

Science Workbook

Ages 6-8

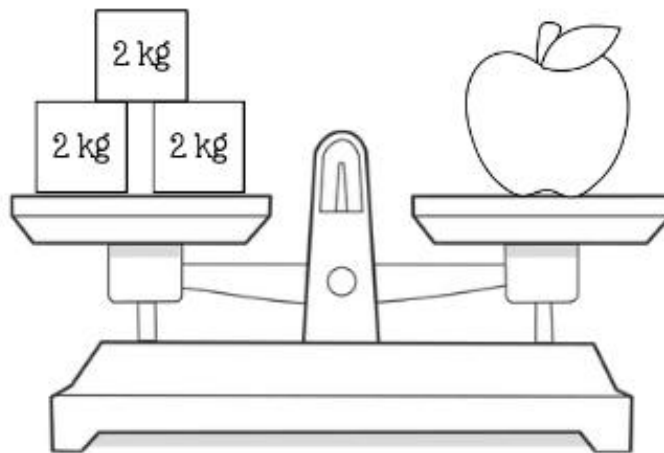


This book belongs to:

What is Mass?

Name: _____

Mass is the amount of matter or substance that makes up an object.



How much mass does that apple have?

States of Matter

Name: _____

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.

States of Matter

Name: _____

Liquid

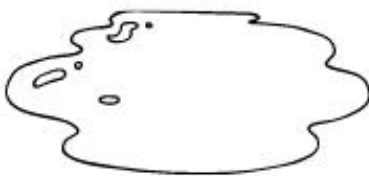


A liquid does not have a definite shape.

A liquid has a definite mass.

A liquid has a definite volume.

Circle the liquids.



States of Matter

Name: _____

Gas



A gas does not have a definite shape.
A gas does not have a definite mass.
A gas does not have a definite volume.

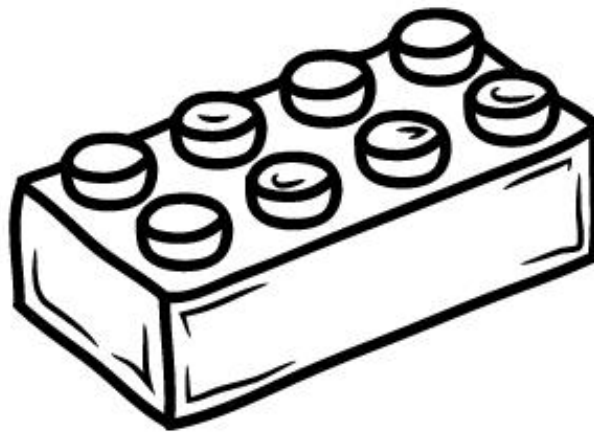
Circle the gases.



States of Matter

Name: _____

Solid



A solid has a definite shape.
A solid has a definite mass.
A solid has a definite volume.

Circle the solids.



What is the Matter?

Name: _____

Is it a solid, a liquid, or a gas?



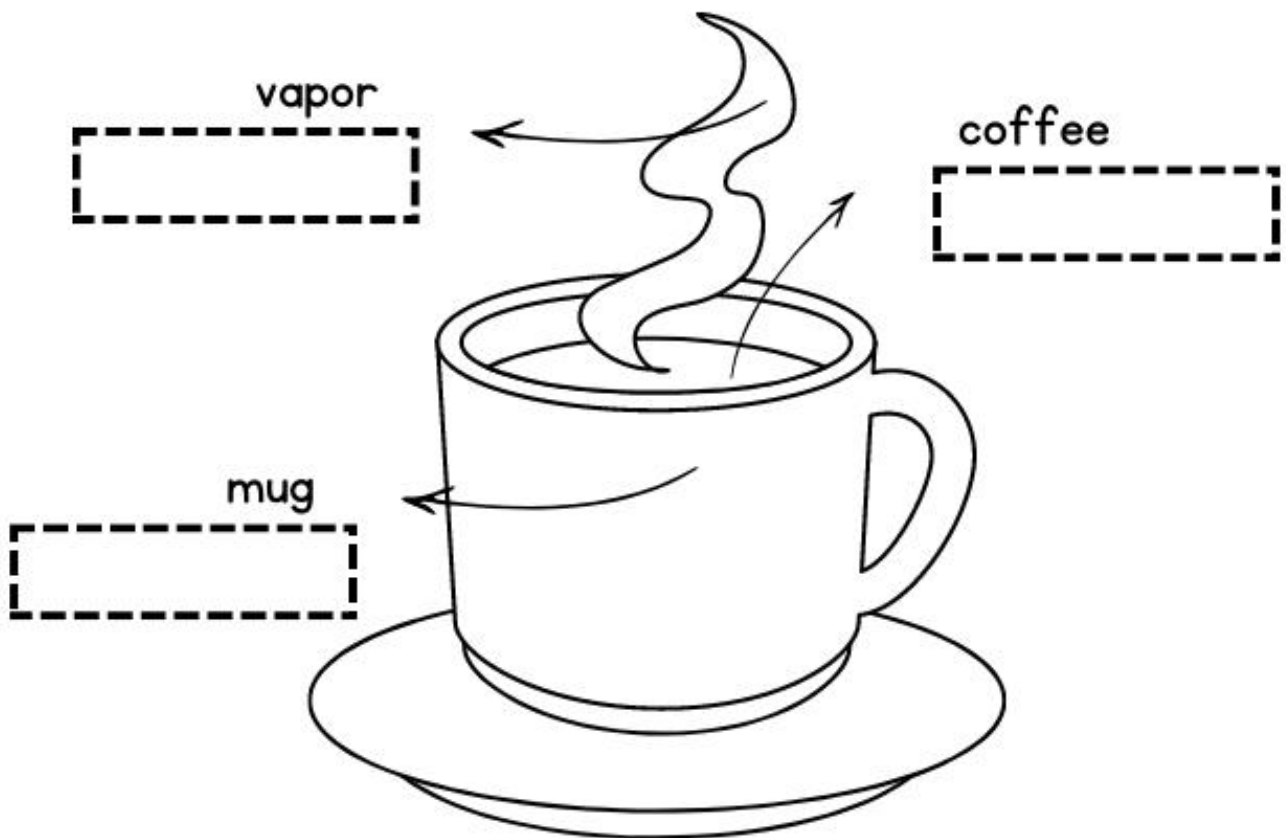




States of Matter

Name: _____

Color the picture. Cut out each state of matter below the page and paste them in their right boxes.



liquid	solid	gas
--------	-------	-----

Science Experiment

Name: _____

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.



States Of Matter

Read, Think, and Answer.

Name: _____

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?



States Of Matter

Name: _____

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

Solid	Liquid	Gas



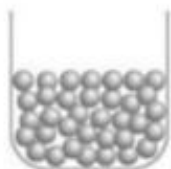
States Of Matter

Read, Think, and Answer.

Name: _____

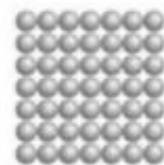
We have learned about the three main states of matter. Those states are solids, liquids, and gases. Matter can also change states. Matter changes states when it absorbs or loses energy. This happens when the matter is heated or cooled.

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

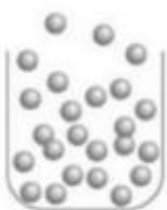


Liquid to solid

freeze

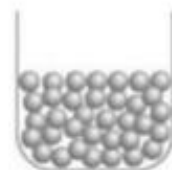


Processes in which matter changes between liquid and gas states are condensation, evaporation, and vaporization .



gas to liquid

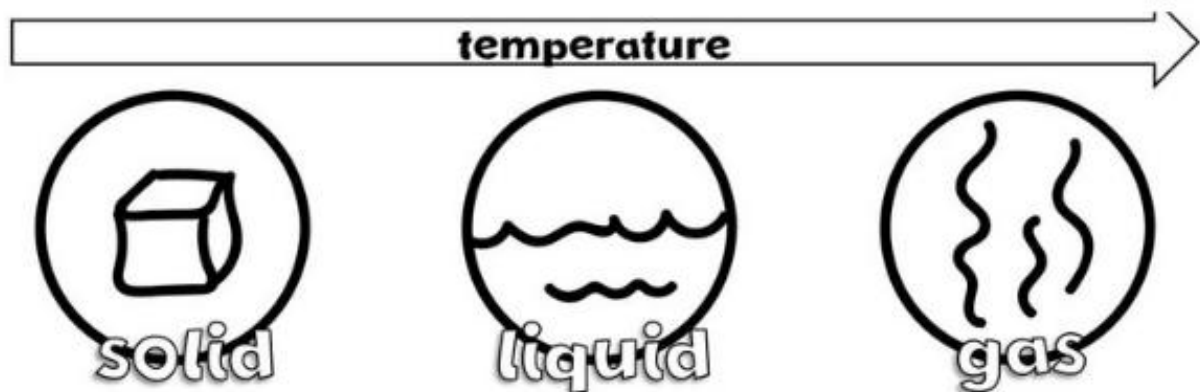
condensation



State of Water

Read, Think, and Answer.

Name: _____



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.

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

Temperature

Direction: Tell if the object is hot or cold.
Write hot or cold on the blank.

Name: _____















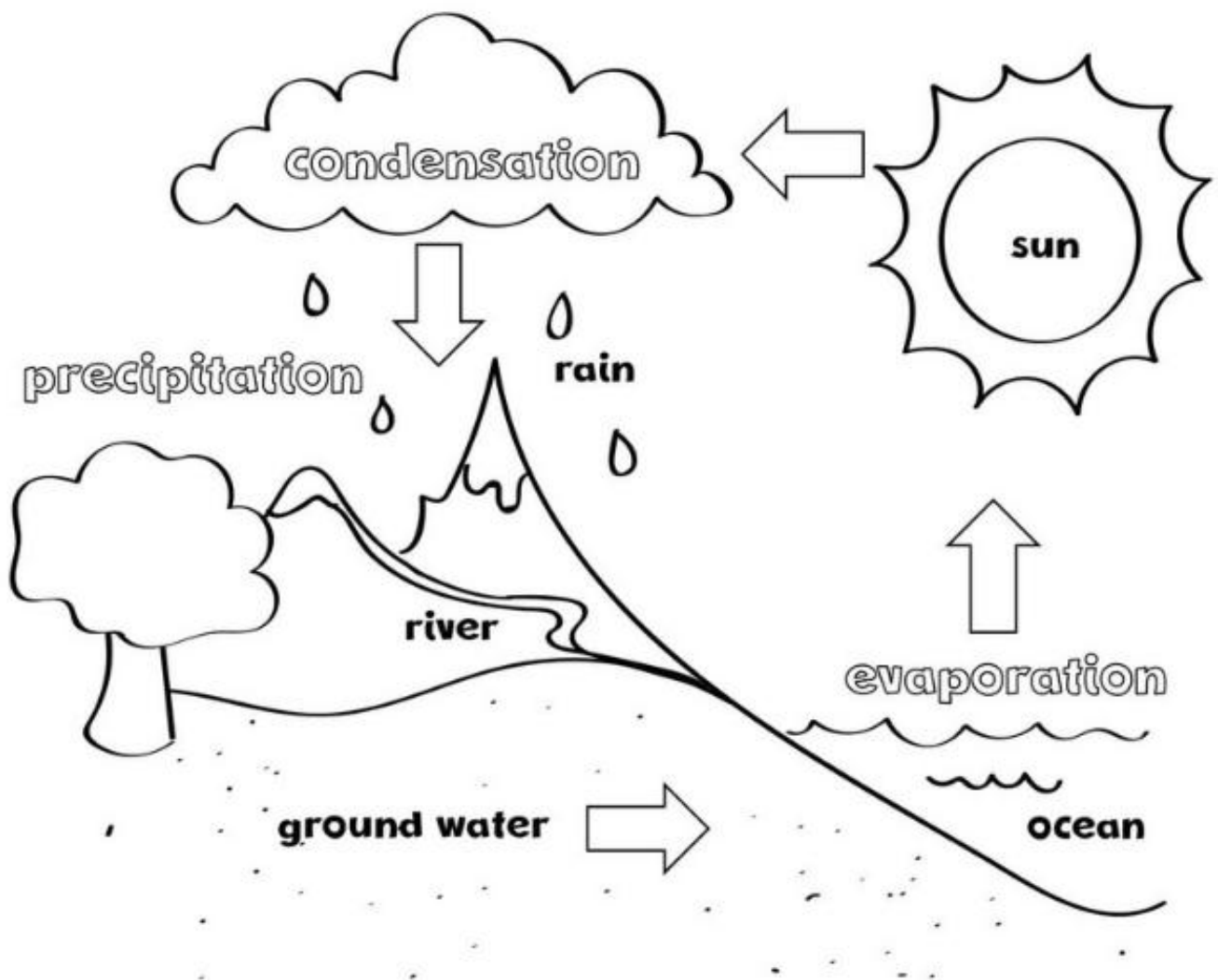




Water Cycle

Color the water cycle.

Name: _____



Evaporation is a process where liquids change to a gas or vapor.

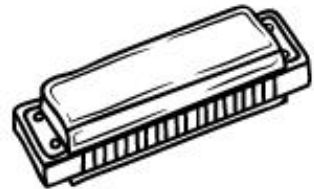
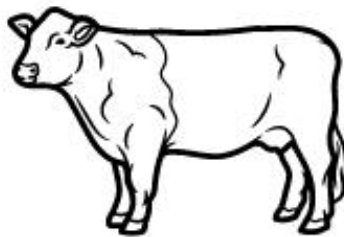
Condensation water vapor in the air turns back into a liquid form.

Precipitation release of water from the sky, such as rain or snow.

Heavier or Lighter

Circle the object that is heaviest in each box.

Name: _____



Living and Non Living Things

Name: _____

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?

Sort The Images

Name: _____

living thing	non living things



Categorize Living and Non Living Things

Name: _____

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

LIVING THINGS	NON LIVING THINGS

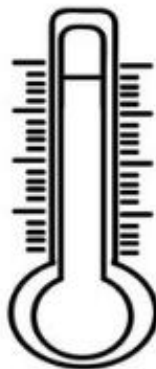
What Do Living Things Need?

Name: _____

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

Unscramble the Words

Name: _____

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



nituslgh

WORD BOX

sunlight

water

food

air

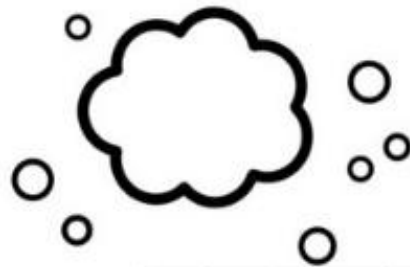
temperature



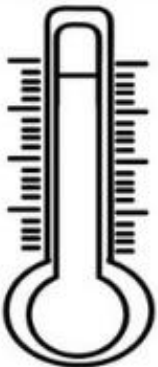
ewtar



odfo



rai

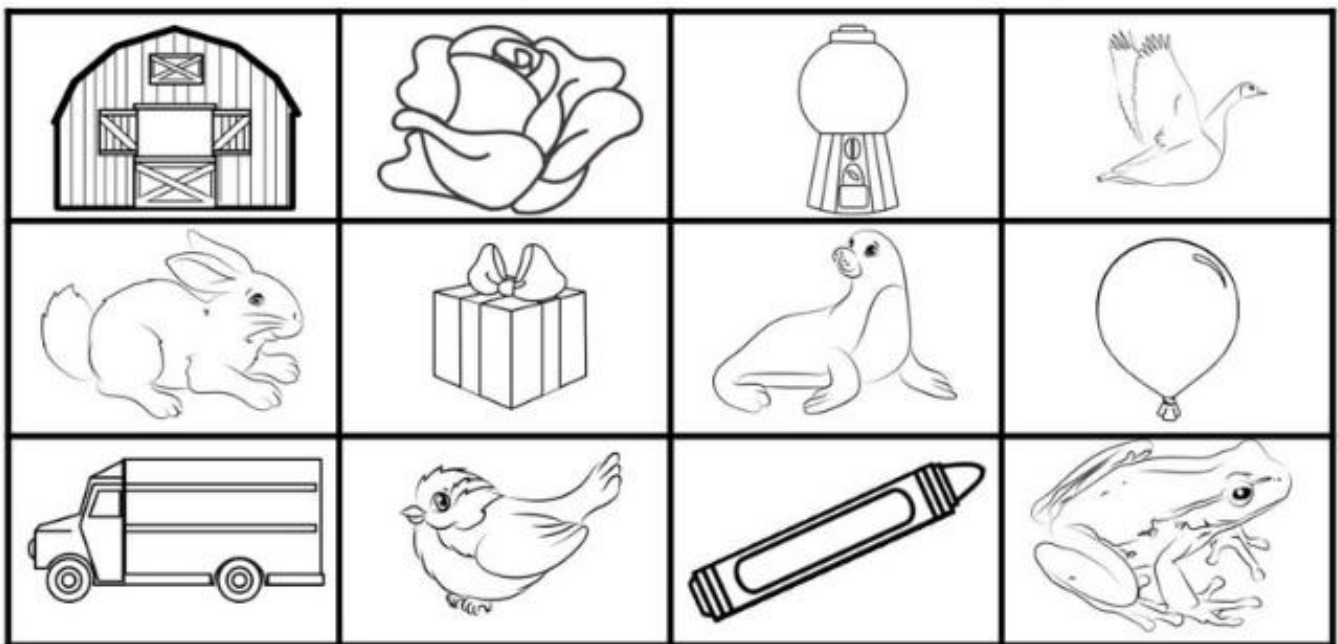


ematrueptre

Is it Living?

Name: _____

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?

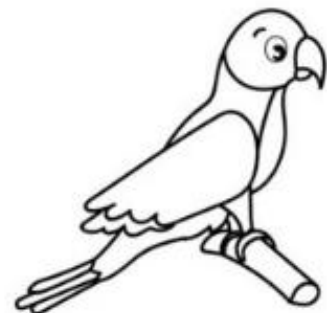
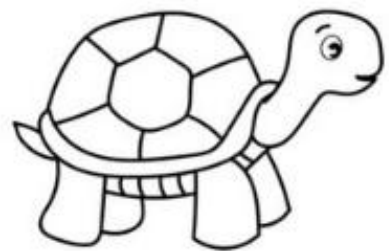
Living Things Needs

Name: _____

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?

What Do Living Things Eat?

Name: _____

What do you like to eat?

Different living things need to eat different things.

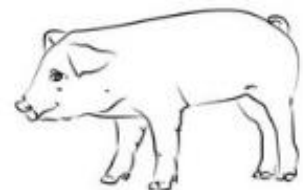
Herbivores are animals that only eat plants. Cows are herbivores.

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, they 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
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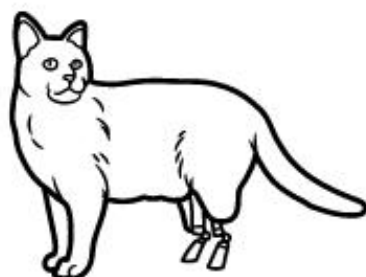
Mammals

Name: _____

A mammal is an animal that breathes air, has a backbone, and can grow hair. Mammals are the only animals that produce milk to nourish their young. Mammals are among the most intelligent of all living creatures.

Mammals include a wide variety of animals, from cats to humans. They can range in size from a small bat to a huge whale.

Mammals are warm-blooded. This means that they are able to keep their body at roughly the same temperature no matter what the surrounding temperature is. This allows mammals to live in a wide range of climates.



Mammal



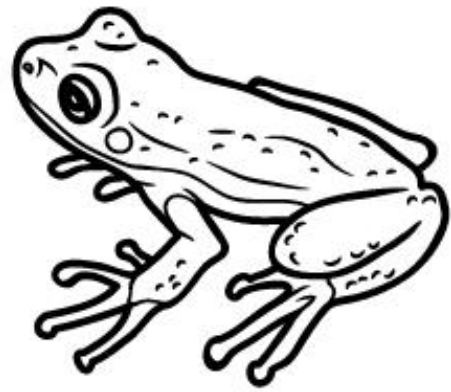
Make a collage of pictures of different mammals.

Amphibians

Name: _____

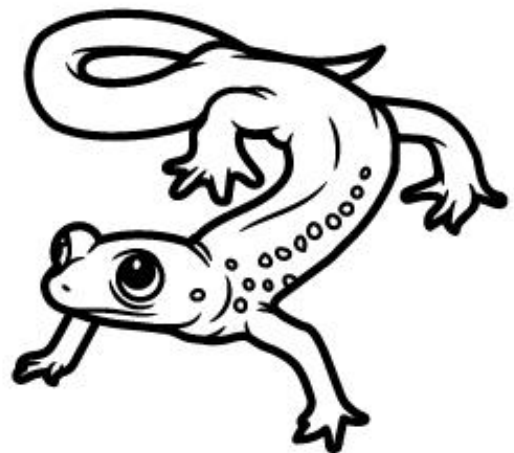
Amphibians are cold-blooded vertebrates that don't have scales. They live the first part of their lives in the water and the last part on the land.

Amphibian



Amphibians are born in the water. Most amphibians hatch from eggs. After they hatch, their bodies are still in the larvae stage. In this stage they are very fish like. They have gills to breathe under water and fins to swim with. As they grow, they develop lungs and legs for their life on land.

Amphibians are cold-blooded. This means their bodies don't automatically regulate their temperature. They must cool off and warm up by using their surroundings.



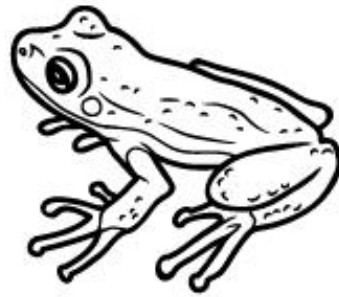
Make a collage of pictures of different mammals.

Amphibians

Name: _____

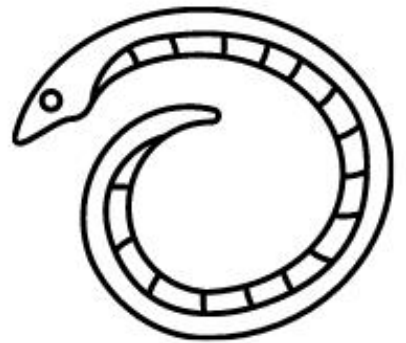
Types of Amphibians

frogs



salamanders

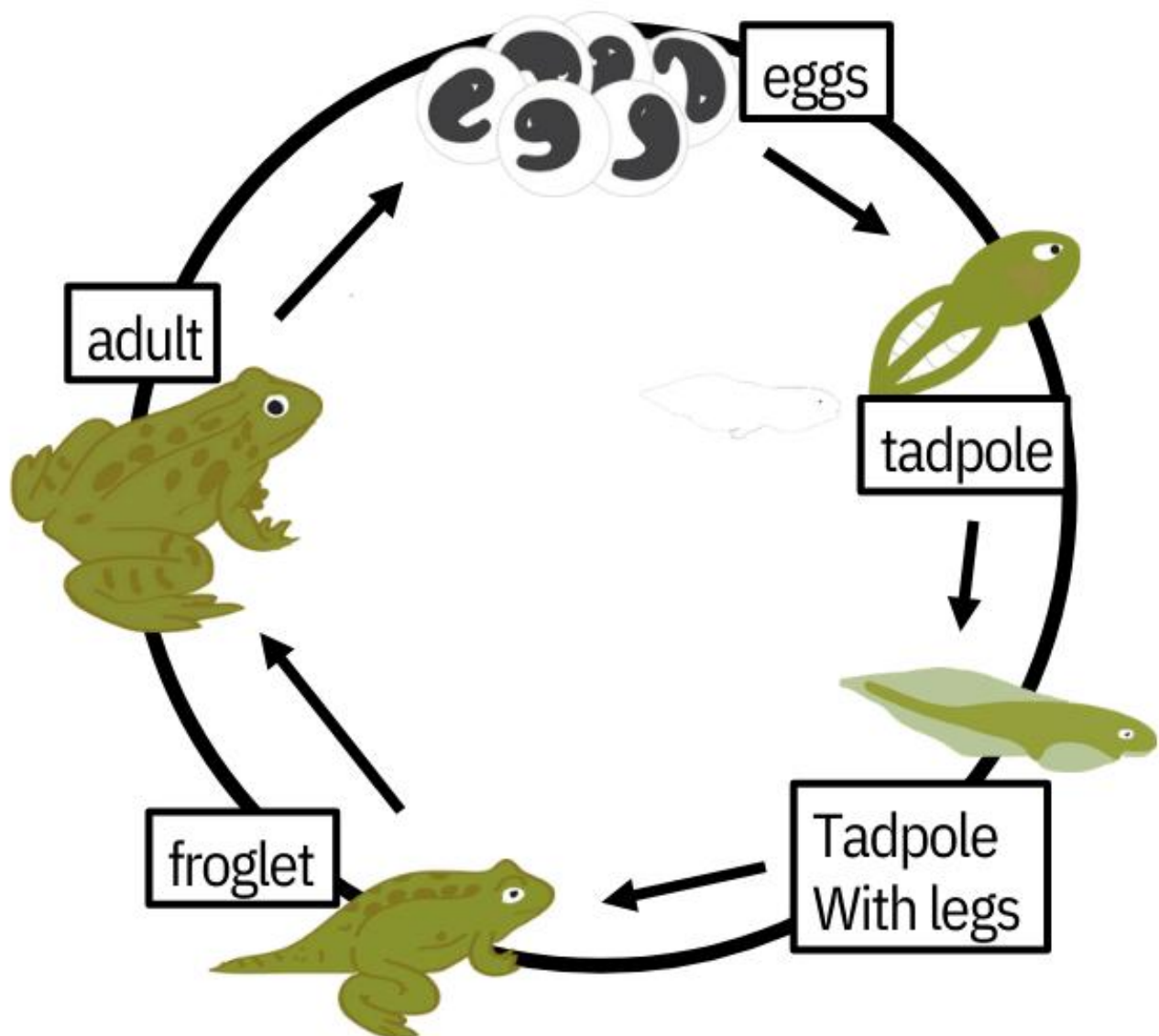
caecilians



Frog Life Cycle

Name: _____

Frogs are amphibians. Frogs lay eggs that turn into tadpoles. The tadpoles grow into new frogs. They change a lot in their life spans!



Reptiles

Name: _____

Reptiles are cold-blooded animals covered with hard, dry scales. Most reptiles lay eggs. There are many types of reptiles. The main categories are snakes, crocodiles and alligators, turtles, and lizards. Reptiles can be found on every continent except for Antarctica.

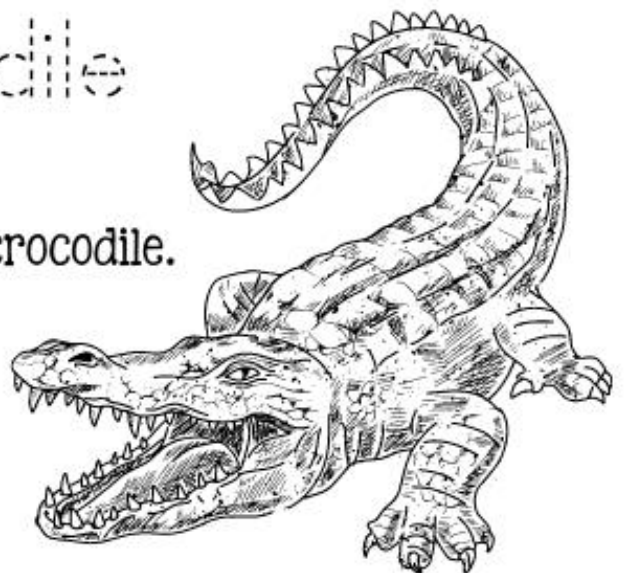
mini chameleon



The smallest reptile is thought to be the mini chameleon from Madagascar which only grows to just over an inch in length.

salt water crocodile

The biggest reptile is the salt water crocodile.



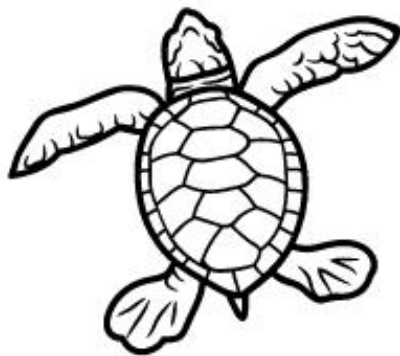
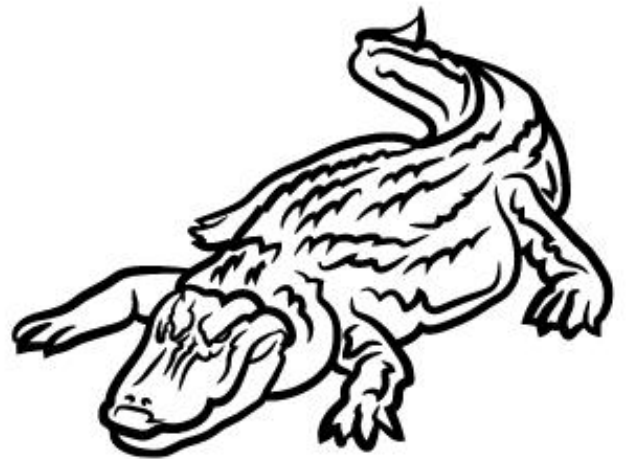
Reptiles

Name: _____

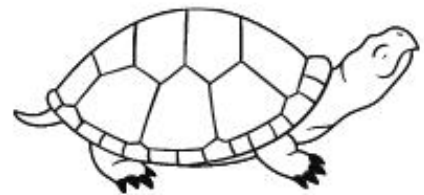


snakes

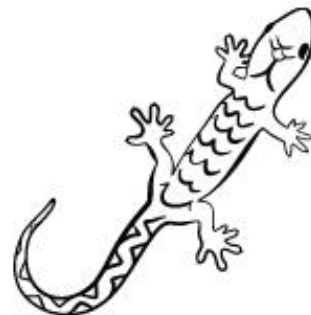
crocodiles
alligators



turtles



lizards



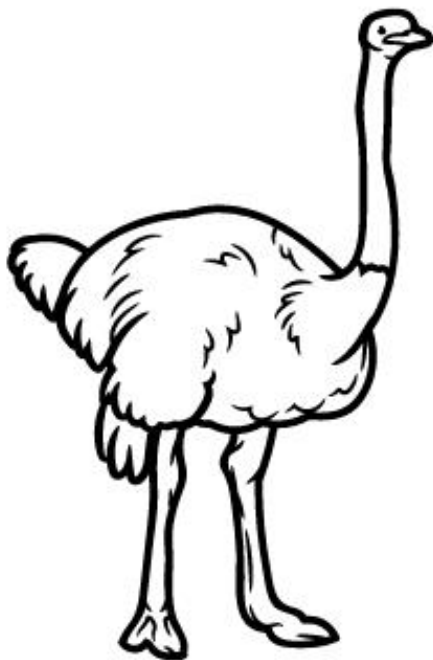
Birds

Name: _____

Birds are warm blooded animals with beaks, wings and feathers. All birds have wings but not all birds can fly.

hummingbird

The hummingbird is the smallest living bird.



The largest living bird is the ostrich.

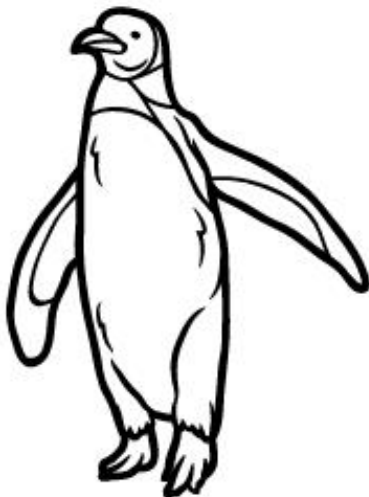
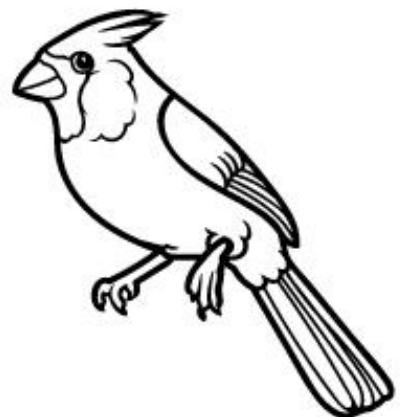
ostrich

Many birds migrate, or fly long distances between their winter and summer homes.

Birds

Name: _____

birds

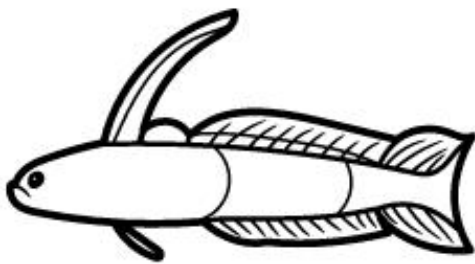


Fish

Name: _____

Fish are vertebrates that live in water. They breathe using special organs called gills.

Fish swim mainly by sideways movements of the body and tail. They use their fins for balancing, steering, and braking.

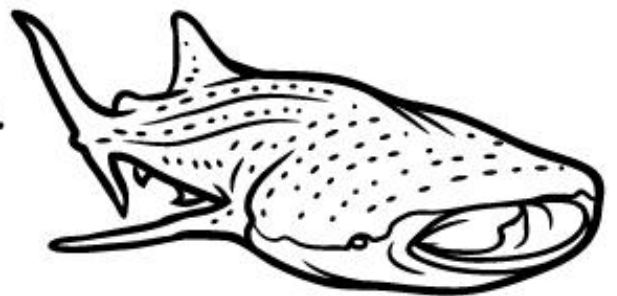


Goby

Gobies are the smallest fish.

The whale shark are the largest fish.

whale shark



All fish hatch from eggs.

Fish live in lakes, rivers, seas, and oceans around the world. They live in all kinds of water, from warm springs to cold Arctic seas.

Hibernation

Name: _____

Winter brings new challenges to some animals. The weather is cold and food is harder to find. Some warm blooded animals hibernate to survive these harsher conditions. Hibernation is a time of inactivity. They fall into a sleep-like state. They lower their body temperature, slow their breathing, and slow their body functions.

h i b e r n a t i o n

Why do animals hibernate?



Hibernation

Name: _____

Mammals like bats, ground squirrels, hedgehogs, marsupials and others hibernate. These animals hibernate in different ways. Hedgehogs hibernate for weeks without waking. Squirrels hibernate for 20 hours a day and wake up to eat each day.



Hibernation

Name: _____

They prepare for hibernation differently as well. Some animals stash food in hidden places. Some animals will eat large amounts of food and store body fat.

Animals hibernate in lots of different ways - from snails, who attach themselves to a surface, cover themselves with their slime, and wait out winter, to hedgehogs, who like to build nests out of grass, leaves and straw, often under fallen logs.

Draw a line from the word to the matching picture.

Cave

Tree

Log

Burrow



Vertebrate vs Invertebrate

Name: _____

What is a backbone?

Your backbone or spine is made up of disc-shaped bones. You can feel these bones when you rub your hand up and down your back. Some animals have vertebrate just like us while others don't. Not all vertebrates have the same amount of vertebrate. Humans have 33 vertebrae.

Write the words

spine

vertebrate

backbone



REAR VIEW |



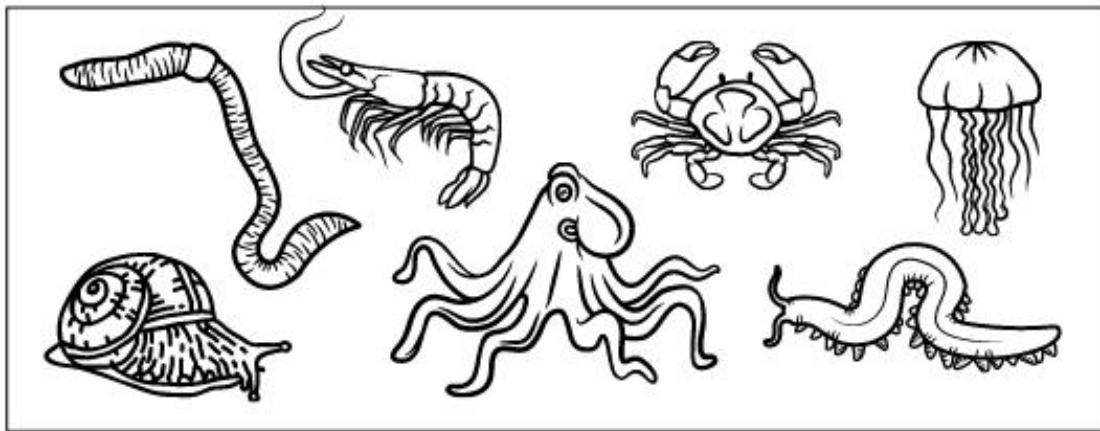
SIDE VIEW |

Vertebrate vs Invertebrate

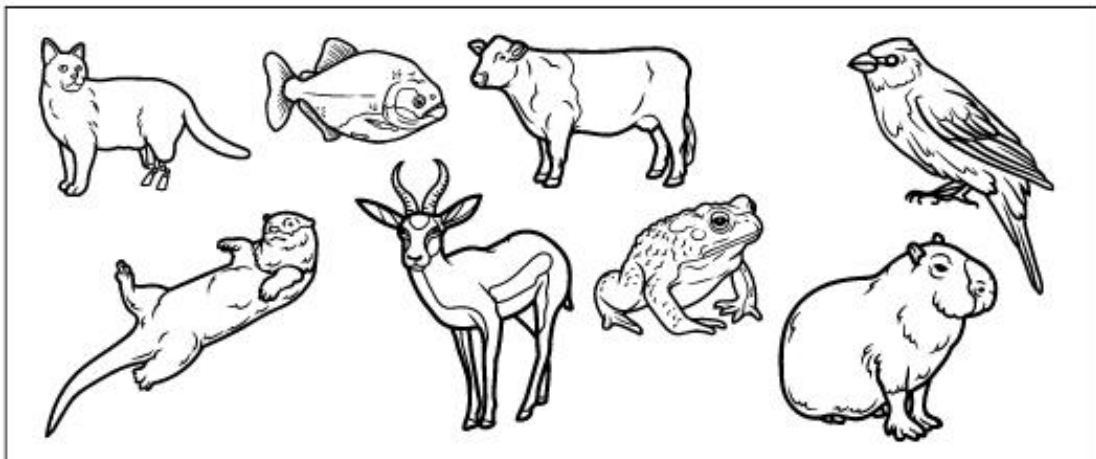
Color the images.

Name: _____

Invertebrates - don't have a backbone



Vertebrates - have a backbone



Vertebrates

Vertebrates - have a backbone

Name: _____

There are five animal classes that are vertebrates:

1. amphibians, such as frogs and newts
2. fishes, such as tuna and sharks
3. reptiles, such as snakes and alligators
4. birds, such as parrots and penguins
5. mammals, such as lions and dolphins



amphibians



fish



reptiles



birds



mammals

Circle true or false for each statement.

Humans are vertebrates.	true or false
Snakes are vertebrates.	true or false
Birds are vertebrates.	true or false
Monkeys are vertebrates.	true or false
Snails are vertebrates.	true or false

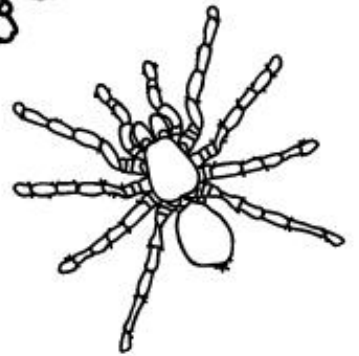
Vertebrates

Invertebrates - don't have a backbone

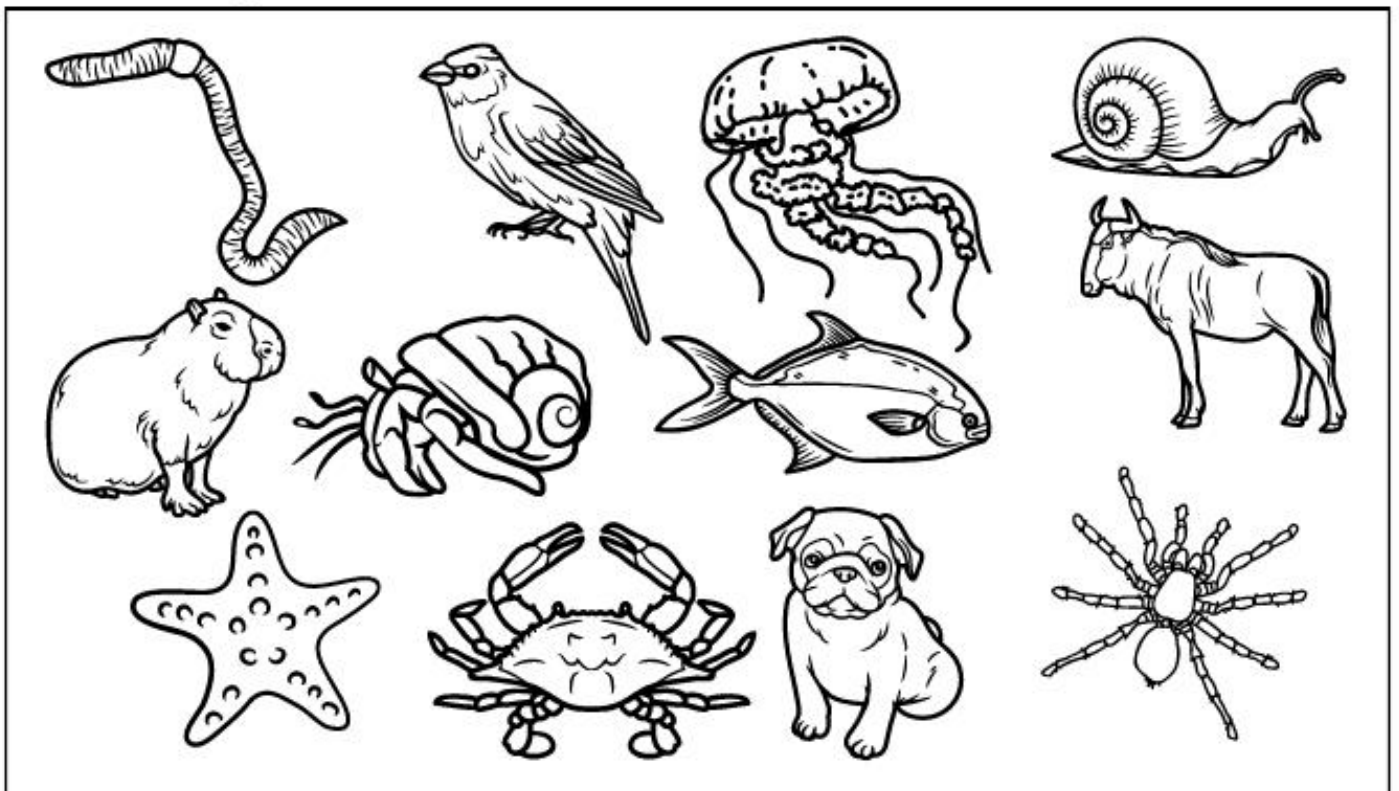
Name: _____

There are many different types of invertebrates.
Some examples of invertebrates include:

- 1.insects
- 2.spiders
- 3.worms
- 4.sponges and jellyfish
- 5.starfish and sea urchins
- 6.squids and octopi
- 7.crabs, shrimps and lobsters



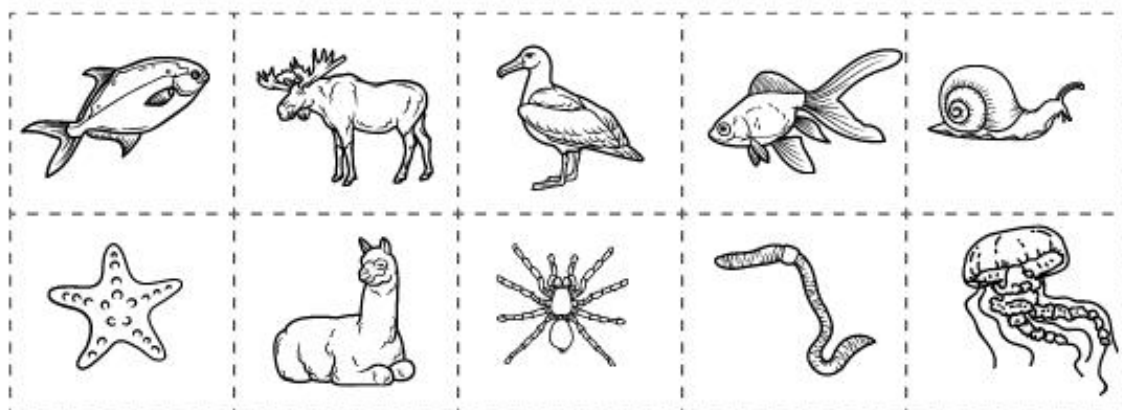
Color only the invertebrates.



Sort The Images

Name: _____

Vertebrate	Invertebrate



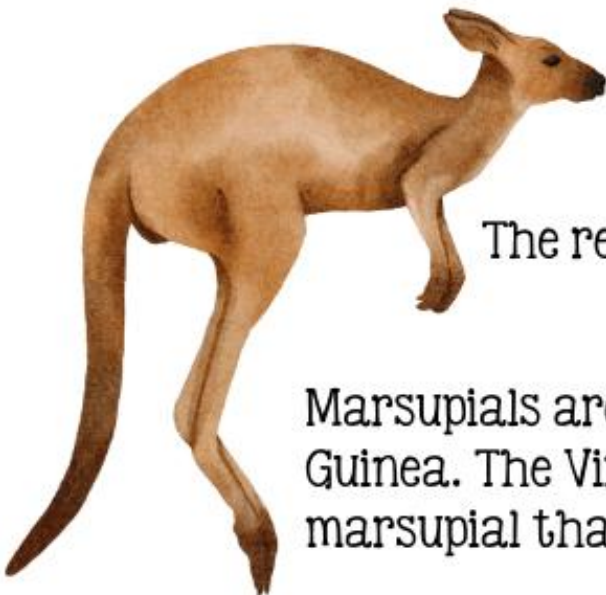
Marsupials

Name: _____

Marsupials are a group of mammals that are known for carrying their young in a pouch. Kangaroos, koalas, and opossums are well-known marsupials. Marsupials live in forests, lakes and streams, grasslands, and even underground.



The smallest marsupial is the long-tailed planigale.



The red kangaroo is the largest marsupial.

Marsupials are mostly found in Australia and New Guinea. The Virginia opossum is the only species of marsupial that inhabits North America.

What is one fact about marsupials?

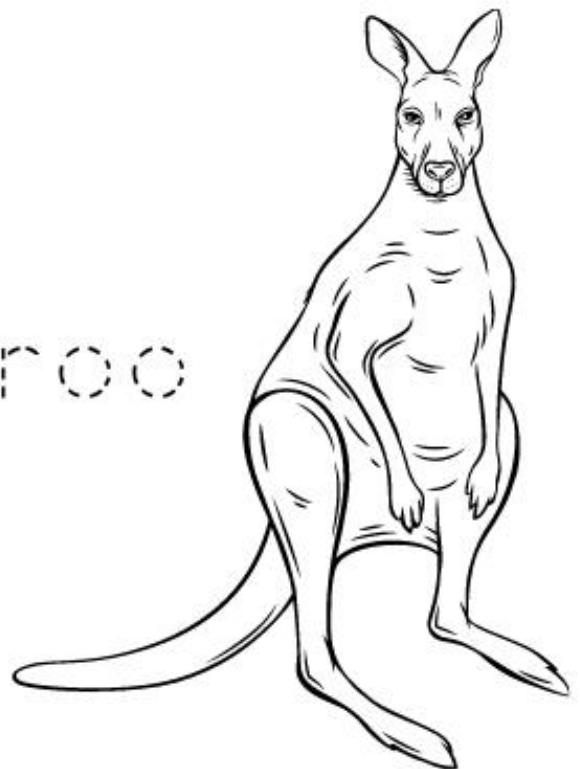
Marsupials

Color and Trace

Name: _____



koala



red kangaroo



opossum

Mollusks

Name: _____

mollusks

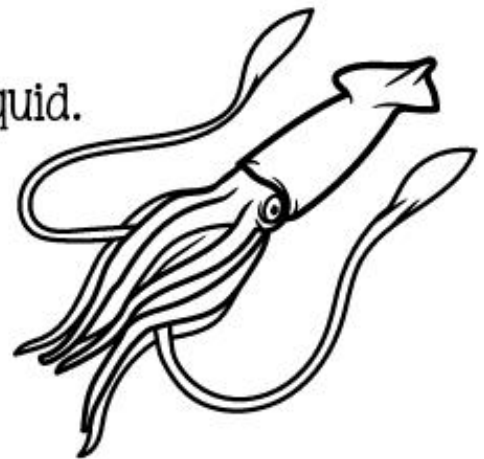
Mollusks have soft bodies. Many of them have shells made from calcium that protect their bodies. Some can change colors as a means to camouflage.



Octopuses, oysters, snails, and squid are just a few examples.

The largest mollusk is the Colossal squid.

colossal squid



The smallest mollusk is the acmella nana

acmella nana



Mollusks

Name: _____

mollusks

Mollusks can be found throughout the world. Most live in the sea, but others live in freshwater. Some snails and slugs live on land.

Mollusks eat mostly algae. Snails and slugs eat plants and fruit. Squid may eat fish and shrimp. An octopus can go after prey as large as a shark.

Some mollusks bear live young, but most reproduce by laying eggs.



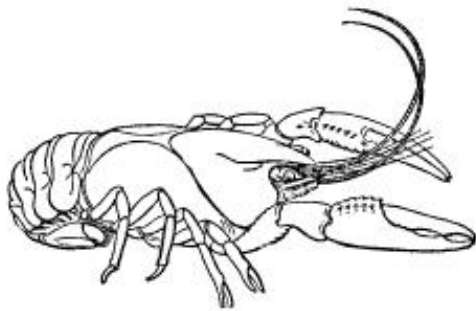
List two facts about mollusks.

Crustaceans

Name: _____

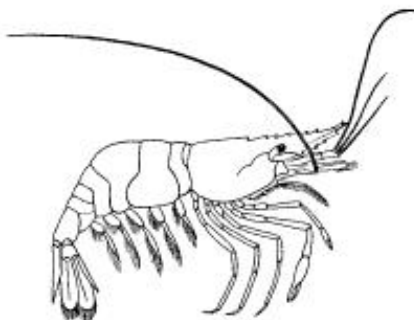
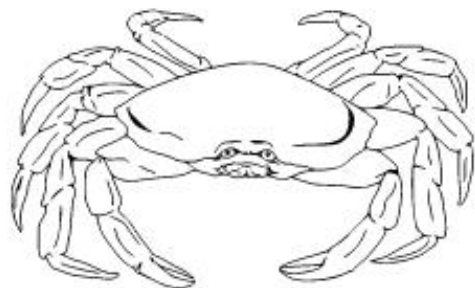
crustaceans

Crustaceans are animals that usually have a hard covering, or exoskeleton, and two pairs of antennas, or feelers.



lobster

crab



shrimp

Food Chain

Name: _____

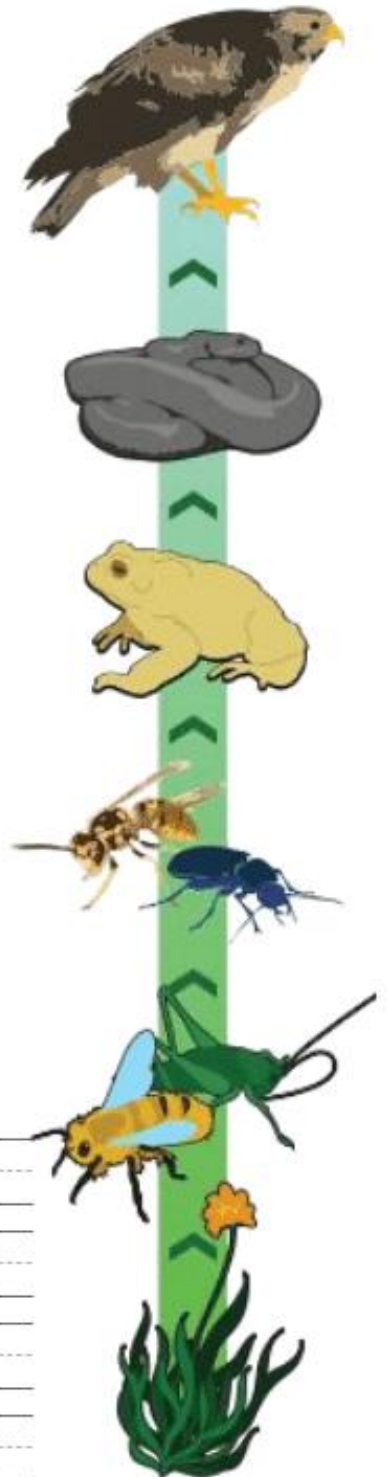
We all have to eat food to survive. We have learned that is one thing living things need. Animals in the wild have to eat to survive as well. Some animals eat grass or other plant based foods while some animals eat other animals.

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.



Food Chain

Name: _____

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.

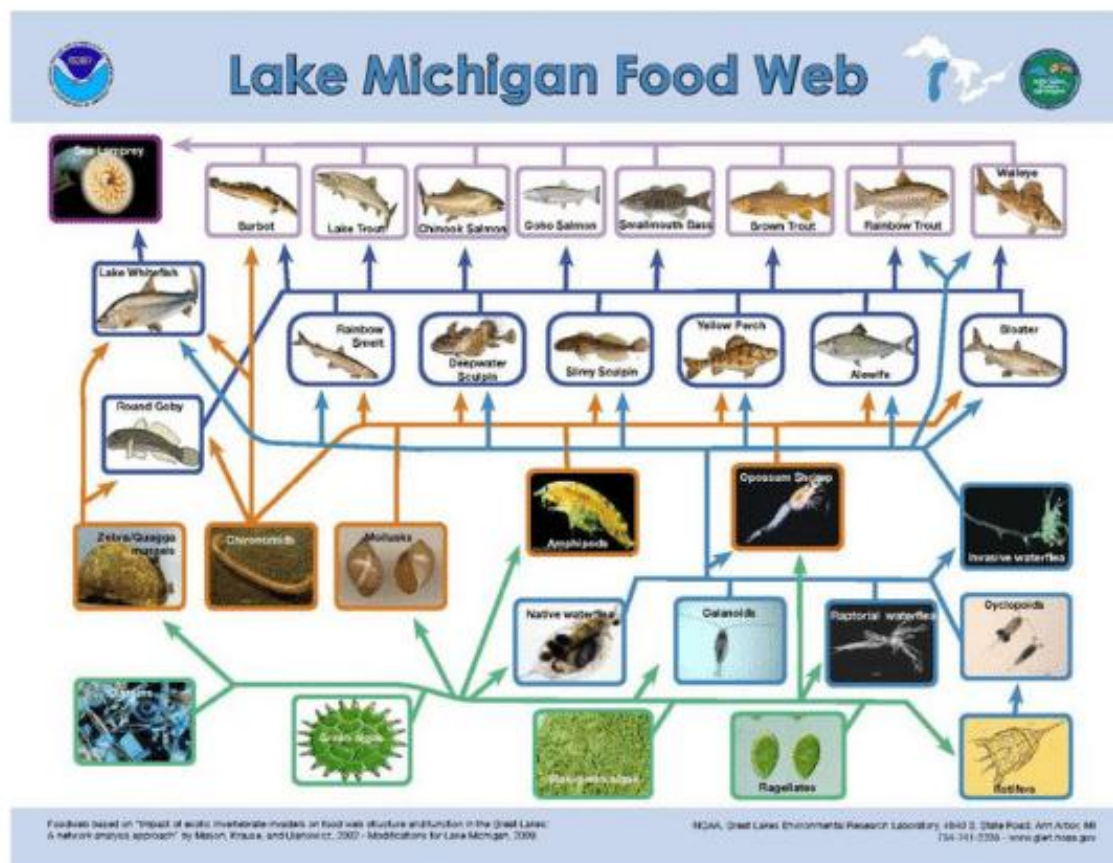
Create your own example of a food chain. Draw or cut out pictures and glue them below. You could also create a chart on another piece of paper or get creative and create a clothes hanger mobile.

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Food Chain

Name: _____

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



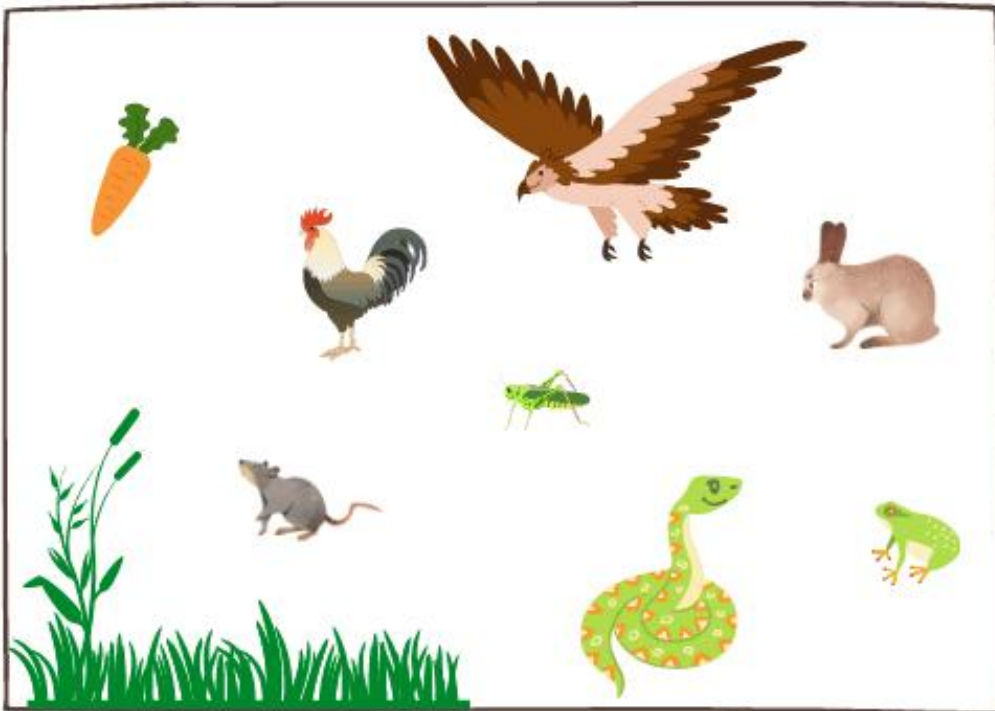
What is at the top of the food web?

What are some of the producers?

Food Chain

Direction: make arrow to connect each picture to show the food chain.

Name: _____



Mention 2 producers in the food chain above!

Mention 3 consumers in the food chain above!

Animal Habitats

Name: _____

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.

Ocean Life

Name: _____

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?



Ocean Life

Name: _____

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 animal? Draw a picture on a separate piece of paper.

Ocean Life

Name: _____

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?

Ocean Life

Name: _____

Ocean Plants

Some plants live in the ocean.

There are two general types of plants found in the ocean, those having roots that are attached to the ocean bottom and those not having roots which simply drift about with the water.

Seagrass is a rooted plant that requires a lot of light to thrive along the shallow waters of our world's coastlines

Seagrass



Kelp

Kelp grow in large "forests" underwater and support animal life.

The most abundant plants in the ocean

Phytoplankton

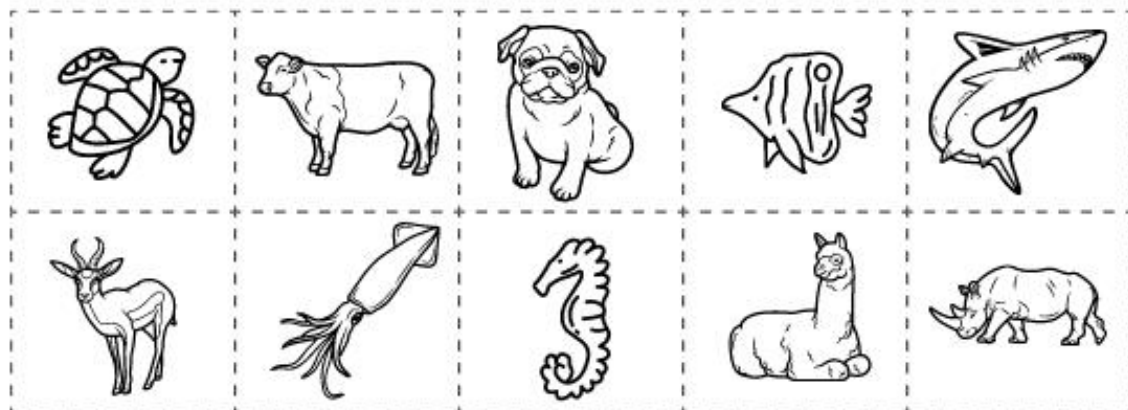


Ocean Life

Cut out and sort the images into the correct column.

Name: _____

Lives In The Ocean	Lives On Land



Ocean Life

Label the parts of the fish.
Choose from the words inside the box.

Name: _____

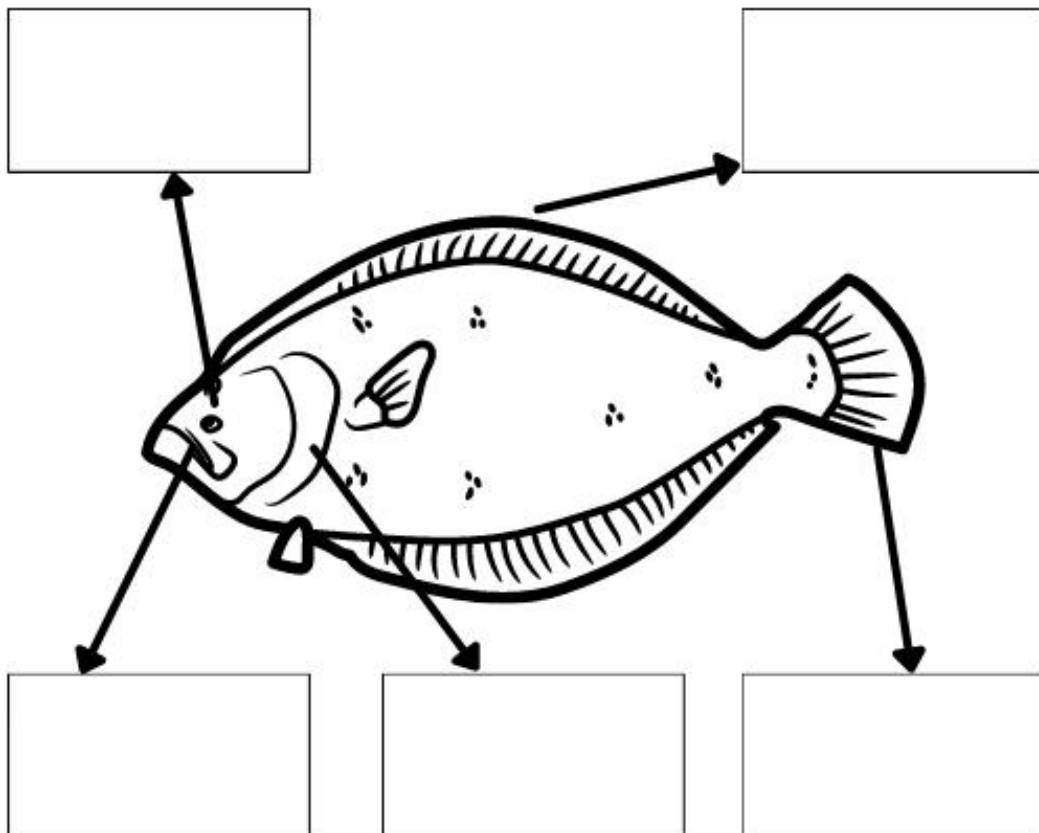
mouth

eye

tail

fin

gills



Rainforest

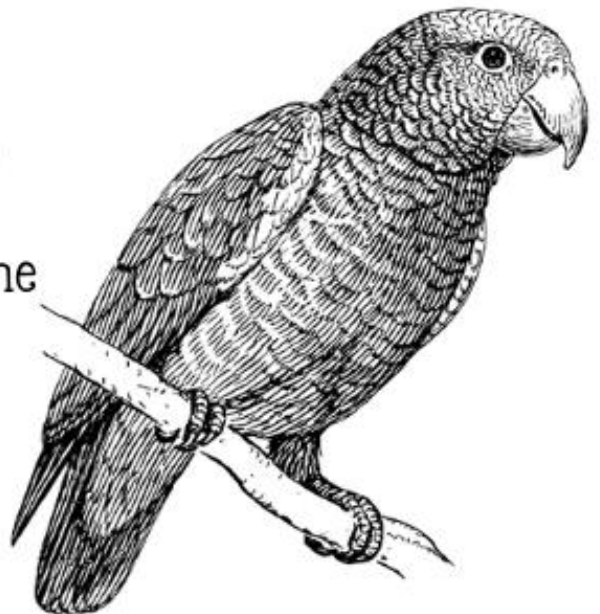
Name: _____

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.



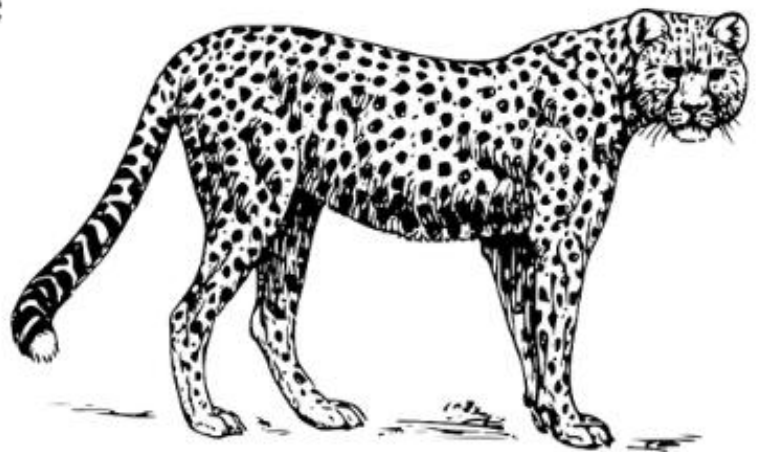
Rainforest

Name: _____

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.



Rainforest

Name: _____

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.

tarantula



Rainforest

Name: _____

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



Look at each of the animal life photos.

How are they alike?

How are they different?

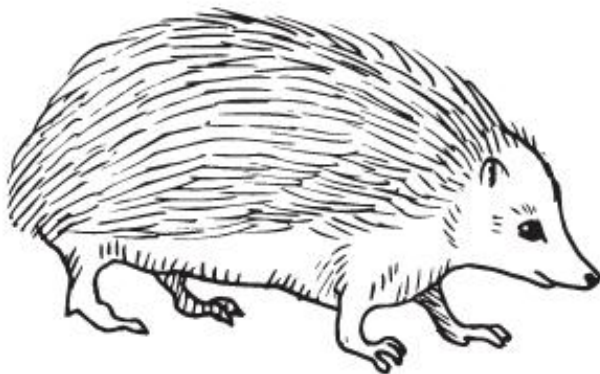
What benefits does the rainforest give to them that they wouldn't have in any other habitat?

Forest Life

Name: _____

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.



hedgehog

Forest Life

Name: _____

Forest

Animals adapt in different ways 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.



Monarch Butterfly

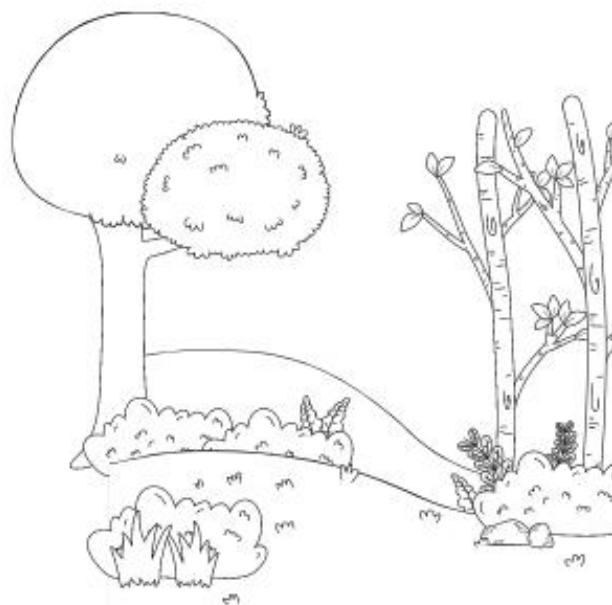
Forest Life

Name: _____

A lot of the forest areas have been lost. People use trees for many reasons such as wood for houses, furniture, and construction. 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?



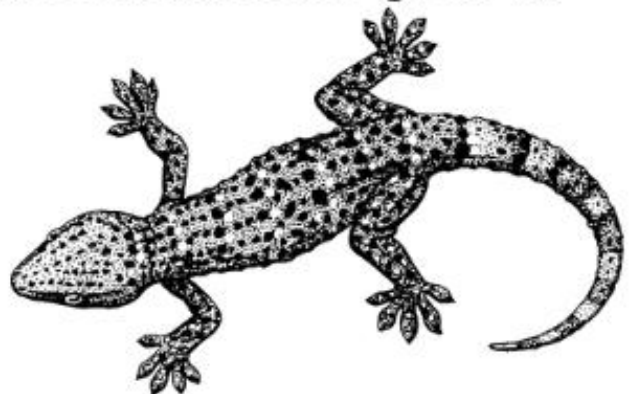
Desert Life

Name: _____

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.



Desert Life

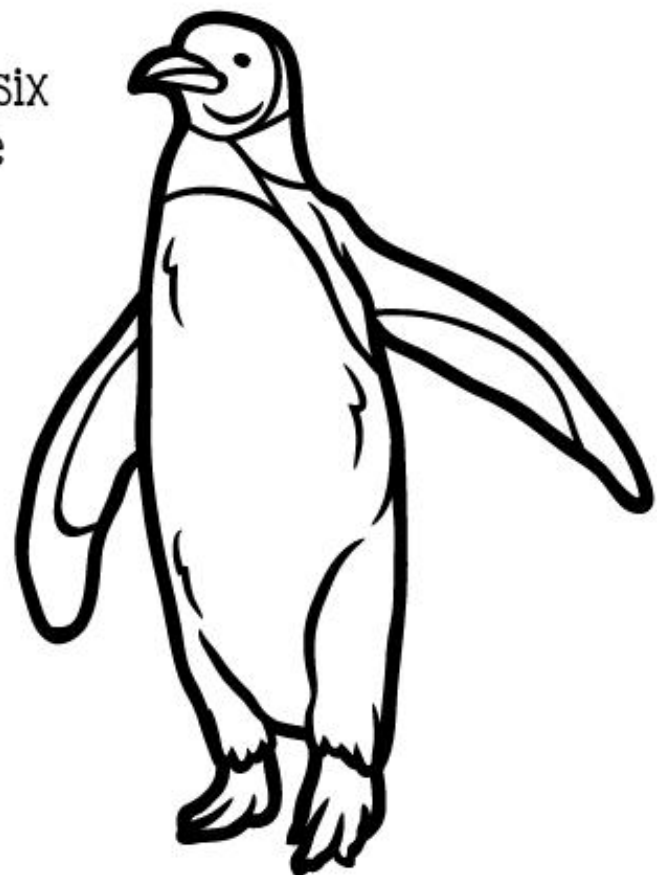
Name: _____

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.

penguin



Desert Life

Name: _____



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?

Freshwater Life

Name: _____

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.



Freshwater Life

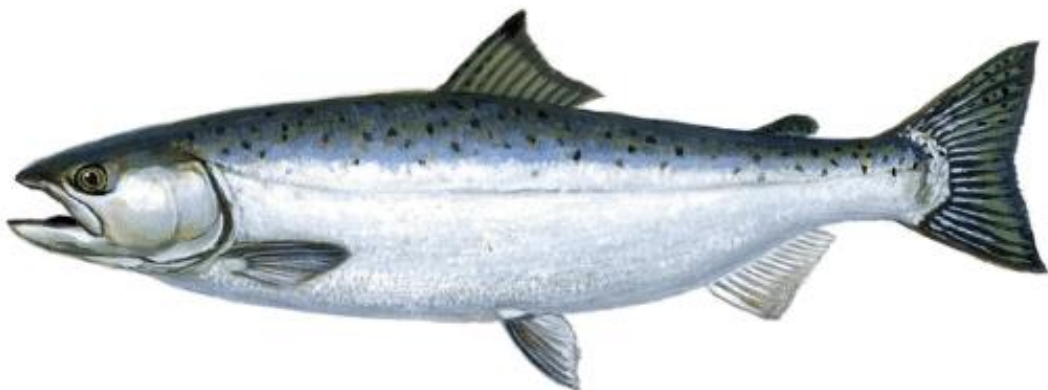
Name: _____

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 let's 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.



Freshwater Life

Name: _____

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?

Swamp Life

Name: _____

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.



Swamp Life

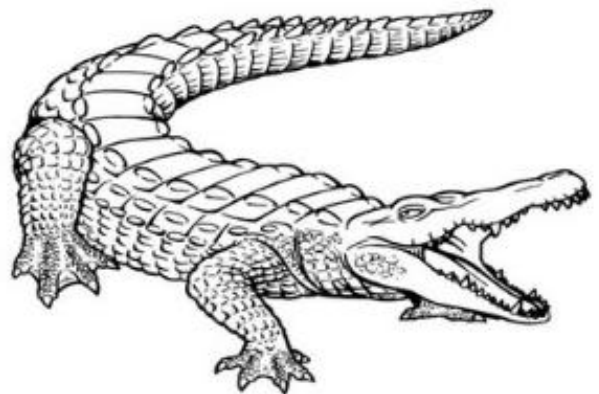
Name: _____

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.



Swamp Life

Name: _____

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



Tundra Life

Name: _____

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 arctic 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.



Tundra Life

Name: _____

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.



Tundra Life

Name: _____

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?

Grasslands Life

Name: _____

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?



Grasslands Life

Name: _____

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.



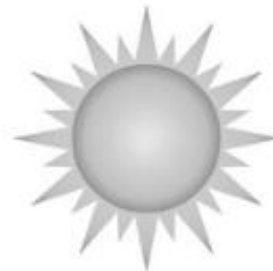
The cheetah can reach speeds up to 61 mph. These animals are often faster than their prey. They are carnivores meaning they eat the meat of other animals. Those animals are usually gazelles.



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.



Grasslands Life

Name: _____

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?

Animal Life Cycles

Name: _____

What is a life cycle? A Life Cycle is the series of changes a living thing 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 adolescent dogs.



Adolescents grow into adults.

Animal Life Cycles

Name: _____

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?

Animal Life Cycles

Name: _____

Label the pictures

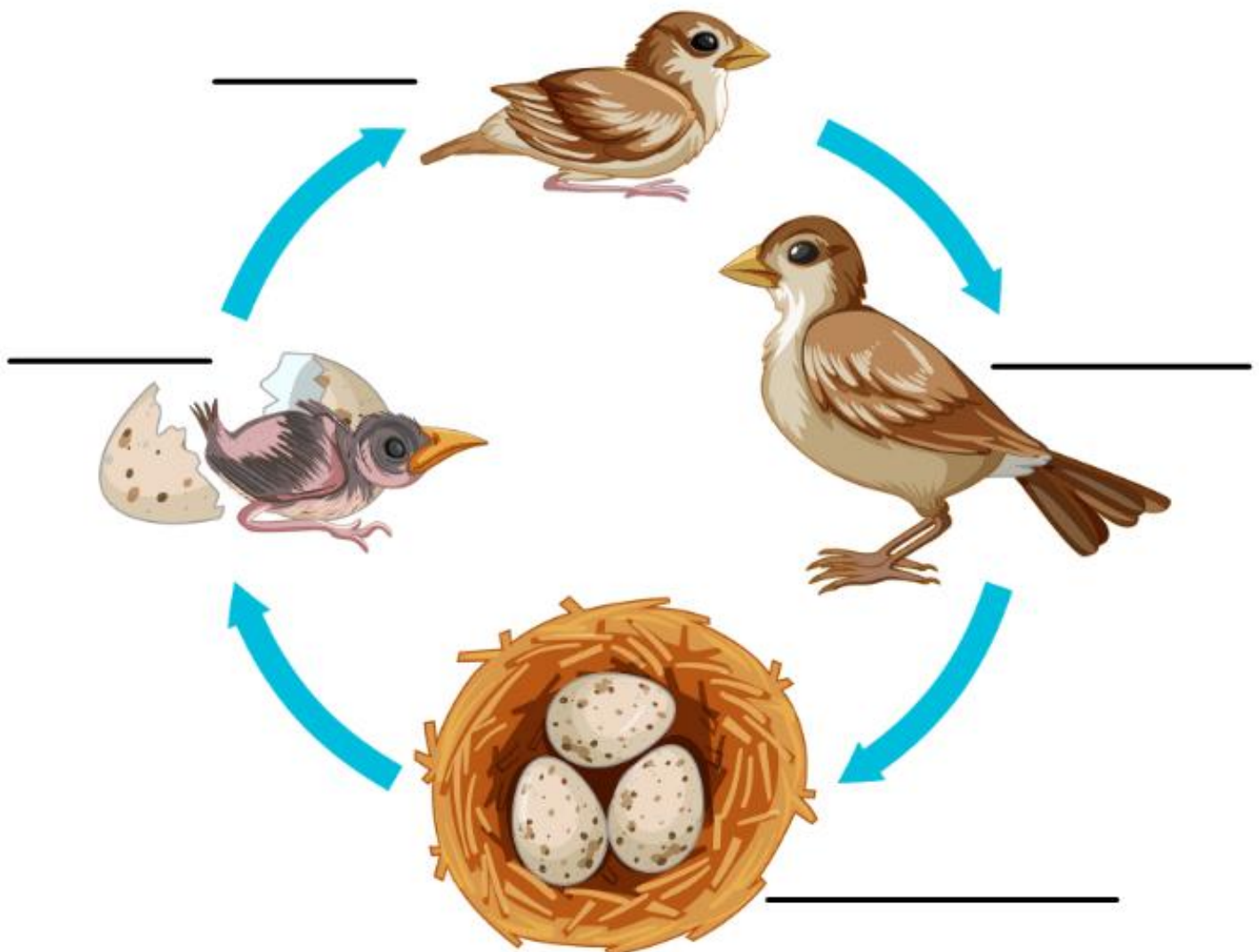
Word List

eggs

nestling

fledgling

adult



Turtle Life Cycles

Name: _____

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.

adult



eggs



hatchling



juvenile



Fish Life Cycle

Name: _____

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

Insect Life Cycles

Name: _____

Insect life cycles have 4 stages: egg, larva, pupa and adult. Cut out and put the life cycle in order.



Larva (caterpillar)

eggs



Pupa (Chrysalis)

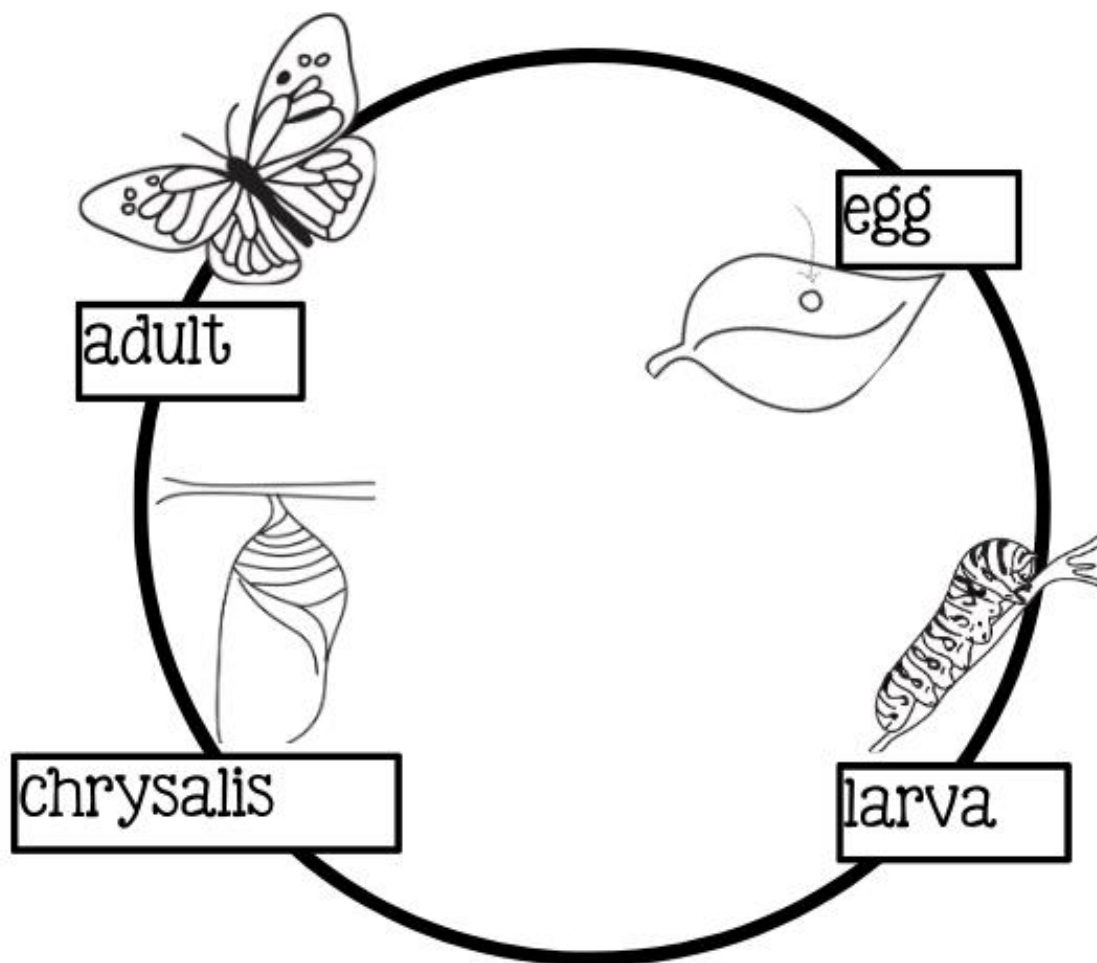


Butterfly

Butterfly Life Cycle

Name: _____

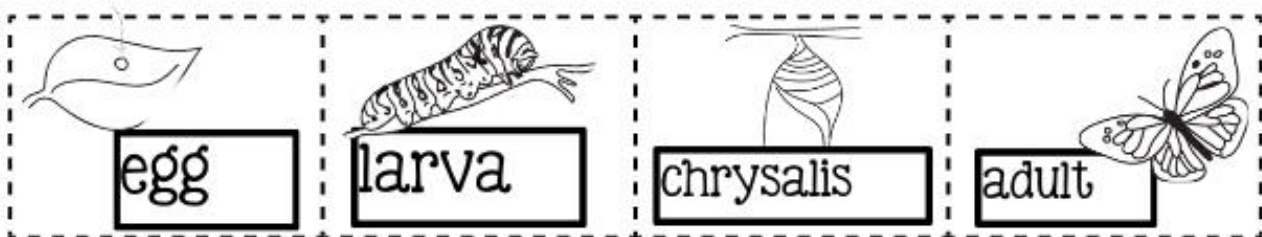
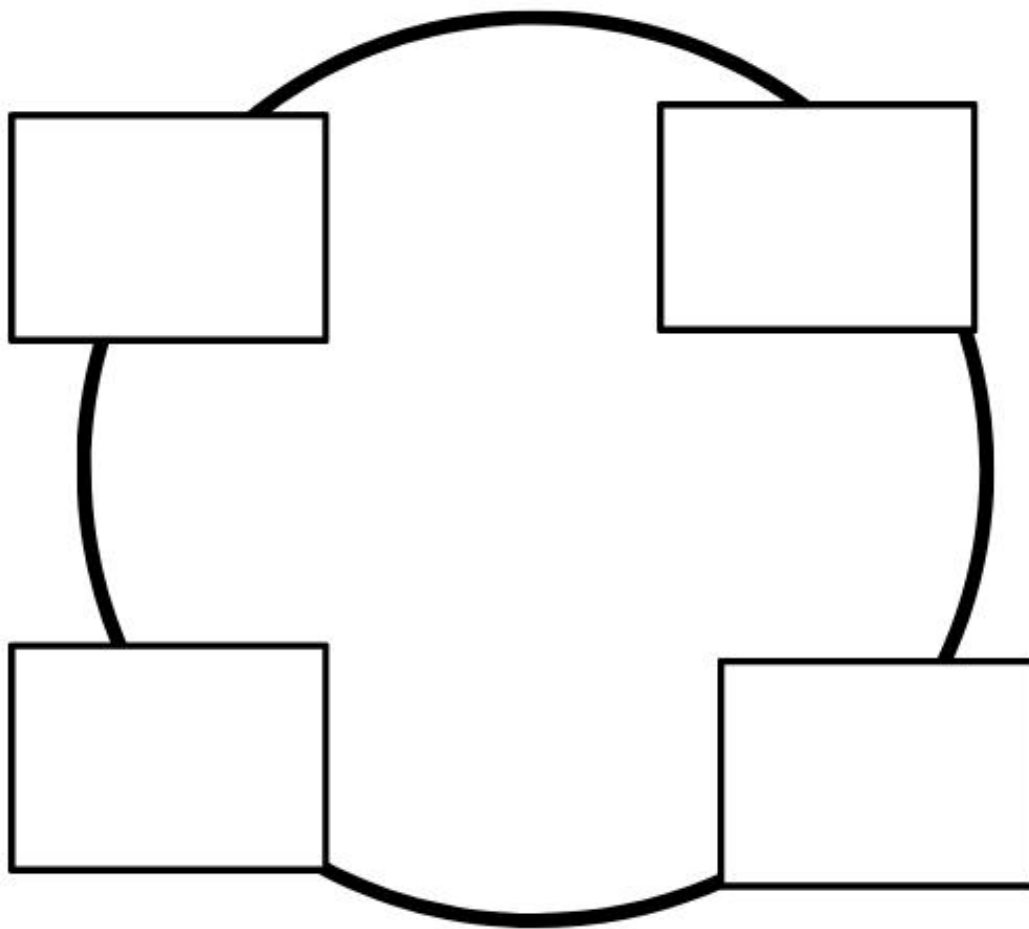
Review the life cycle chart.



Butterfly Life Cycle

Name: _____

Fill in the life cycle chart.



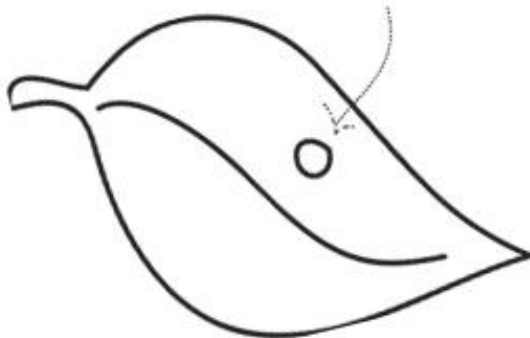
Butterfly Life Cycle

Name: _____

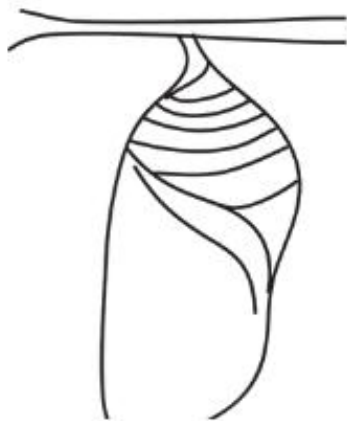
Cut out the cards and put the life cycle in order.



adult

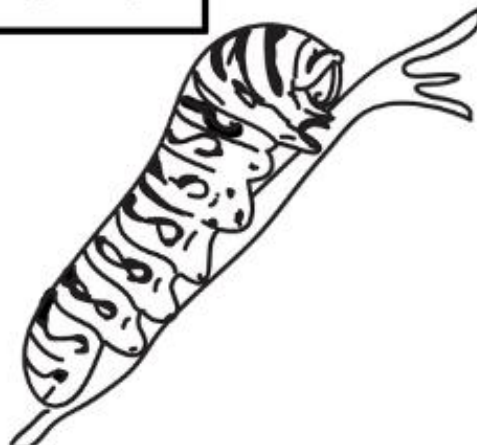


egg



chrysalis

larva



Human Life Cycle

Name: _____

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.



Human Life Cycle

Name: _____

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.

Human Life Cycle

Name: _____

Put the life cycle in order.

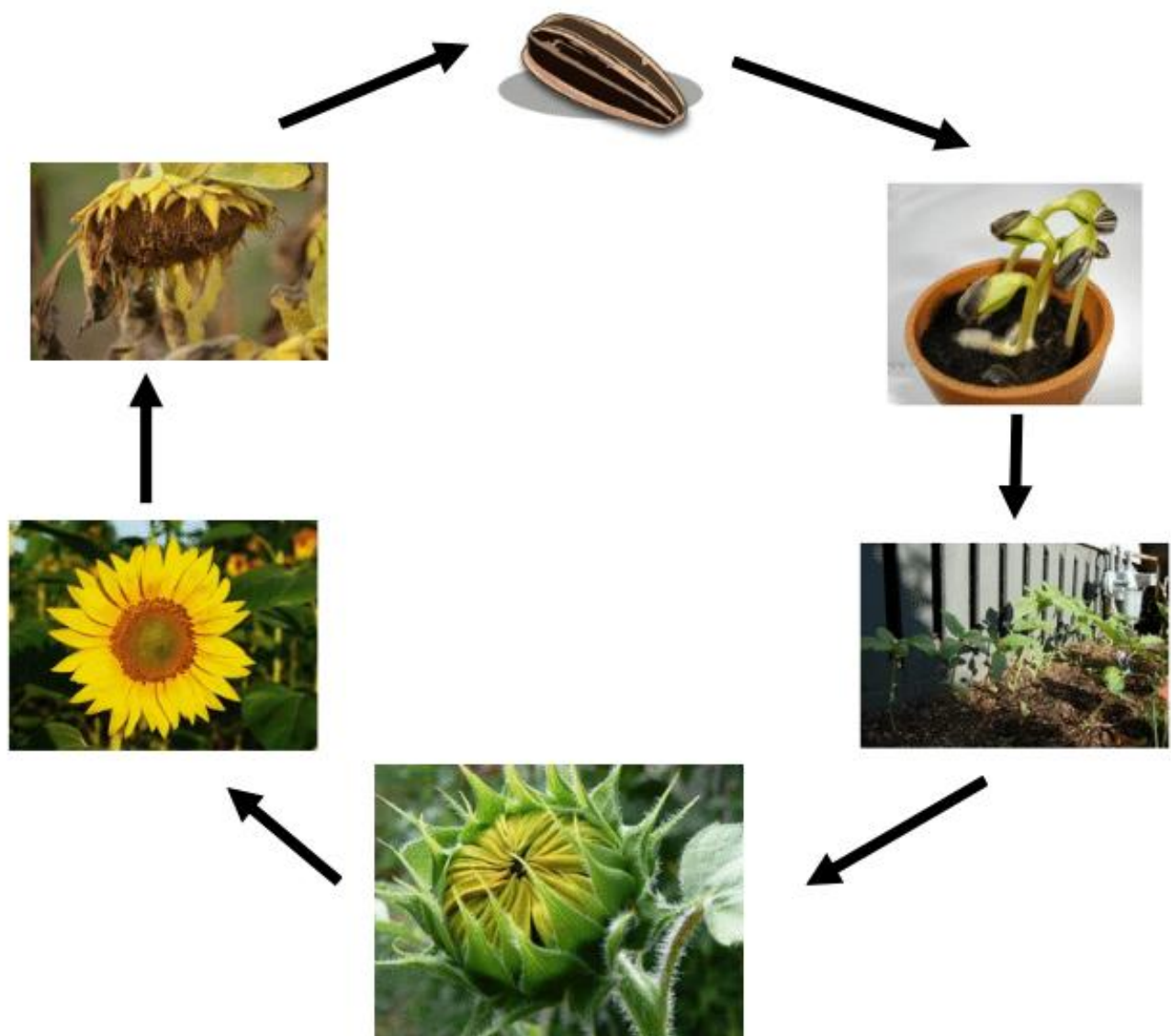


Plants

Name: _____

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?



Plants

Name: _____

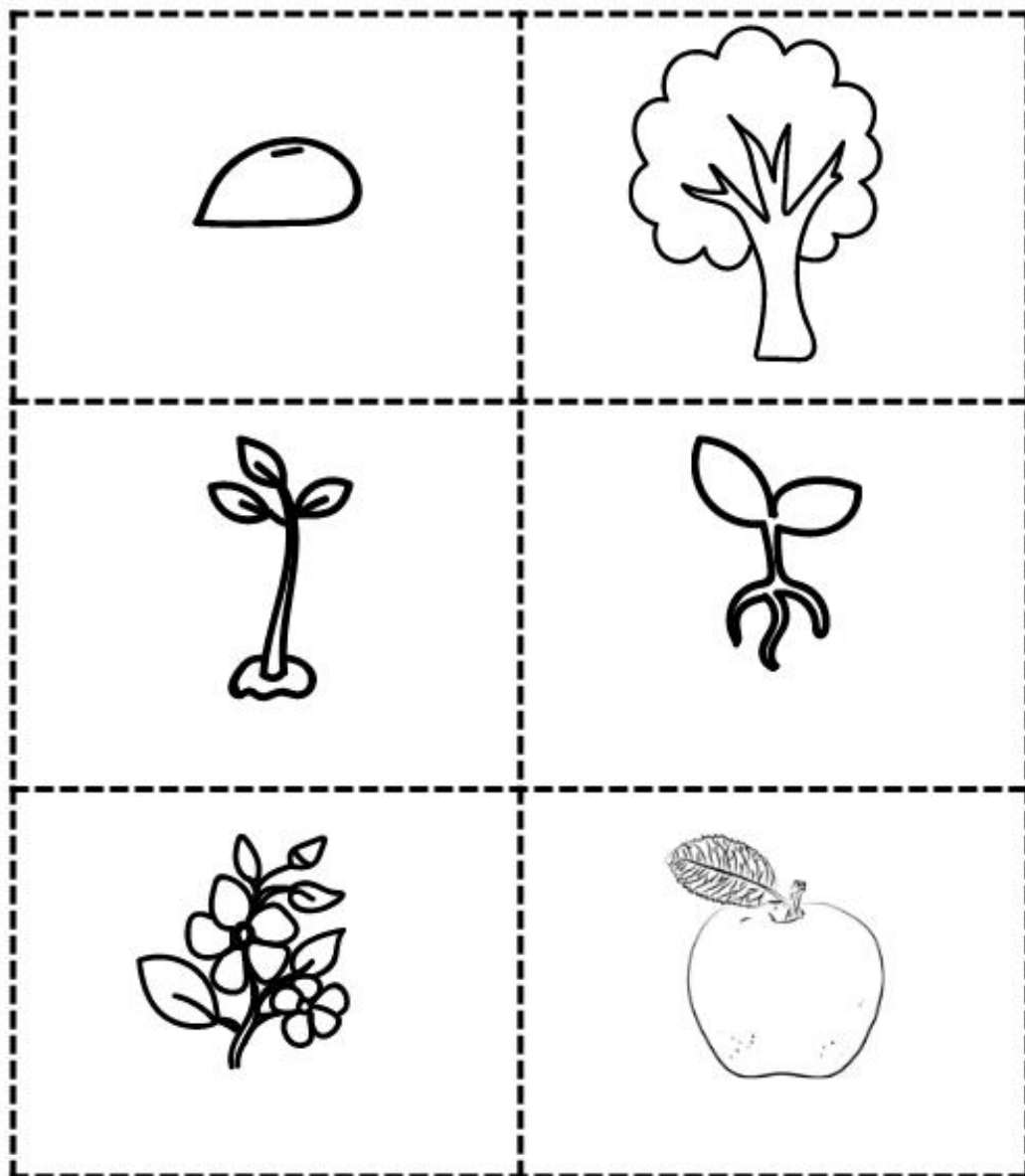
Trees have similar life cycles to flowers. They start from a single small seed. They sprout into tiny little plants that not many people would even notice. Then they grow into saplings. They are starting to look like trees then. They keep growing and growing into big trees with branches and leaves. Apples 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!



Tree Life Cycle

Name: _____

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



Earth

Name: _____

Color the planet Earth.



Earth

Name: _____

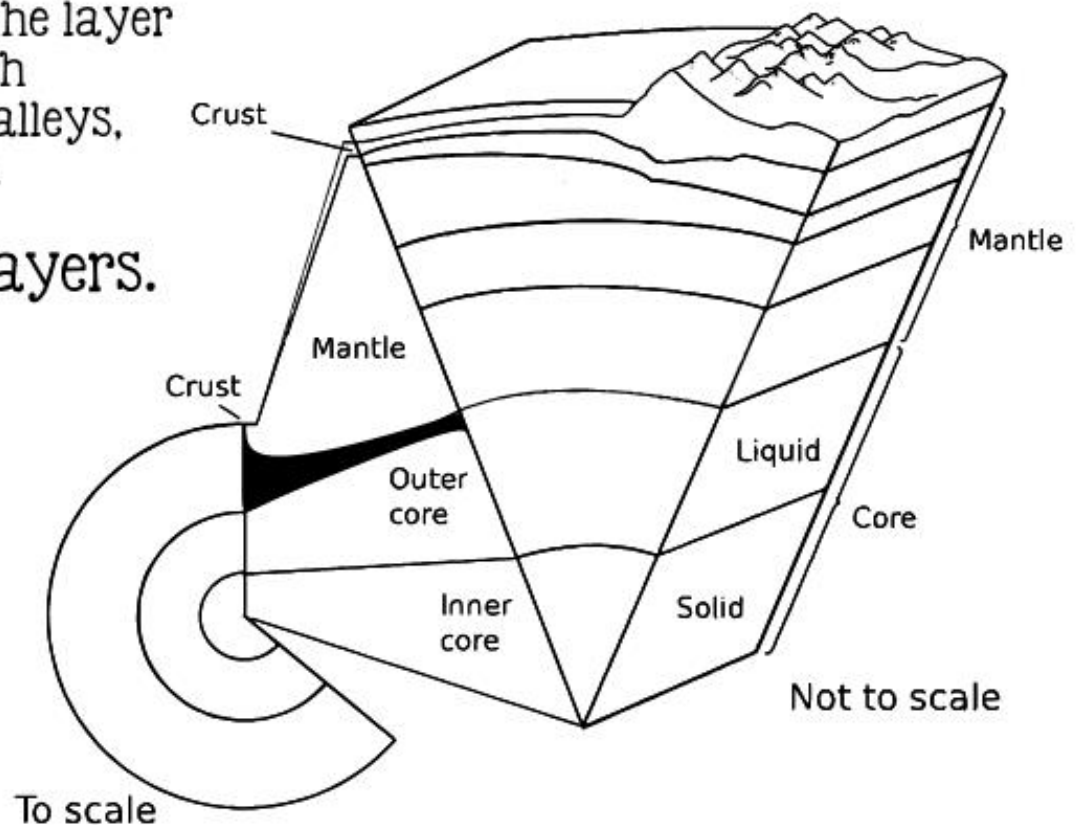
The Earth is the planet we live on. A planet is an object in space that orbits the sun. The Earth is the third planet from the Sun and the fifth largest in size. Earth is the largest of the terrestrial planets. Earth is the only known planet to be able to sustain life.

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.

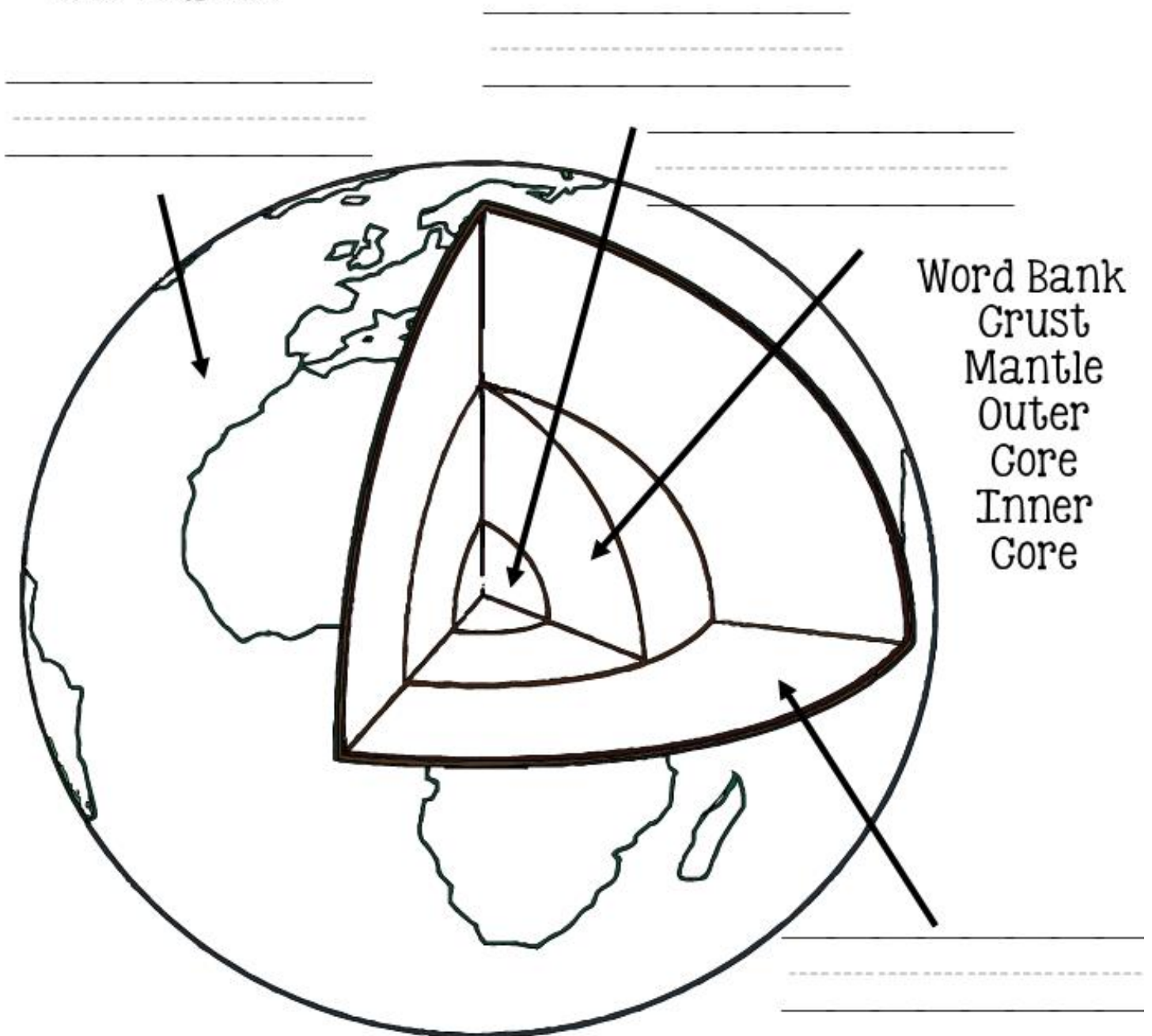
Color the layers.



Earth

Name: _____

Label the layers and color
the Earth.



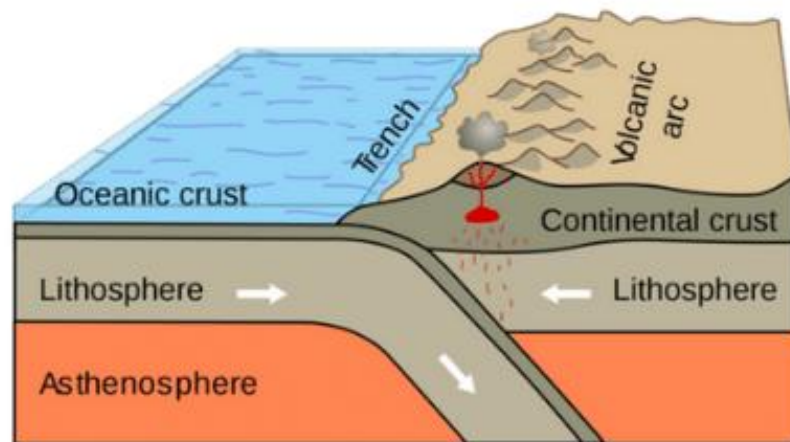
Mountains

Name: _____

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?

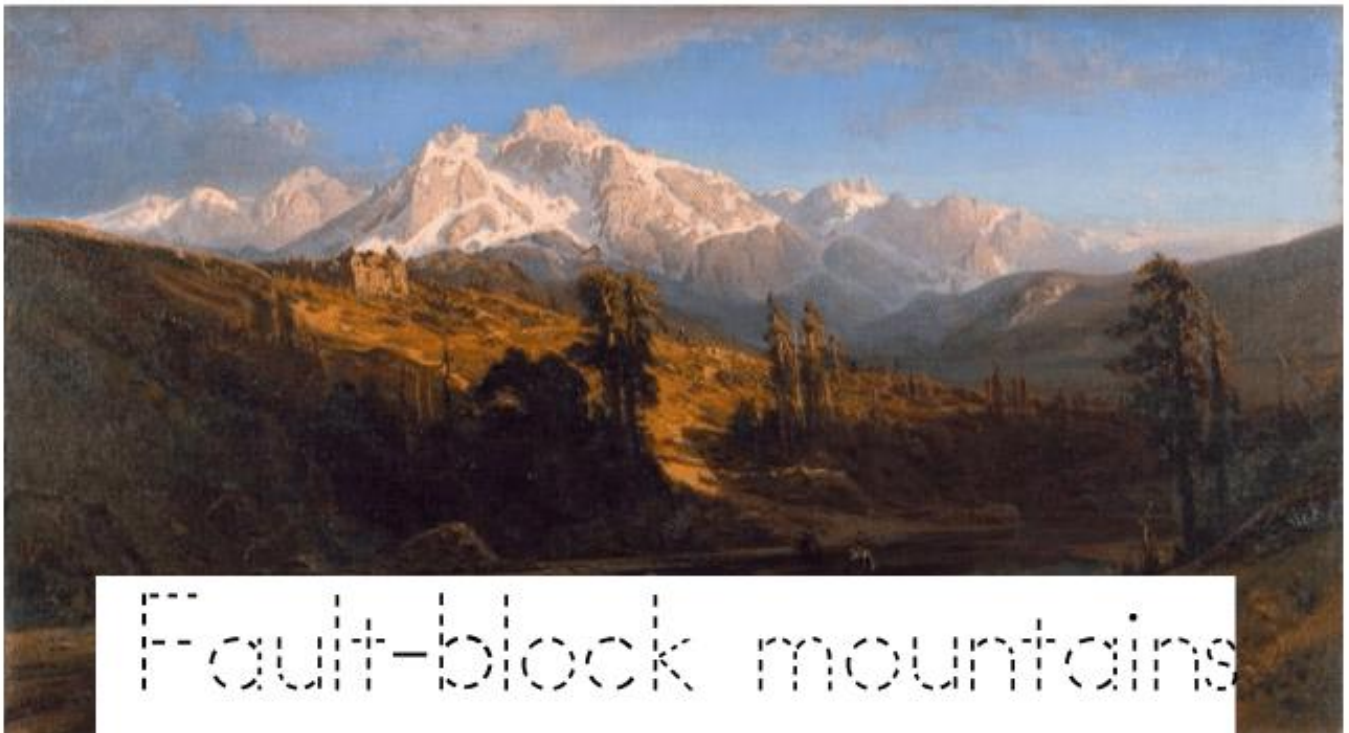
Mountains

Name: _____

Fault-block mountains are formed along faults when the Earth's crust 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 of a fault-block mountain range is Sierra Nevada mountains in California.



Fault-block mountains

Mountains

Name: _____

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



Volcanos

Name: _____

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

Volcanos

Name: _____

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.

shield volcanoes



Lava domes are formed when lava hardens around the vent.



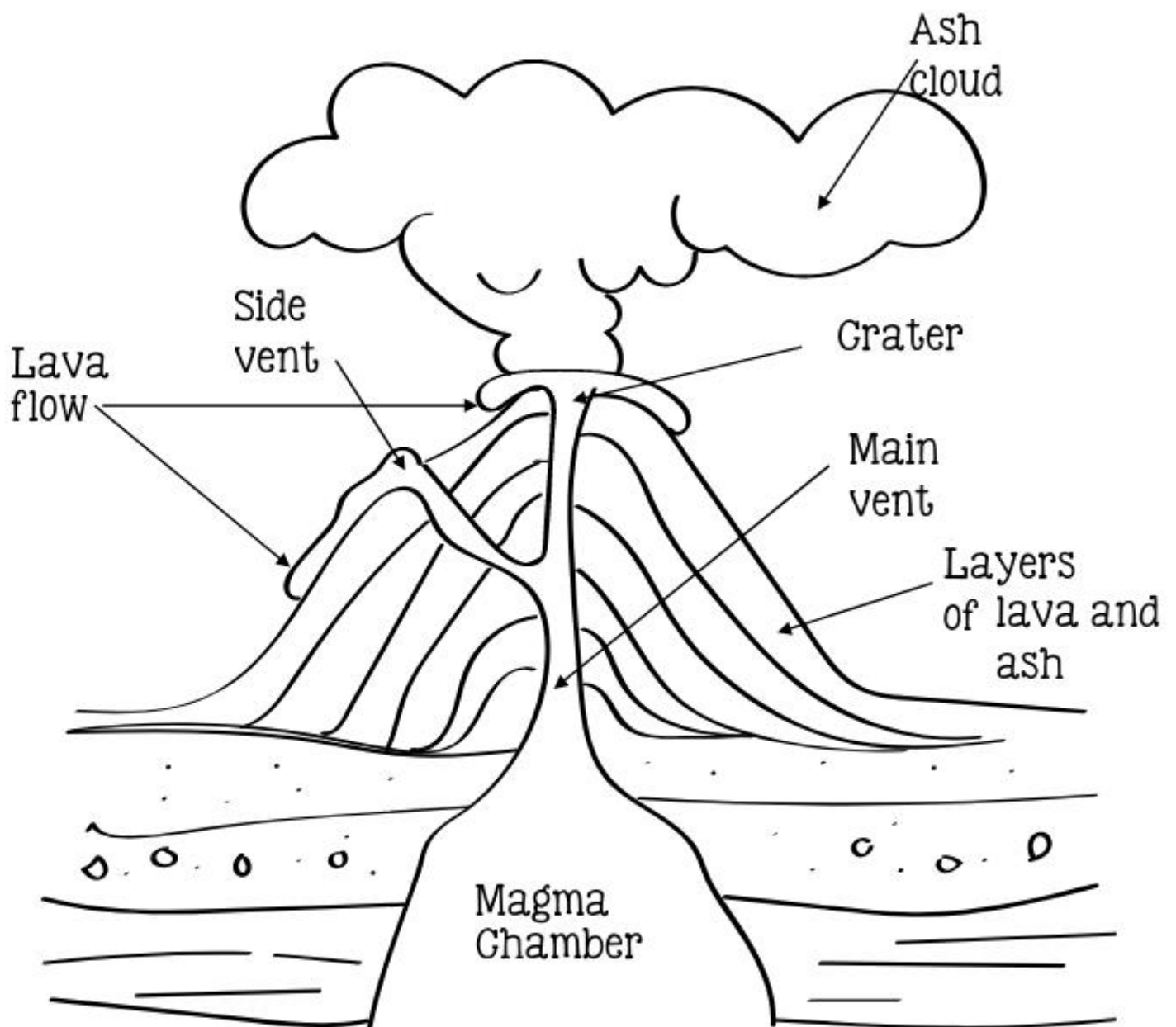
lava domes

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

Volcanos

Name: _____

Color the Picture

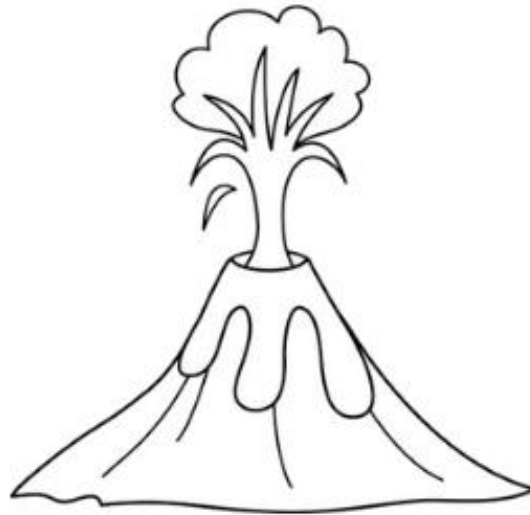


Volcano Experiment

Name: _____

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.

Oceans

Name: _____

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

Oceans

Name: _____

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 disphoticzone 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.

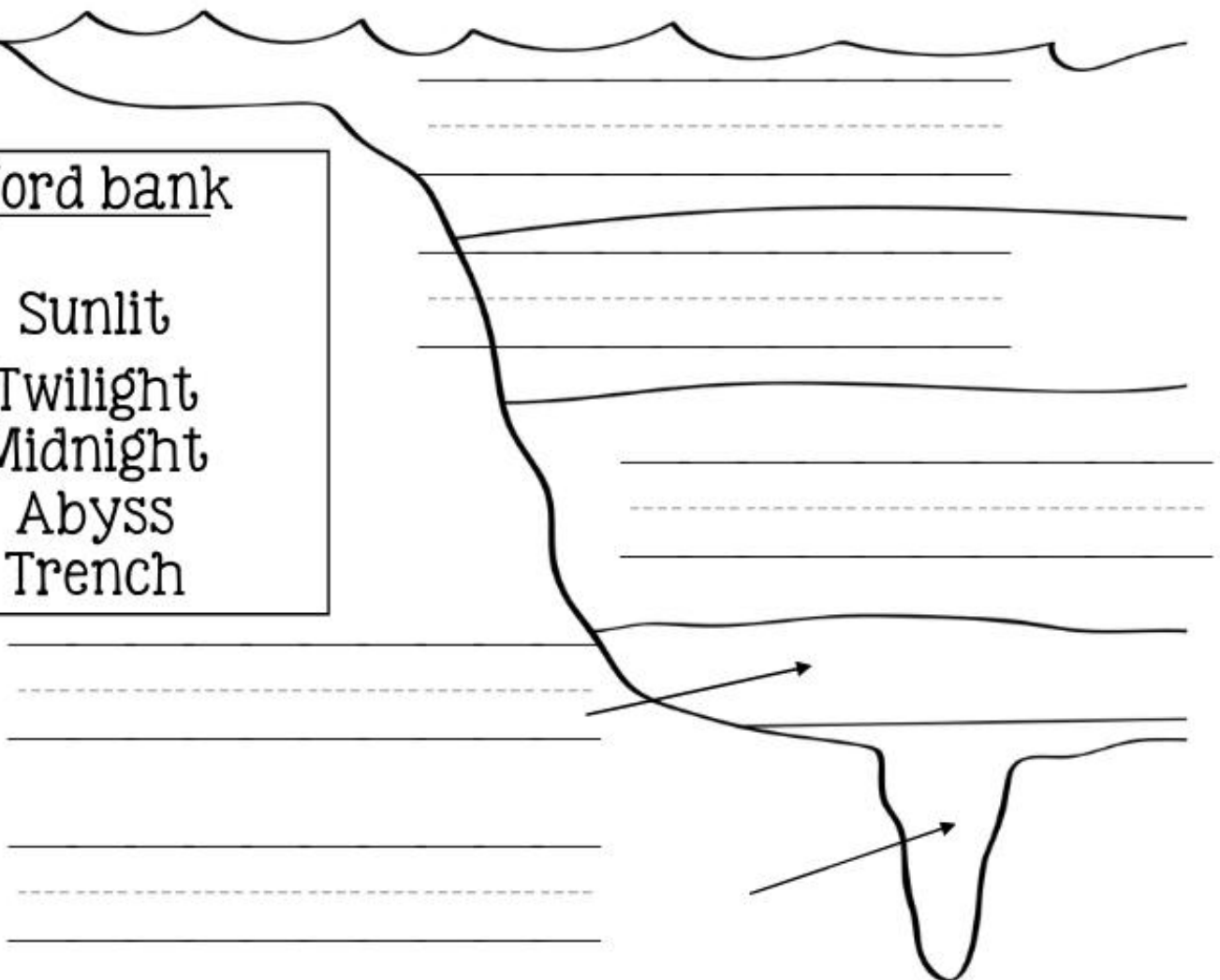
Oceans

Name: _____

Label the zones of the ocean.

Word bank

Sunlit
Twilight
Midnight
Abyss
Trench



Recycling

Name: _____

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 to make the world a better place. every year. Each of us should work to cut down on our waste

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



The three Rs of recycling are:

Recycling

Name: _____

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.

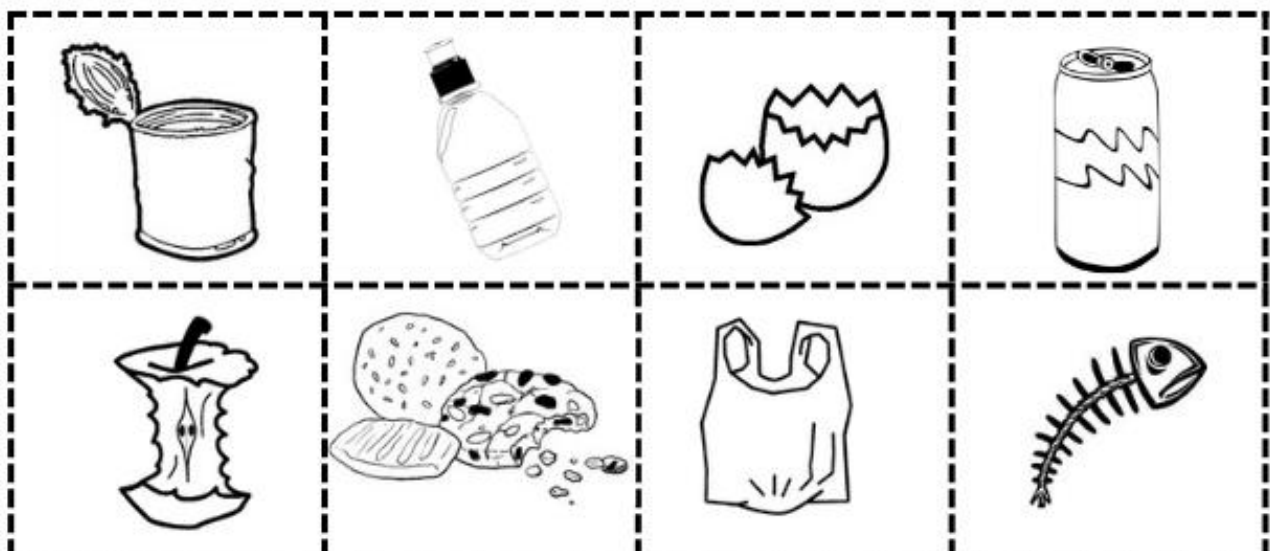
Recycling

Name: _____

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

Sort the materials to the correct bins.

Trash	Recycling



Recycling

Name: _____

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

Computers and accessories

Glass

Textiles

Metals

Newspapers and magazines

Electronics

Cardboard



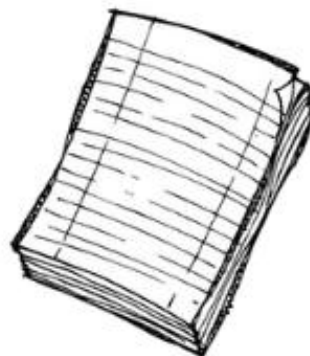
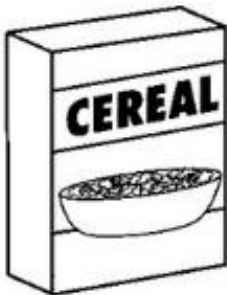
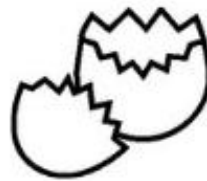
Recycling Fact: If you lined up the plastic bottles tossed away each year, they would circle our planet four times.

Make a list of things around you that can be recycled.

Recycling

Name: _____

Color the items you can recycle.



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

Seasons

Name: _____

Each year we have four seasons. This is because of the Earth traveling around the Sun (it's orbit). The Earth takes 1 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 seasons. Each season is three months long. Can you guess which season is each picture?



Seasons

Name: _____

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.

Seasons

Name: _____

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.

Seasons

Name: _____

Summer is the season is hot. School is out and a lot of people vacation. Some people like to 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.

Seasons

Name: _____

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.

Weather

Name: _____

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.

Weather

Name: _____

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

--

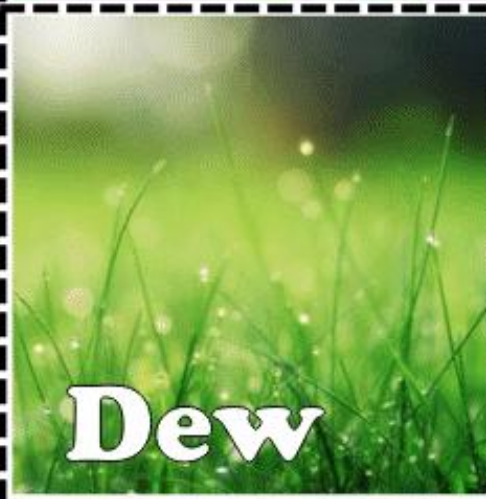
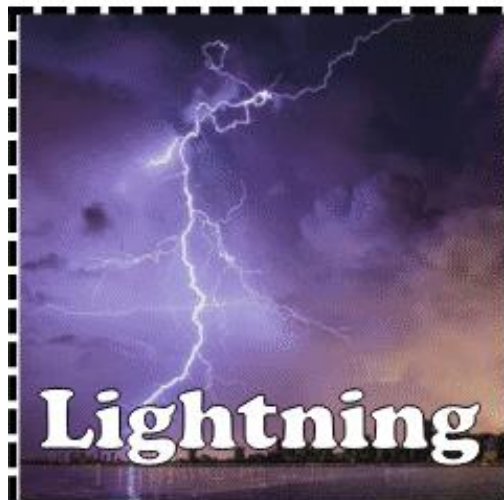


Windy

--

Weather

Name: _____



Weather

Name: _____

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?

Weather

Name: _____

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.



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.

What do you or would you do during a snowstorm?

Weather

Name: _____

A tornado is a funnel shaped column of air which rotates counter-clockwise. They 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.



A tornado WATCH means tornadoes are possible in and near your area. Be ready to act fast!

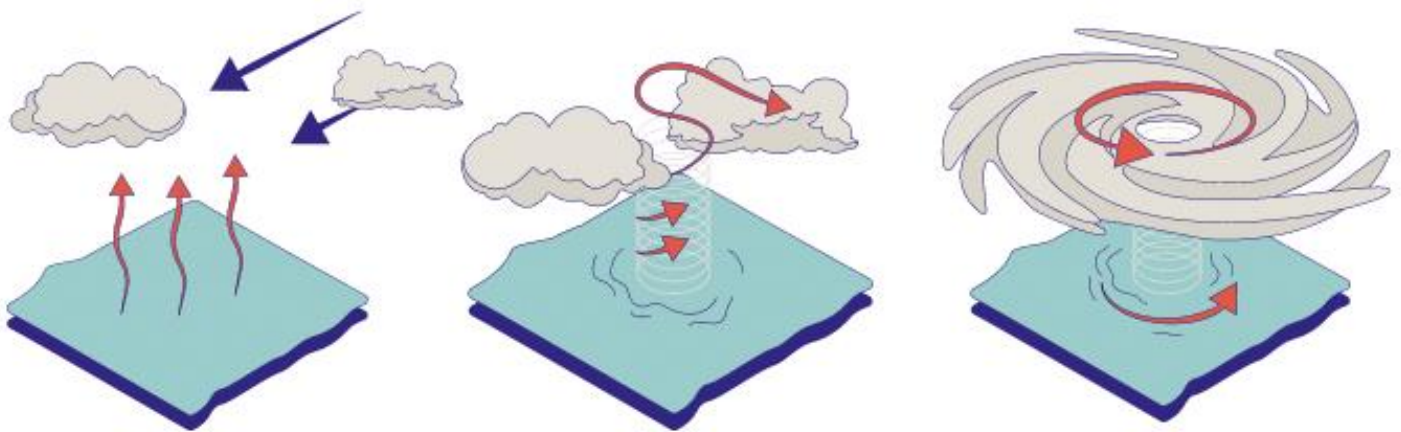
A tornado WARNING means Take Action! A tornado is near. There is danger. Move to safe location right away.

What is the difference between a tornado watch and a tornado warning?

Weather

Name: _____

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



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.

Weather Journal

Name: _____

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.

Weather Word Search

Name: _____

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

thunder

rain

sleet

snow

dew

tornado

cloud

wind



Weather

Name: _____

word bank

sun windy
tornado cloud
lightning rain

Write the words.



Weather

Name: _____

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

 sunny
  rainy
  storm
  cloudy

Tally Marks



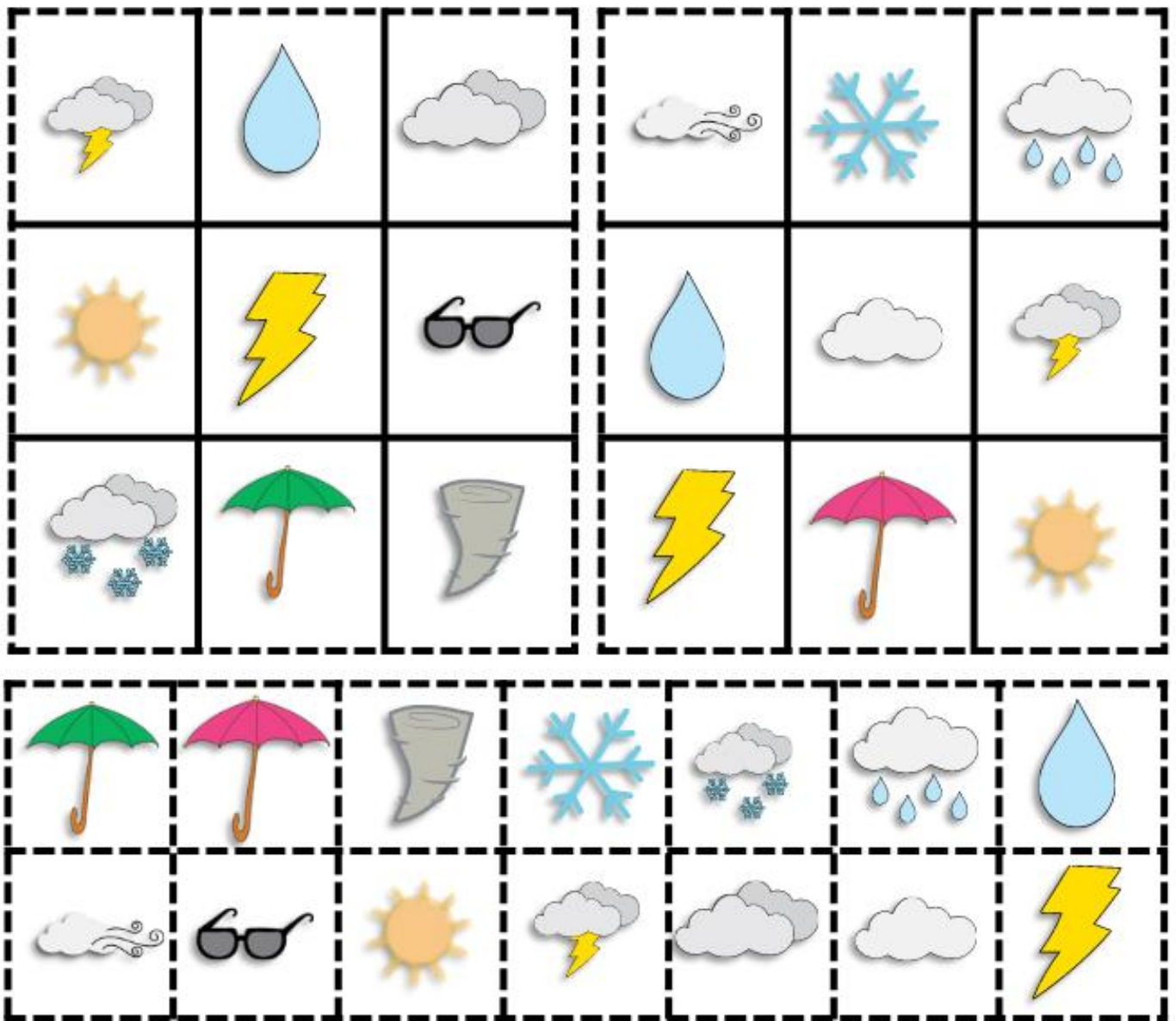
1	2	3	4	5	6	7	8	9	10

How many days were sunny? Was there  more or  ?

Weather

Name: _____

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



Meteorologists

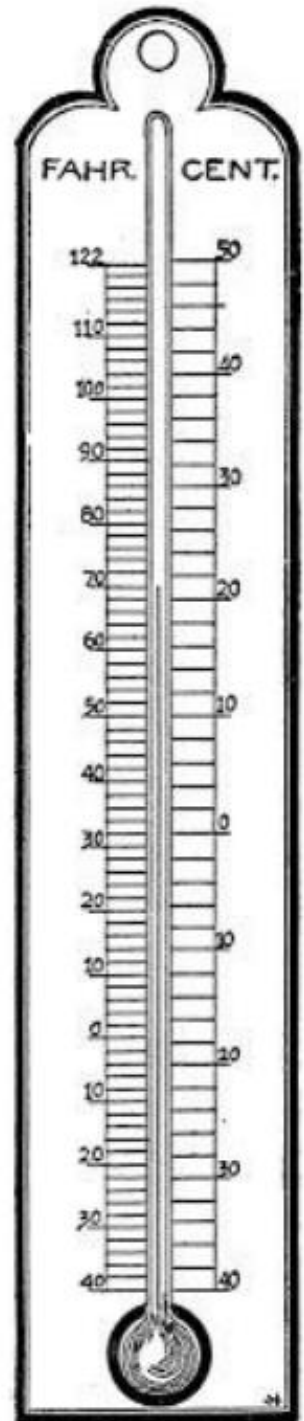
Name: _____

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.
Anemometer measures wind speed.
Wind vane to see which way the wind blows.



Meteorologists

Name: _____

What does each tool do?



thermometer

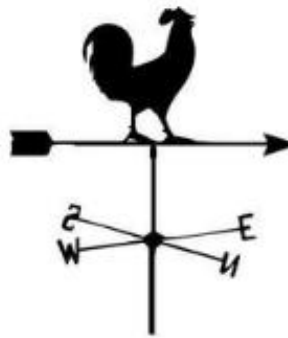
sling psychrometer



barometer



wind vane



rain gauge



anemometer



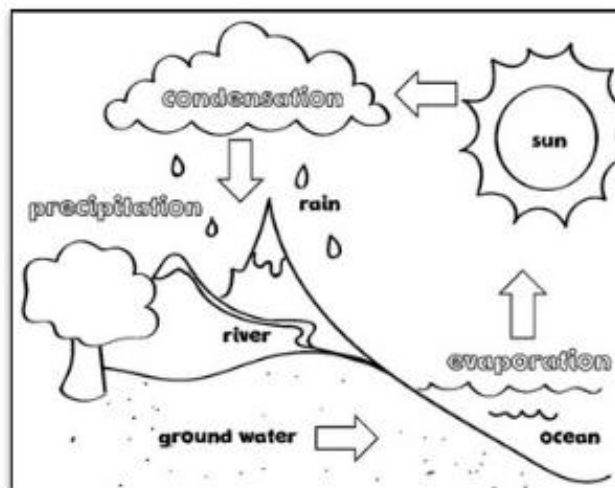
Color the map and create your own forecast. Present your forecast as a meteorologist.



Clouds

Name: _____

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

Clouds

Name: _____

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 hanging 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.



Clouds

Name: _____

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.

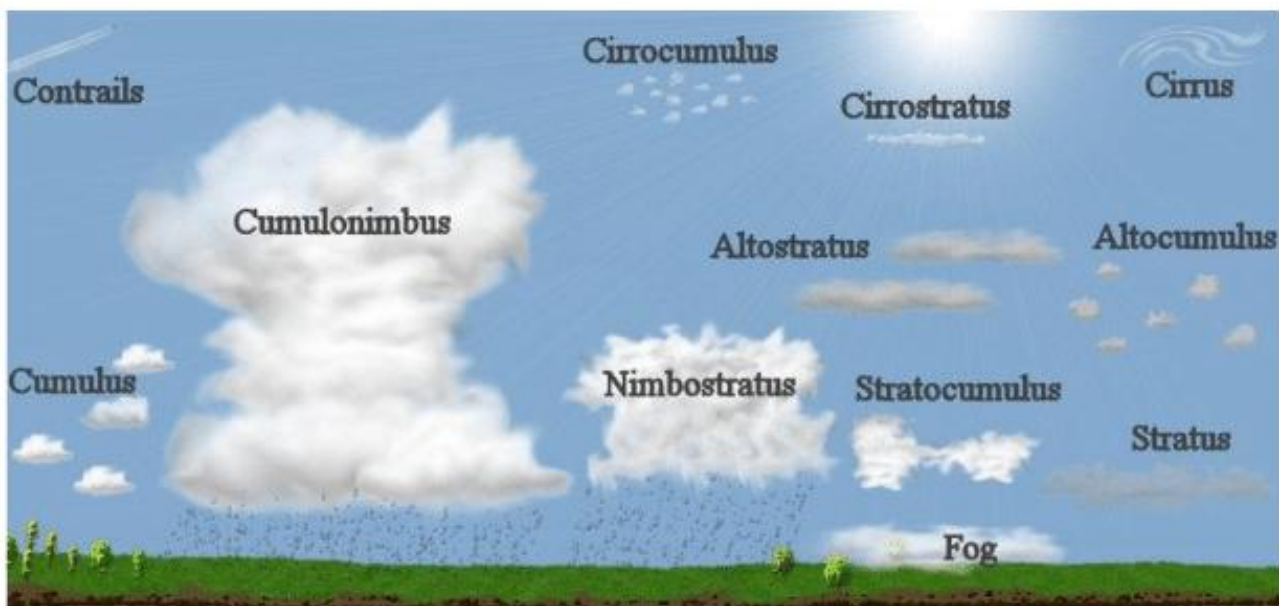
10. Cumulonimbus clouds span the low, middle, and high layers of the sky. They look like they grow into the sky. These are thunderstorm clouds.



Clouds

Name: _____

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.



Clouds

Name: _____

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?



Soil

Name: _____

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.

Examine the soil in your yard. Is it all the same or are there areas that look different?



Soil

Name: _____

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.

G -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.

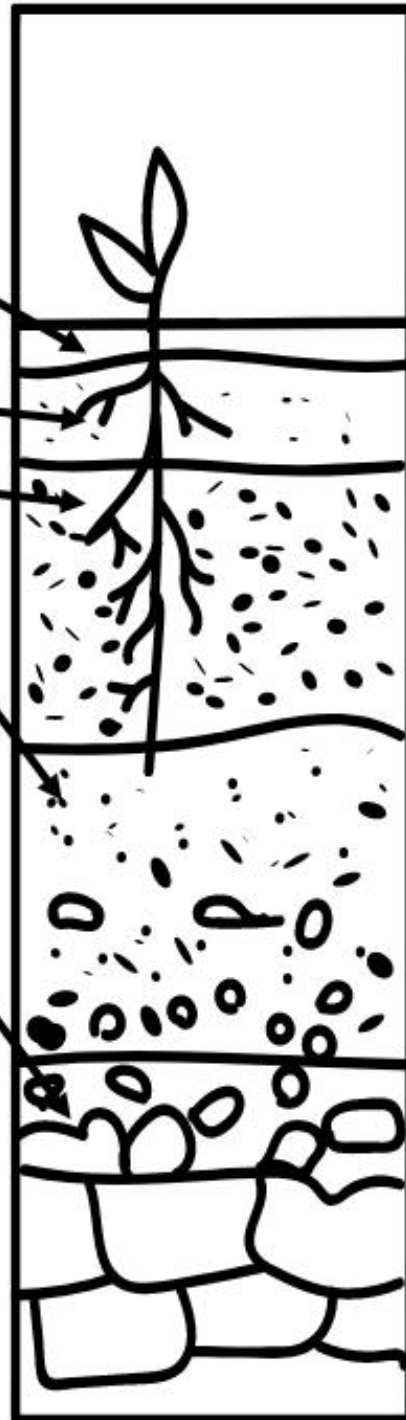
Organic

Topsoil

Subsoil

Parent Material

Bedrock



Soil

Name: _____

What are two reasons soil is important?

Name the layers of soil:

What is soil?

Air

Name: _____

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. Humidity is the amount of water that the air can hold before it rains.

What is air?

Air



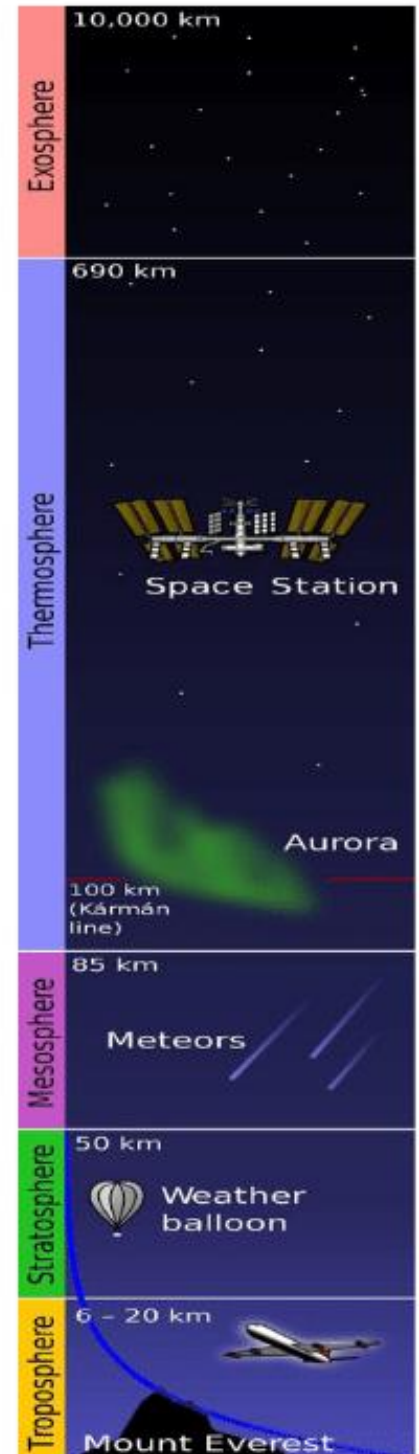
Air

Name: _____

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. Meteoroids 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.



Air

Name: _____

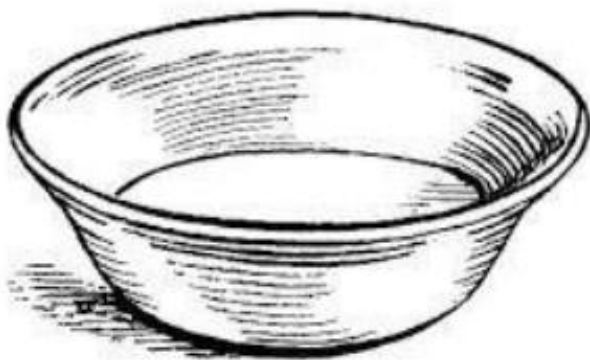
You can feel more air pressure at sea level but less on a mountain. The difference in air pressure is what causes your ears to pop when you are driving up a hill or going up in an airplane.

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.



Air

Name: _____

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?

Flight

Name: _____

What things can you think of that can fly?

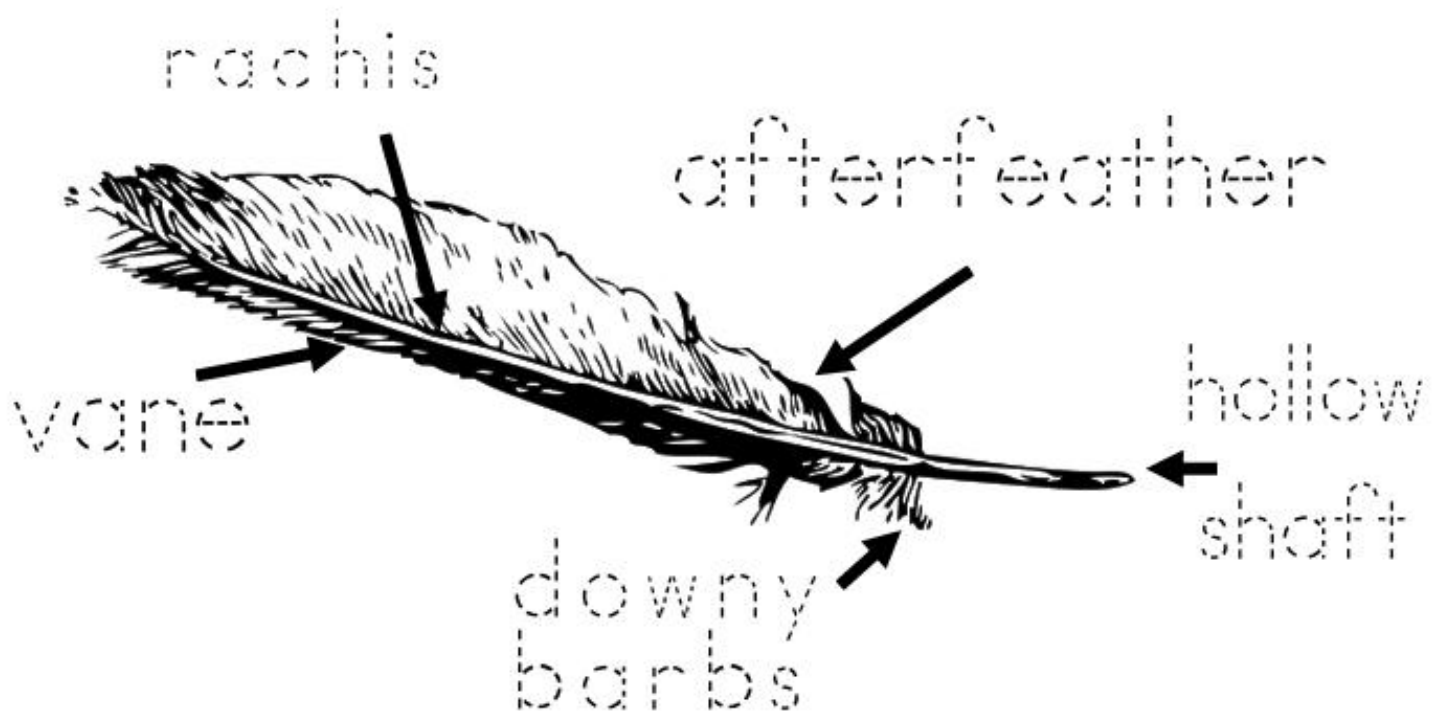
Birds, some insects, airplanes... What else can you think of that can fly? What do they have in common?

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.

Semi plume feathers help birds float.

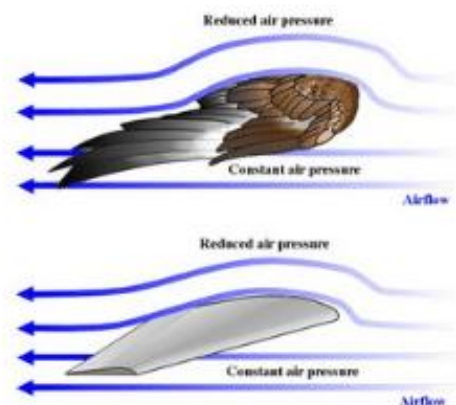


Flight

Name: _____

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 uses its 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 need to be able to fly?

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

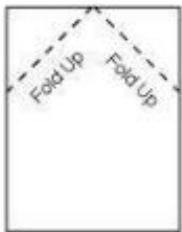
Flight

Name: _____

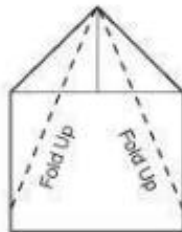
Aerodynamics is the branch of physics that deals with flight.

When we study aerodynamics, we learn how air interacts with solid objects.

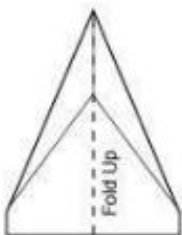
We are going to build a paper airplane and watch how air flows. What design do you think would work best? Build the one below or your own design. Write about what happened.



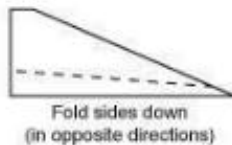
1



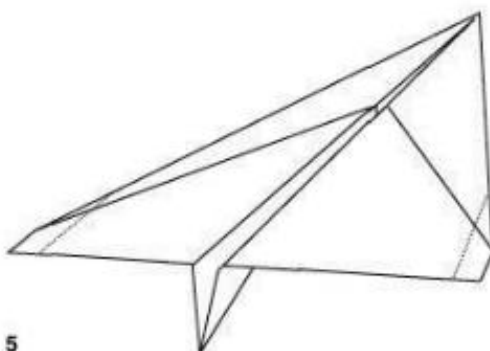
2



3



4



5

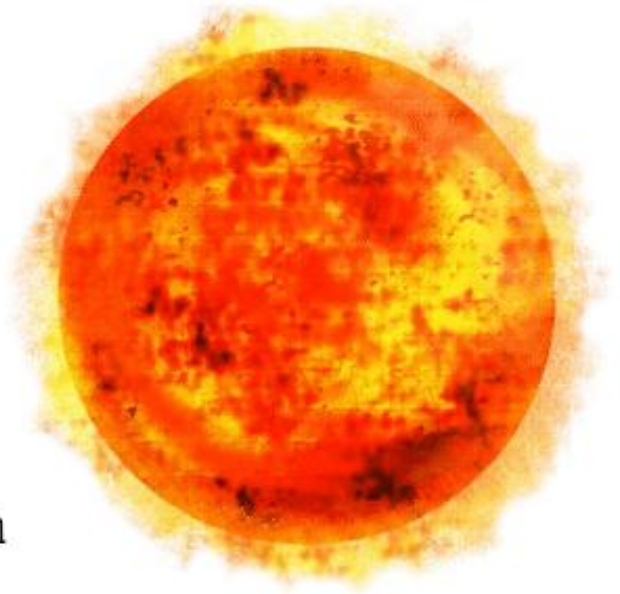
This image shows a full page of handwriting practice paper. It contains ten identical sets of horizontal guidelines arranged vertically. Each set is composed of three lines: a solid top line, a dashed middle line, and a solid bottom line, providing a structured space for practicing letter formation and alignment.

The Sun

Name: _____

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.

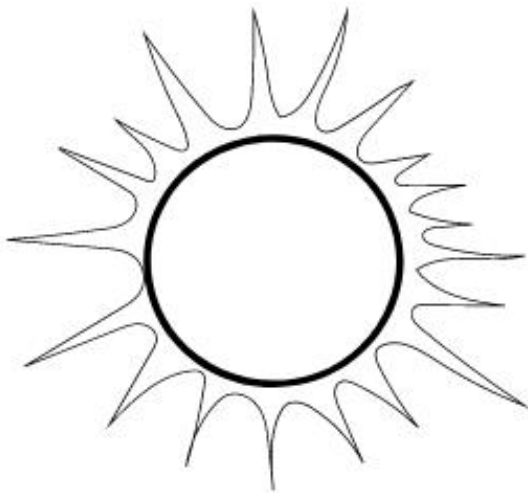
Why is the Sun so important to us?

What is the Sun?

The Sun

Name: _____

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.

The Sun

Name: _____

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

chromosphere

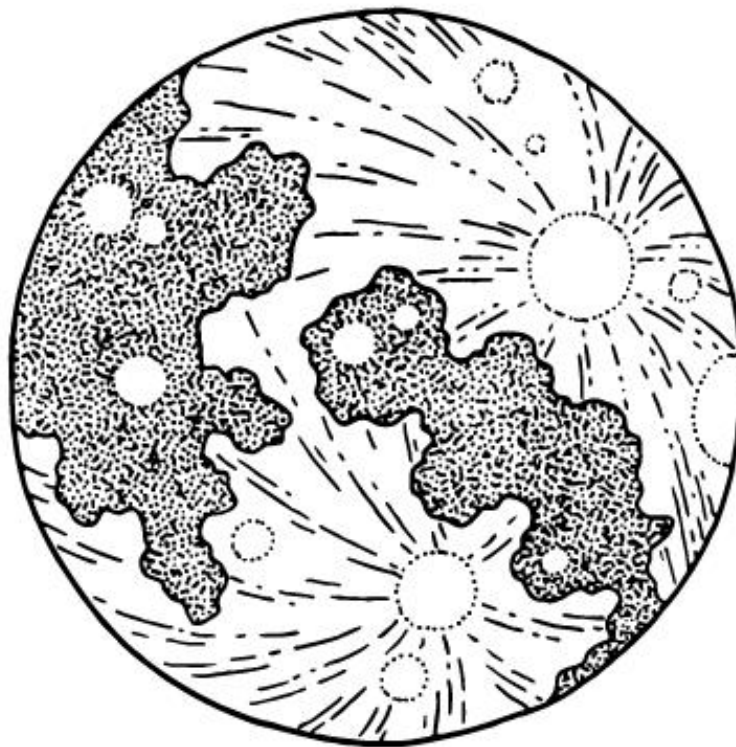
corona

The Moon

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. The moon is the only surface in Space that humans have walked on so far. The surface is covered in craters, pits and scars.



moon

The Moon

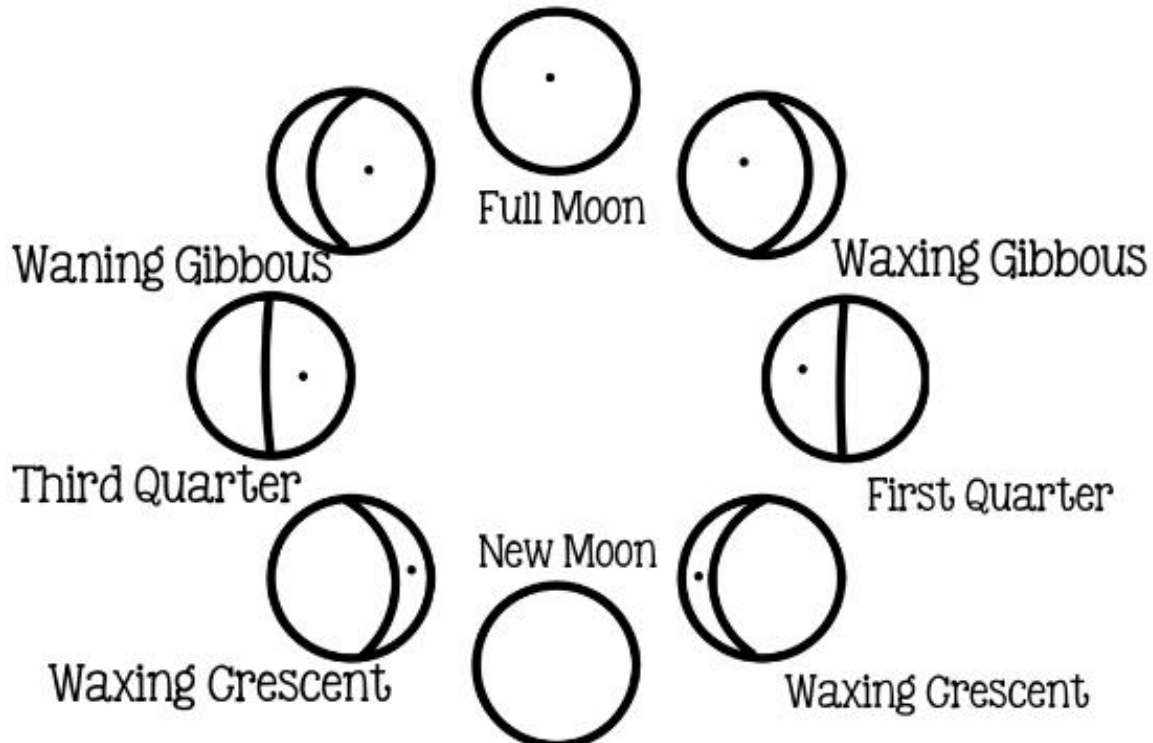
Name: _____

The Moon

All parts of the Moon are lit by the Sun at different times. We know it rotates round the Earth and as it does this we see different parts of the sunlit half. These are known as the phases of the Moon, or lunar phases.

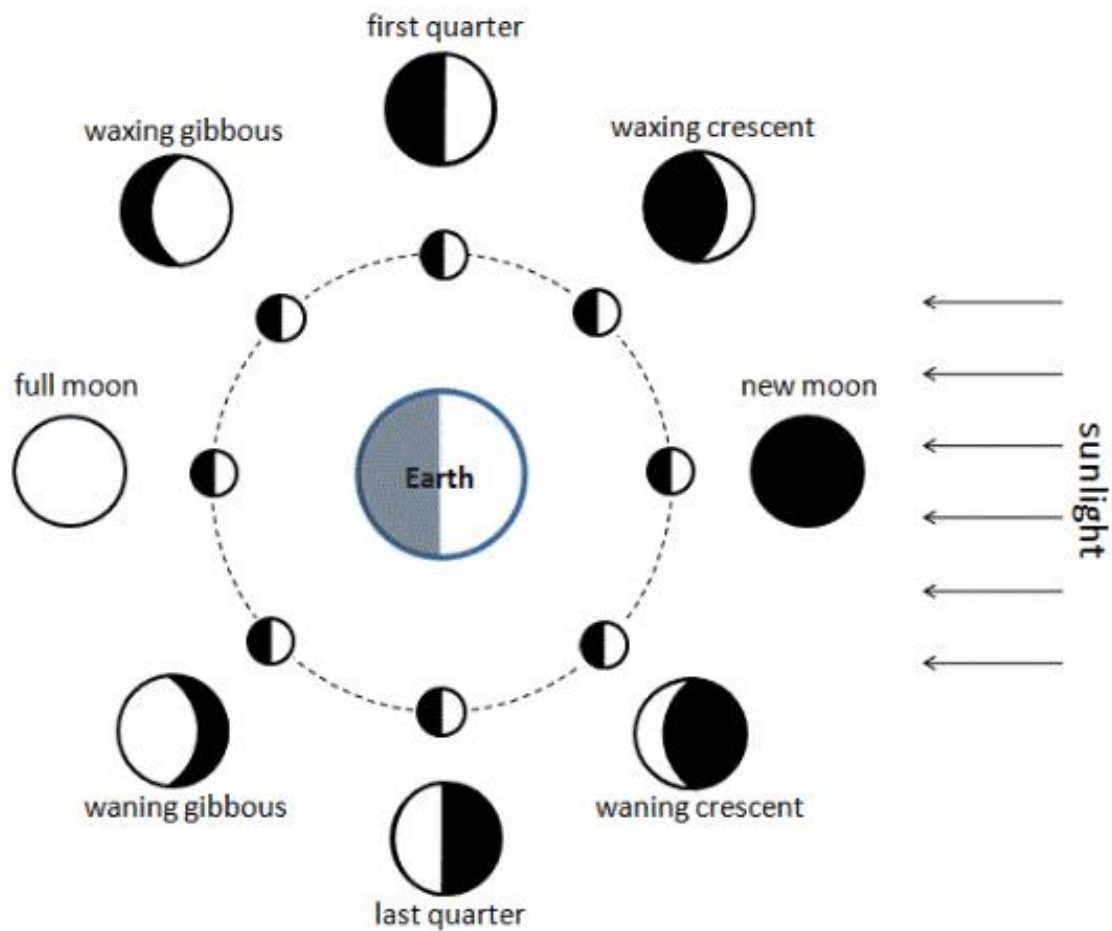
Color the part of the moon with a dot on it black.

This is the part we can not see because it is not lit up by the Sun as the moon rotates.



The Moon

Name: _____



Create your own moon phase chart.

Moon Phases

Name: _____

Look outside at night. What does the moon look like? What phase it is? Keep a log of the phases of the moon each night. Watch as it moves through it's phases.

Draw a picture of the moon each night for a month. Write in the date below your picture.

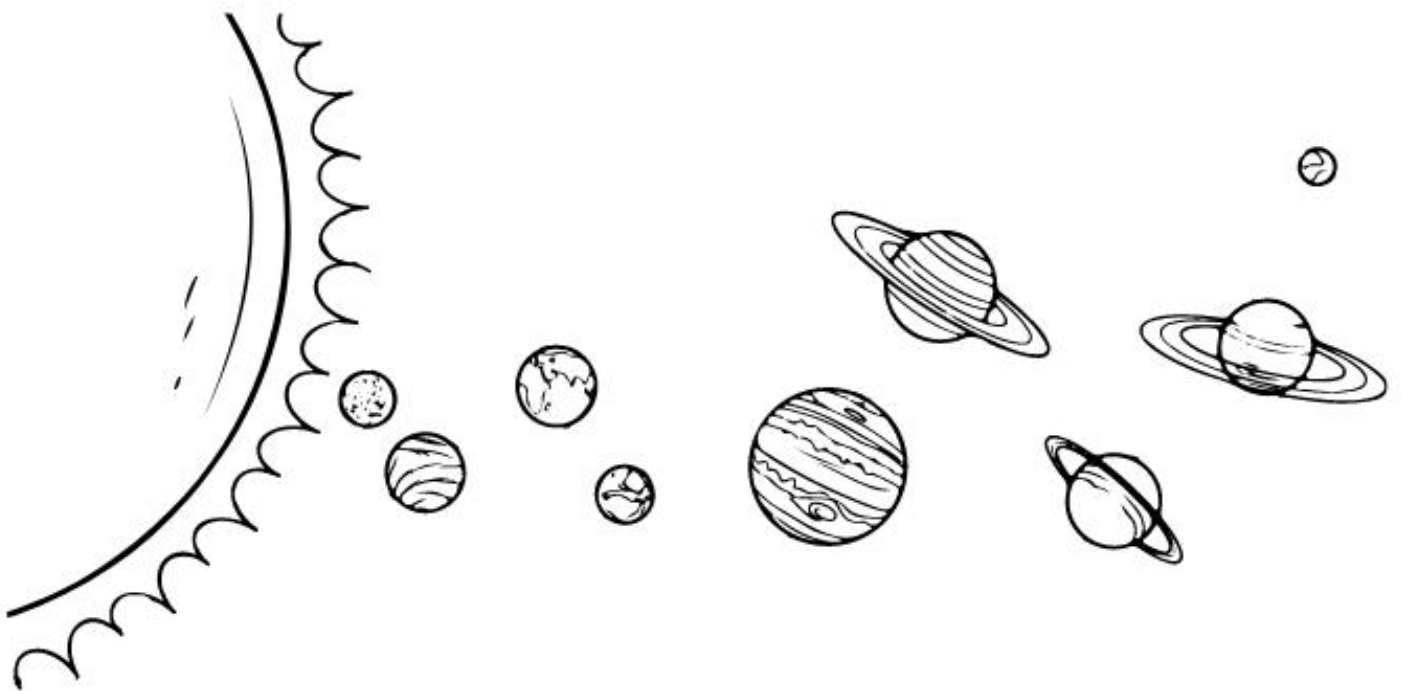
The Planets

Name: _____

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.

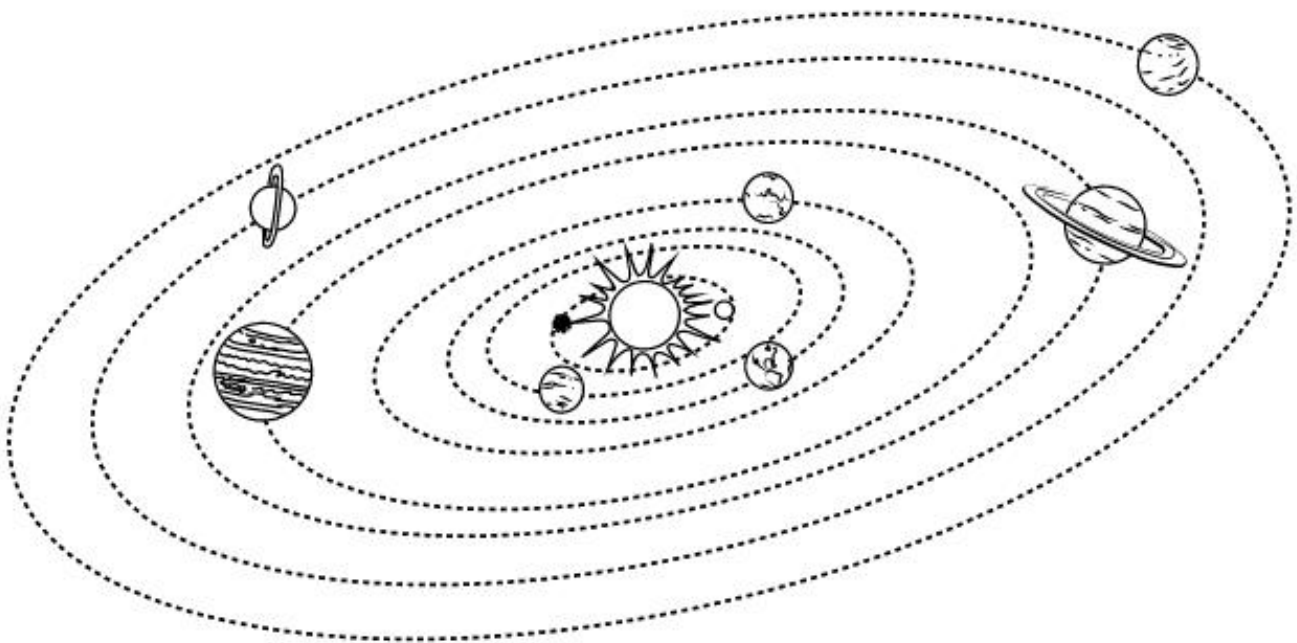
Our Solar System is held together by the sun's gravity. Gravity plays a big role in how our Solar System and life works. Gravity is what keeps us from floating off into space. Gravity is what keeps our feet on the ground. Have you ever seen an astronaut in space floating? That is because there isn't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



The Solar System

Name: _____

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.



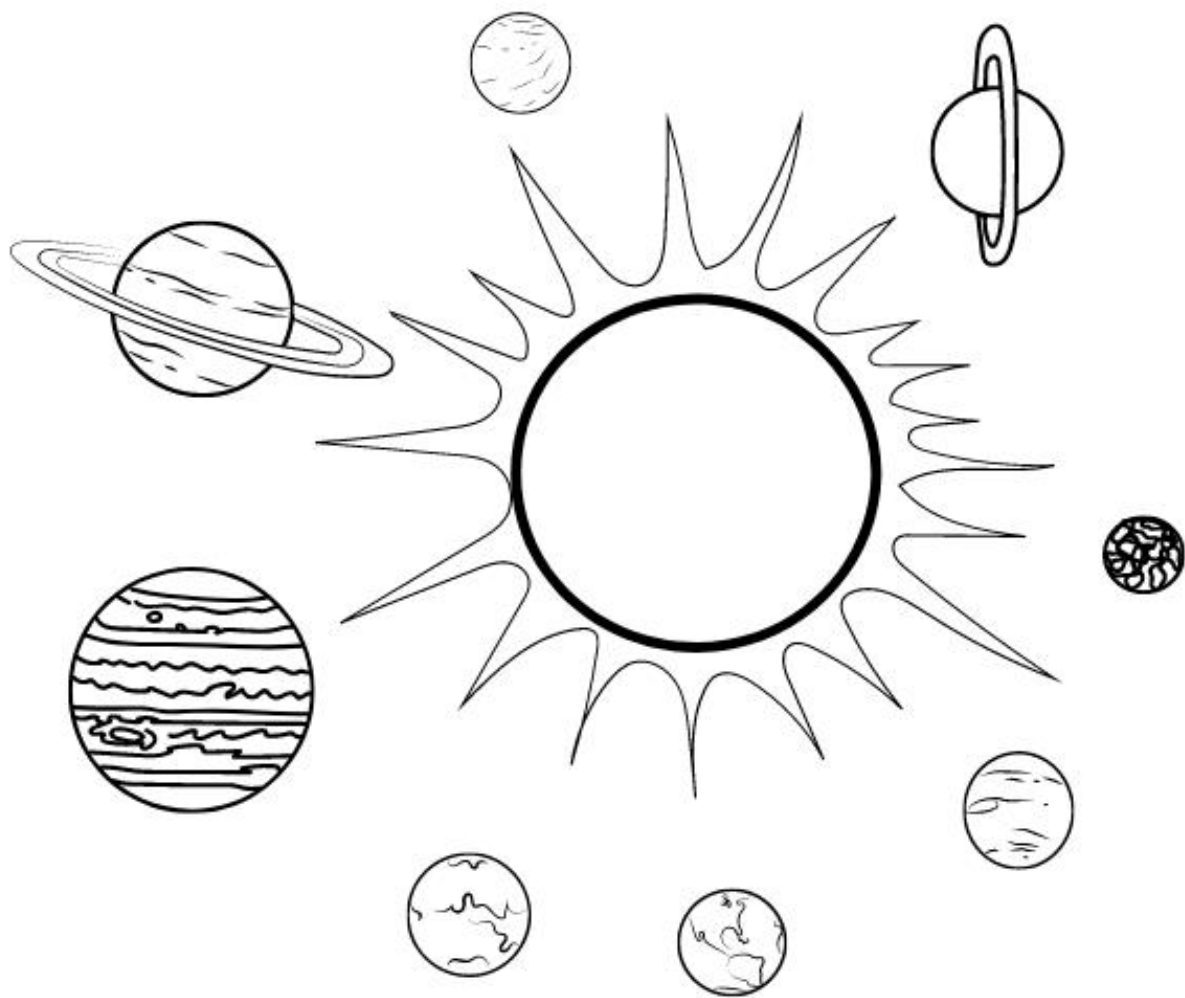
There are eight planets in the Solar System. The four inner planets are Mercury, Venus, Earth and Mars while the four outer planets are Jupiter, Saturn, Uranus and Neptune. There are also five dwarf planets: Pluto, Ceres, Eris, Makemake & Haumea.

Draw or create a solar system model.

The Solar System

Name: _____

Color the Solar System.



The Solar System

Unscramble the names of these planets.

Name: _____



pterjui



ruauns



nusatr



unves



rmas



aetrh



yuremcr



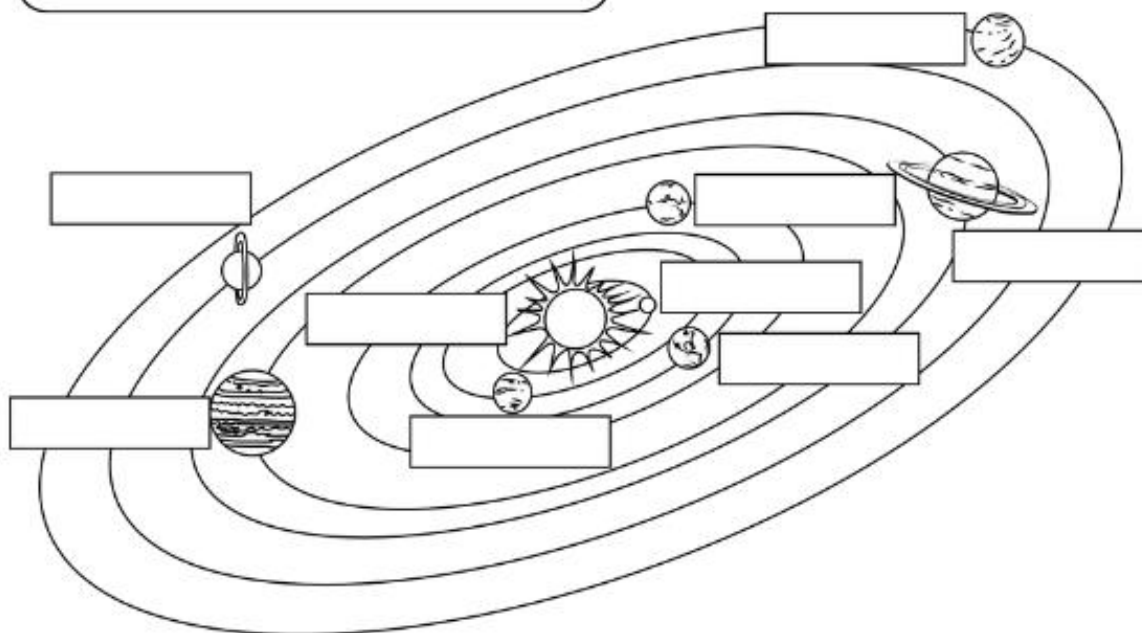
eutnepn

The Solar System

Name: _____

Label the Solar System

Sun	Mars	Earth
Mercury	Jupiter	Neptune
Venus	Saturn	Uranus



Solar System

Space Objects

Name: _____

Label the items you can find in our Solar System.

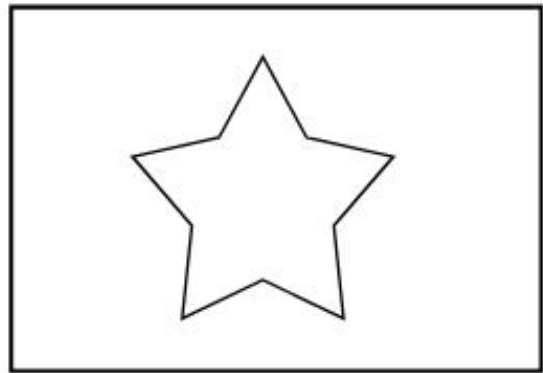
planet

sun

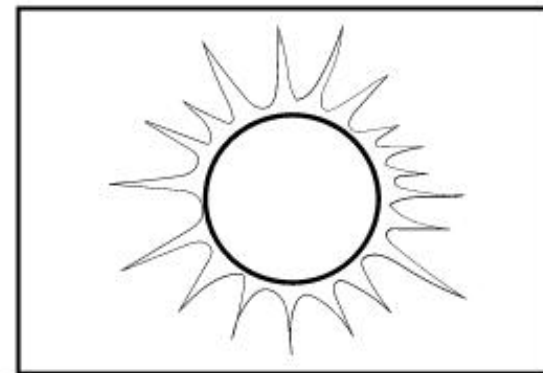
star

comet







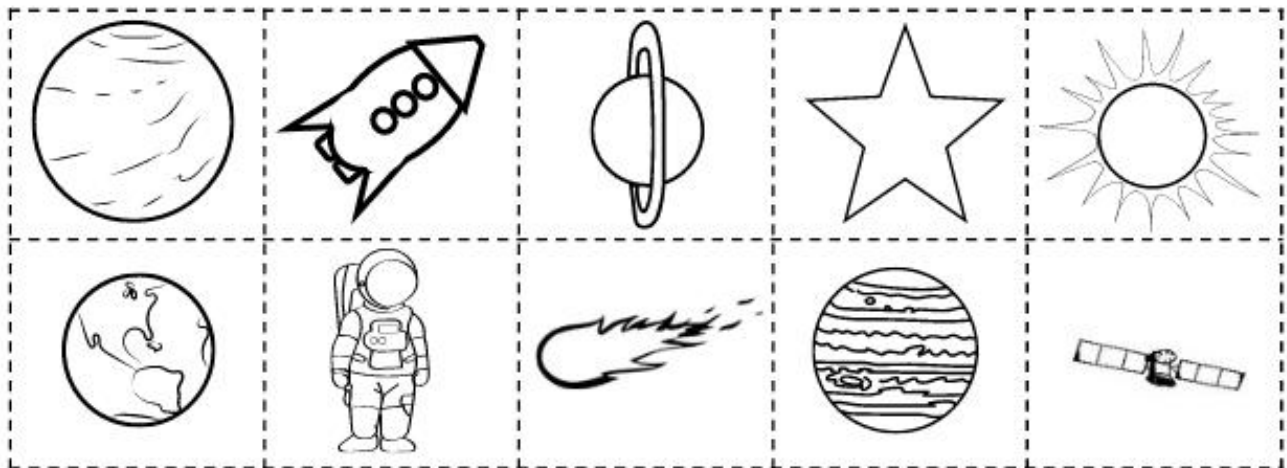


Space Objects

Name: _____

Cut out and sort the images into the correct column.

Planet	Not a Planet



The Planets

Name: _____

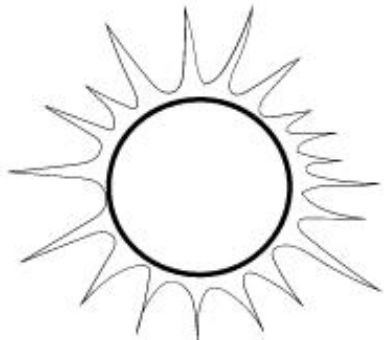
A planet is an object in space that orbits the sun. There are a few qualifications to being called a planet. The object must be large enough so that its own gravity molds it into a sphere and it must have a clear orbit around the Sun. There are two types of planets; gas planets and rocky planets. Earth 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.



The Planets

Name: _____



Sun



Mercury



Venus



Earth



Mars



Jupitar



Saturn



Uranus



What is an Astronaut?

Name: _____



An astronaut is someone who is trained to travel in a spacecraft. They wear specially designed suit that help them breathe and survive in space.

There are many famous astronauts. One of the very first astronauts in space was named Alan Shepard.

Neil Armstrong is another astronaut. He was the first man to ever walk on the moon.

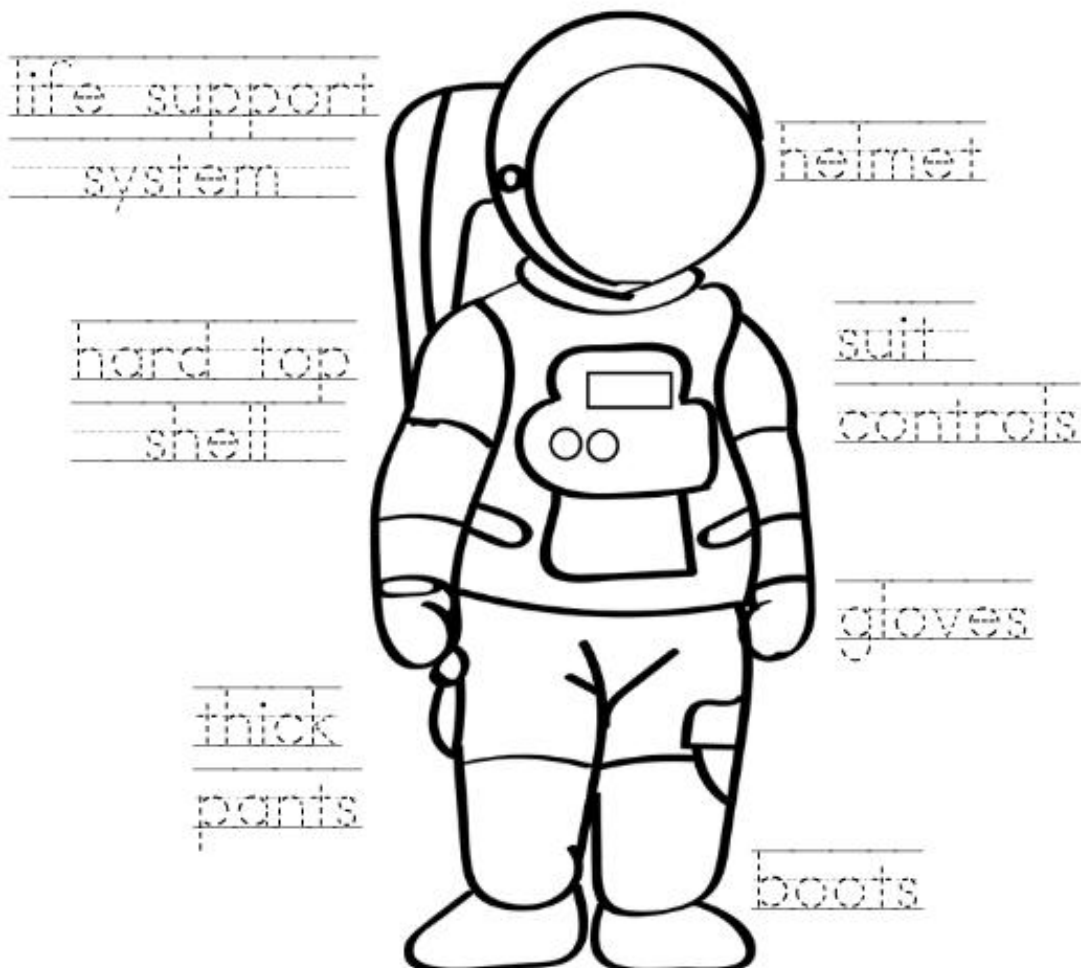
astronaut



What is an Astronaut?

Name: _____

Astronauts wear special gear to be able to go into space. This gear is called their spacesuit. The spacesuit is what makes it possible for the astronaut to be in space. These suits have several different parts that all work as a whole to protect the astronaut.

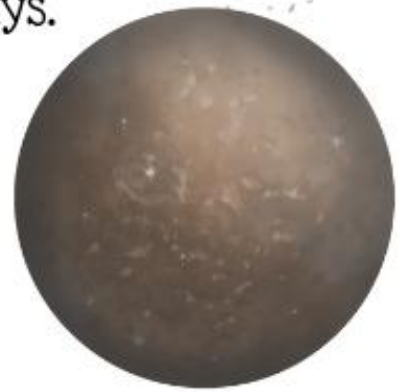


Mercury

Name: _____

Mercury is the closest planet to the Sun.
A day on the surface of Mercury lasts 176 Earth days.
Mercury has no moons.

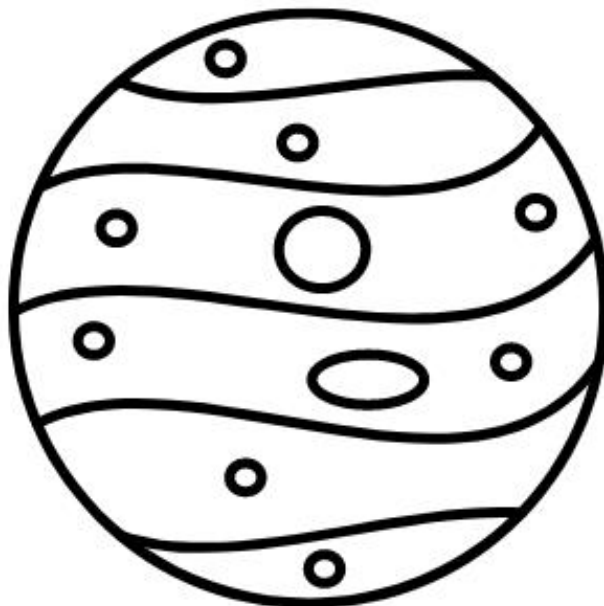
Mercury



Mercury is the smallest planet in the Solar System. It is only a little larger than Earth's moon.

Mercury has a solid surface. It also has craters like the moon. Craters are just deep holes on the surface.

Color Mercury.



Mercury

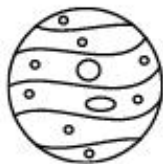
Name: _____

Mercury

Your weight on Mercury would be 38% of your weight on Earth



Which planet comes after Mercury?



Mercury



Venus

Name: _____

Venus is the second planet from the Sun.
Venus is the hottest planet in the Solar System.
Venus is sometimes called Earth's sister planet
because it is similar in size.



Venus

Humans couldn't live on Venus because it is so hot. It has thick clouds
that hold in the Sun's heat.
Astronauts have explored Venus. More than 40 Spacecrafts have visited
Venus.

Color Venus.



Venus

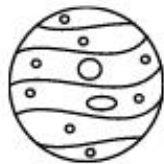
Name: _____

Venus

Venus does not have any moons or rings.

Write 2 facts about Venus.

Which planets come before and after Venus?





Venus



Earth

Name: _____

Earth is the third planet from the Sun.

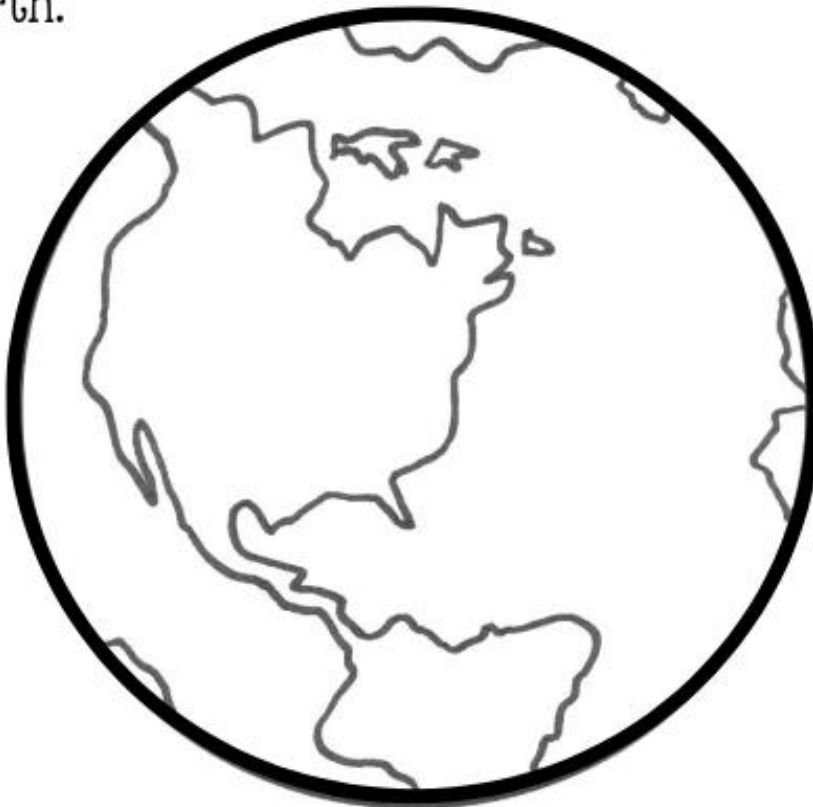
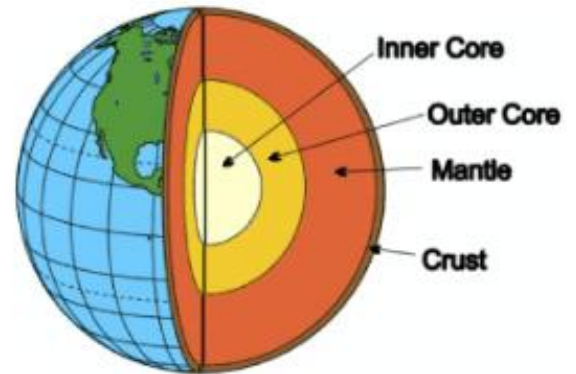
Earth is the only known planet to have all the things living things need.

Earth is the only planet to have just one moon.

Earth

Earth is the planet we live on. It has four main layers. The inner core, outer core, mantle, and crust.

Color Earth.



Earth

Name: _____

Earth

70% of our planet is covered with oceans. The remaining 30% is the solid ground, rising above sea level.

Write 2 facts about Earth.

Which planets come before and after Earth ?





Earth



Mars

Name: _____

Mars is the fourth planet from the Sun.
Mars is often called "The Red Planet".
Mars has a cold surface that is full of volcanos, craters, and canyons. Mars is very cold. It's Atmosphere is too thin to hold the heat from the Sun.



Mars

Mars has two moons. They are shaped differently than Earth's moon. They look more like potatoes.
Mars has something special. The largest volcano in our Solar System is there. It's name is Olympus Mons.
Color Mars.



Mars

Name: _____

Mars

Mars is half the size of Earth. Draw the Earth beside Mars.



Which planets come before and after Mars?



Mars

Jupiter

Name: _____

Jupiter is the fifth planet from the Sun.
Jupiter is the largest planet in the Solar System.
Jupiter also has the shortest day. It only lasts for 10 hours.

Jupiter

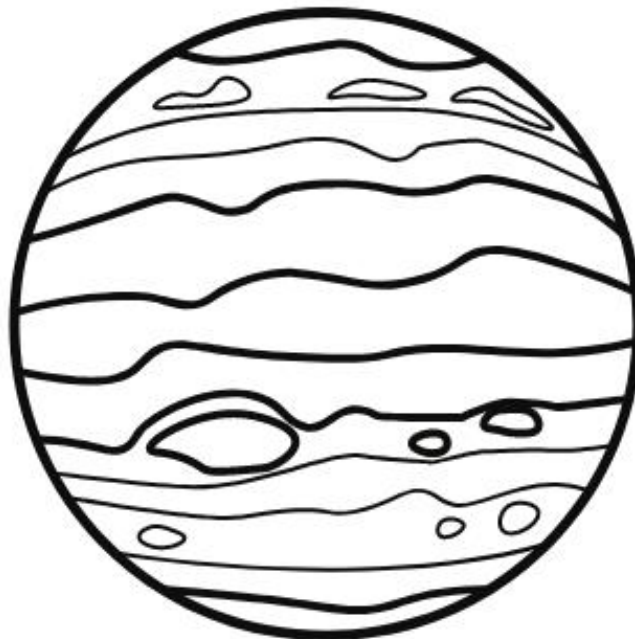


Jupiter is a gas giant. It doesn't have a surface you could walk on. It is formed from gas and liquids. Because there is no surface a storm on Jupiter can last for several years.

Jupiter has 53 moons and more are being discovered.

Jupiter has rings around it although they are not very visible.

Color Jupiter.



Jupiter

Name: _____

Jupiter

Jupiter is the fourth brightest object in the solar system.

Write 2 facts about Jupiter.

Which planets come before and after Jupiter?





Jupiter



Saturn

Name: _____

Saturn is the sixth planet from the Sun.

Saturn is a gas giant also.

Saturn is very bright. You can see Saturn if you look into the sky at night.

Saturn

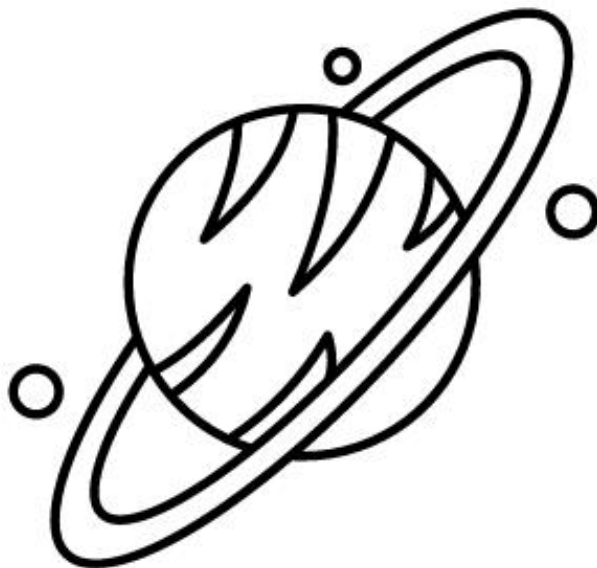


Saturn has 150 moons.

Saturn has visible rings around it. They are made of chunks of ice and dust.

Saturn has been visited by four spacecrafts.

Color Saturn.



Saturn

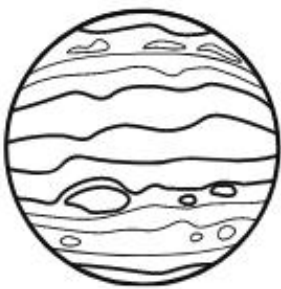
Name: _____

Saturn

Saturn is the most distant planet that can be seen with the naked eye.

Write 2 facts about Saturn.

Which planets come before and after Saturn?





Saturn



Uranus

Name: _____

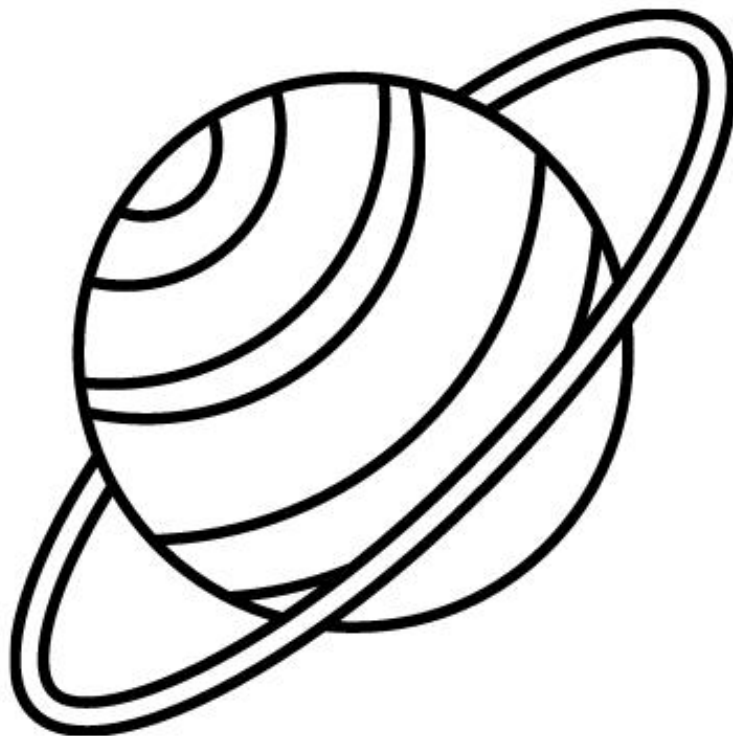
Uranus is the seventh planet from the Sun.
Uranus is the coldest planet. It is often called the
Ice Planet. Sunlight can not reach the surface
because of the thick clouds.

Uranus



Uranus has 27 moons and 13 rings that have been counted so far.
Uranus rotates on it's side around the Sun. This gives Uranus 21 years of
day and then 21 years of night.

Color Uranus.



Uranus

Name: _____

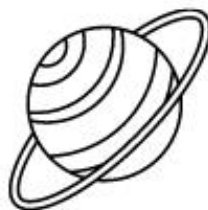
Uranus

Uranus is not visible to the naked eye, and became the first planet discovered with the use of a telescope.

Write 2 facts about Uranus.

Which planets come before and after Uranus?





Uranus

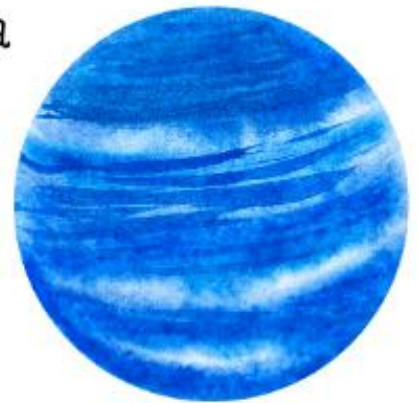


Neptune

Name: _____

Neptune is the eighth planet from the Sun.
Neptune is so far from the Sun that it doesn't receive as much light. It is also an Ice Giant.
Neptune is made from water and melted ice over a solid core.

Neptune



Neptune has 13 moons and another waiting to be added to the count.
Neptune is a vivid blue color.

Color Neptune.



Neptune

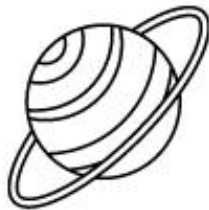
Name: _____

Neptune

A year on Neptune lasts 165 Earth years.

Write 2 facts about Neptune.

Which planets come before Neptune?



Neptune

Dwarf Planets

Name: _____

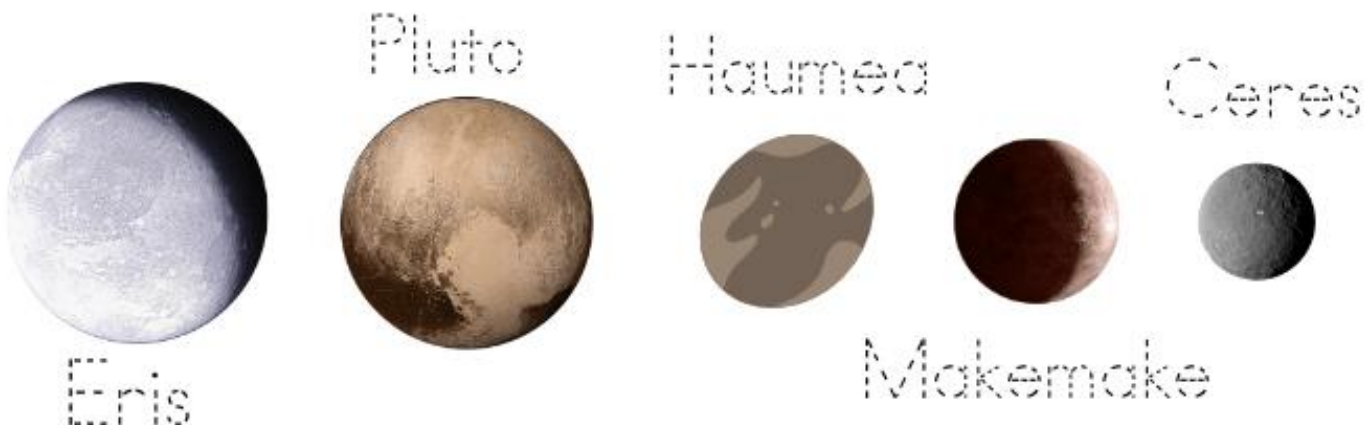
For many years Pluto was considered a planet. It was then removed as a planet. People were not happy that Pluto was taken away as a planet. So in 2006, they created a new class called Dwarf planets. Pluto then became recognized as a dwarf planet.

Dwarf planets are planets that are smaller than the other planets. All dwarf planets are smaller than Earth's moon.

They lack a certain characteristic to be considered a planet. There are five officially recognized dwarf planets in our Solar System. They are Ceres, Pluto, Haumea, Makemake and Eris.

Dwarf planets can have moons. Pluto actually has five moons. Dwarf planets can be different shapes. Haumea is shaped more oval than round.

Eris is the largest of the dwarf planets and is only slightly larger than Pluto.



Spacecraft

Name: _____



A spacecraft is a vehicle made to fly in outer space. The first spacecraft to successfully reach space was a German V-2. Sputnik 1 was the first satellite in space. There are two different types of spacecrafts.

The first type is manned.

This means there are actual humans aboard the vesicle. Space shuttles, capsules, and stations are a few examples.

The second type of spacecraft is unmanned. Unmanned spacecrafts are crafts sent into space without having people on board. These include unmanned capsules, satellites, and probes.

What two types of space crafts are there?

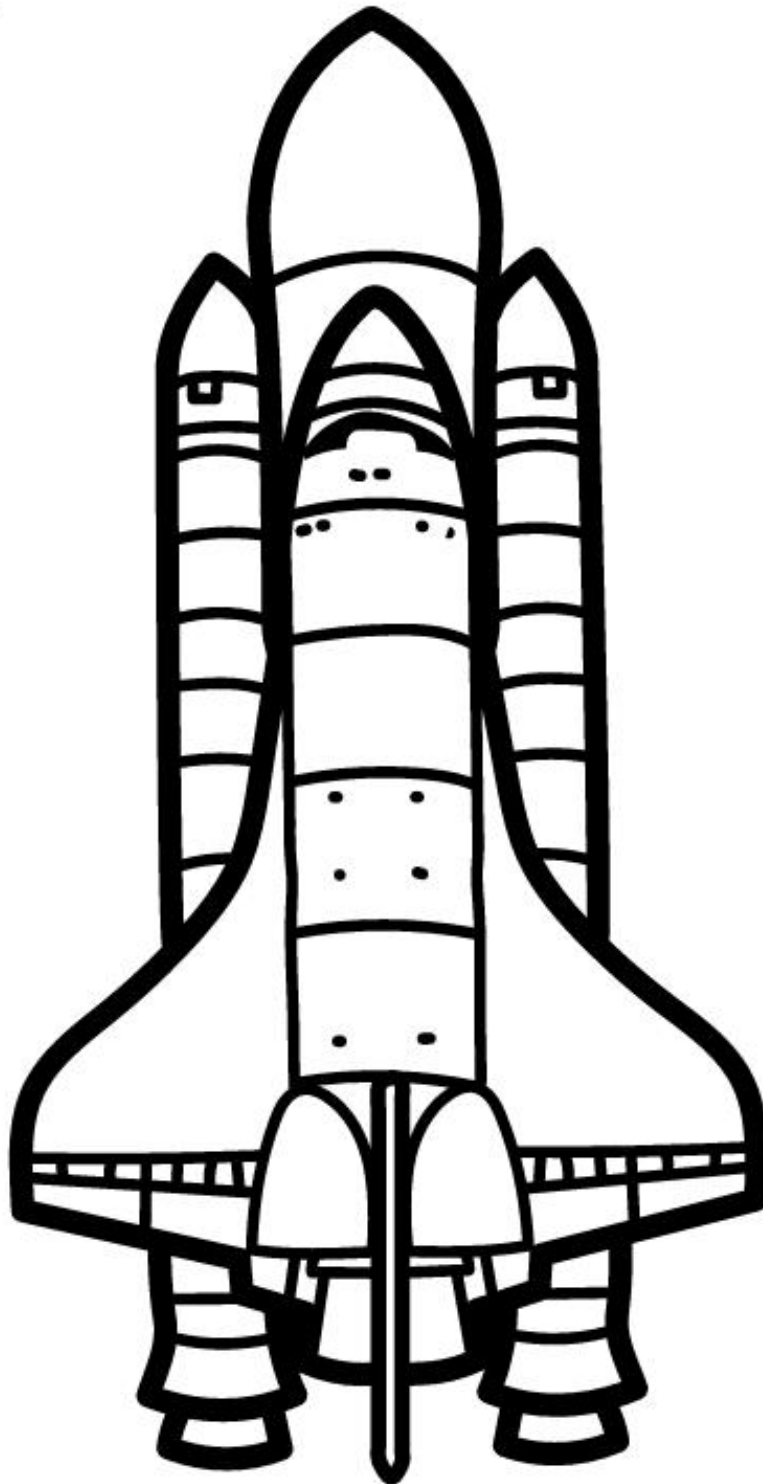
What is the difference between the two?



Spacecraft

Name: _____

Color.

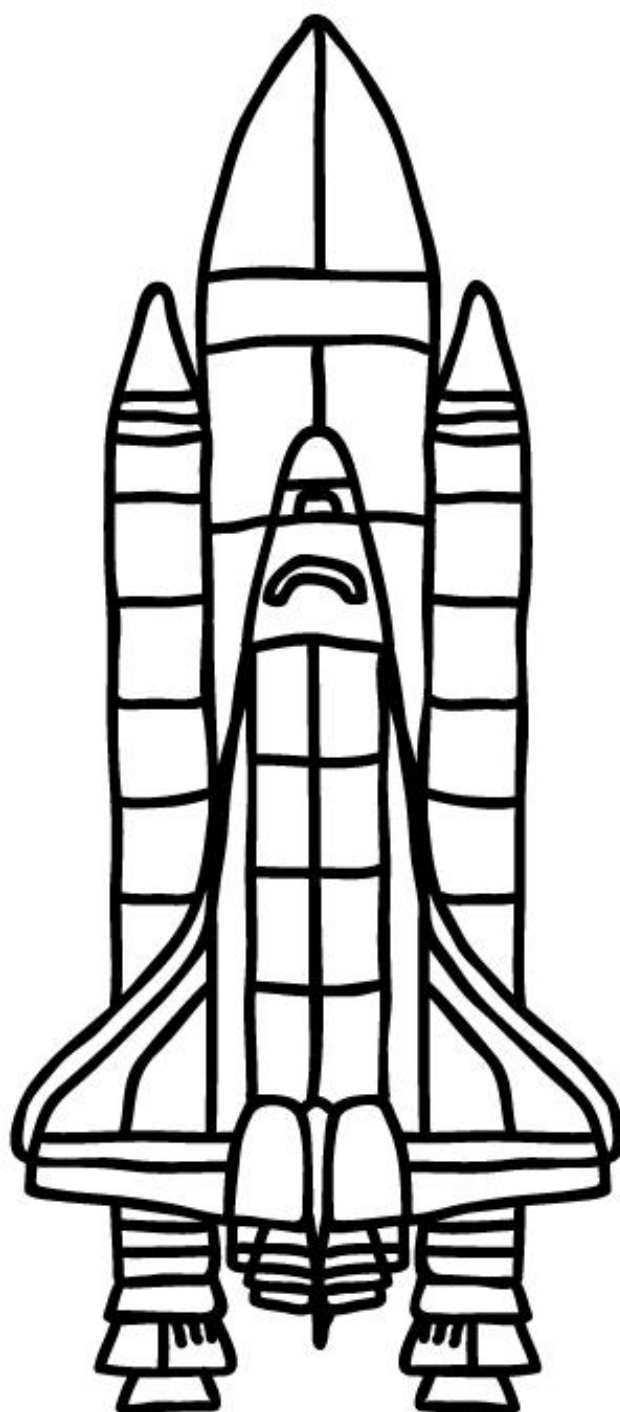


Count Down

Countdown is counting backwards from 10 down to 1.
Countdown the launch of the spaceship.

Name: _____

10	10	
9	9	
8	8	
7	7	
6	6	
5	5	
4	4	
3	3	
2	2	
1	1	



Stars

Name: _____



A star is a massive, bright, sphere of very hot gas called plasma which is held together by its own gravity. There are different colors of stars. The color of a star is determined on how hot it is.

The nearest star to Earth is the Sun, which is classified as a G2 yellow dwarf star.

Stars with the shortest lifespan are the largest. Stars sizes can range from about 1,000 times larger than our star, to about 100 times smaller. There are 7 different classifications of stars we currently use. They are labeled O, B, A, F, G, K, M.. All different types and color stars have different temperatures, different sizes, different mass and different characteristics. Stars exist in a range of colors: red, orange, yellow, white and blue with red being the coolest and blue being the hottest.

Color the stars from coolest to hottest.



red



orange



yellow



white



blue

Comets

Name: _____

A comet is a small chunk of dust and ice that orbits, or travels around, the sun. It is sometimes described as a “dirty snowball.” There are billions of comets in the solar system, but most never pass close by Earth.



The best-known comet is called Halley's Comet. Halley's Comet is the most famous comet. It returns to Earth's vicinity about every 75 years. It is possible for a person to see it twice in their lifetime. The last time it was here was in 1986, and it is projected to return in 2061.

Halley's
Comet

Draw a picture of a comet in Space.



Meteors

Name: _____

A meteoroid is a small rock flying through our solar system. They range in size from dust to around 33 feet in diameter.

A meteoroid that burns up as it passes through the Earth's atmosphere is known as a meteor. When you look up and see a "shooting star" at night what you are actually seeing is a meteor.

A meteoroid that survives falling through the Earth's atmosphere and lands on the Earth's surface is known as a meteorite.

The Earth's atmosphere experiences millions of meteors every day. When many meteors occur in a close time frame in the same part of the sky it is called a meteor shower.



Meteors

What is the differences between meteors, meteoroids, and meteorites?

meteoroids	meteors	meteorites

Asteroid

Name: _____

An asteroid is a chunk of rock and metal in outer space that is in orbit around the Sun. Asteroids vary in size from just a few feet across to hundreds of miles in diameter.

Asteroids are not round like planets. They are lumpy and shaped more like potatoes.

There are three types of Asteroids.

Carbon - Carbon asteroids are also called carbonaceous asteroids.

Stony - They are made up of mostly rock and some metal.

Metallic - Metallic asteroids are made up of mostly metals, primarily iron and nickel. They can have some small amounts of stone mixed in.



Asteroid

What are the differences in classifications of asteroids?

Galaxies

Name: _____

Galaxies are sprawling systems of dust, gas, dark matter, and anywhere from a million to a trillion stars that are held together by gravity.

We live in the Milky Way Galaxy. Our Sun is only one of over 100 billion stars in the galaxy.

There are four main classification of galaxies: spiral galaxies, lenticular galaxies, elliptical galaxies, and irregular galaxies.

The largest galaxies are giant ellipticals. Many elliptical galaxies are believed to form due to the interaction of galaxies, resulting in a collision and merger. They can grow to enormous sizes and giant elliptical galaxies are often found near the core of large galaxy clusters.



Milky Way Galaxy

Galaxies

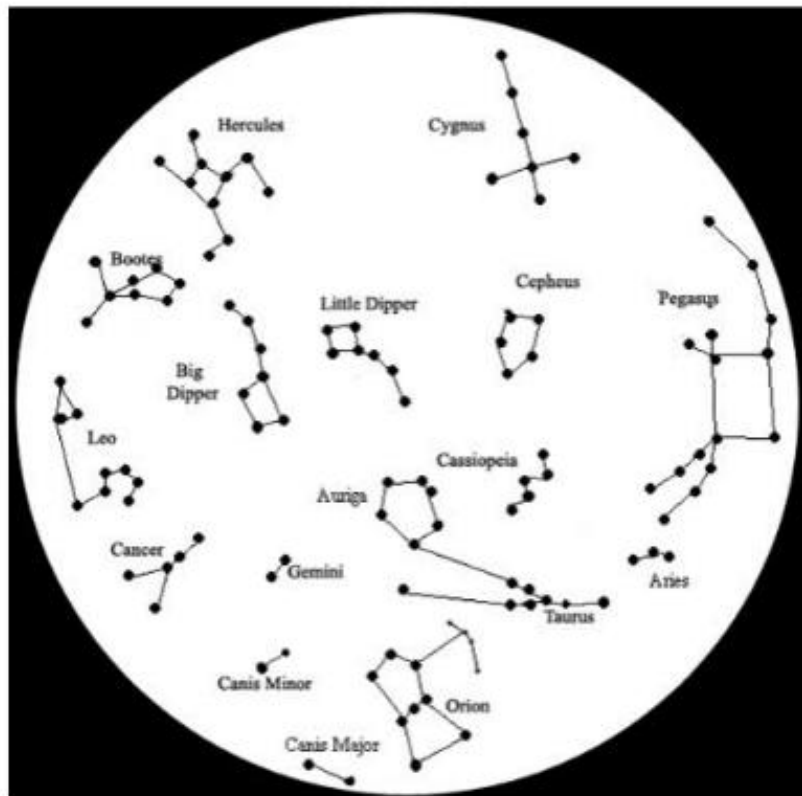
Name: _____

Constellations are large groups of stars that form a pattern. A well known constellation is Sagittarius.

Asterism is similar to a constellation but smaller. The Big Dipper is a well known Asterism.

People have been viewing and charting the stars for many years. The people of ancient Greece were particularly interested in star gazing. They charted and named 48 different constellations. They named them after mythical beings and attached significance to them. Today we have 88 officially declared constellations.

Constellations



Batteries

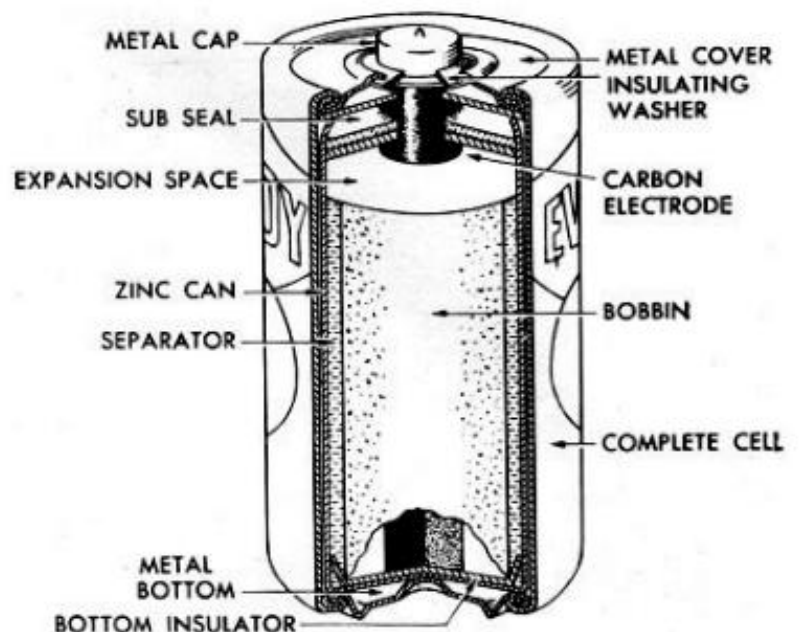
Name: _____

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



Batteries

Name: _____

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 things that use batteries. How would life be different if you didn't have the object?

Batteries

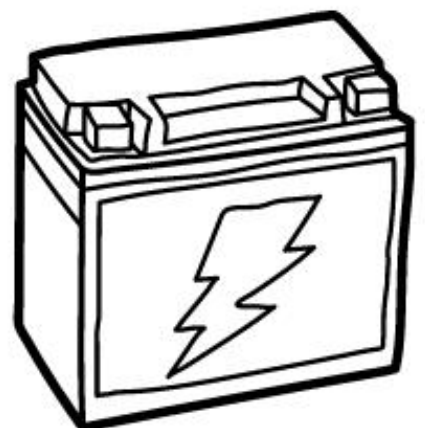
Name: _____

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?



Magnets

Name: _____

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.

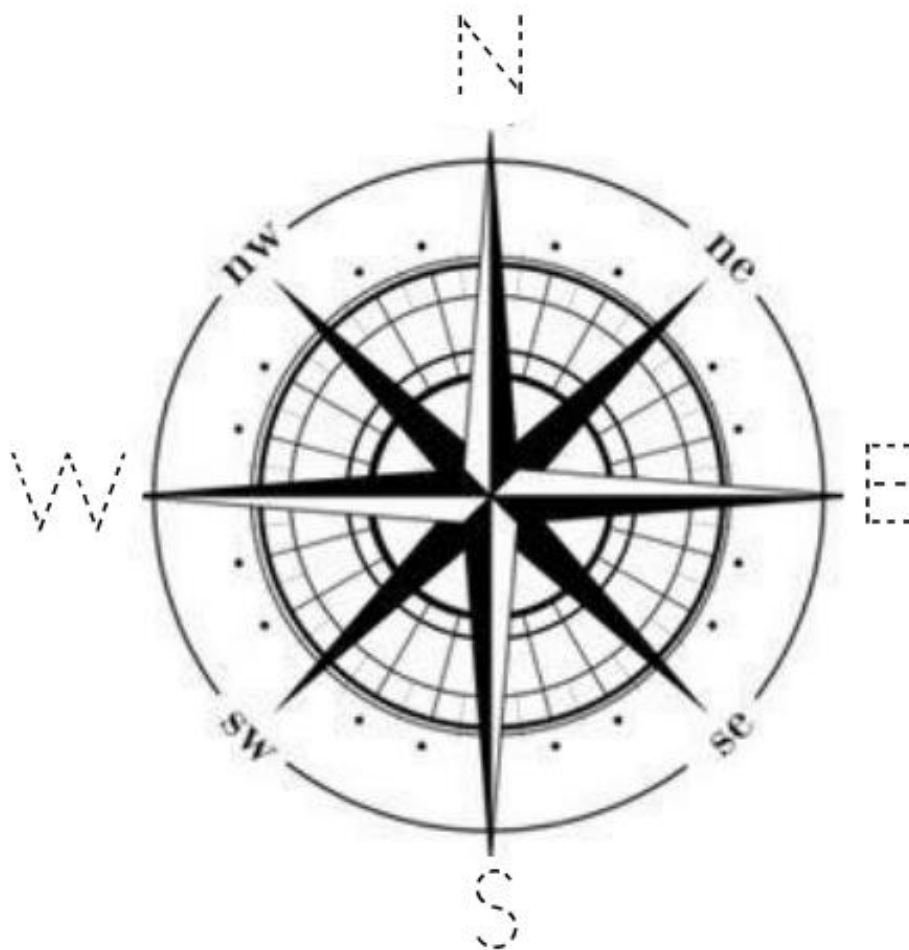
magnetic



Magnets

Name: _____

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.



Magnets

Name: _____

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.

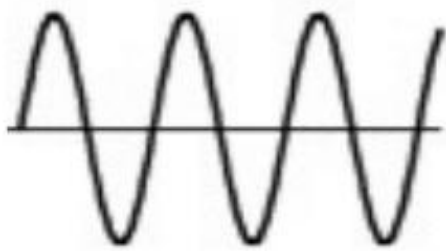
[illegible]

Sound

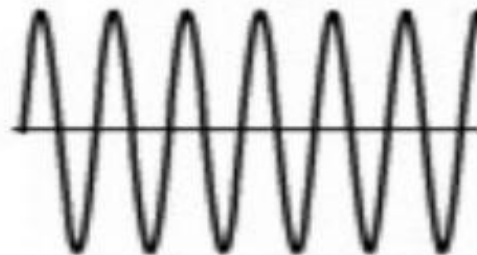
Name: _____

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

Sound

Name: _____

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.

Sound

Name: _____

We measure sound by using decibels. The more decibels 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.

Electricity

Name: _____

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.

Electricity

Name: _____

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 run out. eventually

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.



Electricity

Name: _____

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?



Electricity

Name: _____

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. Never stick anything in an outlet.
3. Unplug by pulling on the plug not the cord.
4. Never put electronic devices in water.
5. 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 in the sky when it is storming. Be sure to be safe when there is a lightning storm.