in common with you?

Name: _____

Living and Non Living CATEGORIZE

Look around the room.
Draw a picture in each box of something you see that would fit the category.

LIVING THINGS	NON LIVING THINGS

Name: _____

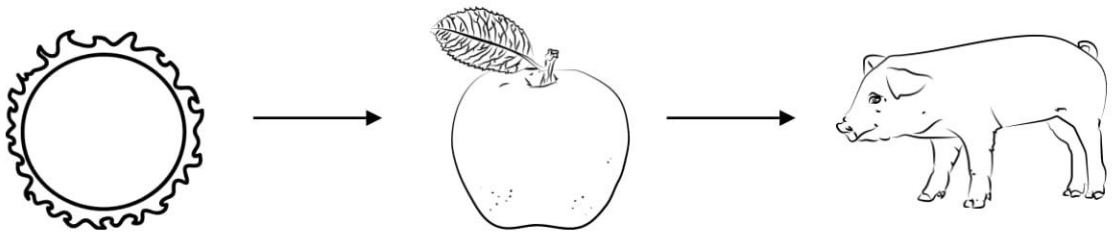
What Do LIVING THINGS Eat?

What do you like to eat?
Different living things need to eat different things.

Herbivores are animals that only eat plants. Cows are herbivores.
Carnivores are animals that eat other animals. Owls are carnivores.
Omnivores are animals that eat both plants and other animals. Bears are omnivores.

The Sun feeds the plants which are the **producers** which means they create energy (food). **Consumers** do not create energy, the just use it up. Herbivores which are the consumers, eat the plants. Carnivores, another type of consumer eat the other animals. This is called the food chain. Each organism passes the energy from the food on to the next organism. It's how our world sustains itself.

SUNLIGHT	PRODUCER	CONSUMER



Name: _____

Living Things NEEDS

Unscramble the words that tell what living things need to live.

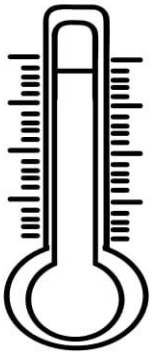
WORD BOX
sunlight
water
food
air
temperature

nituslgh

ewtar

odfo

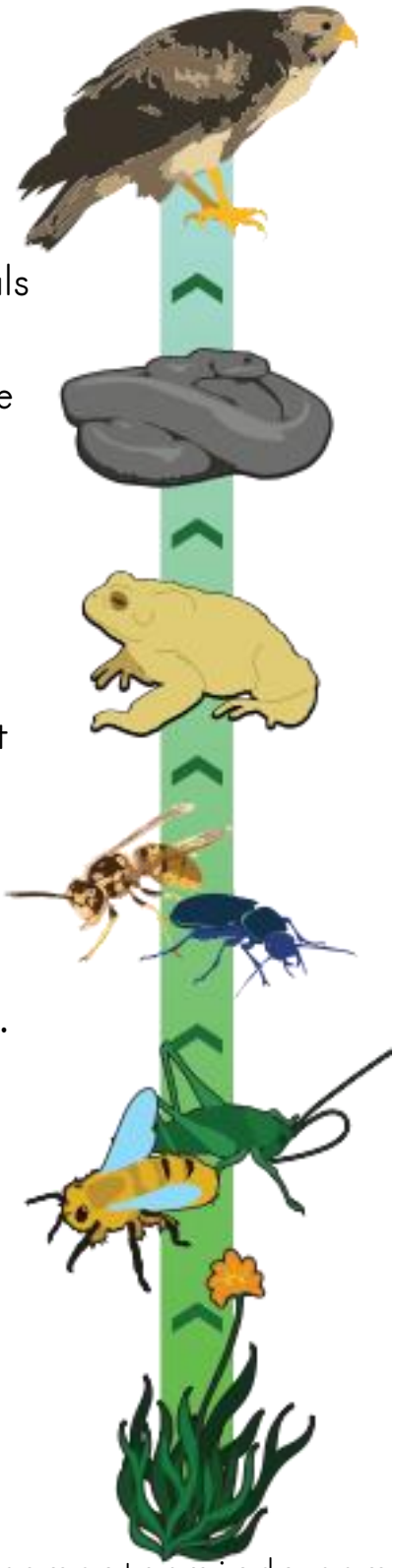
rai



ematrueptre

Name: _____

Food Chain



We all have to eat food to survive. We have learned that is one thing living things need. Animals in the wild have to eat to survive as well. Some animals eat grass or other plant based foods while some animals eat other animals.

A food chain describes how different organisms eat each other, starting out with a plant and ending with an animal.

The food chain links together, Each link is important because without one the other wouldn't function.

In this example the on the side the grass is the producer. The insects eat the grass. If there was no grass than the insects would starve. The frog would starve because it wouldn't have the insects.

Write a couple sentences about the example food chain.

Name: _____

Food Chain

Energy flows between living things as they are eaten or they are eating.

Producers produce their own food. Plants are producers.

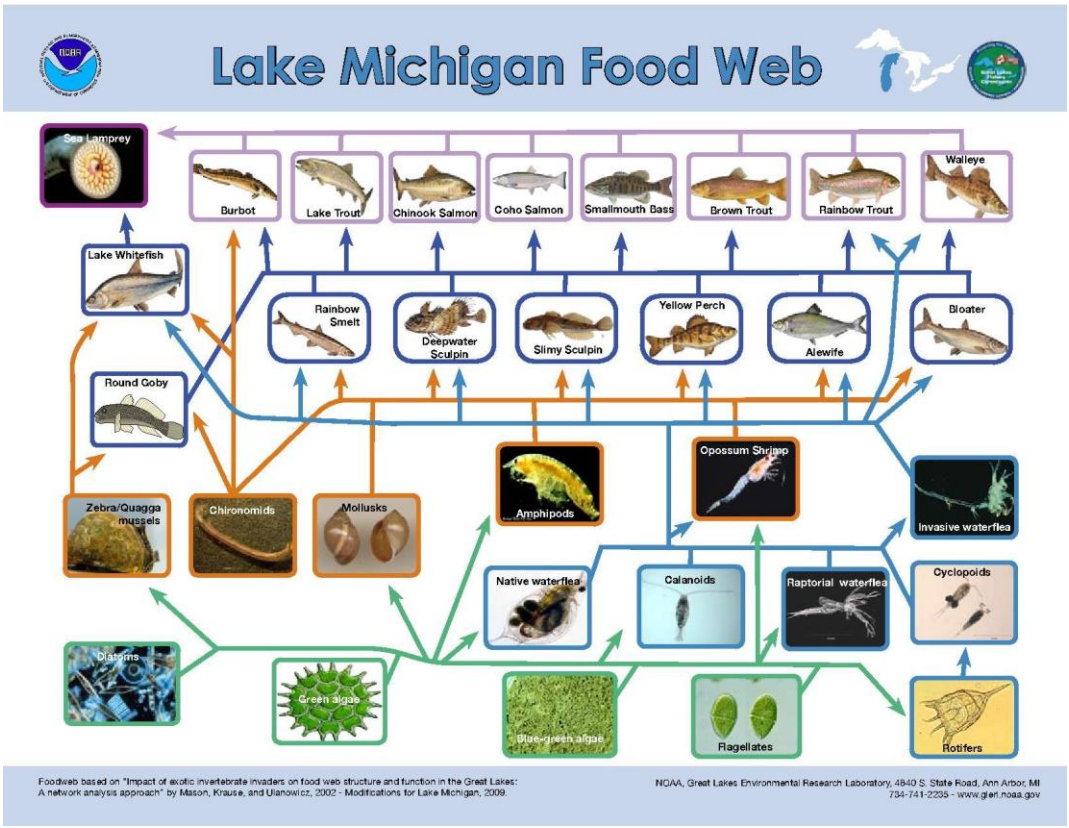
Consumers can not create their own food. They can eat plants or other animals depending on their diet.

Create your own example of a food chain. Draw or cut out pictures and glue them below. You could also create a chart on another piece of paper or get creative and create a clothes hanger mobile.

Name: ----------

Food Chain

In an eco system there are many food chains. When you connect the food chains you can get a web.



What is at the top of the food web?

What is some of the producers?

Name: _____

Animal Habitats

Different animals live in different habitats. Habitats are places where animals, plants, and people live. Some animals have different needs and will choose a habitat that gives them the things they need.

Do you remember the things a living organism needs to survive? Air, food, water, temperature, shelter. There are many different kinds of habitats. Some of the habitats have hot temperatures and some have cold temperatures. There are grasslands and mountains habitats. There are deserts and oceans habitats. Different animals live in each habitat.

We are going to explore the different habitats and the animals that live in them.

First we are going to look at our own habitat. Where do you live? Is it usually hot or usually cold there? How often does it rain? What kind of animals do you see where you live? How about what kind of bugs and plants are there?

On another piece of paper draw a picture of your habitat.

Name: _____

Animal Habitats

Read, Think, and Answer.

Oceans

The oceans cover about 70 percent of the Earth's surface, and form the largest of the world's habitats. Oceans are salty water that fills the Earth basins. There are five different oceans but they all share the same salt water. Can you find all five oceans in the picture below?

Name: _____

Animal Habitats

Read, Think, and Answer.

Oceans

There are several different kinds of life in the ocean. You will find many fish, mammals, and plants living in the oceans. Ocean animals have different needs than land animals. Ocean animals need the salt water of the ocean to survive. They can not live on land. They also eat differently. Some fish eat the plants while others eat other fish.

The oceans are very deep. The deeper you go there isn't as much light or heat from the sun. Different kinds of fish live the deeper you get.

Scientists estimate that close to one million different kinds of animals live in the oceans. Most of them are invertebrates. Invertebrates are animals that don't have a backbone such as a jellyfish. Animals that have a backbone are called vertebrates.

Do you have a favorite ocean animals?

Name: _____

Animal Habitats

Here are some pictures of animals that live in the ocean.






Look at each of the ocean life photos.

How are they alike?

How are they different?

What benefits does the ocean habitat give to them that they wouldn't have in any other habitat?

Name: ----------

Animal Habitats

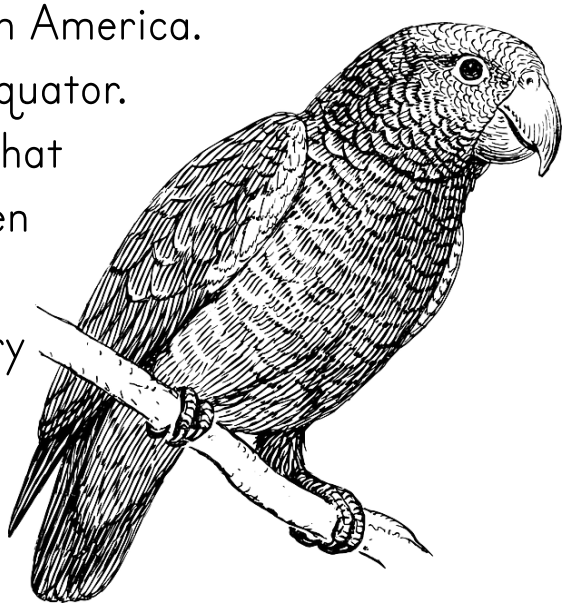
Read, Think, and Answer.

Rainforest

Rainforests are lush warm and wet habitats. They are home to several different animals and insects. They are beautiful places where the trees grow tall and thick. The trees are so dense together that they have to grow taller to try to get more sunlight.

There are rainforests in Africa, Asia, Australia, and Central and South America. The biggest rainforest is the Amazon rainforest which is located in South America.

Most rainforests grow near the equator. The equator is an imaginary line that separates the Earth in half between the north and south pole. The area around the equator tends to be very hot and humid. This is the perfect temperature for the animals who live there.



Name: ----------

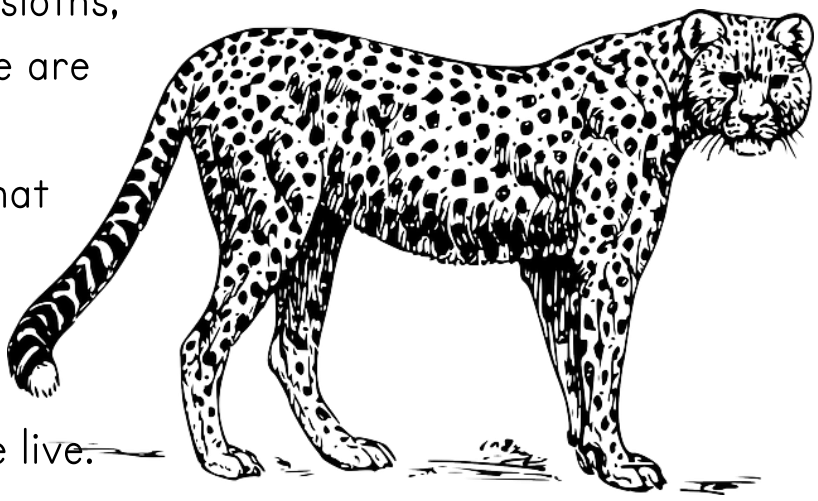
Animal Habitats

Read, Think, and Answer.

Rainforest

More than half of the world's different animals species live in the rainforest. The plant life and abundance of natural resources make the rainforest the best habitat for those animals. Many of the animals live by eating the different plants or insects but some animals live by eating the other animals around them. Remember, this is called the food chain.

A few of the animals you will find in the rainforest are Macaws which are brightly colored birds, monkeys, orangutans, jaguars, sloths, and anacondas. There are also several different spiders and insects that live there. Some of them are a lot bigger than the insects we see around where we live.



Name: _____

Animal Habitats

Read, Think, Answer.

There is a lot of competition in the rainforest for space, sun, and food. The animals that live there adapt to their surroundings. Many of the animals have learned how to camouflage themselves to protect themselves from predators. While some predators also use camouflage to sneak up on their prey.

There are fresh water rivers that run through the rainforest that are home to many fish even some fresh water dolphins. The low leaves create shelter for the many insects that roam the grounds such as tarantulas.

What benefits does the rainforest habitat give to the animals that they wouldn't have in any other habitat?

Name: _____

Animal Habitats

Read, Think, and Answer.

Forest

Forests grow in areas where it is not very hot or very cold. The trees tend to grow thinner than the rainforest. In the forest as the seasons change the habitat changes. In the Spring and Summer the leaves are green and grow on the trees, the flowers bloom and life is all around. In the Fall, the leaves turn brown and began to fall off the trees. Some animals began to prepare for to hibernate. Winter is colder, the leaves are off the trees. In Winter it may snow. Animals that live in the forest have to adapt to the changing seasons. One of those ways is hibernation. Hibernation is when some animals such as hedgehogs, bats, and some turtles lower their heart rate, breathing, and body temperature to sleep longer periods and cut down on the need for food during winter.

Name: _____

Animal Habitats

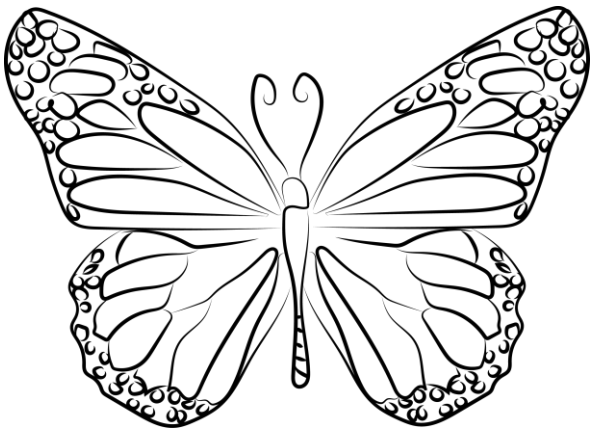
Read, Think, and Answer.

Forest

Animals adapt in different was to the change of weather. Hibernation is only one way. Some birds will migrate. Migration is when birds fly South for the colder months of Winter and return in the warmer seasons. A lot of different birds migrate. Birds that live in forest habitats fly south to escape the cold temperatures and lack of food.

Birds usually eat seeds or insects. In the Summer and Spring the forest is home to a lot of different insects and plants are growing again but in the Winter there isn't as much food to go around.

Another migrator is the Monarch Butterfly. The Monarch Butterfly migrates each Summer and Fall.



Name: _____

Animal Habitats

Read, Think, Answer.

A lot of the forest areas have been lost. People use trees for many reasons such as wood for houses, furniture, and building. They also use trees to make the paper we write on. Because of this many trees are cut down each year.

What do you think happens to the animals that live in the areas that trees are cut down?

Can you think of a way we can do our part to protect our forests?

What benefits does the forest habitat give to the animals that they wouldn't have in any other habitat?

Name: _____

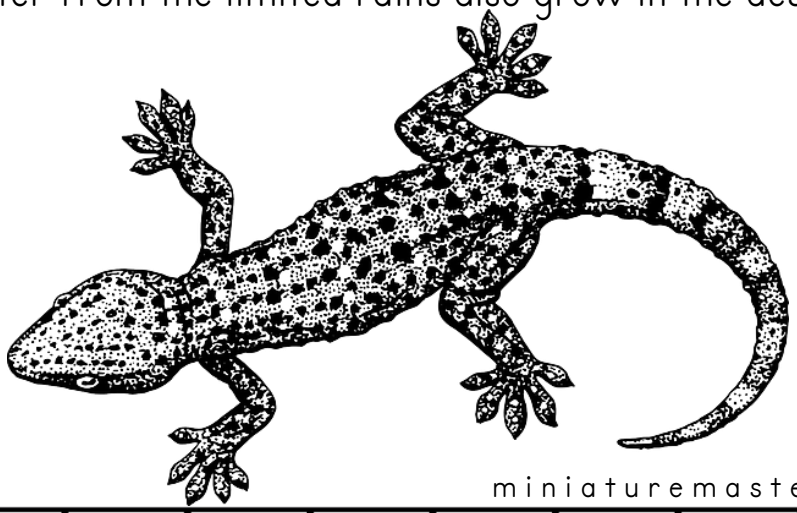
Animal Habitats

Read, Think, and Answer.

Desert

Most deserts are very hot places where you will mostly see sand. Some of the hottest temperatures on record were taken in a desert. However, some deserts are always freezing cold. The Antarctic polar desert is considered the world's largest desert. The temperature there stays below freezing all year round.

Deserts have harsh conditions but still some animals and plants live there. Camels live in the desert. They have specially designed bodies that hold more water for long trips without a way to drink more water. Lizards also enjoy the dry heat of the desert. Scorpions are another type of life you will find in the desert. Plants like cacti that store up water from the limited rains also grow in the desert



Name: _____

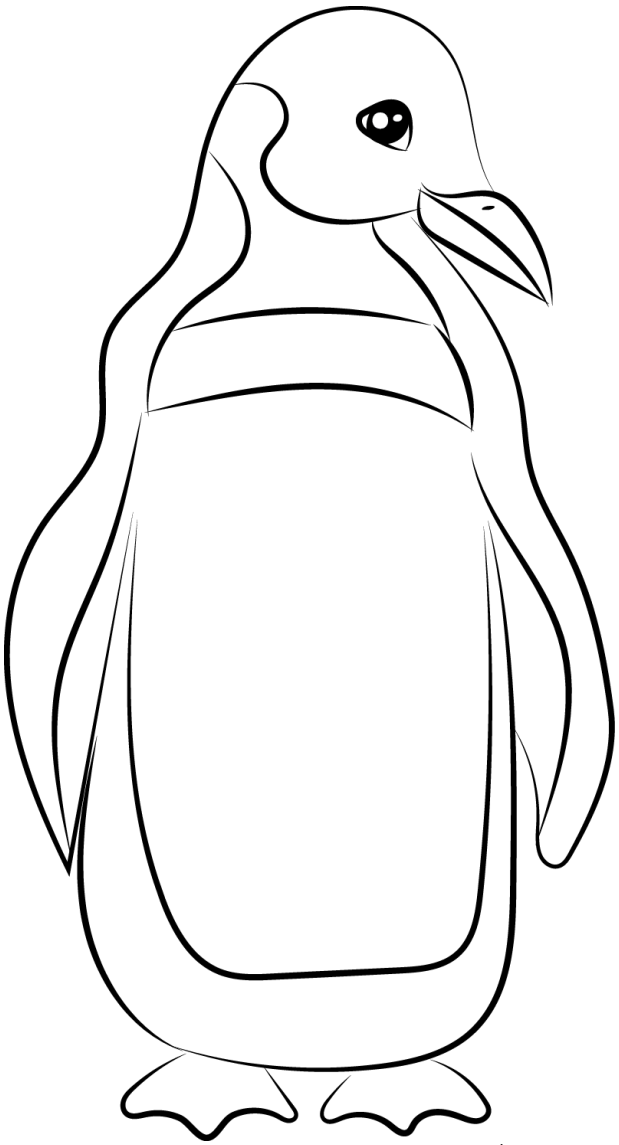
Animal Habitats

Read, Think, and Answer.

Desert

Antarctica desert is different from the sandy hot desert where lizards, scorpions, and cactus live. It is so cold there that generally people can not live there full time. There are a few different animals who do live there. Penguins are one type. There are different types of penguins. The emperor penguins are the tallest and heaviest of the penguins. There are 17 different species of penguin and most of them live and breed in the Antarctica.

Another animal that lives in the Antarctic desert is seals. There are six different seal species that live in the Antarctic waters. The seals and penguins eat the fish in the oceans around Antarctica.



Name: _____

Animal Habitats

Read, Think, Answer.








Look at the animals above. Which ones live in the hot deserts climates and which ones live in the cold climates?

What benefits does the desert habitat give to the animals that they wouldn't have in any other habitat?

Name: ----------

Animal Habitats

Read, Think, and Answer.

Freshwater

There are four types of freshwater habitats. Rivers, lakes, streams, and ponds. Freshwater accounts for only three percent of the world's water with the rest being salt water. But despite that tiny amount, freshwater habitats are homes for more than 100,000 species of plants and animals. These freshwater homes are made in different ways.

Rivers and streams are made with ice on mountains melt and the water runs down the mountain side in grooves. These waters flow into the ocean.

Lakes and ponds are made when either the Earth crust shifts or volcanos erupt and collapse. Some lakes are man made.

Name: _____

Animal Habitats

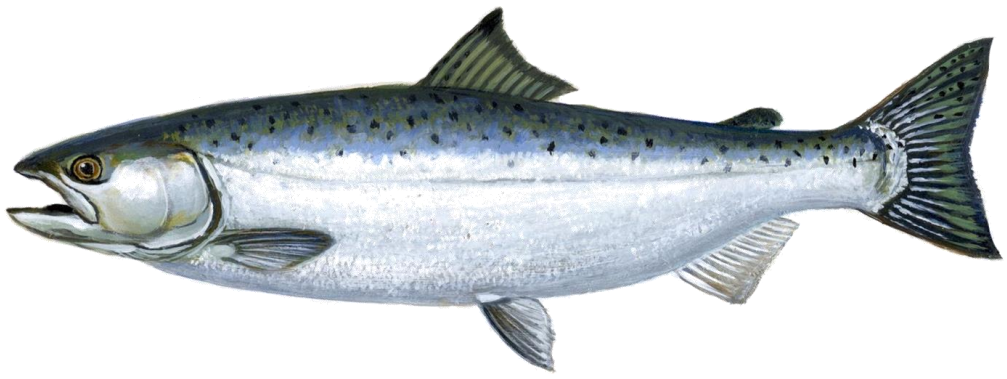
Read, Think, and Answer.

Freshwater

Freshwater habitats are full of life. Not just fish live in the waters. There are also snails, worms, turtles, frogs, marsh birds, mollusks, alligators, beavers, otters, snakes, and many types of insects live there too. We are going to look more into swamp life next week. This week lets look into the animals that live in the rivers and lakes.

There are many different types of fish that live in these waters. Some of them rely on the movement of the river to survive. One fish called Salmon is born in freshwater and swims out to saltwater. They come back to freshwater to spawn or lay their eggs.

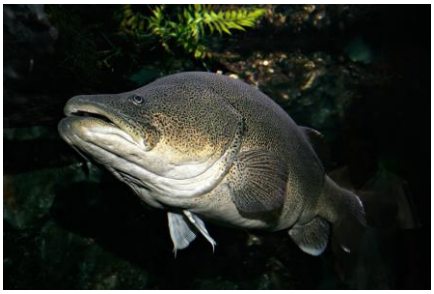
The freshwater habitat is also home to many birds who rely on the fish swimming in the rivers for food. These waters are also used by larger animals for drinking. Bears hunt for fish in rivers as well.



Name: _____

Animal Habitats

Here are some pictures of animals that live in the freshwater.






Look at each of the animal life photos.

How are they alike?

How are they different?

What benefits does the freshwater habitat give to them that they wouldn't have in any other habitat?

Name: _____

Animal Habitats

Read, Think, and Answer.

Swamps

A swamp is an area of land permanently saturated, or filled, with water. There are two main types of swamps: freshwater swamps and saltwater swamps.

Many animals and people make swamp lands their homes. Swamps are filled with trees. Swamps exist on every continent except Antarctica.

The water levels in swamps tend to fluctuate. That means they may be deeper one day than the next. Alligators, frogs, and many other animals live in these swamps. These animals are adapted to fluctuating water levels. The large trees and roots provide shelter for nesting birds, as well as fish, amphibians and reptiles.

Swamps tend to be very wet. They generally grow in warmer areas where plants can grow quickly.

Name: _____

Animal Habitats

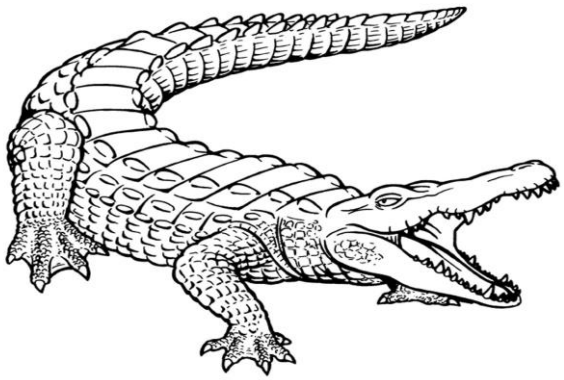
Read, Think, and Answer.

Swamps

One of the first animals people associate with swamps is alligators and crocodiles. There are several other animals that live in swamps too. Some of these animals are crayfish, nutria, frogs, and various insects.

Every habitat has it's own food chain. This is how the environment keeps the animals alive. The alligators eat the turtle or fish. The fish live on the insects. The insects live on the algae. The algae lives on sunlight.

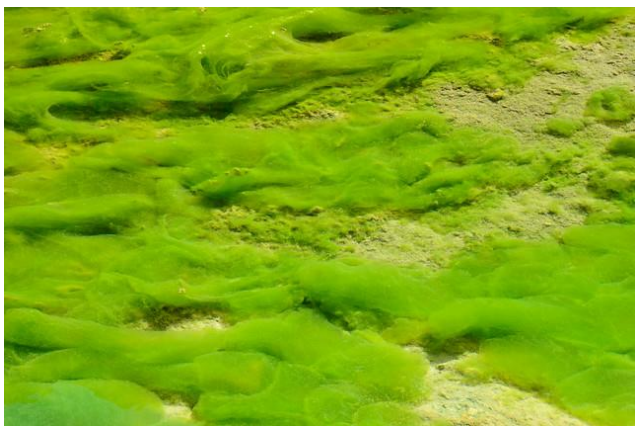
If one part of the food chain becomes extinct, the whole chain would collapse. If there was no predator such as the alligator, there would be a population boom of fish and other animals. There wouldn't be enough food And soon they would starve too.



Name: ----------

Animal Habitats

Cut out the images and sort them into a working food chain.



Name: _____

Animal Habitats

Read, Think, and Answer.

Tundra

Tundra habitats are treeless areas found in the Arctic and on the tops of mountains. In the Tundra the climate is cold and windy. Rainfall is also very scant. Tundra lands are covered with snow for much of the year, but in the summer you will find wildflowers.

The areas are often cold and uninviting yet still there are several animals that live in these environments. In the artic tundra you will find arctic foxes, polar bears, gray wolves, caribou, snow geese, and musk oxen.

The few plants that do happen to live in the Tundra are very fragile. They are vulnerable to different climate changes.

Name: _____

Animal Habitats

Read, Think, and Answer.

Tundra

Animals found in the tundra include the musk ox, the Arctic hare, the polar bear, the Arctic fox, the caribou, and the snowy owl. Many animals that live in the tundra migrate to warmer climates during the winter. Some animals hibernate during the winter. There are very few reptiles and amphibians found in the tundra because the temperatures are so cold.

The snowy owl is a large white owl. Boys are almost all white, while the girls have more flecks of black plumage. Baby snowy owls have black feathers until they turn white. The color of their feathers helps camouflage them in their snowy cold environment.

The snowy owl uses that camouflage to hide from predators such as the Arctic fox. They also use the camouflage to sneak up on their prey which is usually small rodents.

Name: _____

Animal Habitats

Here are some pictures of animals that live in the tundra.






Look at each of the animal life photos.

How are they alike?

How are they different?

What benefits does the tundra habitat give to them that they wouldn't have in any other habitat?

Name: _____

Animal Habitats

Read, Think, and Answer.

Grasslands

Grasslands are grassy areas of land that get a little more rain than deserts but not quite as much as greener areas such as forest areas. They get enough rain for grass to grow but don't get enough rain for trees to grow. They are located in a variety of climates. You might hear them referred to as savannahs or prairies. Grasslands don't have natural shield for animals to hide from predators. Many of them build their homes in the ground.

Grassland habitats can be found on more than 40% of the land on Earth. There are tropical grassland areas and temperate grass land areas. The tropical grasslands are usually hotter than the temperate grasslands. The savannahs located in Africa are tropical grasslands.

Some of the largest land animals in the world live in grassland habitats, like elephants, giraffes and ostriches. There are other animals that live there as well such as lions, meerkats, and bison.

What are your favorite Grassland animals?

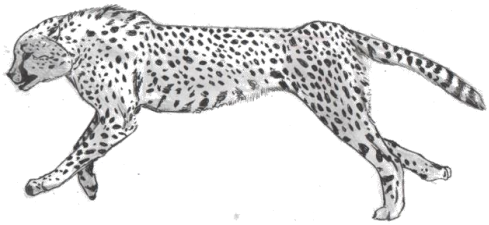
Name: _____

Animal Habitats

Read, Think, and Answer.

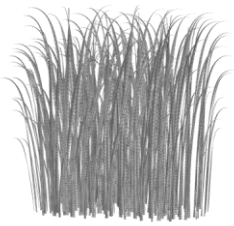
Grasslands

The savannah is another habitat that is dependent on the food chain. Here we have some of the fastest and most clever predators on Earth.

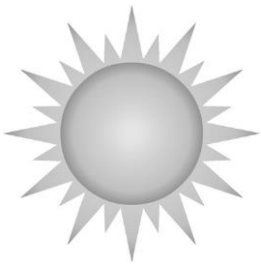


The cheetah can reach speeds up to 61 mph. These animals are often faster than their prey. They are carnivores meaning they eat the meat of other animals. Those animals are usually gazelles.

Gazelles are herbivores. They eat and survive on the grass. They live in herds. That means they live in large groups together.



The grass they eat survives on the sun. That completes another example of the food chain.



Name: _____

Animal Habitats

Here are some pictures of animals that live in the grassland.






Look at each of the animal photos.

How are they alike? Do they have fur or teeth?

How are they different? Are they a different color?

Which are predators and which are prey?

Name: _____

Animal Life Cycles

Read, Think, and Answer.

What is a life cycle? A Life Cycle is the series of changes a living things goes through from birth to death. This month we are going to explore different life cycles. We are going to start with mammals in the animal kingdom.

A **mammal** is an animal that has a backbone and fur or hair on its body, and is warm-blooded. Each mammal goes through various stages of life or a life cycle. All mammals are born, grow, reproduce, and die.

There are many different types of mammals. There are large mammals such as bears and small mammals such as chipmunks. They each have different life spans, which means some tend to live longer or short lives than others but they have similar paths to that each follow. Babies are carried in their mother's stomachs until time to be born. Then they grow into young. The young grows into adolescence. The adolescent grows into an adult. The adult becomes a parent and then grows into an elder.

Babies grow in mom's tummy and are born.

Newborns grow into Puppies.

Puppies grow into adolescence.

Adolescent dogs Grow into adults.

Name: _____

Animal Life Cycles

Read, Think, and Answer.

Another type of animal is **birds**. There are many different types of birds. Most birds can fly but some can not. Birds have feathers and wings. They are not born like mammals. They are hatched from eggs that are laid by the mother. The mother sits on the eggs until they hatch. Mother birds feed their chicks. The chicks grow into adults. And the process repeats with new eggs laid by the adult birds.

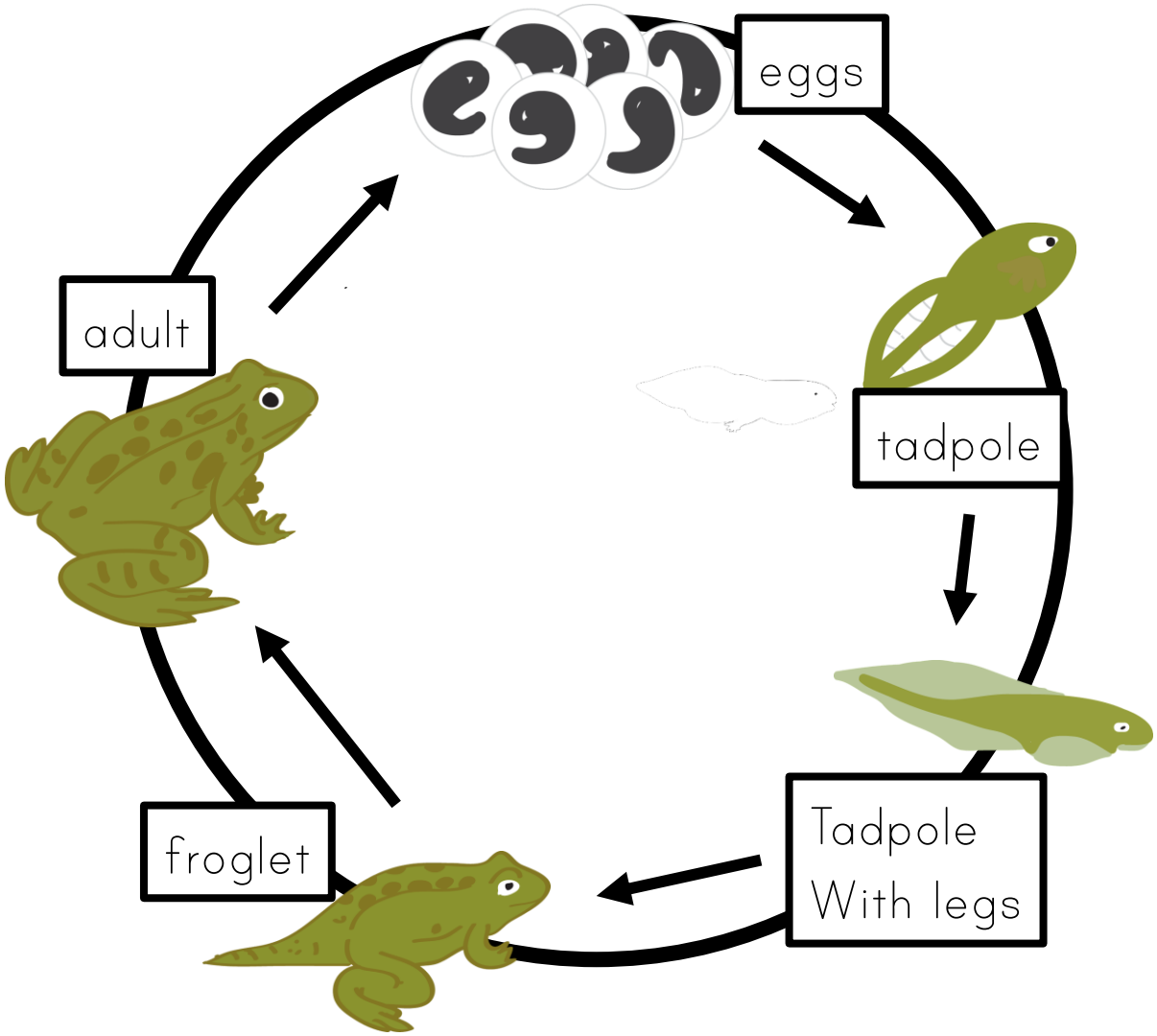
Can you draw the life cycle of a bird below?

Name: _____

Animal Life Cycles

Read, think, and answer.

Amphibians are animals that live in the water and on land. Frogs are amphibians. Frogs lay eggs that turn into tadpoles. The tadpoles grow into new frogs. They change a lot in their life spans!



Name: _____

Animal Life Cycles

Read, Think, and Answer.

Reptiles are animals that are cold blooded. There are 4 main categories of reptiles; crocodiles and alligators, turtles and tortoises, snakes, and lizards. Reptiles are hatched from eggs.

eggs

adult

hatchling

juvenile

Name: ----------

Fish Life Cycles

Read, Think, and Answer.

Fish are animals that live in water. There are several different types of fish. Fish are born from eggs and grow into larva. The larva grows into juvenile and then adult fish. Cut out and put the fish life cycle in order.

larva

juvenile

adult fish

eggs

Name: _____

Insect Life Cycles

Read, Think, and Answer.

Insects life cycles have 4 stages: egg, larva, pupa and adult.

Cut out and put the life cycle in order.

Larva (caterpillar)

eggs

Pupa (Chrysalis)

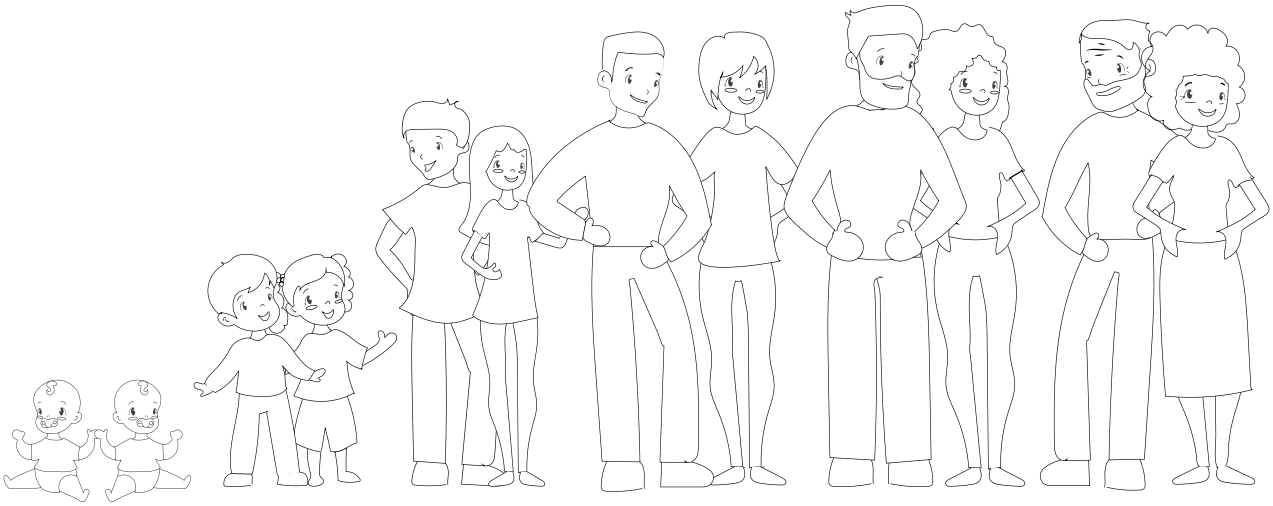
Butterfly

Name: _____

Human Life Cycles

Read, Think, and Answer.

Humans have a life cycle too. Each person follows a certain pattern. They are born as new born babies. They grow into toddlers and then to kids. From kids they grow to adolescent. As the teen adolescent gets older, they become a young adult. This is about the age a person would go to college or get a job. From here they become an adult. As an adult they can get married and began having children of their own. They grow older and become elder adults. They may be grandparents by this age. They also may retire from their job.



Name: _____

Human Life Cycles

Create a personal time line from the time you were born. Plan for the future. What do you want to be when you grow up. What do you hope you will do when you are an adolescent? What do you hope to do as an adult? What do you think life will be like as an elder?

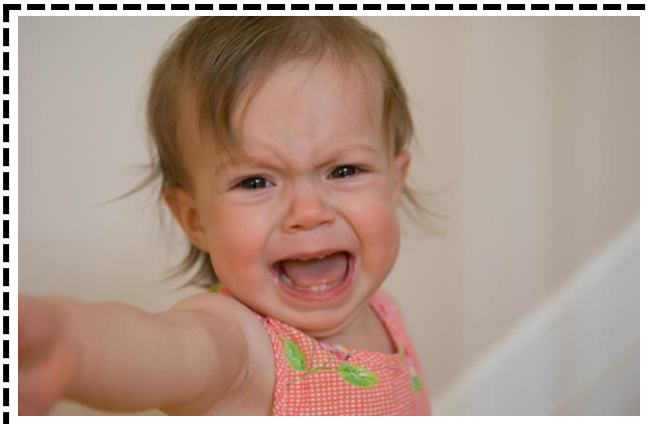
Or

Create a family tree from you to the oldest family member you can think of. Look at the different stages of life each person is in.

Name: _____

Human Life Cycles

Put the life cycle in order.



Name: _____

Plant Life Cycles

Read, Think, and Answer.

Plants are also living things. They have life cycles as well. Flowers start out as seeds. Have you ever tried to grow a seed into a flower?

Name: _____

Plant Life Cycles

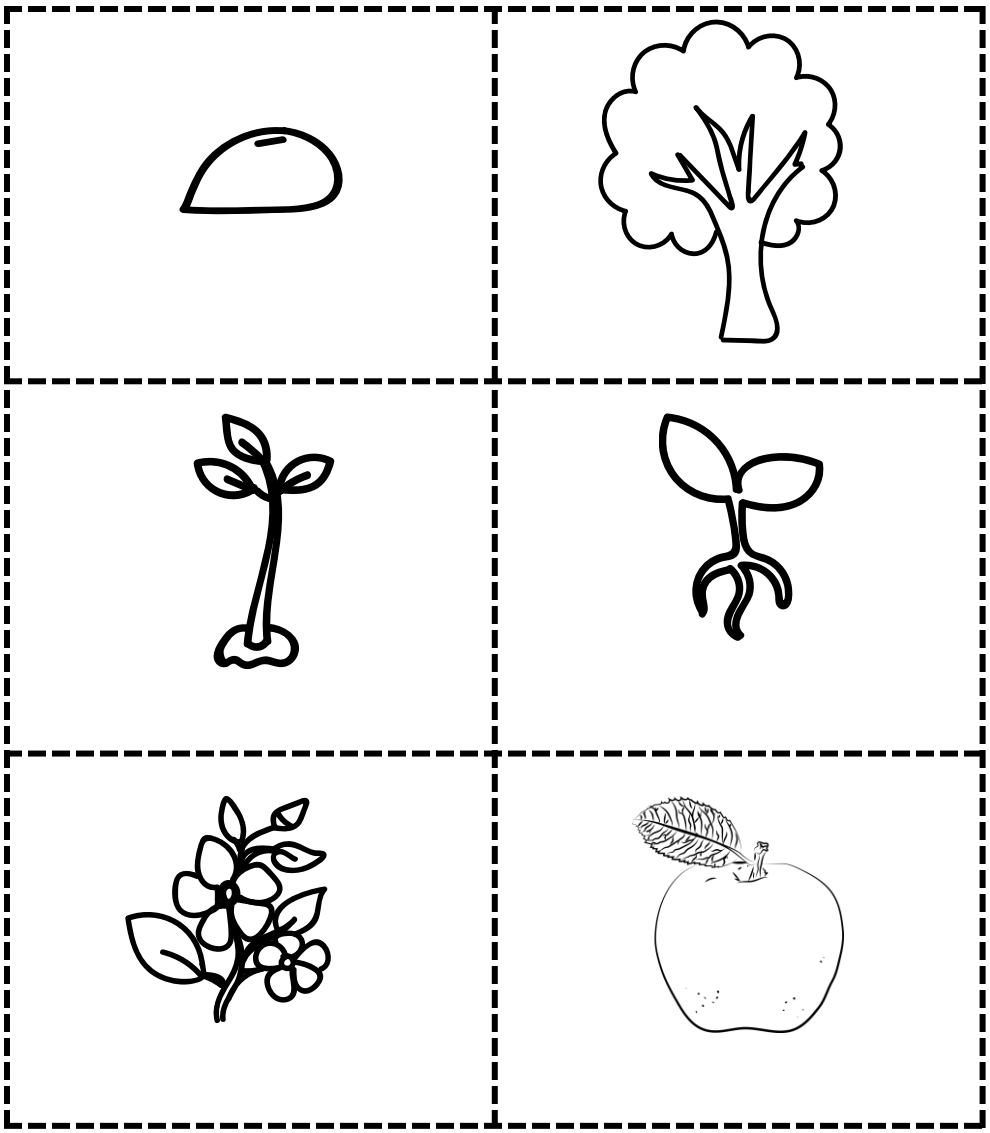
Read, Think, and Answer.

Trees have similar life cycles to flowers. They start from a single small seed. They sprout in to tiny little plants that not many people would even notice. Then they grow into saplings. They are starting to look like trees then. They keep growing and growing in to big trees with branches and leaves. Apples trees are fruit trees. Each year they go through a different cycle. In the Spring they begin to blossom all over their branches. These blossoms fall off and become apples. Inside the fruit is more apple tree seeds!

Name: _____

Plant Life Cycles

Color and put in order the life cycle of an apple tree.



Name: _____

The Earth

Color the planet Earth.

Name: _____

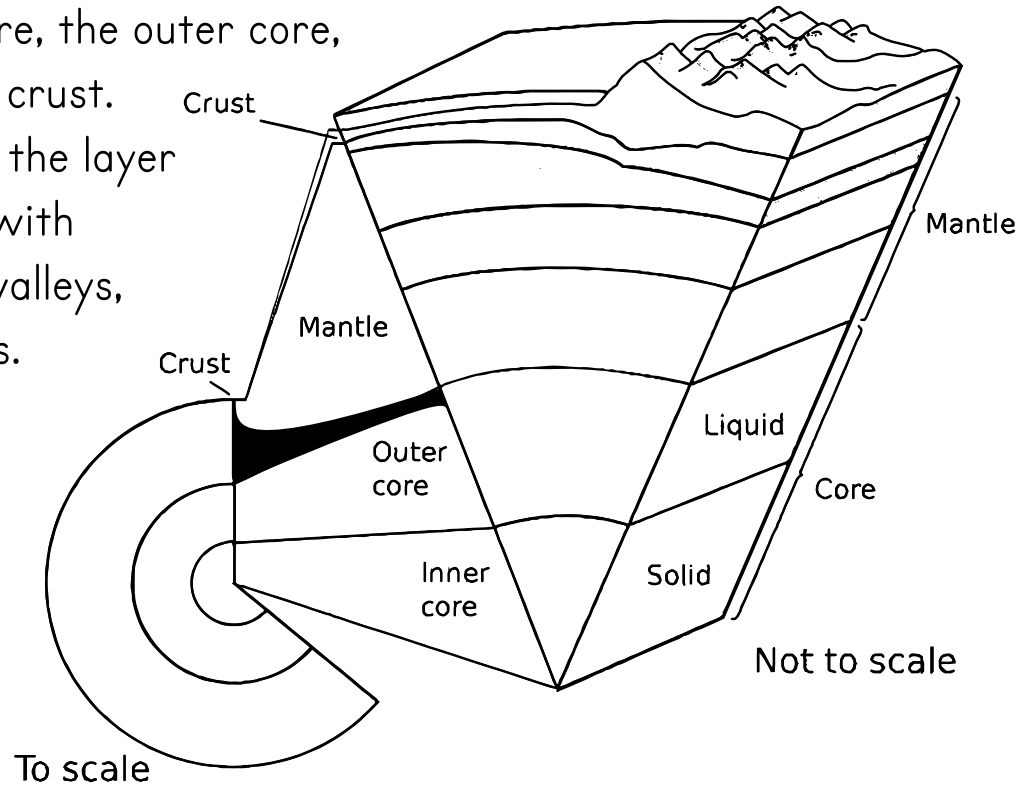
The Earth

The Earth is the planet we live on. A planet is an object in space that orbits the sun. The Earth is the third planet from the Sun and the fifth largest in size. Earth is the largest of the terrestrial planets. Earth is the only known planet to be able to sustain life.

It is perfectly designed just for us. The Atmosphere protects us from the Sun's radiation and Space debris and provides us with seasons and different weather conditions.

Earth is composed of four main layers;
the inner core, the outer core,
mantle and crust.

The crust is the layer we live on with mountains, valleys, and volcanos.



Name: _____

The Earth

Label the layers and color the Earth.

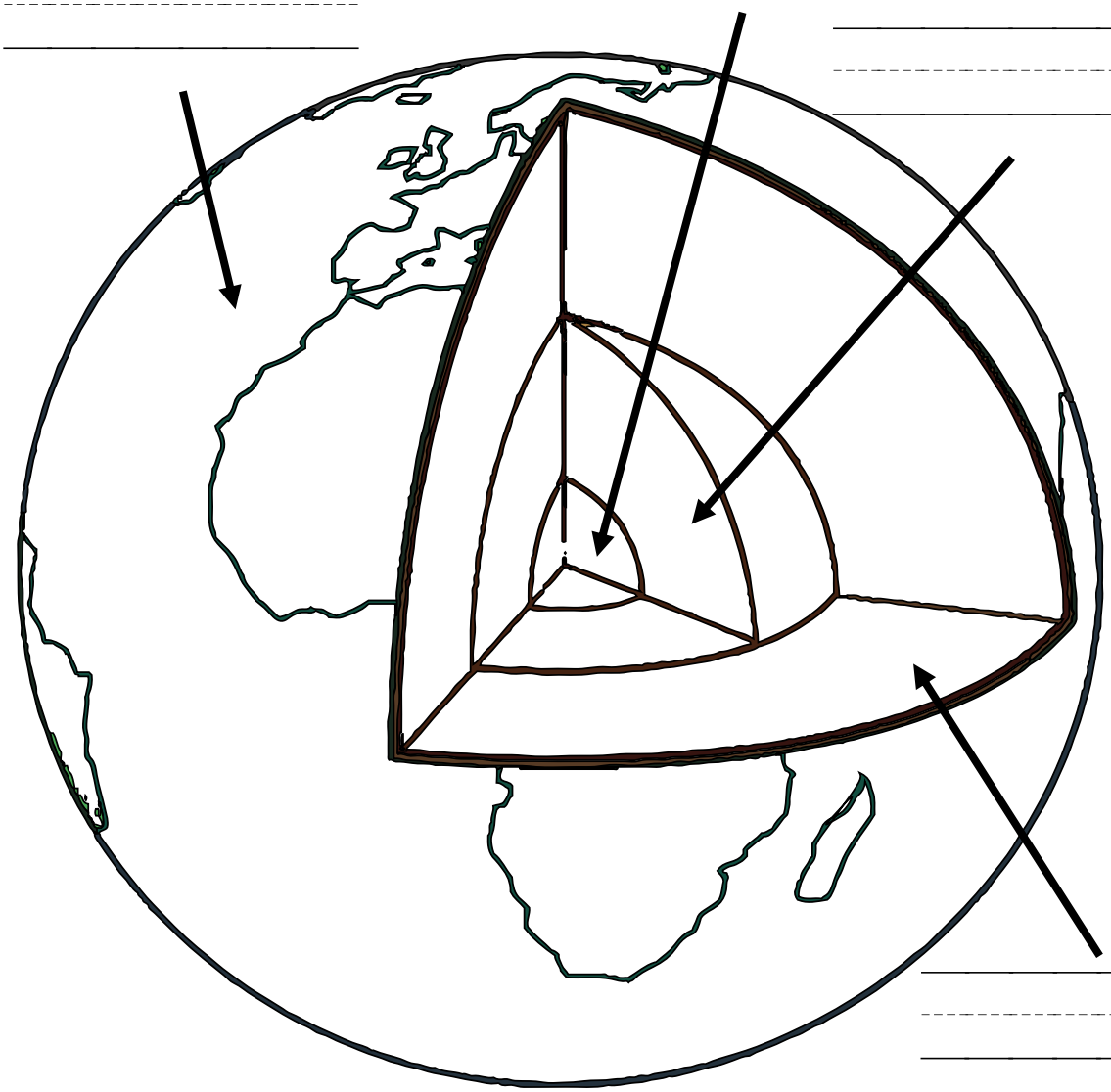
Word Bank

Crust

Mantle

Outer Core

Inner Core



Name: ----------

Mountains

Earth's crust has many different features. One of those is mountains. Mountains are any land mass that rises 1,000 feet above the surrounding area. Mountains are formed in many different ways.

There are three major types of mountains. Fold mountains are mountains formed with two ***plates*** collide with each other. That force causes the Earth's crust to crumple and fold and forms fold mountains.

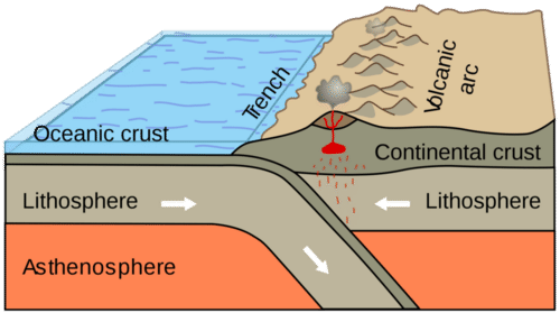


Plate Tectonics:

Part of the Earth crust and upper mantle form the lithosphere. The lithosphere is made up of seven large plates and several smaller plates constantly moving. It moves so slow we can't feel it. Sometimes they bump together. Do you know what happens when they bump together?

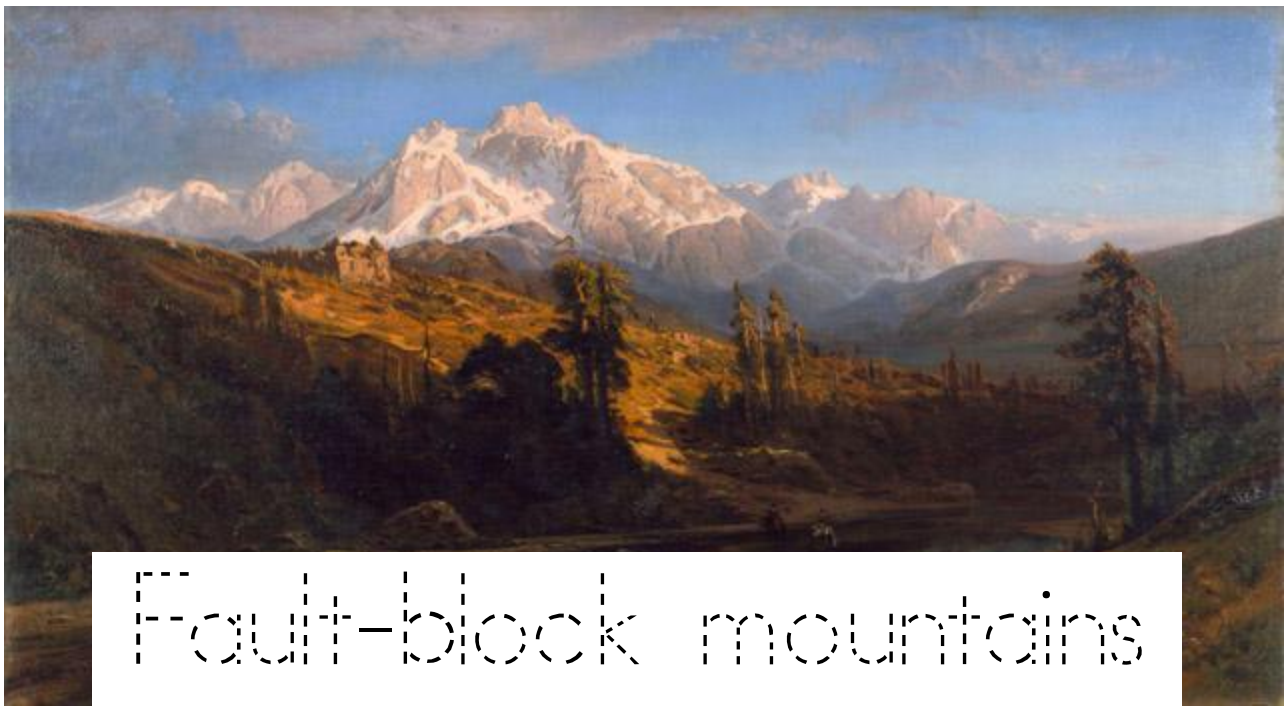
Name: _____

Mountains

Fault-block mountains are formed along faults when the Earth's crusts stretches apart. Some parts of the Earth are pushed upward and other collapse down.

Faults are cracks in the Earth's crust. The surface of the Earth can move along the faults and can cause earthquakes. Over long periods of time mountains form under the pressure.

An example the a fault-block mountain range is Sierra Nevada mountains in California.



Fault-block mountains

Name: _____

Mountains

The third type of mountain is volcanic mountains. Volcanic mountains are formed by volcanoes spewing lava over and over again. The lava cools and hardens and builds up to form a mountain.

There are two types of volcanic mountains volcanoes and dome mountains. Volcanoes are formed when magma erupts all the way to the surface of the Earth. The magma will harden on the Earth's surface, forming a mountain. Dome mountains are formed when a large amount of magma builds up below the Earth's surface. This forces the rock above the magma to bulge out, forming a mountain.

Examples of volcanic mountains include Mount Fuji in Japan and Mount Mauna Loa in Hawaii.

Mount Fuji

Name: _____

Volcanos

Volcanos are openings in the Earth's crust where hot liquid rock erupts to the surface. The rock deep inside the Earth becomes so hot that it turns into a liquid. This liquid is called magma. When magma flows to the surface it is then called lava. The lava begins to cool and harden to form rocks. The hotter the lava that farther it takes for it to cool.

Volcanos can be active meaning they have recently erupted or currently erupting. They can also be dormant volcano meaning that it hasn't erupted in awhile but could possibly erupt. Another type of volcano is an extinct volcano or one that isn't expected to ever erupt again.

Volcano

Name: _____

Volcanos

Volcanos come in different shapes.

Cinder cones are volcanos formed from lava escaping from a single vent on the top. They are usually smaller than composite volcanos.

Composite volcanos are larger and formed by layers of lava that have built up over time. They can grow to be very large.

Shield volcanoes form wide thin layers of lava that are shaped like a shield.

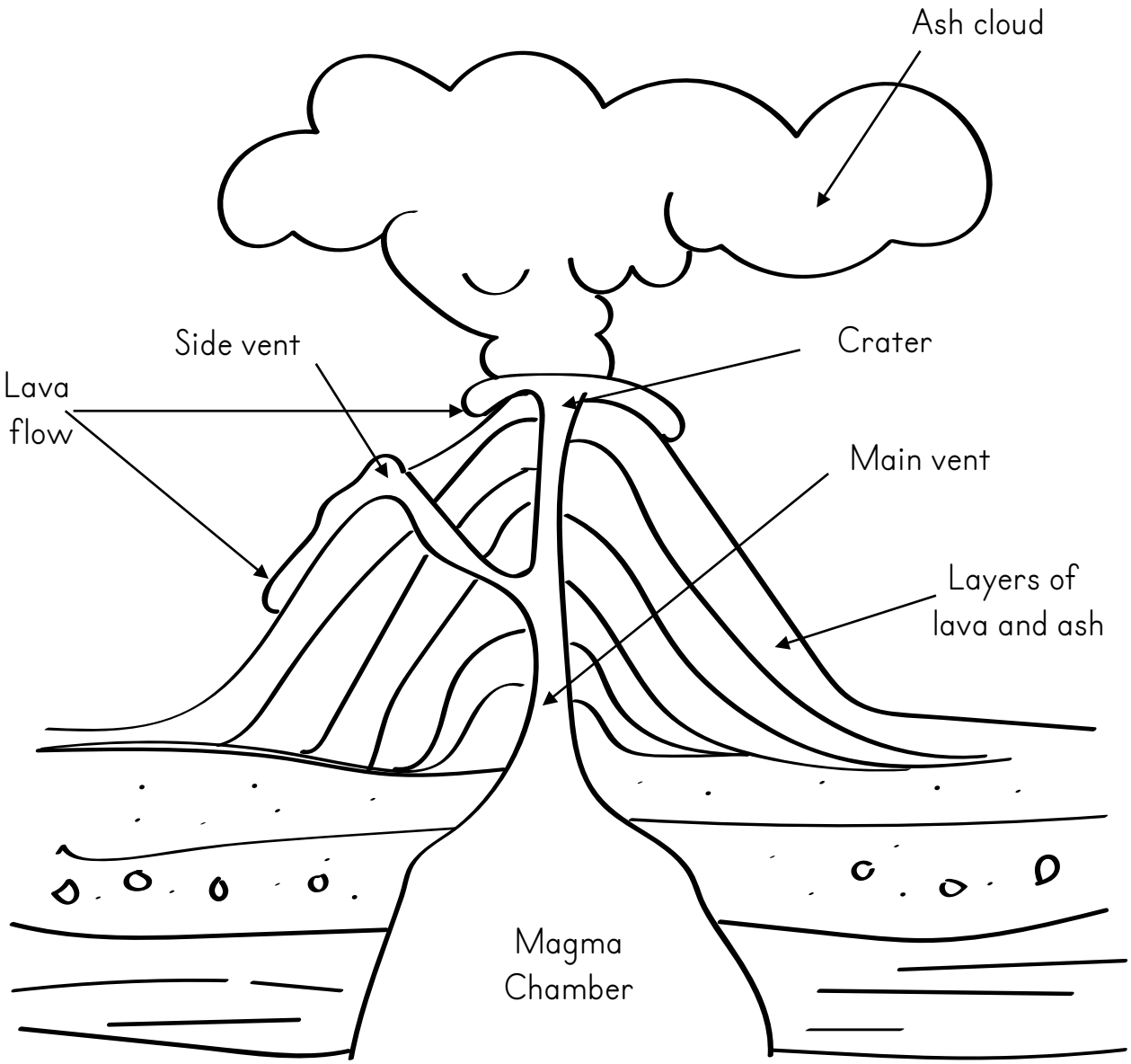
Lava domes are formed when lava hardens around the vent.

What are some of the differences in the different shapes of volcanos?

Name: _____

Inside a Volcano

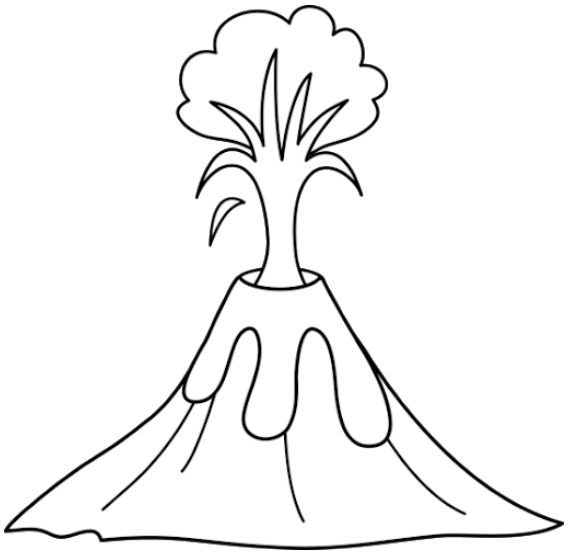
Color the Picture



Name: _____

Volcanos - Experiment

Make your own volcano.



What you need:
2 small paper cups
playdough
baking soda
vinegar
red food coloring

Step 1: Cut cup in half. Build a volcano shaped base with the playdough and put the cup in the middle to hold the "lava".

Step 2: Fill the cup inside the volcano with baking soda.

Step 3: Add vinegar and food coloring to a separate cup.

Step 4: Pour the vinegar solution into the baking soda inside the volcano.

Watch and describe what happens.

Name: _____

Oceans

70% of the Earth's surface is the marine biome. The marine biome is made up of three different areas; Oceans, Coral reefs, and estuaries.

The ocean is made up of saltwater and home to many different marine life. Over 90% of the life on Earth lives in the ocean.
There are five major oceans, the Atlantic, Pacific, Indian, Arctic, and Southern Oceans.

There are many different animal types that live in the ocean. Some are fish that breathe water with their gills. Some are mammals that have to come to the surface to breathe. Some are invertebrate and are called mollusk, an example would be a octopus.

mollusk

Name: _____

Oceans

The ocean can be divided into five zones depending on how much sunlight can reach the zone.

Sunlit or euphotic is the top layer. This zone gets the most sunlight. The sunlight provides energy to the ocean organisms through photosynthesis. It feeds plants as well as tiny organisms called plankton. Most of the marine animals live in the sunlit zone.

Twilight or disphotic zone is where sunlight starts to fade. This zone contains creatures that have adapted to low light or can create their own light through bioluminescence (a chemical reaction).

Midnight or aphotic zone is the next zone. There is no light in the midnight zone. Very few animals live in this zone but it is the larges of the zones.

The Abyss is an area of the ocean where there is no light and temperature is near freezing. The pressure is high due to the weight of the water above. Invertebrates like sea stars and squids can survive in this environment.

The trenches are found from the ocean basin and below. The high pressure and low temperatures make these areas hard to explore without special equipment.

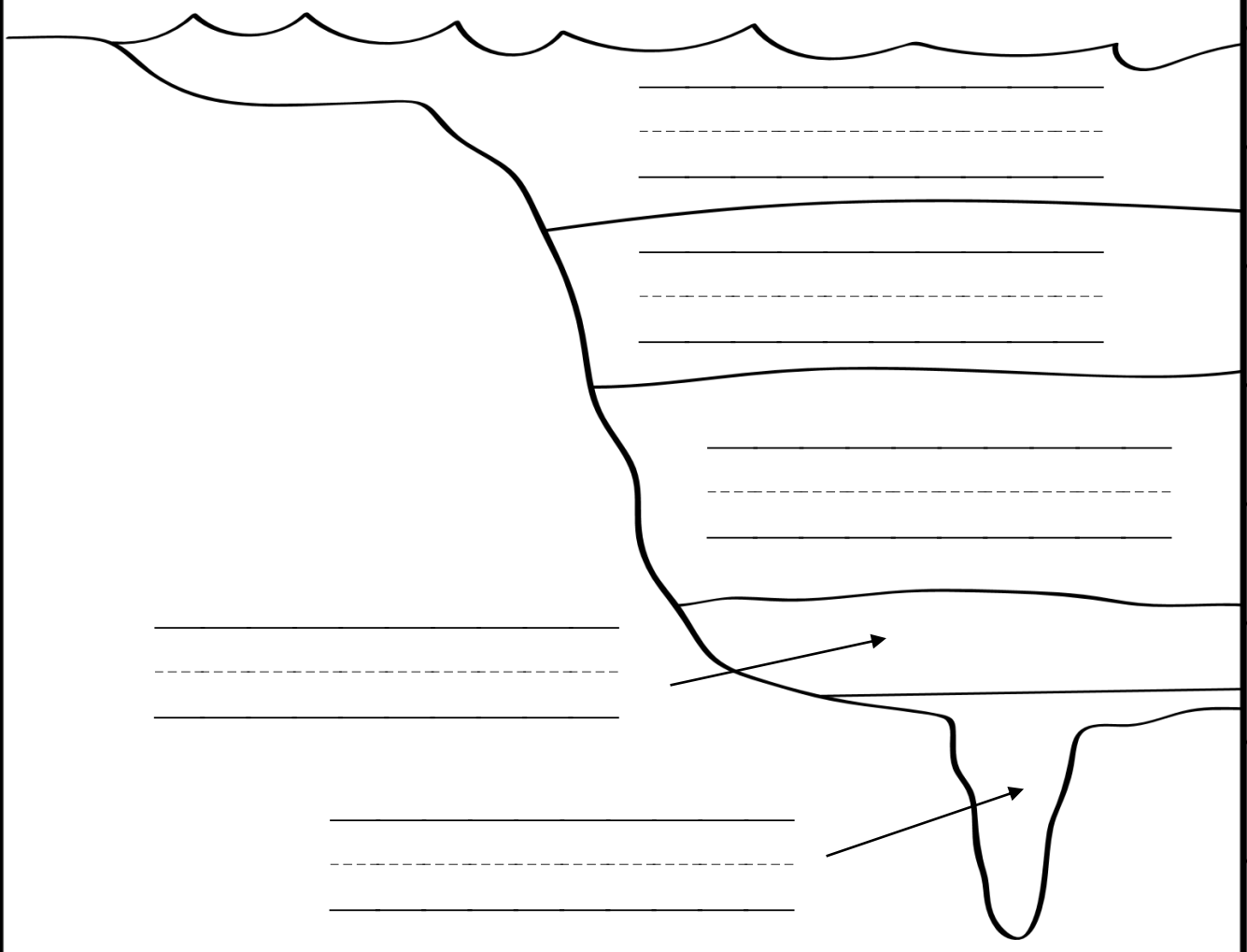
Name: _____

Oceans

Label the zones of the ocean.

Word bank

Sunlit
Twilight
Midnight
Abyss
Trench



Name: _____

Recycling

Our Earth is a wonderful place to live. We should try to protect it by keeping it clean. One way to help our planet is to recycle. Recycling is reusing materials instead of throwing them in the trash. We can recycle many things such as plastic, glass, metal, paper, and cloth.

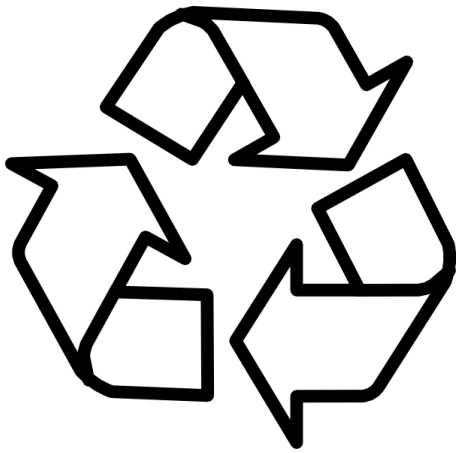
The average person throws a lot of trash into the landfills every year. Each of us should work to cut down on our waste to make the world a better place.

The three Rs of recycling are:

Reduce Reuse Recycle

The Recycling Loop has three arrows. Each one represents a different step in The recycle process.

1. Collect
2. Process materials
3. Buying recycled items



Name: _____

Recycling

Recycling Fact:
Glass can be recycled many times.

Reduce is the first R of recycling.

When we reduce waste there is less waste to recycle or reuse. We can use more multi use items or things that can be used in different ways. Here are a few ideas to reduce waste:

1. Print on both sides of paper.
2. Use cloth napkins and avoid paper plates, plastic utensils, and plastic cups.
3. Avoid over packaged products.

The second R is Reuse

We can repurpose items into other things instead of throwing them out.

The third R is recycling

To recycle something means to transform things into raw materials to be used to create completely new products.

Another part of recycling is to make an effort to buy recycled products.

Make a list of ways you can help by using the three Rs of recycling.

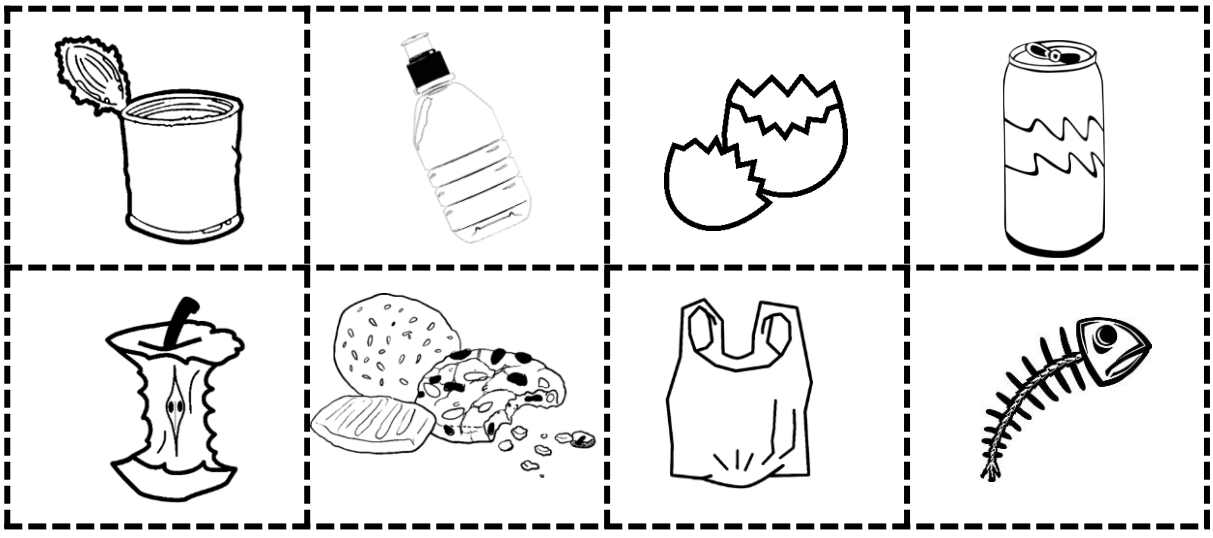
Name: _____

Recycling

Sort the materials to the correct bins.

Recycling Fact: A single aluminum can will sit in a landfill for at least 500 years. All aluminum cans may be recycled.

Trash	Recycling



Name: _____

Recycling

There are many benefits to recycling.

1. Conservation of natural resources – The world's natural resources are not unlimited. Some are even quite rare. Recycling helps to reuse those materials. It saves trees, fuels, money, and rare raw materials.

2. Protects our wildlife. Recycling reduces the need to grow, harvest or extract new raw materials from the Earth. That means we disrupt the animals less.

3. Saves energy. Making products from recycled materials uses less energy.

Here are just a few common items we can recycle.

Plastics
Glass
Metals
Electronics
Computers and accessories
Textiles
Newspapers and magazines
Cardboard

Recycling Fact: If you lined up the plastic bottles tossed away each year, they would circle our planet four times.

Name: _____

Recycling

Color the items you can recycle.

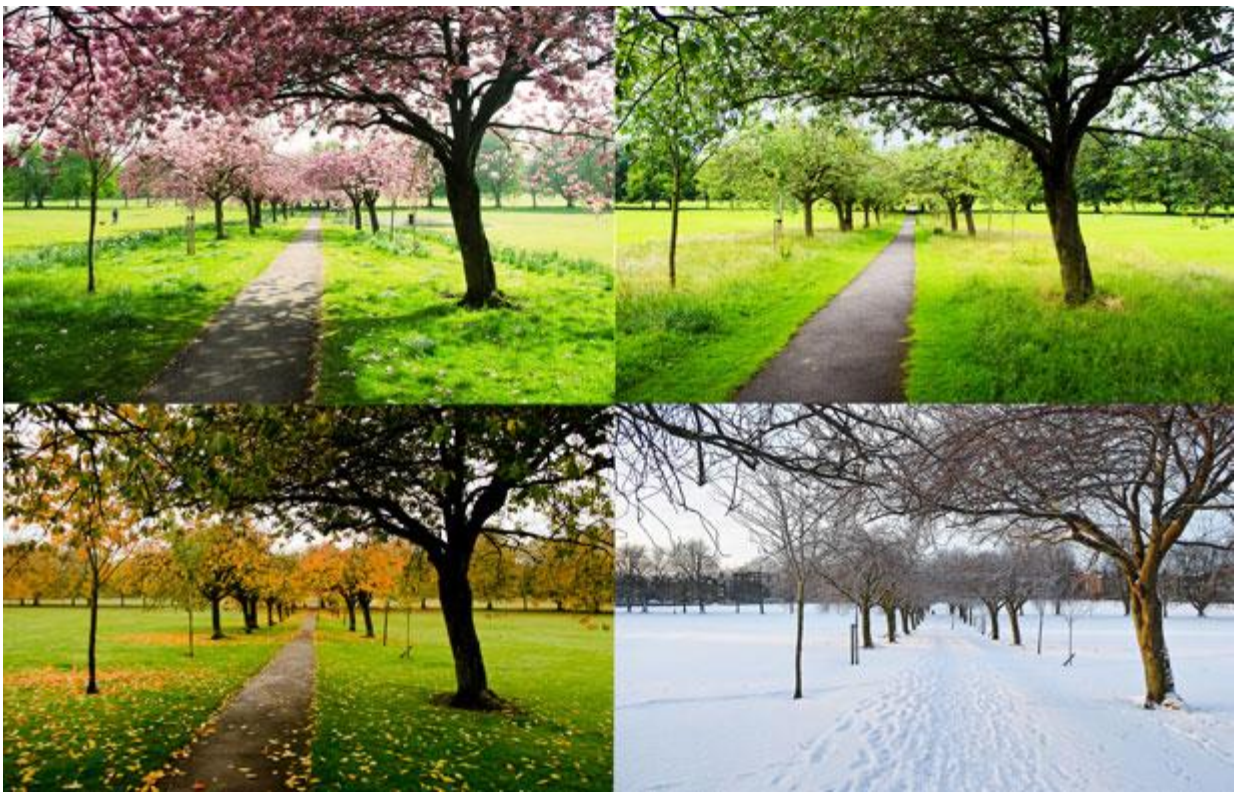
Recycling Fact: 75% of garbage is recyclable but we only recycle 30% in the US.

Name: _____

Seasons

Each year we have four seasons. This is because of the Earth traveling around the Sun (it's orbit). The Earth takes I year to make a complete orbit. While the Earth orbits the amount of sunlight each area on the planet receives changes. This is what causes the seasons.

We have four season. Each season is three months long. Can you guess which season is each picture?



Name: _____

Winter

Winter is the season that is usually cold. Some places get a lot of snow and ice while others might just be chilly.

Winter is in December, January, and February.

What is Winter like where you live?

What happens to the leaves in Winter?

Draw a picture of Winter on a separate piece of paper or the back of this one.

Name: _____

Spring

Spring is the season is warmer. A lot of animals are born in Spring. Many flowers bloom in Spring.

Spring is in March, April, and May.

What is Spring like where you live?

What happens to the leaves and plants in Spring?

Draw a picture of Spring on a separate piece of paper or the back of this one.

Name: _____

Summer

Summer is the season is hot. School is out and a lot of people vacation. Many people go to the beach

Summer is in June, July, and August.

What is Summer like where you live?

What happens to the leaves and plants in Summer?

Draw a picture of Summer on a separate piece of paper or the back of this one.

Name: _____

Fall

Fall is also known as autumn. This is the season when the leaves began to brown and fall off the trees. It get a little cooler. Pumpkins become popular.

Fall is in September, October, and November.

What is Fall like where you live?

What happens to the leaves and plants in Fall?

Draw a picture of Fall on a separate piece of paper or the back of this one.

Name: _____

Weather

Weather describes what is going on in our ***atmosphere*** each day. Weather is described in terms of different conditions such as temperature, humidity, wind velocity, precipitation, and barometric pressure. Weather can be very different from place to place.

Weather events are controlled by changes in air pressure. The air pressure is caused by air molecules that make up the atmosphere. When the air pressure is high then usually the sky will be clear. Lower pressure days might be rainy.

The weather can follow a pattern. The average weather pattern in a place is called the climate. Knowing the climate of an area and the season can help you know more about what the weather might be that day for that certain area.

What ways can it help us if we know what the weather will be like each day?

Atmosphere – the gases surrounding our planet held into place by gravity.

Name: _____

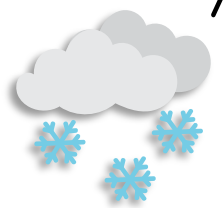
Weather

There are several different weather conditions and each can affect you differently. What is something you like to do in each type of weather? Write or draw a picture.

Sunny

Rainy

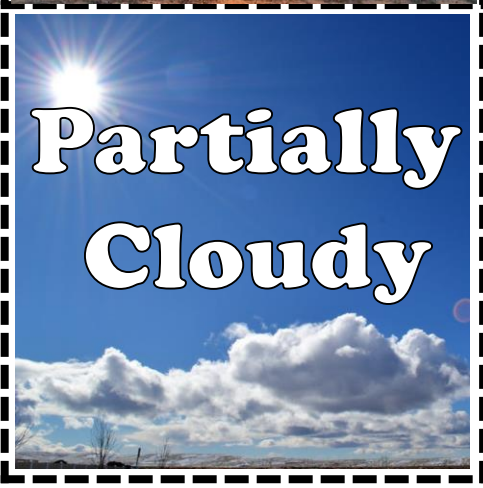
Snowy



Windy

Name: ----------

Weather



Name: _____

Thunder Storms

Storms can be scary at times. Sometimes the power may go out or thunder may shake the house. What do you think causes these thunderstorms?

Thunder storms need three things, moisture, unstable air, and lift. The moisture air usually comes from the ocean. In warm areas, water is evaporated into the air. This is what makes clouds.

When warm moist air is near the ground and cold, dry air is above it we get unstable air. The warmer less dense air rises upward giving the lift needed to create a thunderstorm. The clouds produced can bring strong winds, thunder, and lightning.

What are three things needed for a storm?

What makes unstable air?

Name: _____

Different Storms

There are different kinds of storms.

An ice storm can happen when freezing rain causes accumulation on surfaces. Ice storms usually occur in the months of December and January.

A thunderstorm cloud can create hail when the rain the produce freezes before it hits the ground.

Snowstorms are caused by heavy snowfall. Visibility is reduced and driving can be hazardous in a snowstorm. If the snowstorm is severe and comes with strong winds, it is called a blizzard.

A hurricane is a tropical cyclone. A hurricane loses strength when it reaches landfall because it is no longer received the moisture from the ocean waters.

A tornado is a funnel shaped column of air which rotates counter-clockwise. The can cause a lot of damage. The Fujita scale measures it in five stages: F1 – moderate, F2 – significant, F3 – severe, F4 – devastating, and F5 – incredible. While tornadoes can occur anywhere in the world, more occur in the US than any other country.

What are some different types of storms?

Pick one type of storm and create a poster of safety tips to keep someone safe during the storm.

Name: _____

Weather Journal

Today's date is _____

What is the weather like today?

Color the picture that shows what kind of weather.

What is the high temperature? _____

What is the low temperature? _____

Is it hotter today than yesterday? _____

Did it rain today? _____

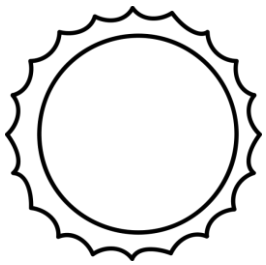
Draw a picture of today's weather on the back.

Name: _____

Weather Word Search

Find the words.

a	s	u	n	n	y	v
t	o	r	n	a	d	o
t	s	l	e	e	t	d
h	w	i	n	d	g	b
u	s	c	l	o	u	d
n	n	w	b	y	r	n
d	o	d	e	w	a	b
e	w	x	v	k	i	m
r	w	i	n	d	n	r



sunny
rain
thunder
sleet
snow
dew
tornado
cloud
wind

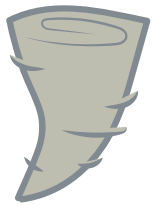
Name: _____

Weather Words

Write the words.

word bank

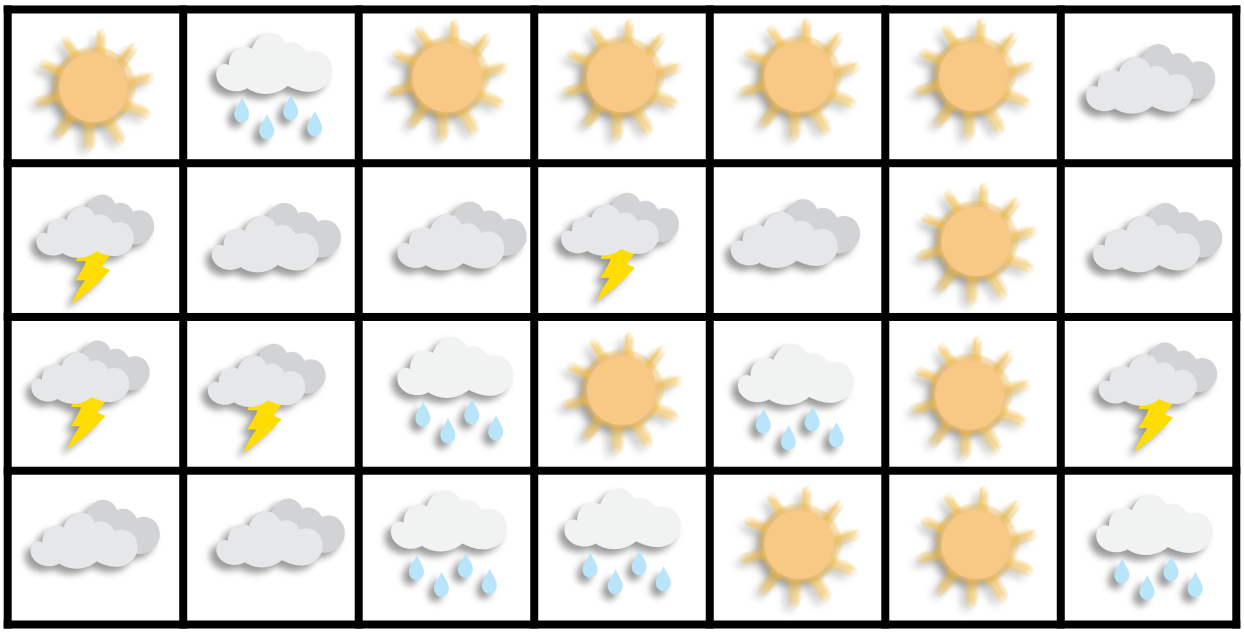
windy
cloud
rain
sun
tornado
lightning



Name: _____

Graph the Weather

Here is a weather chart for a month. Use it to fill in the questions.



 sunny  rainy  stormy  cloudy

Tally Marks

1	2	3	4	5	6	7	8	9	10

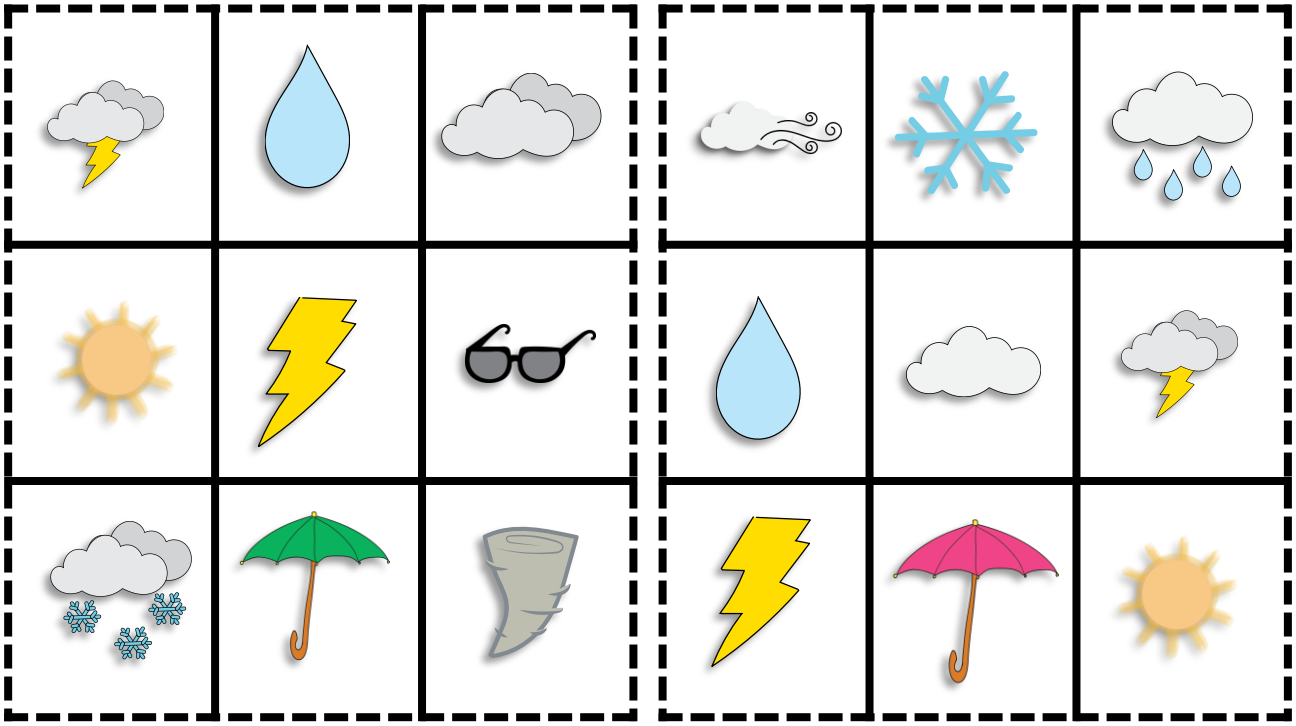
How many days were sunny?

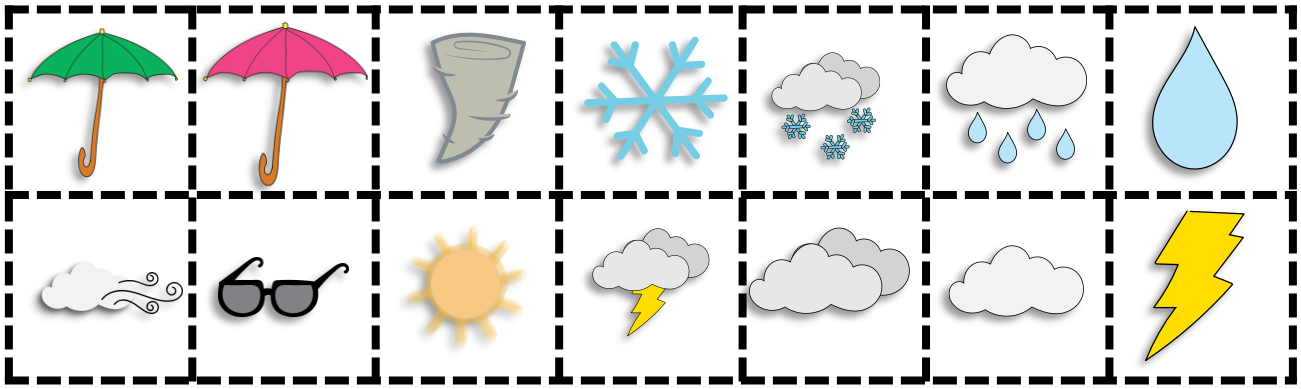
Was there more  or  ?

Name: _____

Weather Bingo

Cut out Bingo cards and playing cards. Draw a card. If you have the image on your playing card cover it up. Cover all the images on your card to win.

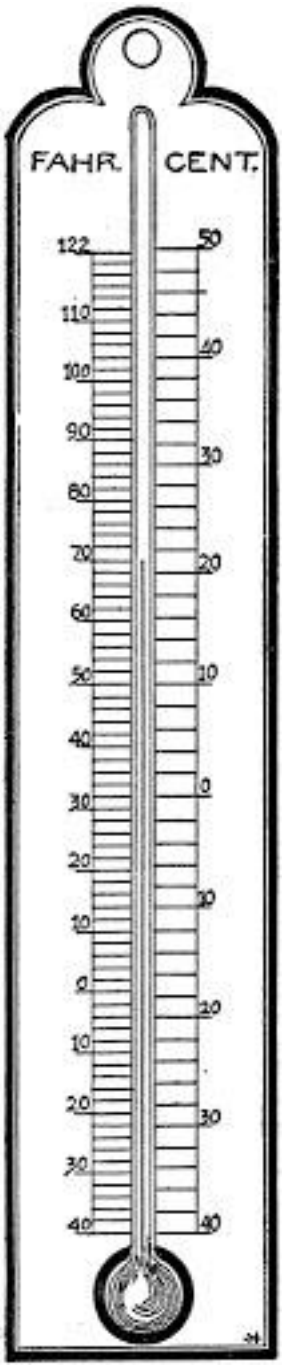




Name: _____

Meteorologists

Meteorology is the science that studies the Earth's atmosphere. People who study meteorology are called Meteorologists. Meteorologists study weather patterns and can predict the weather based on the information they record from the atmosphere. The information they gather is helpful to be able to prepare for certain weather conditions. Many different organizations and people use the forecasts.



Meteorologists

Watch the meteorologist on the news.
What kinds of tools is he using to show the forecast to the public?

A few tools a meteorologist might use are:

Thermometer to measure air temperature.
A **Barometer** to measure air pressure.
A **rain gauge** to measure rain.
A **sling psychrometer** to measure humidity.
Wind vane to see which way the wind blows.
Anemometer measures wind speed.

Name: _____

Meteorologists

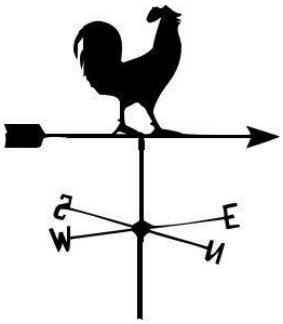
What does each tool do?

thermometer

sling psychrometer

barometer

wind vane



rain gauge

anemometer

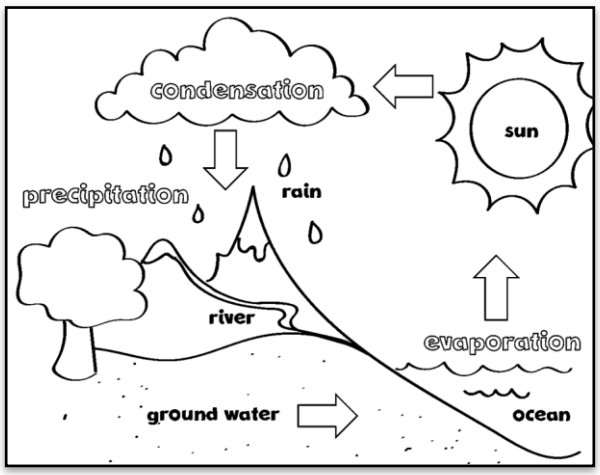
Meteorologists

Color the map and create your own forecast. Present your forecast as a meteorologist.

Name: _____

What are Clouds?

A cloud is water drops or ice crystals grouped together in the atmosphere. The sky can be full of water. The drops of water are usually too small to see. They have turned into a gas called water vapor. As the water vapor goes higher in the sky, the air gets cooler. The cooler air causes the water droplets to start to stick to things like bits of dust, ice or sea salt. This is also known as condensation, when a gas turns into a liquid. Remember our water cycle chart?



There are many different kinds of clouds. The temperature, wind and other conditions where a cloud forms determine what type of cloud it will be.

Write and define these words.
Evaporation
Condensation

Name: _____

Types of Clouds

Clouds are categorized primarily by two major factors, location and shape.

Clouds can be high in the sky or very low. Low clouds can even touch the ground, these clouds are called fog.

1. Cumulus clouds are round, puffy and white. They usually mean good weather.

2. Stratus clouds are low handing and flat. They are grayish in color. There might be a light drizzle on the days you see these clouds.

3. Stratocumulus are low, puffy, patchy clouds.

4. Altocumulus clouds are the most common. They are rounded masses that look like sheep wool. They are usually spotted on warm and humid mornings. They can signal an oncoming thunderstorm or cooler weather coming.

Name: _____

Types of Clouds

5. Nimbostratus clouds cover the sky in a dark gray layer. They signal rain or snow.

6. Altostratus clouds gray sheets that partially cover the sky. They form ahead of a warm weather front.

7. Cirrus clouds are thin, wispy strands that streak across the sky. This usually means good weather but can also mean storms may be coming.

8. Cirrocumulus clouds are small, white patches arranged in rows. You usually see them in winter when it is cold by the weather is clear.

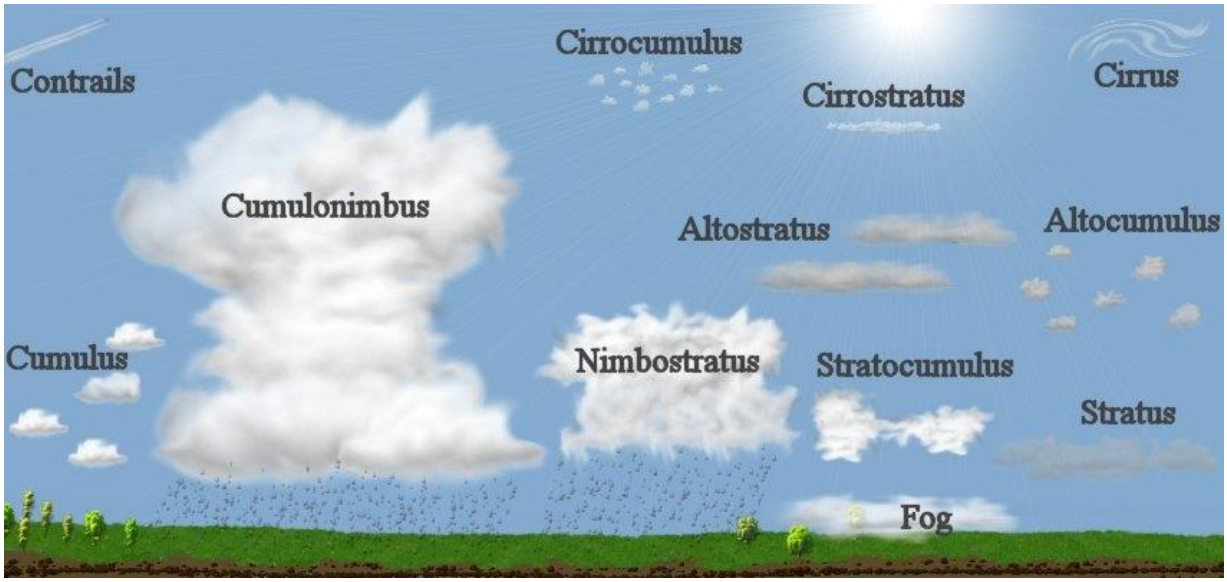
9. Cirrostratus clouds are transparent clouds that veil the entire sky. They are associated with approaching warm fronts.

10. Cumulonimbus clouds span the low, middle, and high layers of the sky. They look like they grow into the sky. These are thunderstorm clouds.

Name: ----------

Types of Clouds

Create a chart using the information and descriptions from the other pages. You can make it 3d using cotton balls to shape the clouds or draw them yourself. Add at least 3 types of clouds to your chart. Describe what weather they may be seen in and their characteristics.



Name: _____

Clouds Review

How are clouds formed?

What two things are used to determine what type of cloud it is?

What is condensation?

What is evaporation?

What is water vapor?

Name: _____

What is Soil?

Soil is the loose upper layer of the Earth's surface. It is a mix of organic material, water, air, rock, and minerals. Soil supports plant life and is necessary for all life on Earth.

Soil is very important and does many things for us:

Plants need the nutrients provided by soil to grow.

There are animals who use the soil as a home such as groundhogs. Fungi and other organisms also live in the soil.

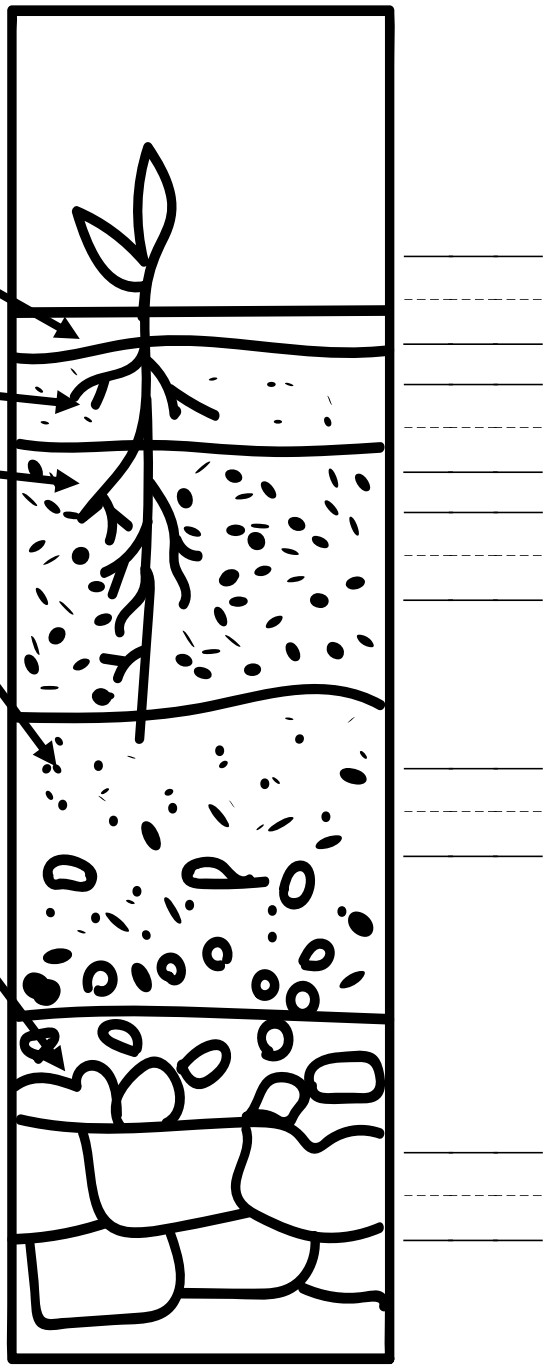
Soil can be used to filter water and make it clean. When water flows through the soil the soil helps filter out the larger contaminants. The soil microorganisms help to filter out the organic chemicals in water.

Name: _____

Soil Layers

Soil has layers. Each layer is different.

- O - Organic layer is where you find things like decomposing leaves.
- A - Topsoil layer is made up of minerals from parent material with organic matter.
- B - Subsoil is rich in minerals from the above two layers.
- C - Parent material is weathered and decomposed rock.
- R - Bedrock is a mass of rock such as granite, basalt, quartzite, limestone, or sandstone. This layer is not soil but can form the parent material.



Color and label each layer.

Organic

Topsoil

Subsoil

Parent Material

Bedrock

Name: _____

Soil Review

What are two reasons soil is important?

Name the layers of soil:

What is soil?

Name: _____

Air

Air is the Earth's atmosphere. Air is a tasteless, odorless, and invisible. It has no shape or weight. Air is a mixture of different gases and dust.

Living things like animals and people breathe in air for the oxygen. Humans breathe in oxygen and breathe out an odorless gas called carbon dioxide. Plants need the carbon dioxide in the air which they turn into oxygen.

Air isn't just gases. It can also contain dust and pollen. Air can carry soot, smoke, and other fumes as well. Air can be polluted by gases such as smoke or car fumes.

Air can also hold water. On hot Summer days the air feels humid. Humidity is the amount of water that the air can hold before it rains.

Air

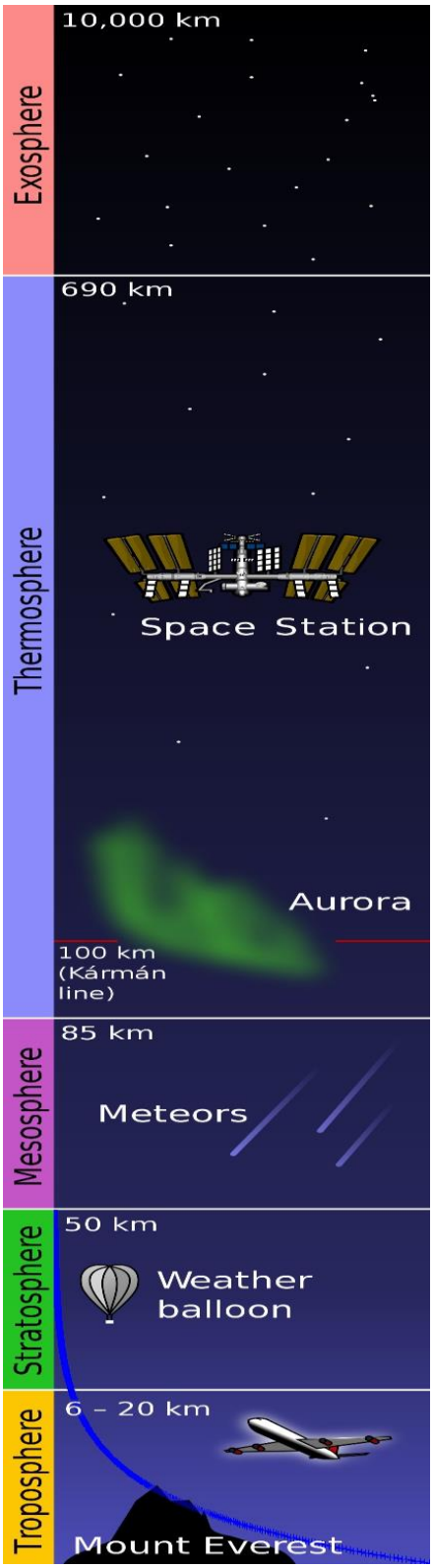
Name: _____

Air

The Earth's atmosphere is filled with air. This air helps keep the Earth from getting too hot or too cold. The air in the atmosphere also protects us from space debris. Meteoroid that try to come into Earth's atmosphere are burned up into smaller pieces before reaching Earth.

The Earth's atmosphere is divided up into 5 major layers:

- Exosphere – The last layer and thinnest and is above the Earth's surface.
- Thermosphere – The thermosphere is next and very thin. This layer is very hot.
- Mesosphere – This is where the meteors burn up. This is also where the coldest place on Earth is.
- Stratosphere – This layer gets heat from absorbing radiation from the sun. Weather balloons can go this high.
- Troposphere – This is the layer next to the ground and where we live. This is the layer the airplanes fly in.



Name: _____

Air

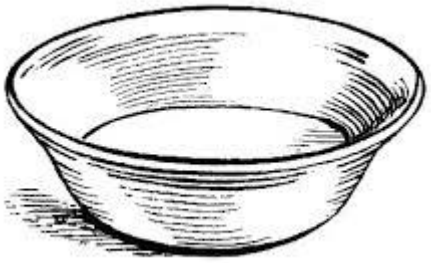
You can feel more air pressure at sea level but less on a mountain. The difference in air pressure is what cases your ears to pop when you are driving up a hill or going up in an airplane.

Here is a quick experiment that you can do to see air.

All you need is a bowl of water and a clear cup.

Place the cup straight down into the water. You will notice the air is still inside the cup.

Tilt the cup to the side and bubbles will come out. This is the air being released. Now water will fill the cup.



Name: _____

Air

What is air?

What is air made of?

What are the different layers of the Earth's atmosphere?

What causes our ears to pop when going up a hill?

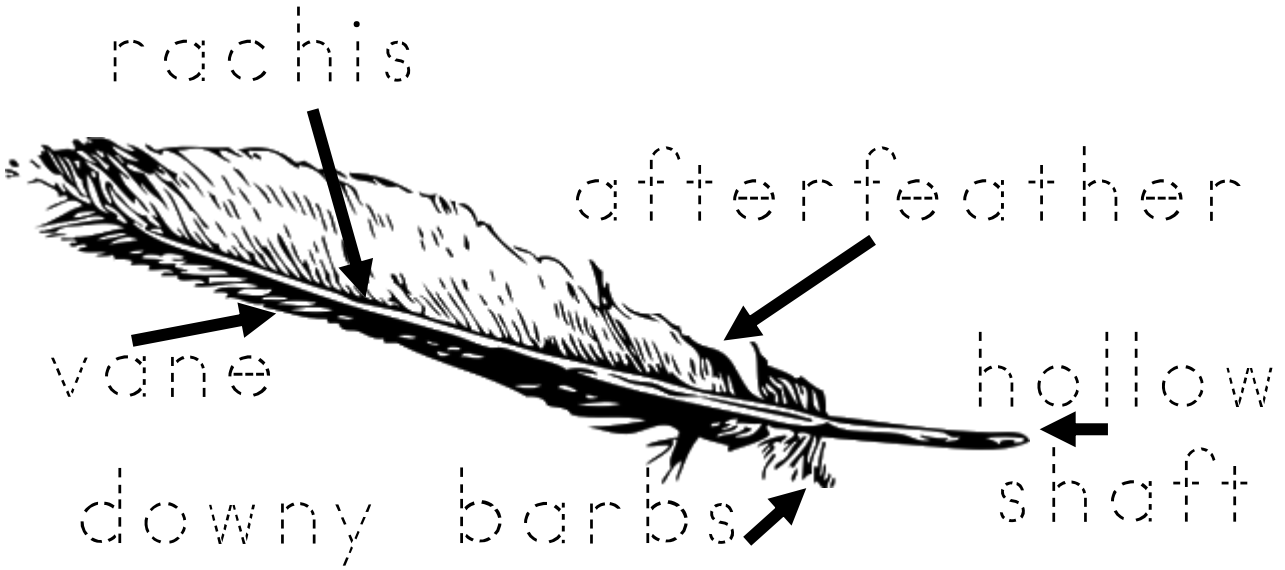
What things other than gas can be in air?

Name: ----------

Flight

What things can you think of that can fly?
Birds, some insects, airplanes... What else can you think of that can fly? What do they have in common?

Birds have wings and feathers that help them fly. They also have hollow bones that make them lighter but give them the strength to fly. Feathers are used in different ways. They have different shapes that help them to do different jobs. Flight feathers have a wide and narrow side. They can cut through the air with very little resistance. Downy feathers help keep birds warm. Semiplume feathers help birds float.

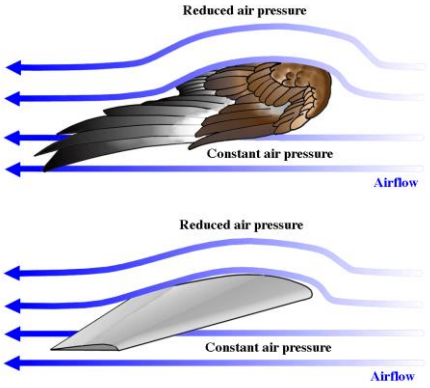


Name: _____

Flight

In order for birds or planes to fly, air has to be moving over and under the wing. The wings are also shaped in a specific way. The wings are shaped so that the air that passes over the top has to travel a longer distance and has to speed up. This creates a difference in pressure above and below. The difference in pressure creates the lift needed to fly.

The bird use it's wings to move creating a thrust of air. Airplanes use their engines or propellers to create the thrust and give it a push. Without the push there is no flight.



What two things do birds and planes need to be able to fly?

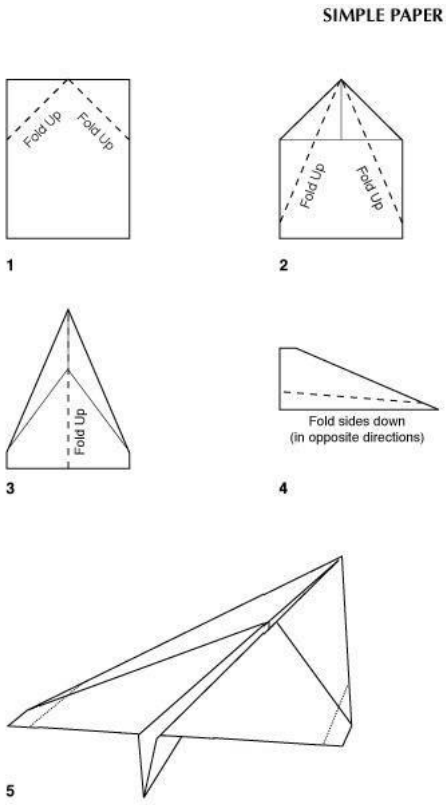
On a separate sheet of paper draw an airplane. Color the parts needed to fly red.

Name: _____

Flight

Aerodynamics is the branch of physics that deals with flight. When we study aerodynamics we learn how air interacts with solid objects.

We are going to build a paper air plane and watch how air flows. What design do you think would work best? Build the one below or your own design. Write about what happened.

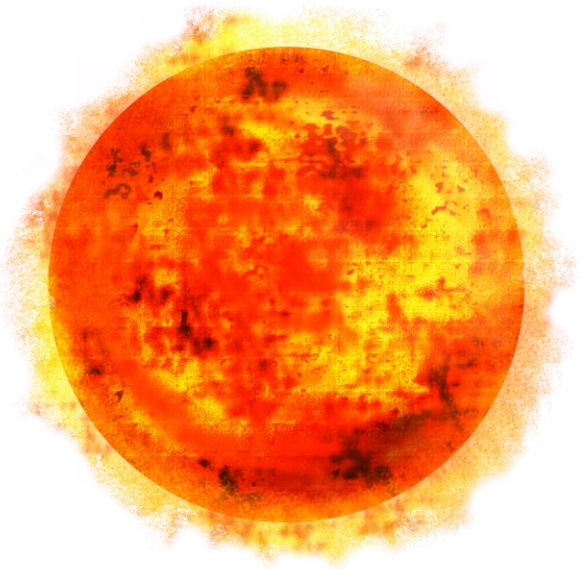


Name: ----------

The Sun

Size comparison

Earth



The sun is a star. It is a hot ball of glowing gases at the center of our solar system. The Sun is much bigger than it looks here on Earth. Look at the size comparison. Earth is much smaller than the sun but on Earth the sun looks smaller.

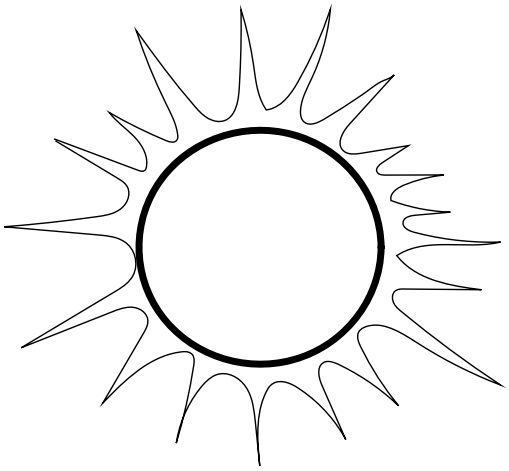
This is because we are very far away from the sun. We are the perfect distance from the Sun to make our planet viable for life. The Sun provides us with energy and heat which keeps us alive on Earth. It makes our plants grow which provides us with food.

Why is the Sun so important to us?

What is the Sun?

Name: _____

The Sun



Word Bank

center
bigger
star
heat

Write in the missing words.

The sun is a _____ .

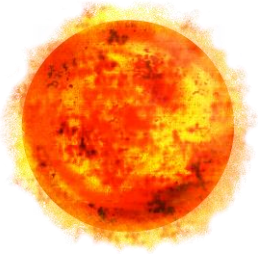
The sun is in the _____ of our solar system.

The sun give us _____ .

The sun is _____ than the Earth.

Name: ----------

The Sun



The sun is actually a Yellow Dwarf Star.
Dwarf Stars are any star of average or low luminosity, mass, and size. The gravity of the Sun is what holds all the planets in Orbit. It makes up more than 99% of the mass of the whole Solar System.

The Sun has six regions:

core

radiative zone

convective zone

surface

photosphere

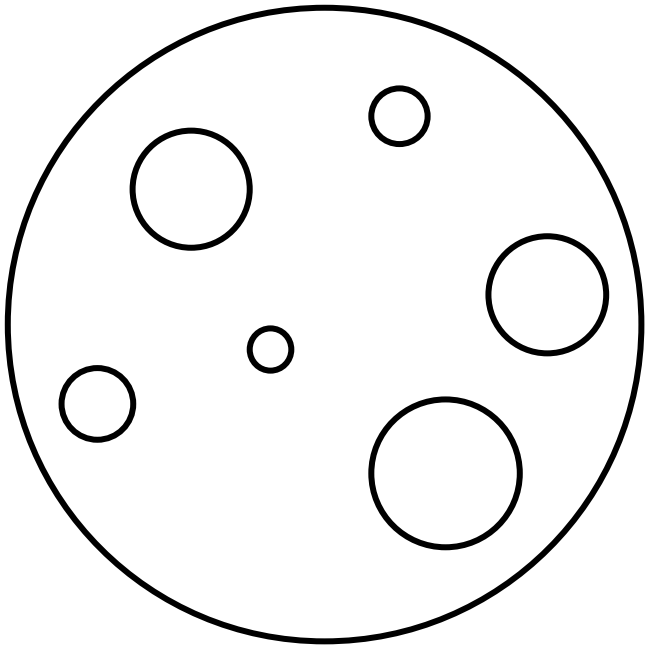
chromo sphere

corona

Name: _____

The Moon

The Moon is the brightest and largest object in our night sky. Earth has only one moon. It helps to regulate the climate on Earth. We need both the Sun and Moon to survive on Earth.

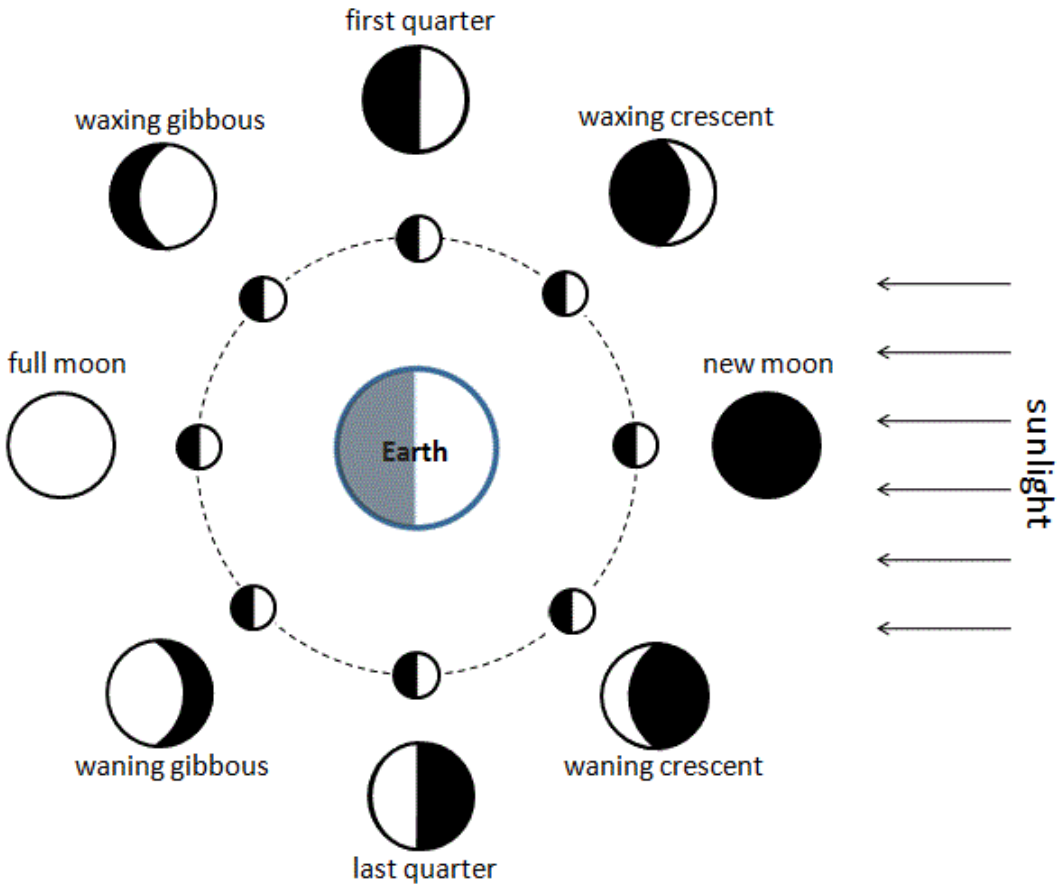


Moon

Name: _____

The Moon

Different parts of the Moon are lit by the Sun at different times. As the moon rotates around the sun we see different parts lit up. These are known as the phases of the Moon, or lunar phases.



Create your own moon phase chart.

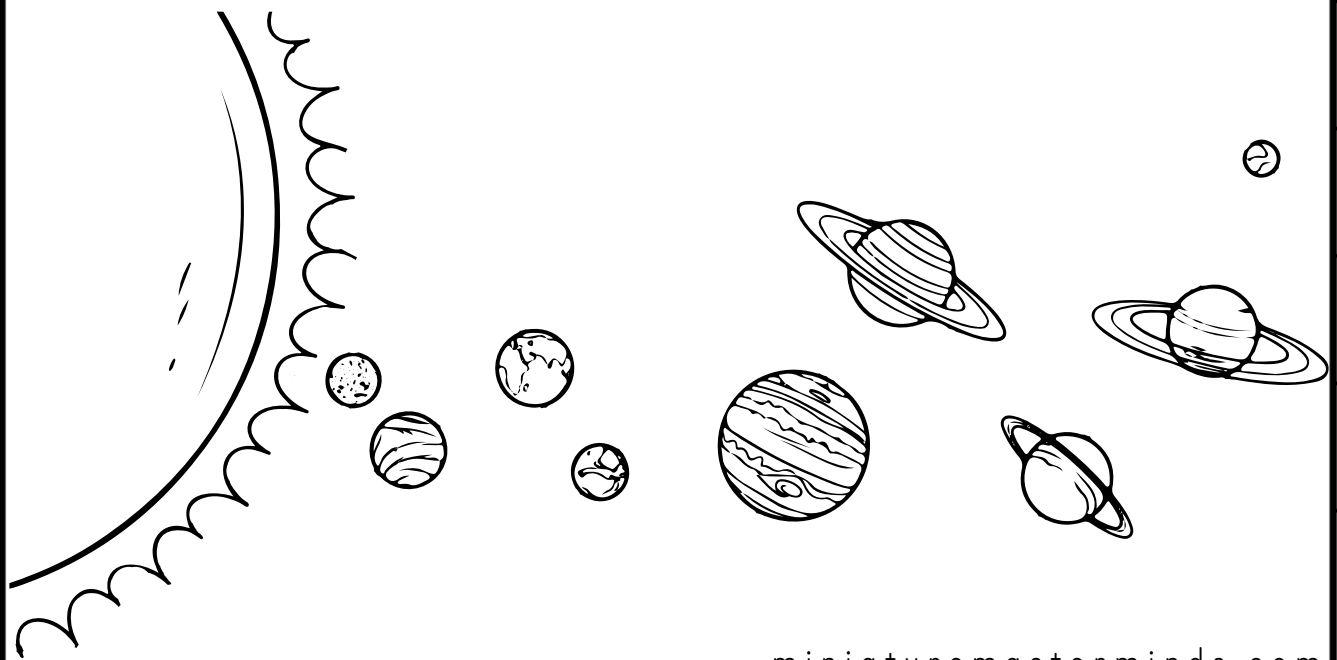
Name: _____

The Planets

Do you know what our solar system is?

The Solar System is what we call the Sun, planets, and other space objects that orbit around the Sun. Orbit means that the objects such as planets follow a path around and around the Sun.

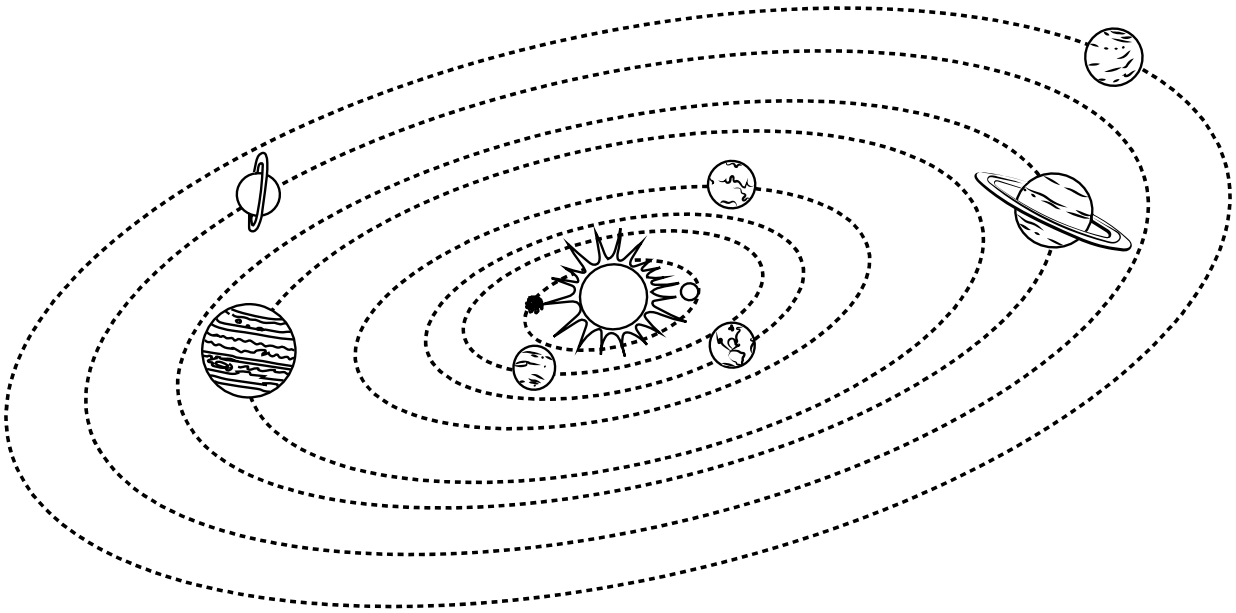
Our Solar System is held together by the sun's gravity. Gravity plays a big role in how our Solar System and life works. Gravity is what keeps us from floating off into space. Gravity is what keeps our feet on the ground. Have you ever seen an astronaut in space floating? That is because there isn't any gravity to keep them down.



Name: _____

The Solar System

The solar system includes the Sun and all the objects that orbit around it due to its gravity. This includes things such as planets, comets, asteroids, meteoroids and moons.



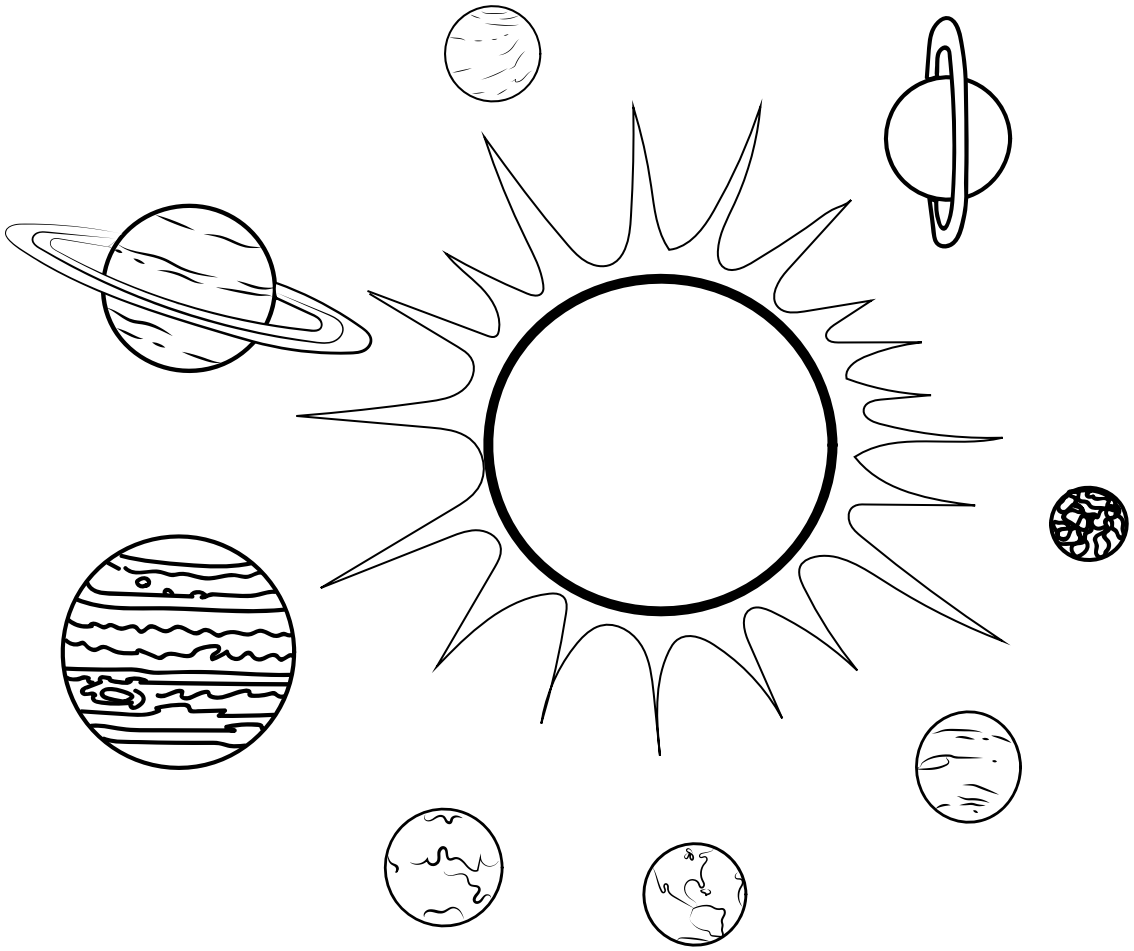
There are eight planets in the Solar System. The four inner planets are Mercury, Venus, Earth and Mars while the four outer planets are Jupiter, Saturn, Uranus and Neptune. There are also five dwarf planets: Pluto, Ceres, Eris, Makemake & Haumea.

Draw or create a solar system model.

Name: _____

The Solar System

Color the Solar System.

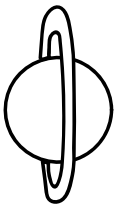


Name: _____

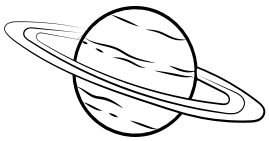
The Solar System

Unscramble the names of these planets.

pterjui



ruauns



nusatr

unves

rmas

aetrh

yuremcr

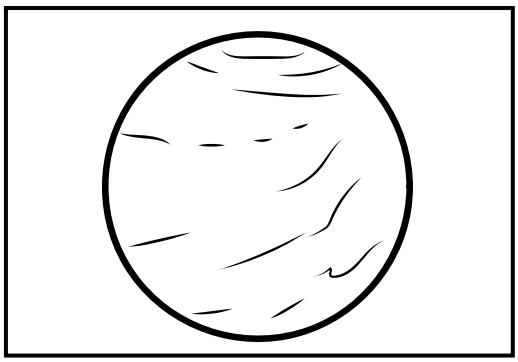
eutnepn

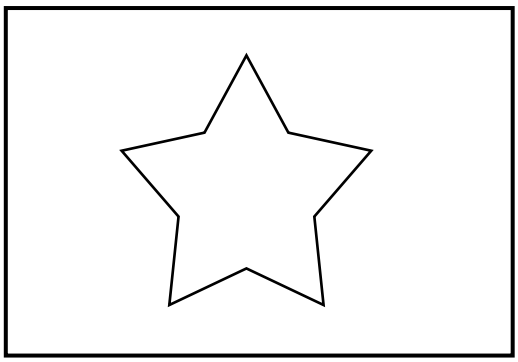
Name: _____

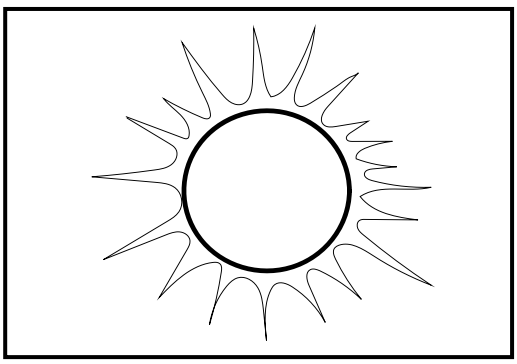
Space Objects

Label the items you can find in our Solar System.

planet	sun	star	comet







Name: _____

Space Objects

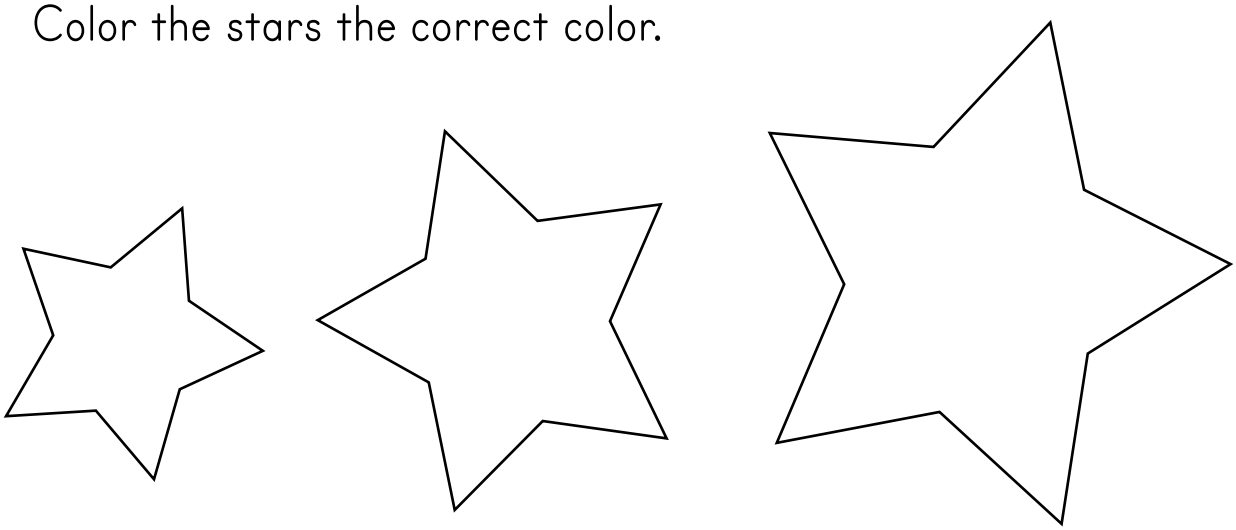
A star is a huge glowing ball of hot gas, mainly hydrogen and helium. Gravity causes the gases to pull together. There are countless stars in the sky. Some stars are hotter than others. There are many different types of stars. Stars are categorized by their color.

The smallest stars are red and don't give off much of a glow.

Medium size stars are yellow, like the Sun.

The largest stars are blue and are also the brightest.

Color the stars the correct color.

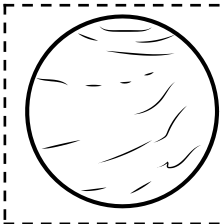
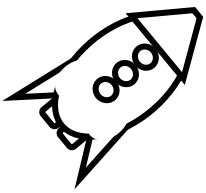
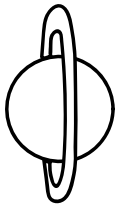
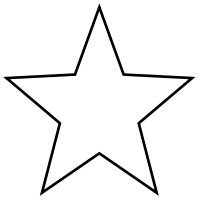
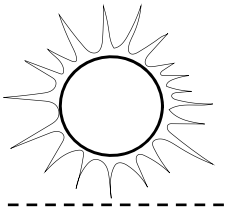


Name: _____

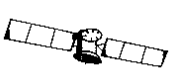
Space Objects

Cut out and sort the images into the correct column.

Planet	Not a Planet



Name: _____

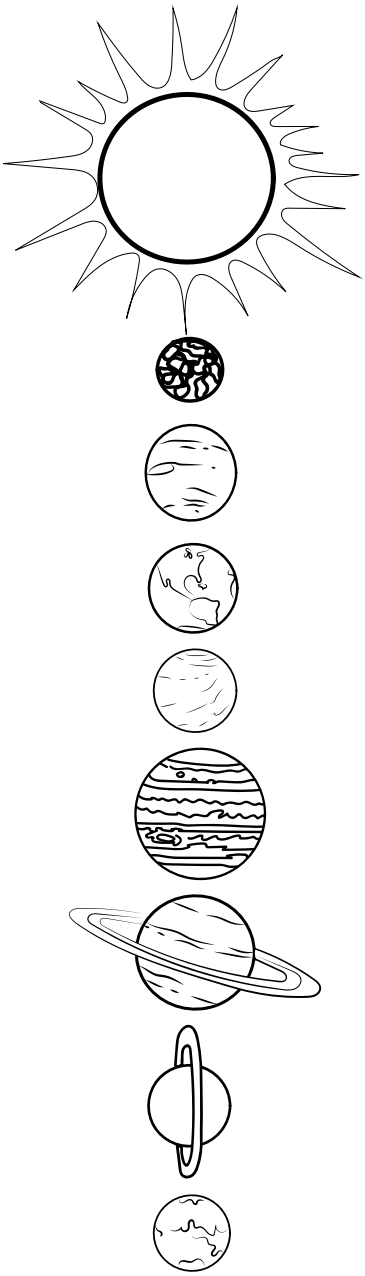
The Planets

A planet is an object in space that orbits the sun. There are a few qualifications to being called a planet. The object must be large enough so that its own gravity molds it into a sphere and it must have a clear orbit around the Sun. There are two types of planets; gas planets and rocky planets. Earth is a rocky planet because it has a surface. Gas planets are made of gas and do not have a surface you can walk on.

Color the Earth.

Name: ----------

The Planets



Sun

Mercury

Venus

Earth

Mars

Jupitar

Saturn

Uranus

Neptune

Name: _____

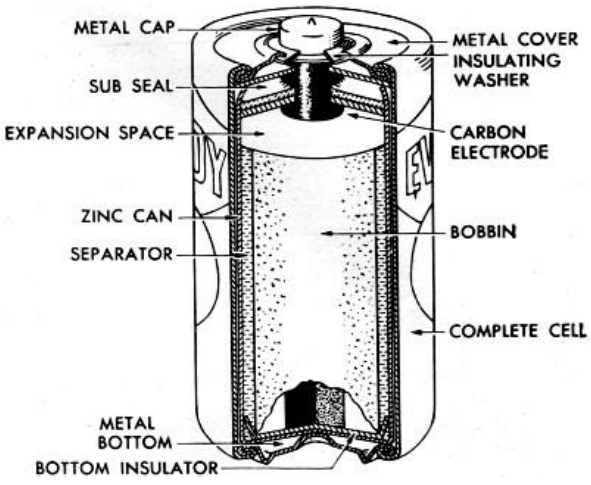
Batteries

Batteries are used to give power to many things such as watches, flashlights, laptops, smart phones, and hearing aids. There are so many other things we use batteries for but how do they work?

Batteries are self contained chemical power packs that produce a limited amount of electrical energy. A battery converts chemicals packed inside of it into electricity. Batteries have a certain amount of power allowed inside. Some special batteries can even be recharged.

The battery power unit inside the battery is called a cell. There are two electrodes and a chemical called an electrolyte in between them.

battery



Name: _____

Batteries

When you connect a battery's two electrodes into a circuit like a flashlight, the electrolyte begins to buzz into action. The chemicals begin to be converted and ions are formed. Electrons travel from one terminal to another through the outer circuit. The flashlight is powered on. When the electrolyte is completely converted the battery stops working and you have to put in a new one.

Batteries come in all different shapes and sizes. The three main kinds of primary batteries are zinc carbon, alkaline, and lithium.

Make a list of thing that use batteries. How would life be different if you didn't have the object?

Name: _____

Batteries

What do we use batteries for?

How does a battery work?

What is the power unit inside a battery called?

What happens when the electrolyte is completely converted?

Name: ----------

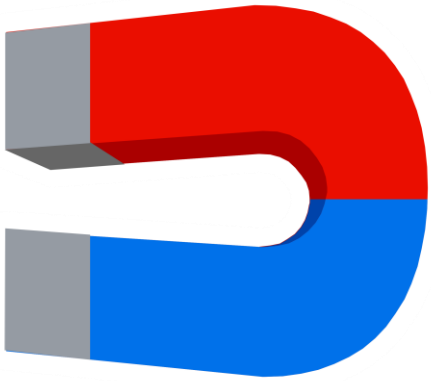
Magnets

Magnets are objects usually made of iron or steel that produce a magnetic force or field. Magnetic fields are invisible.

Magnets only attract certain types of metals, other materials such as glass, plastic and wood aren't attracted. Metals such as copper, silver, gold, platinum, and aluminum are not magnetic. You can not stick a magnet to a wooden desk or plastic chair.

Magnets attracted to metals such as iron, nickel, and cobalt. Magnets can attract magnetic objects or push them away. Magnets have a magnetic north pole and a magnetic south pole. If the same pole of two magnets is put together than they will repel. While if the opposite pole is placed together they will attract together.

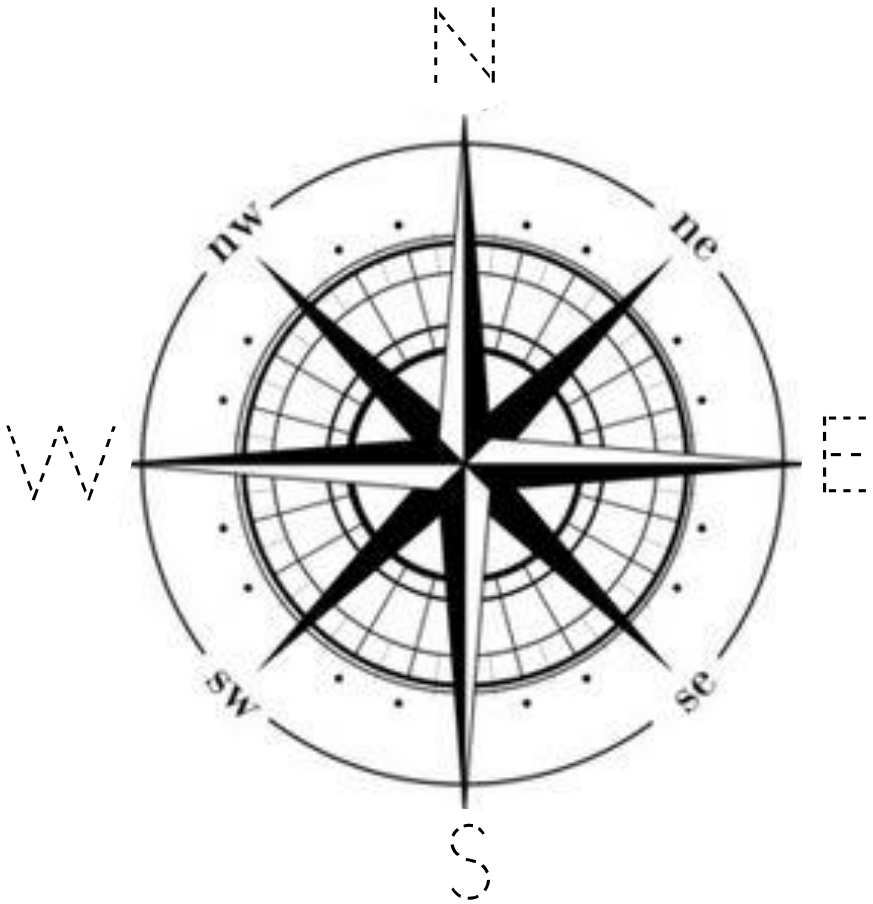
magnetic



Name: _____

Magnets

The Earth's core gives off it's own magnetic field. Magnetic compasses use the Earth's magnetic field to help navigate in north, south, east and west directions. We can use compasses to help find our way if we are lost. Animals also use the magnetic field to find their way. The Earth's magnetic field also protects us from the Sun's solar wind and radiation.



Name: _____

Magnets

Use a magnet to test magnetism on different surfaces. List the surfaces the magnet stuck to in one column and those that it didn't stick to in the other.

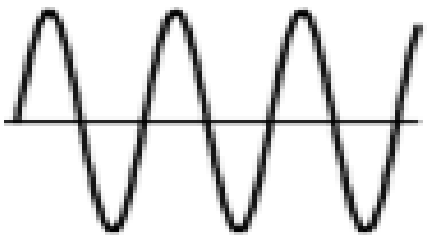
Magnetic	Nonmagnetic

Name: _____

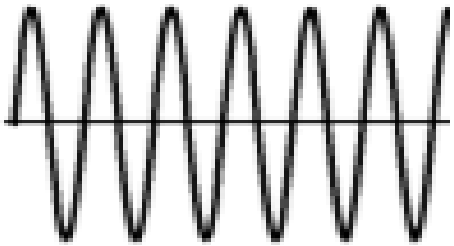
Sound

Sound is a type of energy made by vibrations. When any object vibrates, it causes movement in the air particles. These particles bump into the particles close to them, which makes them vibrate too causing them to bump into more air particles. This movement, called sound waves, keeps going until they run out of energy. If your ear is within range of the vibrations, you hear the sound.

Sound changes depending on how fast or slow an object vibrates to make sound waves. If an object vibrates quickly we hear a high-pitched sound, and if an object vibrates slowly we hear a low-pitched sound.



low-pitched



high-pitched

Name: _____

Sound

Sounds travel from one matter to another. Our ears will pick up those vibrations and our brain sorts them out into an organized pattern.

Create a paper cup phone:
Materials:
2 paper cups
2 paper clips
1 long string

1. Punch a hole in the bottom of the cup and thread the string through securing it with the paper clip.
2. Give one cup to two people and have them walk as far apart as they can to make the string tight.
3. One person put a cup to their ear while the other talks.

What do you hear?

The sound will vibrate the cup with transfers to the string and travels to the other cup.

Name: _____

Sound

We measure sound by using decibels. The more decibels than the louder the sound. A soft sound may have around 15 to 20 decibels but a loud sound can have over a 100 decibels. Loud sounds can damage our hearing and cause us to not hear as well. Listening to loud music can cause hearing issues after awhile.

Close your eyes. List the sounds you can hear.

_____

_____

_____

_____

Name: _____

Electricity

Electricity is the flow of electrical power or charge. Electricity is used to power our homes, lights and electronics. We get electricity from sources like coal, energy, natural gas and oil.

When electricity gathers in one place it is known as static electricity.

Electricity that moves from one place to another is called current electricity.

Static Electricity Experiment:
Materials:
1 balloon

1. Rub balloon on sweater or in hair. Hold the balloon above your head.

What do you notice? When you rub the balloon you are transferring the electrons. Like charges repel while opposites attract. Your positively charged hair is attracted to the negatively charged balloon.

Name: _____

Electricity

Electricity can be made using many different resources.

Non-renewable resources are things like coal and natural gases. These resources can create waste and will eventually run out.

Renewable resources do not create waste and can be used over and over again. Some examples would be solar power, wind, and water or hydro. Solar power is the most popular renewable resources people use.

Many things in your home use electricity. Your devices, lights, televisions, appliances are just to name a few. We can conserve energy by turning off these devices while they are not in use.

Make a list of ways you and your family can help conserve energy.

Name: _____

Electricity

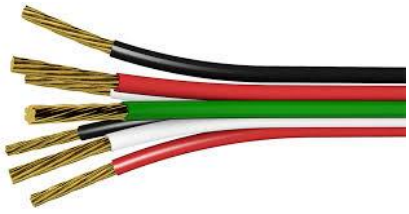
Conductors are materials that allow electricity to flow easily. Most types of metal are good conductors, which is why we use metal for electrical wire.

A good example of a conductor is natural water. Water conducts electricity because it contains dissolved ions that turn it into an electrolyte. Which is why you should never go swimming during a storm.

Insulators are the opposite of conductors. An insulator is a material that doesn't carry electricity. Insulators are important because they can protect us from electricity. Materials like rubber, plastic, and paper are good insulators.

Rubber is a good example of an insulator. Rubber and plastic are often used to cover metal wires to protect people from the electrical current they conduct.

Which of the images below is an example of an insulator or a conductor?



Name: _____

Electricity

Use the facts below to create a electricity safety awareness poster.

Electricity can be very dangerous. If you play with electricity it could cause you to get electrocuted or start a fire. Here are some important rules to follow.

1. Never play with electricity.
2. Always follow instructions on electrical equipment.
3. Never stick anything in an outlet.
4. Unplug by pulling on the plug not the cord.
5. Never put electronic devices in water.
6. Don't place things on top of cords as it can damage the cord and cause a fire.

Lightning is a form of electricity found in nature. Because lightning is a form of electricity, it is also very dangerous. You can see lightning is the sky when it is storming. Be sure to be safe when there is a lightning storm.