STUDENT HANDBOOK

OUTDOOR SCIENCE PROGRAM

ANGELES CREST CHRISTIAN CAMP

NAME:

Camp Rules:

1. Stay on Main Camp (aka don't leave camp)

Students are not to go outside of camp unless accompanied by an adult. Boundaries are from the driveway to the north cabins, and the basketball court to the dining hall. Students are not to go near staff housing.

2. Stay out of cabins that are not your own

We ask that you respect the privacy of other students and only go in your own cabin. Students should never be in the cabin of the opposite gender.

3. Rule of 3!

Find two buddies when traveling outside of the group and during free time.

4. Listen to all camp staff and school faculty

We ask that you respect all staff and faculty.

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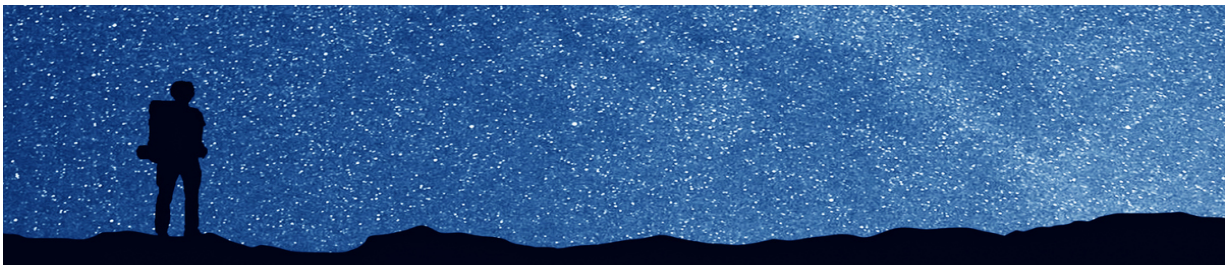


Astronomy

The study beyond our atmosphere

Vocabulary:

Astronomical Unit: A unit of length, which is 93 million miles- the average distance of the Earth from the Sun.

Atmosphere: The gaseous envelope surrounding a planet.

Gravity: The force of attraction between celestial bodies.

Jovian or Gas Planets: Planets composed of burning gas, such as Jupiter, Saturn, Uranus, and Neptune.

Nuclear fusion: When two light atomic nuclei fuse together to form a heavier nucleus.

Orbit: The curved path around a celestial/heavenly body.

Planet: A celestial body moving in the sky revolving around the sun in our solar system.

Revolution: The orbiting of one heavenly body around another.

Rotation: Turning on its axis.

Satellite: A natural body that revolves around a planet.

Solar system: A star with planets and other bodies which orbit around that star.

Star: Any of the heavenly bodies which appear as a fixed luminous object in the sky.

Terrestrial or Rocky Planets: Planets which are composed of rock and metal and have large densities, such as Earth, Mars, Venus, and Mercury.

WHAT IS A SOLAR SYSTEM?

Solar	System
The word "solar" represents a _____. Every solar system has a star at its center.	The word system indicates that there are one or more _____ that circle/revolve around its star.

HOW BIG IS OUR SOLAR SYSTEM?

While the sun is by far the closest star to us, it is still far away at 93 million miles away! Astronomers have used this exact distance as a measurement for space called an **astronomical unit** or **A.U.** for short.

How long does it take to travel 1 A.U. to the sun?

In a car at 60 mph: In a jet at 600 mph:

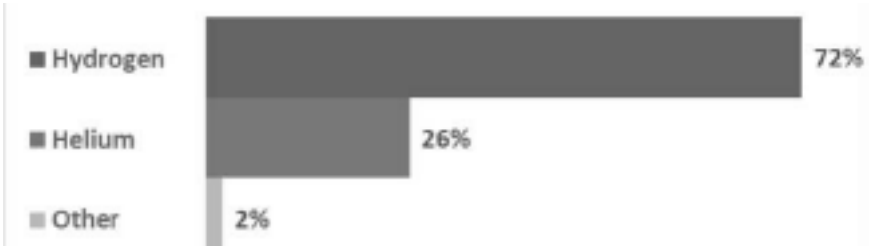
On a light ray at the speed of light:

How many A.U.'s measure the distance from each planet to the sun?

Mercury	.387 AU	Venus	.723 AU	Earth	1 AU
Mars	1.5 AU	Jupiter	5.2 AU	Saturn	9.5 AU
Uranus	19.2 AU	Neptune	30 AU	Pluto	39.7 AU

WHAT IS OUR SUN LIKE?

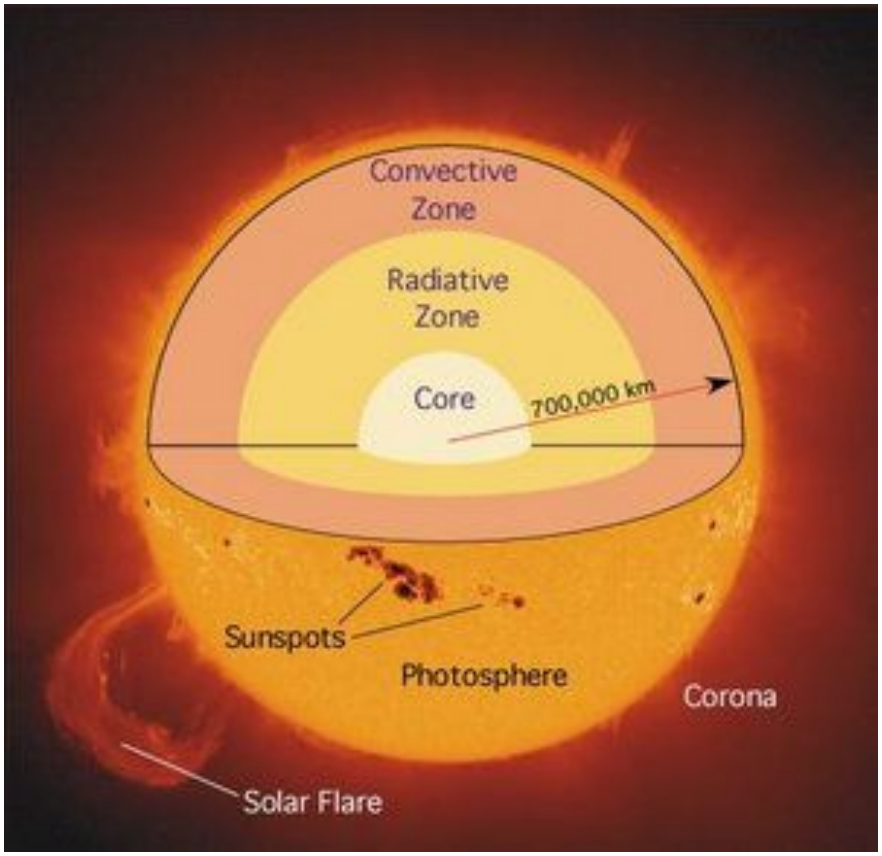
Composition of the Sun



Power of the Sun

"The Sun is powered by nuclear fusion. Deep in the Sun's interior, heat and pressure are so great that hydrogen nuclei fuse together to form helium nuclei. This reaction releases a large amount of energy that radiates away from the Sun as heat and light." -Starry Night Middle School Curriculum

Parts of the Sun



WHAT IS OUR INNER SOLAR SYSTEM?

Composition of the Planets

Describe the surface of each of the inner planets

Mercury: **Venus:**

Earth: **Mars:**

The characteristics of planets are related to their distance from the sun. All the inner solar system planets are small, rocky (**Terrestrial**), dense, and have few moons.

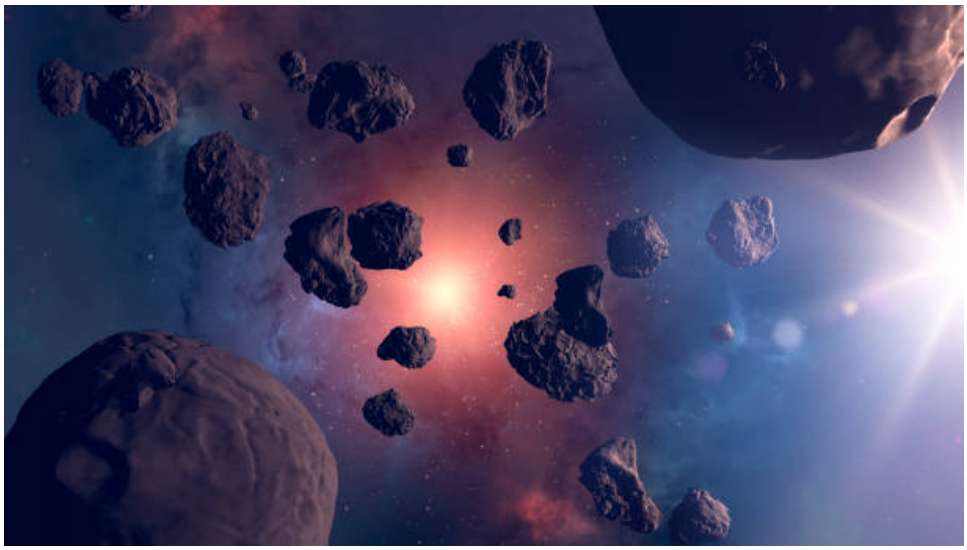
Orbit of the Planets

The sun's gravitational force is stronger the closer a planet is to it. As a result, Mercury circles the sun a lot faster than Neptune, giving Mercury a much shorter year than Neptune.

How fast does each planet travel around the sun?

Mercury	Venus	Earth	Mars

WHY IS OUR SOLAR SYSTEM DIVIDED?



Asteroid Belt

There is an asteroid belt between Mars and Jupiter. This belt of asteroids separates the inner solar system from the outer solar system just like a belt separates the top half of your body from your lower half.

Asteroids can be pulled out of their orbit by larger objects like planets. Astronomers theorize that is how the two satellites of Mars came to orbit the planet. Furthermore, Jupiter protects the inner solar system because its large gravitational pull on the asteroids in the main belt keeps them from bombarding the inner planets.

Asteroid Facts

- Asteroids are small, irregular bodies made of mostly rock and metal.
- Asteroids range in size from hundreds of feet to hundreds of miles!
- Asteroids orbit the sun just like planets within 3-6 Earth years.

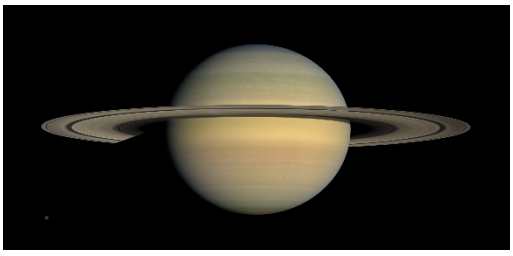
WHAT IS OUR OUTER SOLAR SYSTEM?

Composition of the Planets

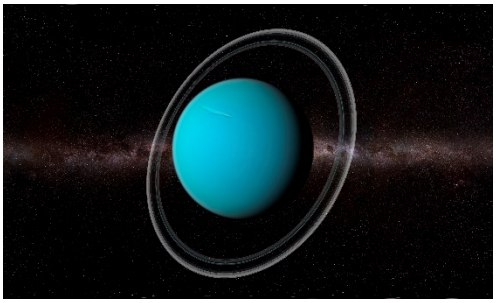
The characteristics of planets are related to their distance from the sun. All the outer solar system planets are large, gaseous (**Jovian**), have low density, and have many moons.

How fast does each planet travel around the Sun?

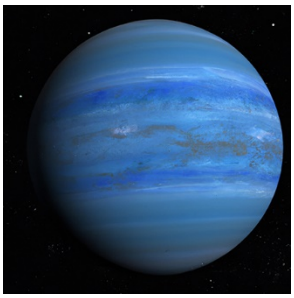
Jupiter



Saturn



Uranus



Neptune

Aquatics

The study of water systems

Vocabulary:

Hydrosphere: The major system of earth that consists of water and ice.

Water Cycle: The constant circulation of water between atmosphere, land and sea.

Evaporation: The process in which water is changed from a liquid to a vapor.

Condensation: The process in which moisture begins to condense into a denser form such as water drops.

Precipitation: The process in which moisture condenses into the atmosphere and becomes rain, snow, or hail and falls to the ground.

Transpiration: Evaporation of water through pores in the leaves.

Respiration: Animals and humans releasing water into the air as they breathe.

Aquifer: A layer of porous rock, sand, or gravel through which ground water flows. It contains enough water to supply wells and springs.

Watershed: The land area that drains into a gathering area such as a lake, stream, or ocean.

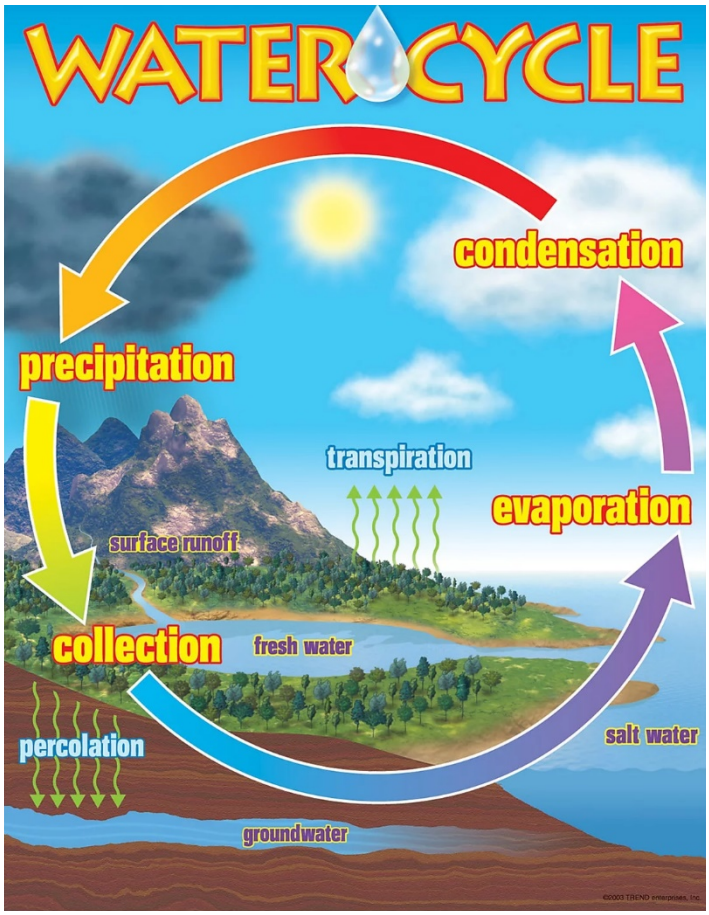
Pollution: The process of making water dirty and not suitable for use.

pH Level: The measure of the acidity or alkalinity of water.

Turbidity: The clarity of water. Turbid water's muddy, dense, and dark.

Riparian habitat: The area along a waterfront.

WATER: IMPORTANCE AND ORIGINS



Three ways the water leaves the Earth are:

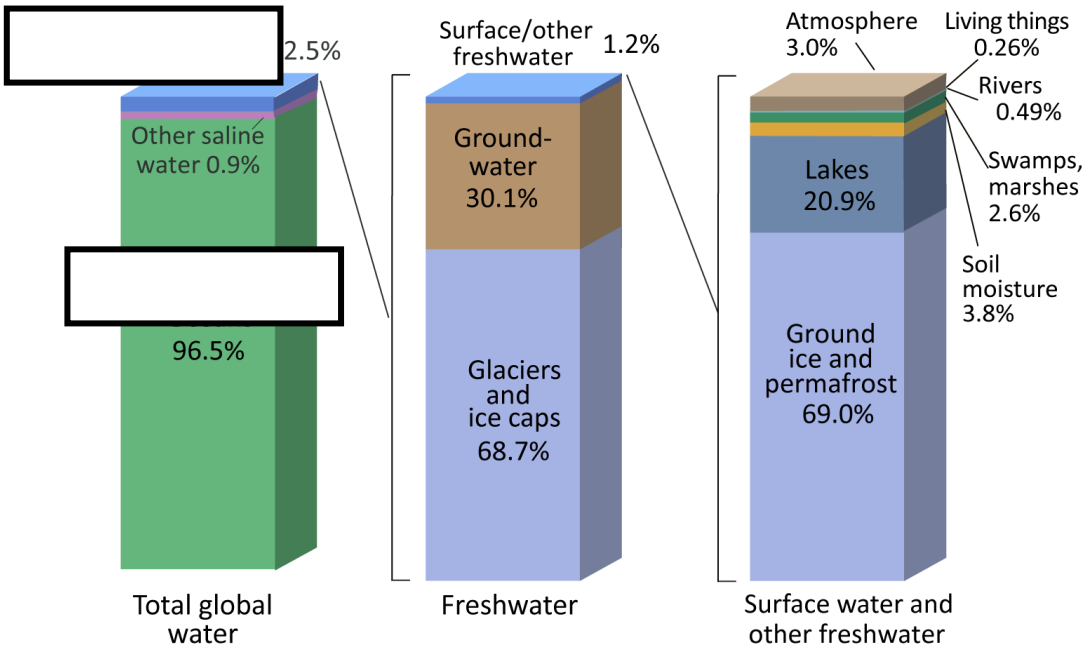
1) _____: The sun warming the surface of water causes its particles to heat up and become a gas, which then rises into the atmosphere as water vapor.

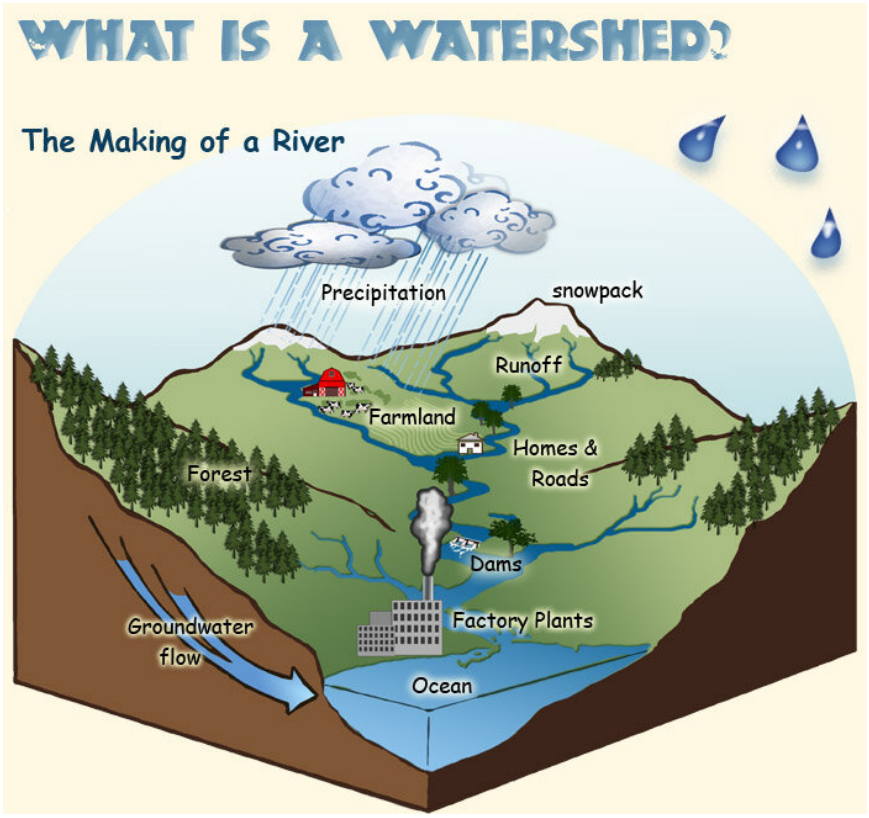
2) _____: Water evaporates from plants and rises into the atmosphere as water vapor.

3) _____: Animals and humans release water vapor into the air as they breathe, and it rises into the atmosphere.

WHERE IS WATER STORED?

Distribution of the Earth's Water





IS THE STREAM HEALTHY? OR SICK?

Chemical Assessment

1. **_____:** Cooler water is healthier because it allows more oxygen storage, which is healthier for stream animals and plants.

Things that affect temperature:

-
-
-

2. _____: necessary for plant and animal growth.

Things that affect dissolved oxygen:

-
-
-

3. _____: tells the levels of acidity or alkalinity.

The scale runs from 0-14. A balanced, or neutral, pH level is 7.

Creek Chemical Assessment

Water temperature _____°F on _____(date) at _____(time)

Dissolved Oxygen (0-12 ppm) _____**ppm (parts per million)**

What is affecting the level of dissolved oxygen in the stream?

PH level (0-14)

Is it more acidic / basic / neutral? (Circle one)

TIME FOR YOU TO BE THE SCIENTIST!

Physical Assessment

1) **Flow** All year Seasonal

2) **Path** Meandering Straight
   How many **Pools** and **Riffles** do you see?

3) **Turbidity** Is the water clear?
   What is helping or hurting the turbidity?

4) **Stream bottom** Slit Sand Gravel Rocks Boulders Logs
   Collect a sample of the stream bottom:
   What did you collect?

5) **Obstructions** Trash Leaves Sticks Logs Floating debris

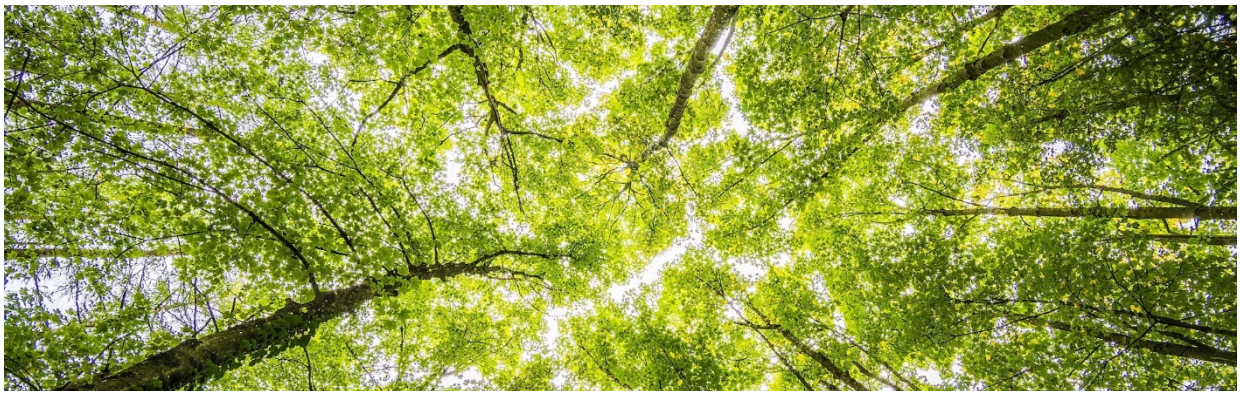
6) **Erosion** Is the bank straight up or gradual?

7) **Vegetation variety** Old Trees Young Trees Shrubs
   How many different plant species do you see?

8) **Vegetation overhang** Are plants hanging over the stream? Yes No

9) **Animal Findings** Animals present are a sign of a healthy stream as well. List any animals you see or evidence that animals have been present (tracks, scat).

Extra Observations:



Botany

The study of plants

Vocabulary:

Producers: Organisms that produce their own food from inorganic substances

Photosynthesis: The process of combining water, sunlight, and carbon dioxide to produce oxygen and sugar.

Glucose: Sugar produced in plants by photosynthesis.

Chlorophyll: The green pigment found in plants that is necessary for photosynthesis.

Ecosystem: Interdependent organisms living in a particular environment.

Ecology: The study of the relationships between plants and the world.

Botanist: A person who studies plants: a plant scientist.

Herbaceous: A type of plant that has soft, green stems and contains little woody material.

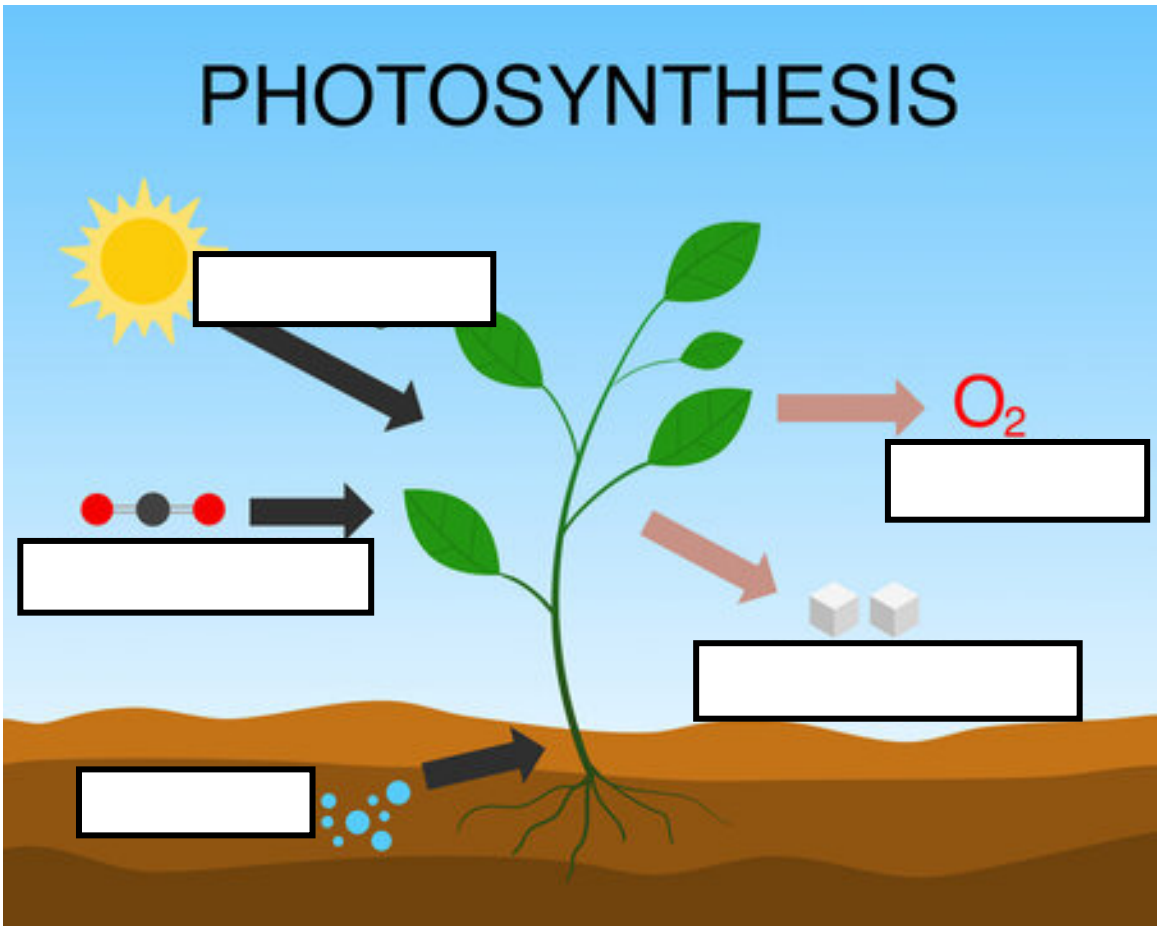
Taxonomy: The science of classifying plants, animals and microorganisms into categories based on shared features.

PRIMARY PRODUCERS

Primary producers _____ their food.

HOW?

_____ is the chemical process by which plants produce their own food.



IMPORTANCE OF PLANTS ECOSYSTEMS

Write down 3 of the objects made with plants that you found out about in the game.

1.

2.

3.

MORE WAYS PLANTS ARE IMPORTANT

- Provide ***oxygen*** and ***energy.***
- _____ Our air by removing pollutants and CO_2
- ***Protect*** land from the devastation of *floods*.
- Give life to _____ *ecosystems.*
- Provide _____ and _____ for animals and decomposers.
- ***Stabilize*** conditions necessary for life in certain habitats.
- Provide humans with _____, _____, _____, and _____.

TREES

BASIC PARTS OF WOODY PLANTS

_____

Composed of branches, twigs, leaves, buds, flowers, and fruit. Can be either:

_____

Or

_____

_____

_____

Branch into smaller roots until they are as fine as hair.

What makes a tree a tree?

- **Grows at least _____**
- **Trunk at least _____ thick**
- **Has _____**
- **Lives _____**

FIELD NOTES

Tree #1 is a _____

Crown Shape: round or triangular

Height:

Diameter of Trunk:

Trunk: tall tapered

short splits

straightgnarled

Branches: point upwards droop down

grow close to the base of the trunk grow straight out

lower branches are straight or drooping down but the higher branches grow upward

Bark: thin smooth rough

thick grayish brownish-reddish

fibrous flakey deep furrows

crisscrosses hard soft

long lines short pieces like a puzzle

Leaves: flat thin thick needles

long short shiny oval

shade of green pointedsimple

compound size in inches

needles point up in same direction needles grow all around petiole

needles grow flat

Fruit: acorns none visible

cones: 1 in 2 to 4 in more than 5 in

skinny fat soft prickly

Additional Observations:

Tree #2 is a _____

Crown Shape:

Height:

Diameter of Trunk:

Trunk:

Branches:

Bark:

Leaves:

Fruit:

Additional Observations: SKETCH

Specimens Collected:

Tree #3 is _____

Crown Shape:

Height:

Diameter of Trunk:

Trunk:

Branches:

Bark:

Leaves:

Fruit:

Additional Observations: SKETCH

Specimens Collected:

Tree #4 is a _____

Crown Shape:

Height:

Diameter of Trunk:

Trunk:

Branches:

Bark:

Leaves:

Fruit:

Additional Observations: SKETCH

Specimens Collected:

Entomology

The study of insects

Vocabulary:

Arthropod: An invertebrate animal that has jointed limbs, a segmented body, and an exoskeleton.

Exoskeleton: A hard covering that provides support and protection on the outside of many organisms such as crustaceans, insects and turtles.

Invertebrate: An animal with no backbone.

Taxonomy: The science of classifying plants, animals and microorganisms based on shared features and natural relationships.

Crepuscular: Creatures that are active at dusk and dawn.

Diurnal: Creatures that are active during the day.

Nocturnal: Creatures that are active at night.

Metamorphosis: A complete or marked change in the form of an animal as it develops into an adult.

5 CHARATERISTICS OF INSECTS

1.

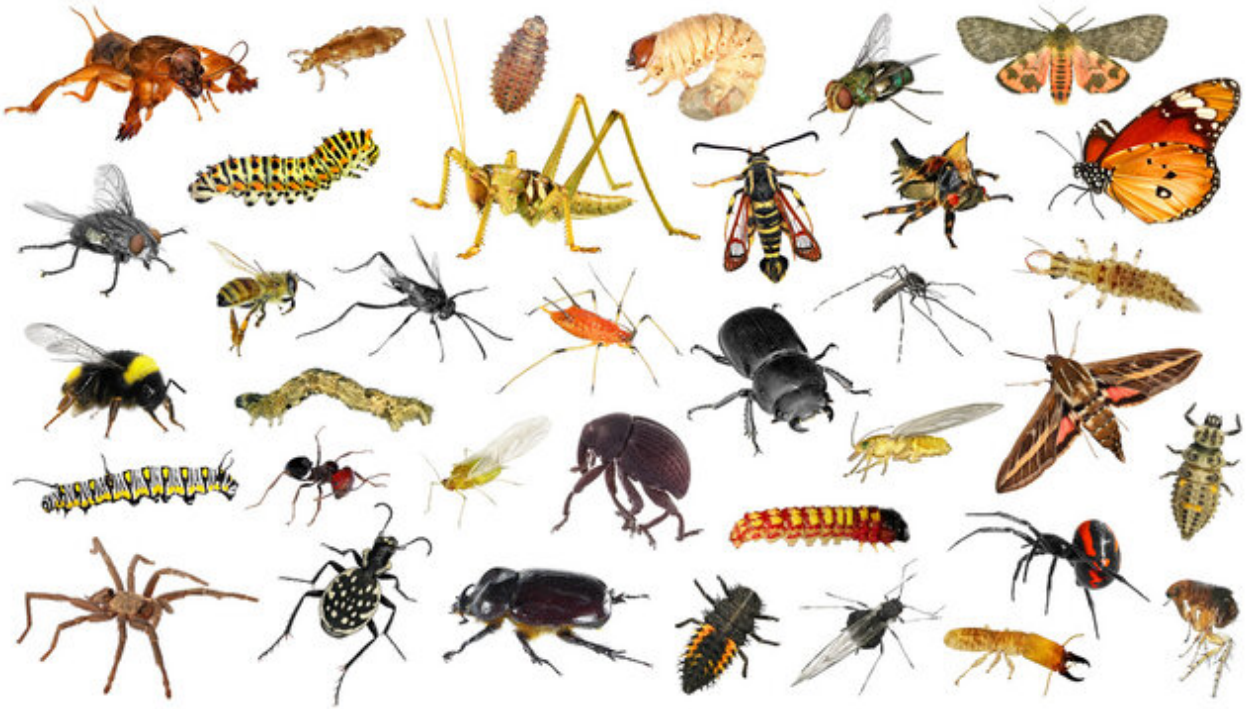
2.

3.

4.

5.

CIRCLE THE INSECTS



TAXONOMY OF INSECTS

Kingdom:

Phylum:

Class:

Order: (28)

Family: (est. 1,000)

Genus:

Species: (est. 1,000,000)

Insects make up HALF of the known animal world

Four classes of Arthropods:

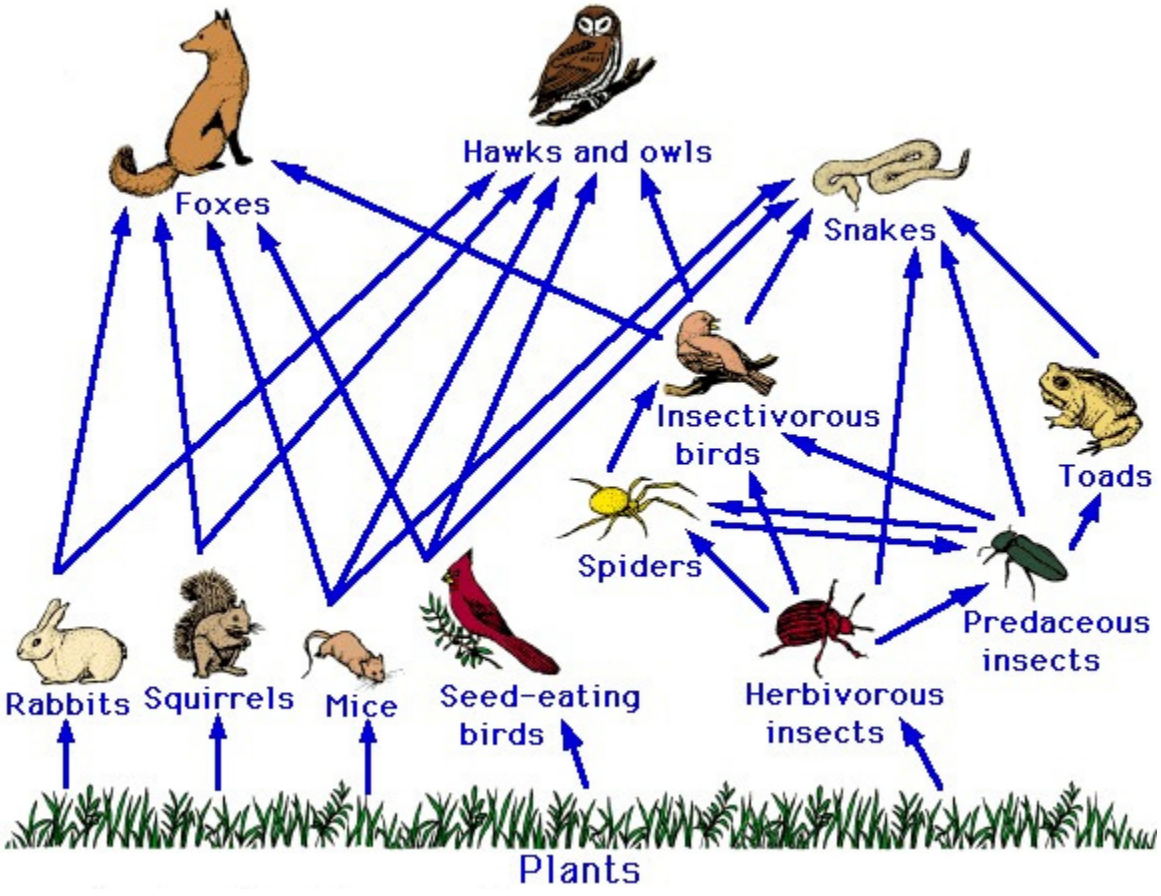
(butterflies, beetles, ants…)

(millipedes and centipedes)

(spiders, ticks, mites, and scorpions…)

(lobsters, crabs, and crayfish, roly poly…)

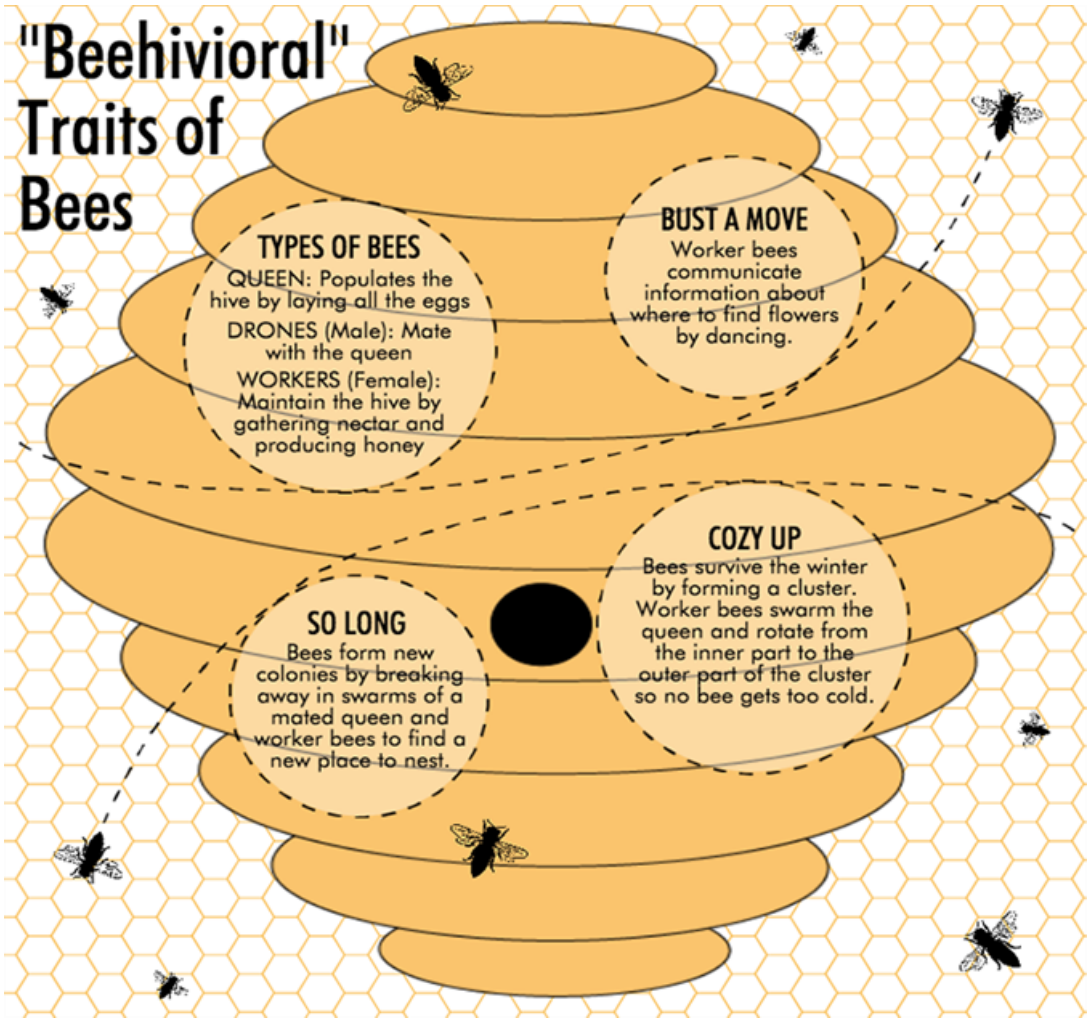
INSECTS IN THE FOOD WEB



INTERESTING BEE FACTS

"If the bee disappears from the surface of the earth, man would have no more than 4 years to live." -Albert Einstein

- Bees are responsible for 90% of earth's fruits and vegetables.
- The honey bee is the only insect that produces food for humans.
- To make 1lb of honey, bees will travel a distance equal to going around the world twice.
- Each hive has unique odor for member identification.
- Bees communicate with each other by dancing.



FIELD NOTES

Date: Time:

Specimen collected: YES NO How many?

Describe the specimen:

What was the specimen doing when you found it?

Describe the habitat where you found your specimen:

Which class does your specimen belong to? (Circle one)

Myriapod Arachnid Insect Crustacean

What is the identification of your specimen (if you know)?

What function does it have in its ecosystem?

Sketch your specimen:

Fire

The study of fire

Vocabulary:

Oxidizer: A substance which will produce a chemical reaction when oxygen is added.

Heat transfer: The process of moving heat from warmer to cooler objects.

Conduction: The transfer of heat through a solid object.

Convection: The transfer of heat through air, liquid, or gas where the warmer parts move up and colder parts move down.

Radiation: The transfer of heart through electric and magnetic waves (similar to radio waves, X-rays, and Ultraviolet waves).

Tinder: Small, easily flammable substances less than the size of a match.

Kindling: Fuel between the size of a match and a pencil:

Coal producers: Fuel greater than 1 inch which will burn to make hot coals and sustain a fire.

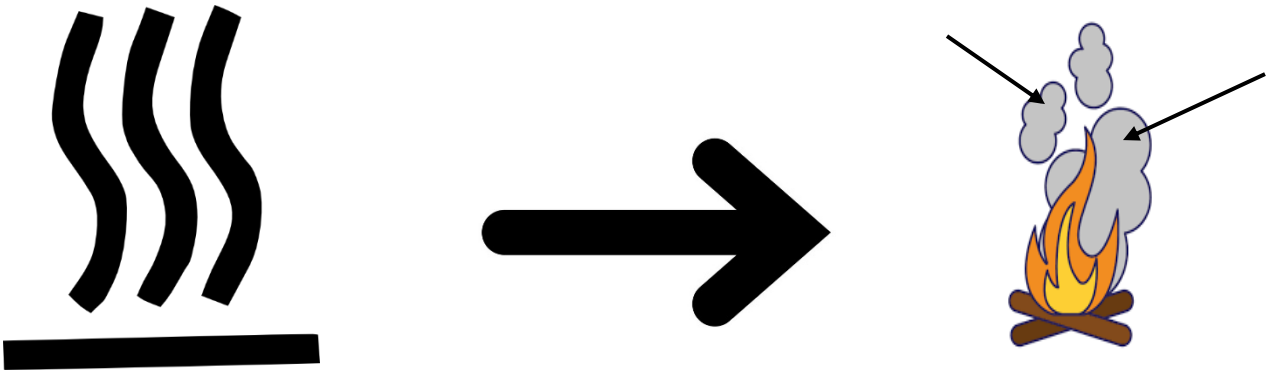
Log cabin fire: A fire made in the shape of a log cabin with alternating levels of wood.

Teepee fire: A fire made in the shape of a teepee with fuel point upwards. This will direct the heat to a fine point.

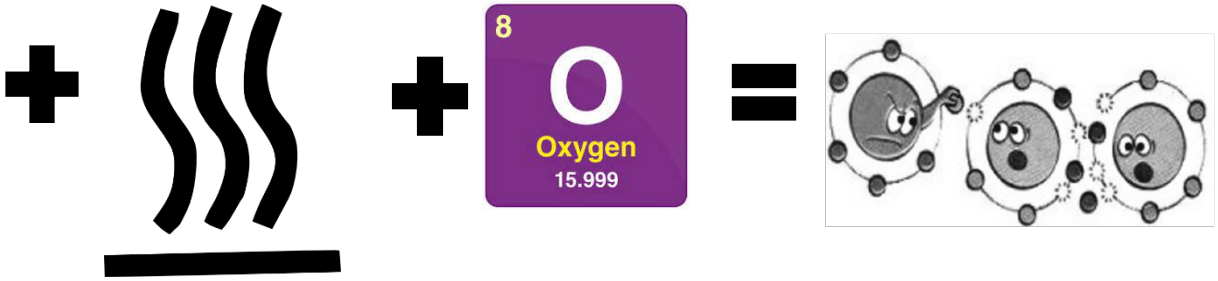
WHAT IS FIRE?

Fire is a **chemical reaction** known as rapid oxidization. Heat causes volatile gases to be released from fuel.

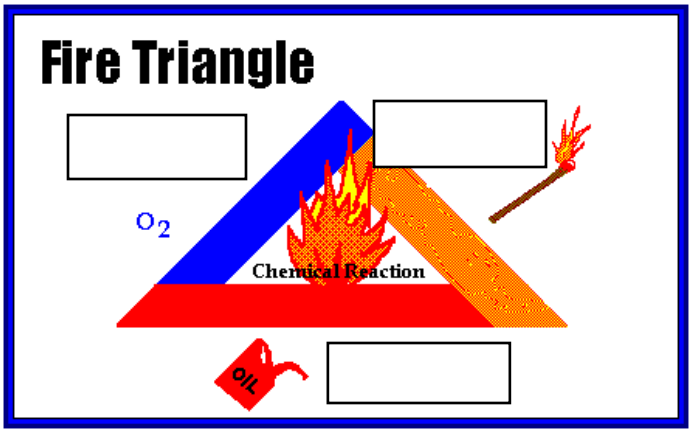
Heat | Releases | Volatile Gases



As the heat increases and oxygen is added, oxygen rapidly takes electrons from the gases and adds them to the oxygen molecules. **This rapid process causes the heat and light of fire.**



More Heat | **Oxygen** | **Rapid Oxidization**



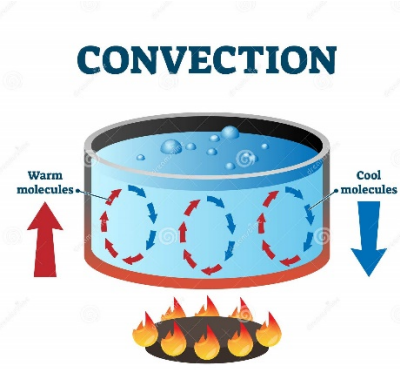
HEAT

Heat is a form of energy associated with the motion of atoms or molecules and are capable of being transferred through solids, fluids, gases, and empty space.

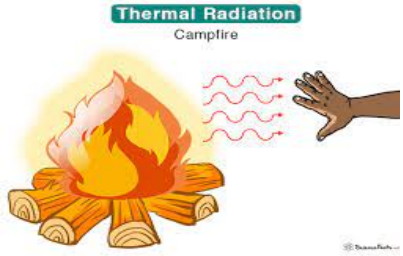
Heat always moves from _____ to _____ objects until they are the same temperature. This transfer of energy is important in understanding weather patterns, wind directions, and the water cycle on Earth.

Heat is transferred in three ways:

Conduction is when heat is transferred through a **solid object**. When you hold an ice cube in your hand, the heat transfers from your hand to the ice cube. This can be seen by the ice cube melting and your hand becomes colder because heat is taken away from your hand.



Convection is when heat us transferred through **air, liquids, or gases** where the warmer particles rise up and colder particles are pushed down. This is why heated air rises, forming air currents, and why fire will move UP a slope or a tree by convection.



Radiation is when heat is transferred though **electric and magnetic waves.** The _____ is the main source of heat and energy for Earth.

FUEL

There are three different sizes of wood fuel:

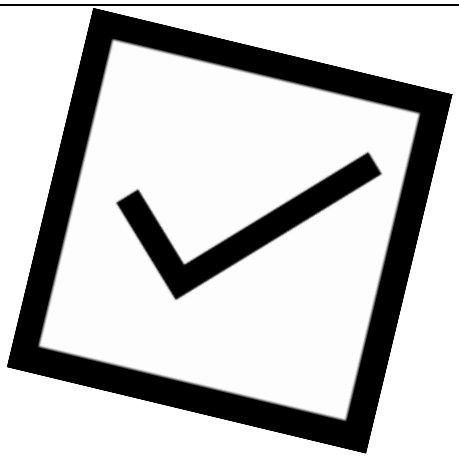
Type	Description	Examples
	Small, easily flammable substance less than the size of a match.	Dryer lint, cotton ball, dry grass, cat-tails, cedar shavings, pine needles.
	Fuel between the size of a match and a pencil.	Splinters of soft wood, small twigs, or fuzz socks.
	Fuel greater that 1 inch which will burn to make hot coals and sustain a fire.	Softwood to start=trees with needles Hardwood to build heat= trees with broad leaves

OXYGEN

Without oxygen, a fire will not burn. The number one reason fires are difficult to start is because **not enough** airspace is left around the fuel. Make sure you leave enough space between fuels by building a log cabin or a tepee.

FIRE SAFETY CHECKLIST

- Is this fire **necessary**?
- Is it in a **safe** area?
- Is the **weather** safe?
- How can I **extinguish** the fire?
- Can I watch the fire until it is put out?

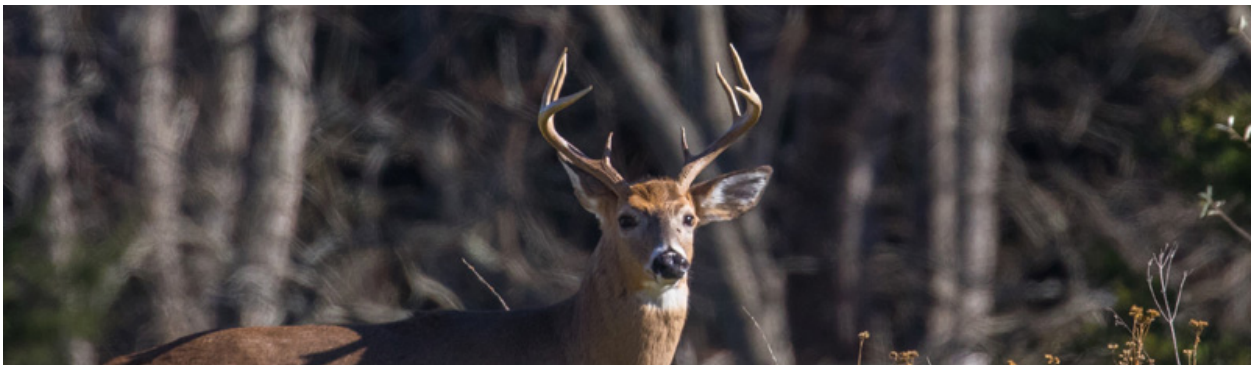


BUILD A FIRE

- Create a SAFE place
  -Bare soil
  -Stone fire ring
- Away from burnable objects
- Gather ALL your firewood
- Build your LOG CABIN
  -Start with Tinder and Kindling
  -Leave space for oxygen
- Apply heat to your tinder
- Add fuel slowly as needed

EXTINGUISH THE FIRE

- Remove heat with water
- Remove fuel by separating the fuel with a stick
- Remove oxygen by covering it with dirt



Mammalogy

The study of mammals

Vocabulary:

Mammal: A class of warm-blooded, vertebrate animals that are defined by 6 specific characteristics.

Consumers: Living things that cannot produce their own food.

Herbivore: An animal that feeds only or mainly on plants.

Carnivore: An animal that eats both plants and animals.

Omnivore: An animal that eats both plants and animals.

Food Chain: Levels of different living things, each of which feeds on the one below.

Food Web: Interlocking food chains within an ecological community.

Predators: A carnivorous animal that hunts, kills, and eats other animals.

Scat: Animal droppings.

CHARACTERISTICS SPECIFIC TO MAMMALS

1. _____

2. _____

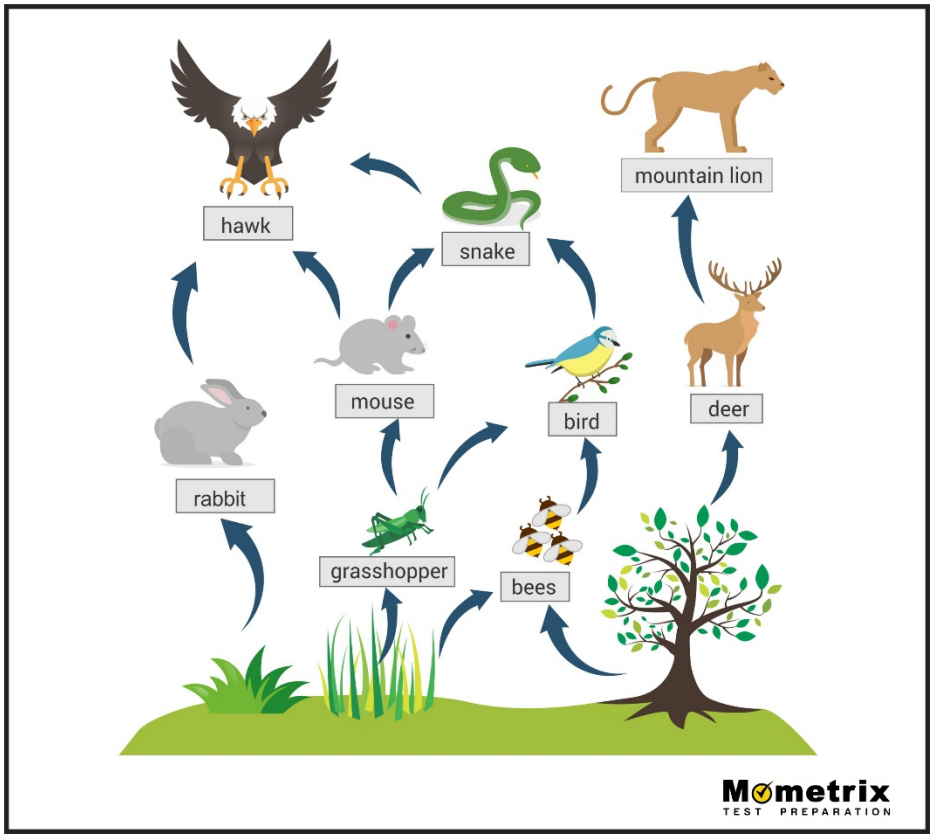
3. _____

4. _____

5. _____

6. _____

FOOD WEB



BOBCAT

Size: 2 feet tall

Males: 16-28 lbs.

Females: 10-18 lbs.

When they are most active:

Territory: 5-25 sq. miles

Where they sleep:

Lifespan: 12-13 years in the wild. Up to 25 years in captivity.

Food:

Offspring: They have 2-3 cubs per litter. Cubs stay with their mother for 1 year.

Fascinating Fact… Bobcats raise their tails and use the white underneath as a "follow me" sign for their cubs.

FRONT HIND SCAT

FOX

Size: 1 ft. tall

6-12 lbs.

When they are most active:

Territory: Less than 1 sq. mile

Where they sleep:

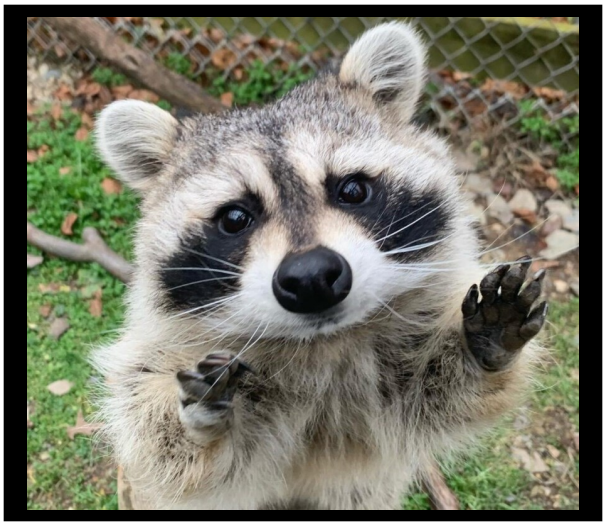
Lifespan: 6-10 years

Food:

Offspring: 1-7 kits per litter. They stay with their mother for 7-10 months.

Fascinating Fact:
Foxes have weak eyesight, but great hearing. They can hear a watch ticking 40 yards away.

RACCOON



Size: 24-36 inches long

14-23 lbs.

When they are most active:

Territory: In cities or populated areas, it's about ¼ sq. mi. In the wild it can be up to 4 sq. mi.

Where they sleep:

Lifespan: 2-3 years in the wild. Up to 20 years in captivity.

Food:

Offspring: 2-5 kits. They stay with their mother for 13-14 months.

FRONT **HIND** **SCAT**

MOUNTAIN LION

Size: Males: 8 ft long and 130-150 lbs.

Females: 7 ft long and 65-90 lbs.

When they are most active:

Territory: Males: Up to 100 sq miles

Females: 20-60 sq miles

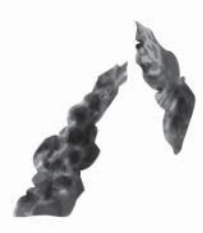
Where they sleep:

Lifespan: 12 years in the wild. Up to 25 years in captivity.

Food:

Offspring: 1-3 cubs per litter. They stay with their mother for 2 years.

FRONT HIND SCAT



BAT

Size: Body is about 3 inches long

Wing span is 8-11 inches long

Weight is less than ½ oz.

When they are most active:

Territory: Generally, they stay close to their roost. Some migrate up to 100 miles in the winter.

Where they sleep:

Lifespan: 6-7 years

Food:

Offspring: 1 pup per litter. Stays with mother for 1 month.

Fascinating Facts: Nearly 40% of American bat species are in severe decline or already endangered or threatened. Austin, Texas is home to the largest bat colony with over one million bats. With tailwinds they can reach up to 60mph flying speeds.

DEER

Size: 3 ft tall

Males: 125-300 lbs.

Females: 95-200 lbs.

When they are most active:

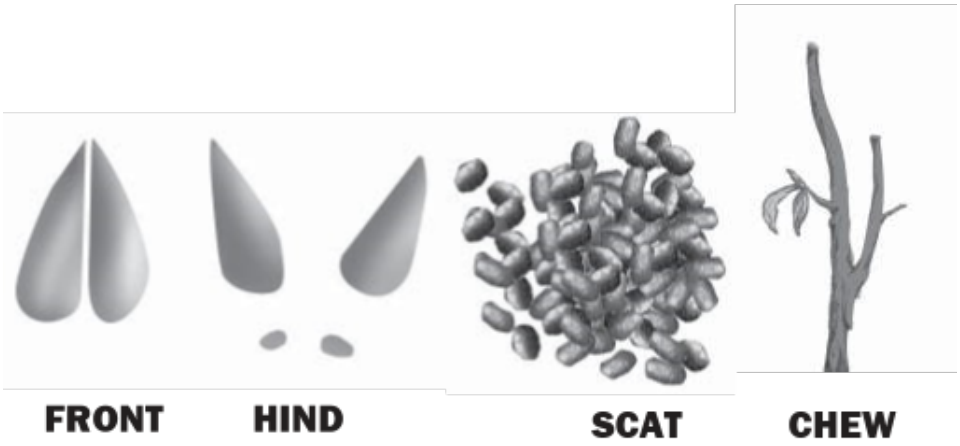
Territory: 1-2 miles

Where they sleep:

Lifespan: 9-11 years

Food:

Offspring: The first year a doe has 1 fawn. After that she may have 2-4 fawns. They stay with their mother for 60-75 days.



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WILDLIFE SAFETY

1. **Do not attempt to feed, capture or pet the animals you encounter.**
2. **Do not handle dead animals as they may carry diseases.**
3. **Do not pick up any scat you may find as it can make you sick.**
4. **Do not destroy any nest or dens.**
5. **Do not handle baby animals.**
6. **Do not hike alone.**

WHAT TO DO IF YOU SEE A MOUNTAIN LION

1. **Do not turn your back to the lion, and DO NOT RUN.**
2. **Make yourself as big as possible.**
3. **Do not bend over to pick up something to throw.**
4. **Throw branches or rocks if you can do it without bending over and crouching.**
5. **Make eye contact.**
6. **Speak loudly and firmly at the lion.**
7. **If attacked, fight back; try to remain standing and facing the lion.**
8. **Give the lion a way of escape as they do not like human contact.**
9. **Do not hike alone.**

Orienteering

The study of finding your way

Vocabulary:

Compass: An instrument with a magnetized needle which shows direction.

Degree: A unit of measure marked on a measuring instrument. A compass uses 360 degrees (the degrees in a circle).

Bearing: A specific direction written in degrees.

True North: The direction of the North Pole from a given point.

Magnetic North: The direction in which the needle on a compass points. (Magnetic north changes due to the constant flux of our magnetic fields).

Pace: Two natural steps.

DIRECTIONS

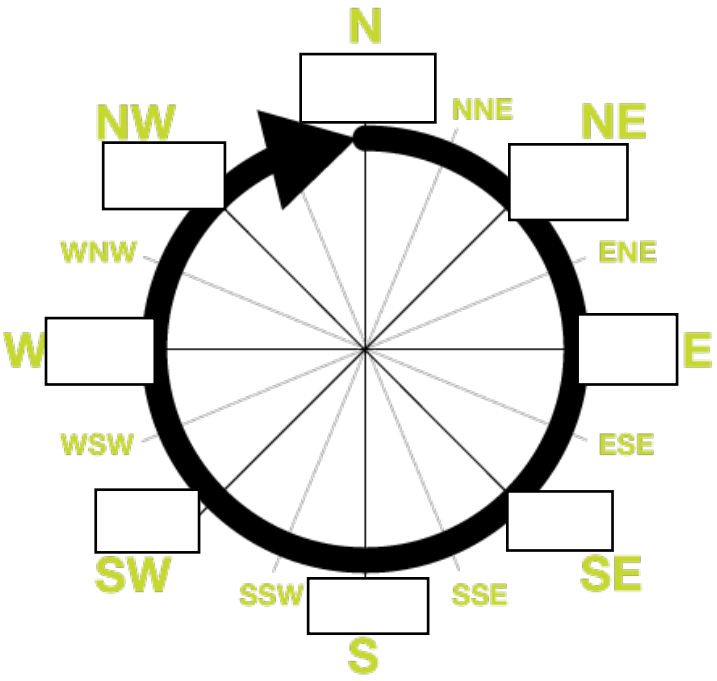
A mnemonic phrase to help you remember directions is

"N_____ E_____ S_____ W_____."

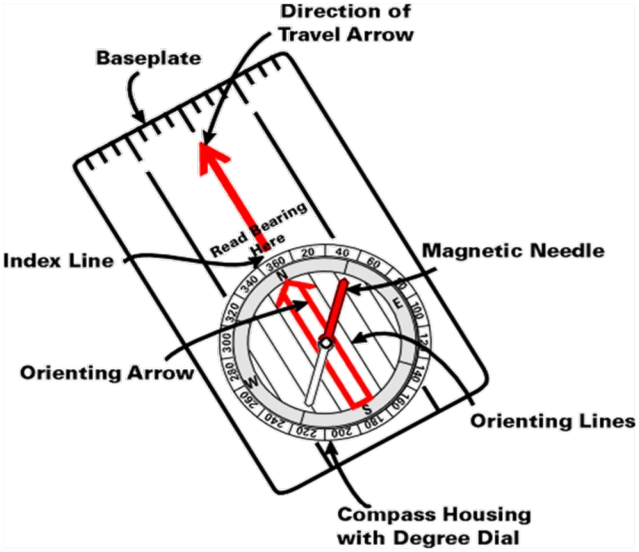
Once you know **one** direction, you can figure out the rest as they stay in position relative to each other.

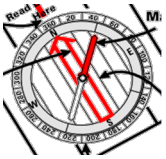
DEGREES

A circle has 360 degrees. If North is 0°, then how many degrees would the following be?



COMPASS





The Base Plate holds all of the compass parts. It needs to be held level and horizontal for the compass to work.

The Compass Housing with Degree Dial contains the magnetic needle. The dial has degree numbers and directions along the outside. Rotate the dial to find and follow directions.

The Index Line is a stationary white line that identifies your bearing, which is the degree you are trying to follow or find.

The Magnetic Needle is painted red and black and is on a rotating pivot.

The Orienting Arrow is the red outlined arrow on the bottom of the compass housing. It is used to orient or point yourself in the right direction.

The Direction of Travel arrow should be pointed in the direction you want to travel.

USING A COMPASS TO FIND YOUR WAY

Code Names

Magnetic Need = Red Fred

Orienting Arrow = Shed

Direction of Travel = Mr. DOT

In order to find our directions, we put **Red Fred** in the **Shed.** Then we follow **Mr. Dot.**

Hold your compass _____, _____ and away from metallic or other magnetic objects.

TAKING A BEARING

To take the position/degree of an object or location relative to you.

1. Point **Mr. Dot** in the direction you want to go.

2. Put **Red Fred** in the **Shed** by rotating the compass housing.

3. Read the bearing at the index line. This is the degree lined up with **Mr. Dot**. This reading in degrees is your bearing.

FOLLWING A BEARING

To follow a direction given in degrees:

1. Rotate the compass housing until the degree you want to face is at the index line.

2. Slowly turn your whole body until **Red Fred** is in the **Shed.**

3. Follow **Mr. Dot.**

PACE PRACTICE

5 paces = 20 feet

10 paces = 40 feet

15 paces = 60 feet

20 paces = 80 feet

FIND YOUR WAY

Group 1:

Point 1: TBD

Point 2:

Point 3:

Point 4:

Point 5: End

Group 2:

Point 1: TBD

Point 2:

Point 3:

Point 4:

Point 5: End

Group 3:

Point 1: TBD

Point 2:

Point 3:

Point 4:

Point 5: End

Group 4:

Point 1: TBD

Point 2:

Point 3:

Point 4:

Point 5: End

Ornithology

The study of birds

Vocabulary:

Consumers: Living organisms that use other organisms for food.

Mandible: The upper and lower part of a bird's beak.

Gizzard: A muscle in the digestive tract of birds that grinds food.

Habitat: The environment in which a plant or animal lives.

Aerodynamics: Designed to reduce air resistance, especially to create maximum speed or flight.

Lift: Part of the aerodynamic force exerted on the wing in an upward direction opposing the pull of gravity.

Propulsion: Driving force by which something is moved forward.

Drag: The retarding force exerted by air or water on a moving body.

BIRD BILLS

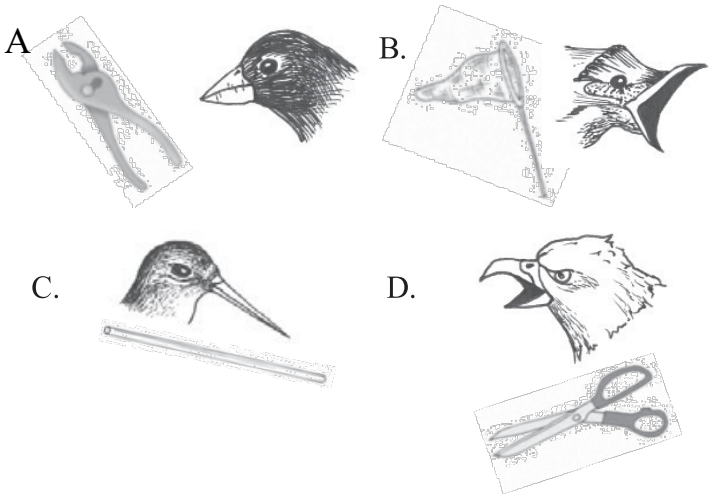
As ***consumers,*** birds must hunt their food. Their **bills** are uniquely created to be both their hands for gathering and processing food and their mouths for consuming food.

___ 1. Eats Meat

___ 2. Drinks Nectar

___ 3. Eats Nuts and Seeds

___ 4. Eats Insects

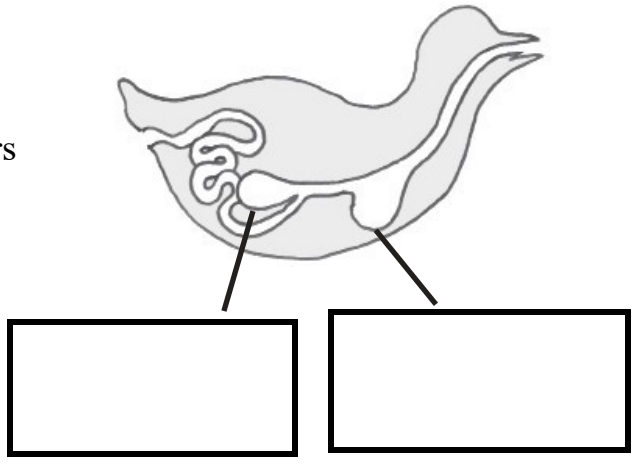


How a bird uses its beak to catch its food depends on the bird. Each bird has its own system and should be studied one bird at a time.

If a bird has no teeth, how do they process their food?

They have ***gizzards***.

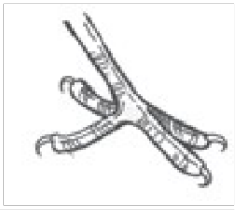
The ***gizzard*** is a powerful muscle in the stomach that can grind up whole nuts. In meat-eating birds, it works as a sack to indigestible teeth, claws, bones or feathers that are later coughed up or spat out as a pellet. The Owl is a bird that coughs up pellets.



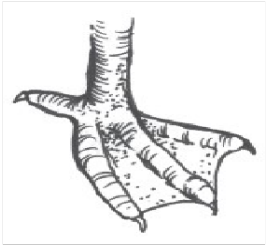
BIRD FEET

Just as you can discover what a bird eats by the shape of its beak, the feet of a bird tell you about the habitat in which a bird lives.

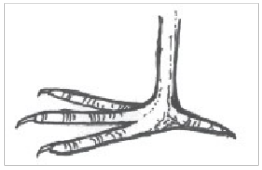
A. Song birds or perching birds such as warblers, thrushes, and wrens have one toe pointing backwards + 3 forward. Their toes are independent and flexible, excellent for grasping perches.



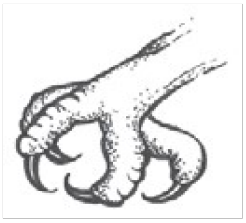
B. Woodpeckers can climb up, down or sideways because of the position of their toes.



C. Water birds such as swans, have webbing between their toes for swimming.



D. Wading birds' long toes distribute the weight of the bird over a larger area. This keeps wading birds, like the heron, from sinking into the soft mud along the water's edge where they feed.



E. Raptors such as hawks, eagles, and owls use large talons to capture, kill, and carry prey with their feet.

Which feet would you find on birds that:

Spend time in the water? _____

Are mostly on the ground? _____

Spend time on the tree trunks?

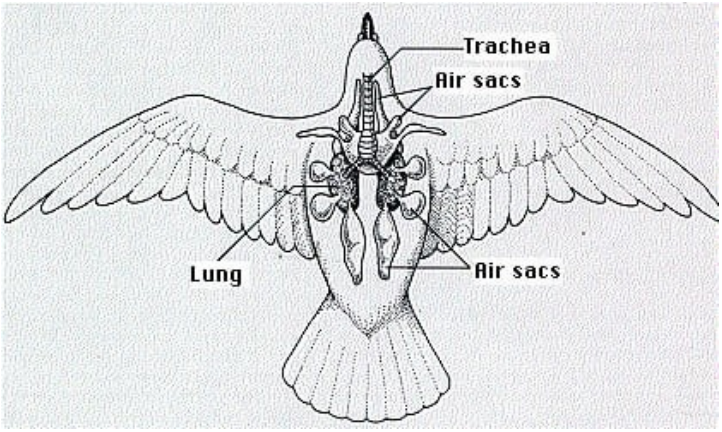
Live in the bushes?_____

CHARACTERISTICS THAT ALLOW BIRDS TO FLY

1. _____

2. _____

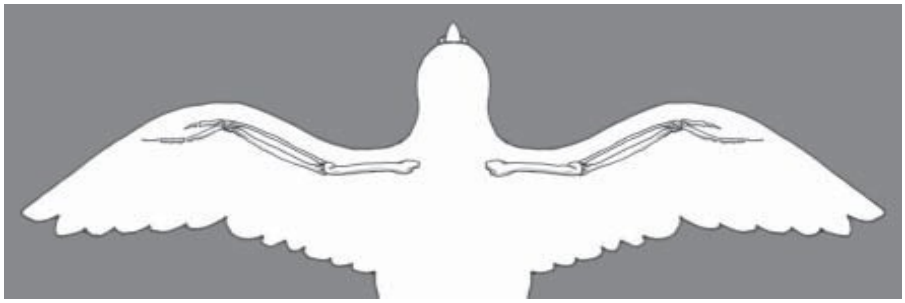
3. _____



A bird preens its feathers to clean and restore the airtight and waterproof features.

The feather's zipper-like design allows the bird to "re-zip" its feathers by preening them with its beak. Feathers in poor condition hamper a bird's flight capabilities.

WINGS AND INTRICACIES OF FLIGHT



A. _____: Responsible for _____ and

_____.

B. _____: Responsible for _____ and

_____.

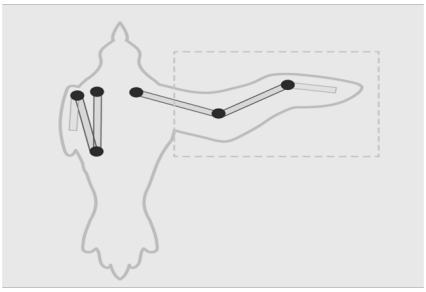
C. _____: The tail feathers can be used as a

_____ when spread quickly and lowered to create

_____.

Working as a rudder, the tail can be twisted and turned to allow the bird to perform aerial maneuvers.

Large _____ allow the bird to beat its wings with considerable force for extended periods of time.



IN THE FIELD

Birds found at Angeles Crest

(check the boxes for the ones you have seen)

- ☐ California Scrub-Jay

- ☐ Steller's Jay

- ☐ Red tailed hawk


- ☐ White-headed Woodpecker

Face on Book Activities

TABLE OF CONTENTS

You have a chance to have fun and earn extra points for your trail group! Check the box for each challenge accomplished. You must finish 6 activities to earn points. Your faculty members can review your work and give you credit!

- ☐ **Camp Clues**
- ☐ **Aquatics: Word Scramble**
- ☐ **Entomology: Word Search**
- ☐ **Fire: Word Search**
- ☐ **Mammals: True or False**
- ☐ **Ornithology: Spot the Difference**
- ☐ **Orienteering: Maze**
- ☐ **Weather: Secret Code**

CAMP CLUES

Write down the camp locations for each clue.

1. In the middle of summer, don't be a bummer! Try to stay cool and head to the _____ .

2. To grab your bow, head to the armory, then head down the road to do some _____.

3. Get in a harness, hope you don't fall! Get ready to climb up the _____.

4. You can't eat an apple inside of the _____.

5. With clouds and rain or if the sun is shining, go grab some food where we do our _____.

6. There is no sand, there is no surf, but there are some games out on the _____.

AQUATICS WORD SCRAMBLE

Unscramble the words below.

1. eviponoraat _____

2. tipciteripona _____

3. afqriue _____

4. sewtrahde _____

5. ydututrib _____

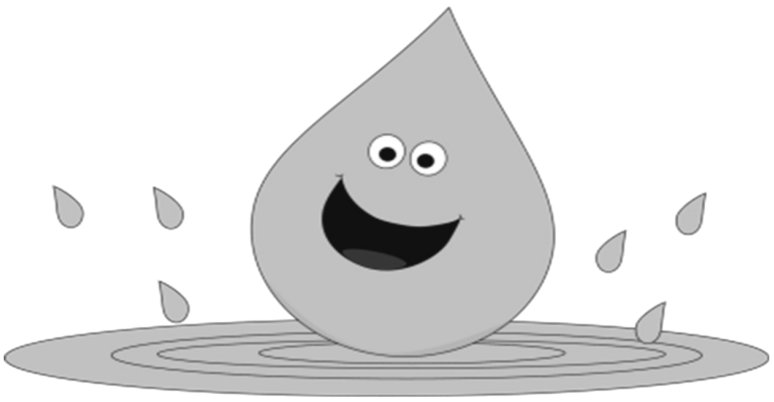
6. waret yccle _____

7. muaprretete _____

8. fwlo _____

9. niooser _____

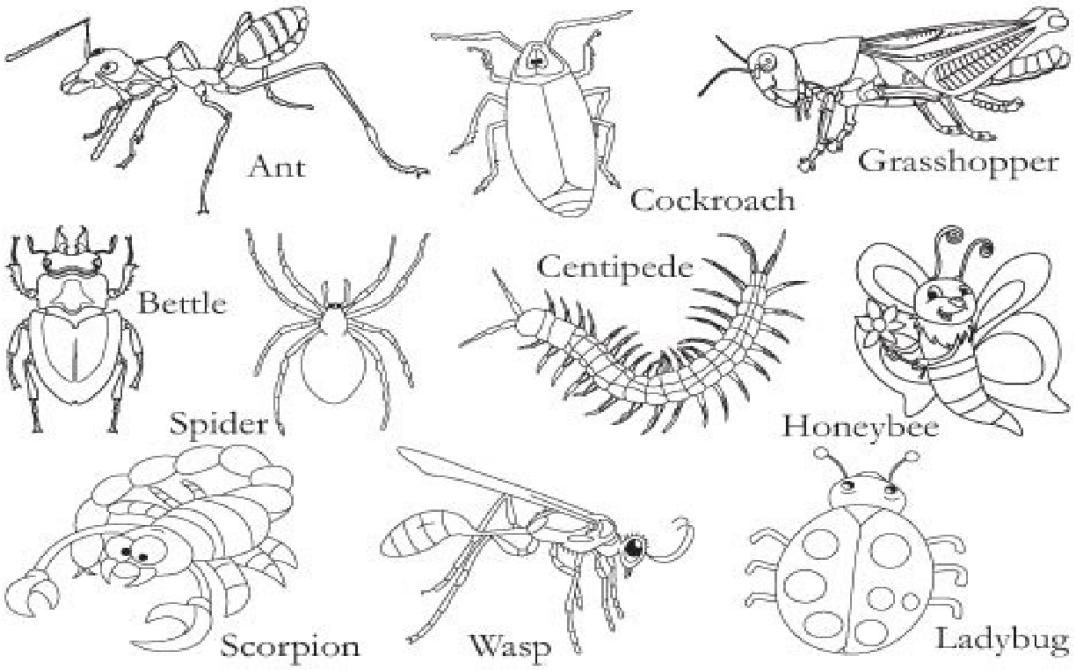
10. yditica _____



ENTOMOLOGY WORD SEARCH

Find the words, then circle the arthropods who are insects.

C	A	R	D	P	G	F	H	W	O	C
A	S	C	O	R	P	I	O	N	R	O
W	A	S	P	Y	A	E	N	A	D	C
L	P	P	H	C	R	A	E	E	S	K
A	U	I	H	A	N	E	Y	B	B	R
D	Z	D	A	N	A	A	B	A	E	O
Y	C	E	N	T	I	P	E	D	E	A
B	Z	R	L	E	I	E	E	N	T	C
U	N	A	S	B	H	C	T	S	L	H
G	R	A	S	S	H	O	P	P	E	R



FIRE WORD SEARCH

Find the words related to fire-building.

C A R B O N D I O X I D E E F H
O C A C F L I N T R C O I U I U
A O D O A E K U M N O P S O R M
L N I O N A L T E T N K I F E I
P D A K G V S E O O V I G I T D
R U T I I E U M X R E N N R G I
O C I N O N R P I D C D I E O T
D T O G B O V E D O T L T H E Y
U I N I P T I R A N I I E A G E
C O N S E R V A T I O N E R T O
E N D S R A A T I E N G A D N T
R H R R O C L U O E O A U W L I
W E A T H E R R N R Y F E O D N
G A M A T C H E S O L T W Z O D
V T D C E I D U O T S H A D H E
L I G H T F U N Z S T I C K I R

Fire	Heat	Radiation	Flint
Matches	Leave No Trace	Carbon Dioxide	Coal Producer
Oxidation	Humidity	Light	Convection
Conduction	Ignite	Cooking	Temperature
Conservation	Kindling	Tinder	Weather

MAMMALS TRUE OR FALSE

Circle the correct answer.

1. Raccoons are known for dunking their food though we do not know why they do it. **TRUE or FALSE**

2. Foxes are from the dog or canine family. **TRUE or FALSE**

3. The fur on Mule Deer are yellow to reddish brown in the summer and grayish in the winter. **TRUE or FALSE**

4. Bobcat cubs stay with their mother for two years. **TRUE or FALSE**

5. 70% of bats are carnivores. **TRUE or FALSE**

6. Mountain Lions prefer to eat meat that another animal has already killed. **TRUE or FALSE**

7. Mule Deer like to eat insects. **TRUE or FALSE**

8. Bats only give birth once a year and usually to only one pup/baby bat. **TRUE or FALSE**

9. A Panther and a Mountain Lion are the same cat. **TRUE or FALSE**

10. Raccoons have 6 or 8 black rings on their tail. **TRUE or FALSE**

ORNITHOLOGY SPOT THE DIFFERENCE

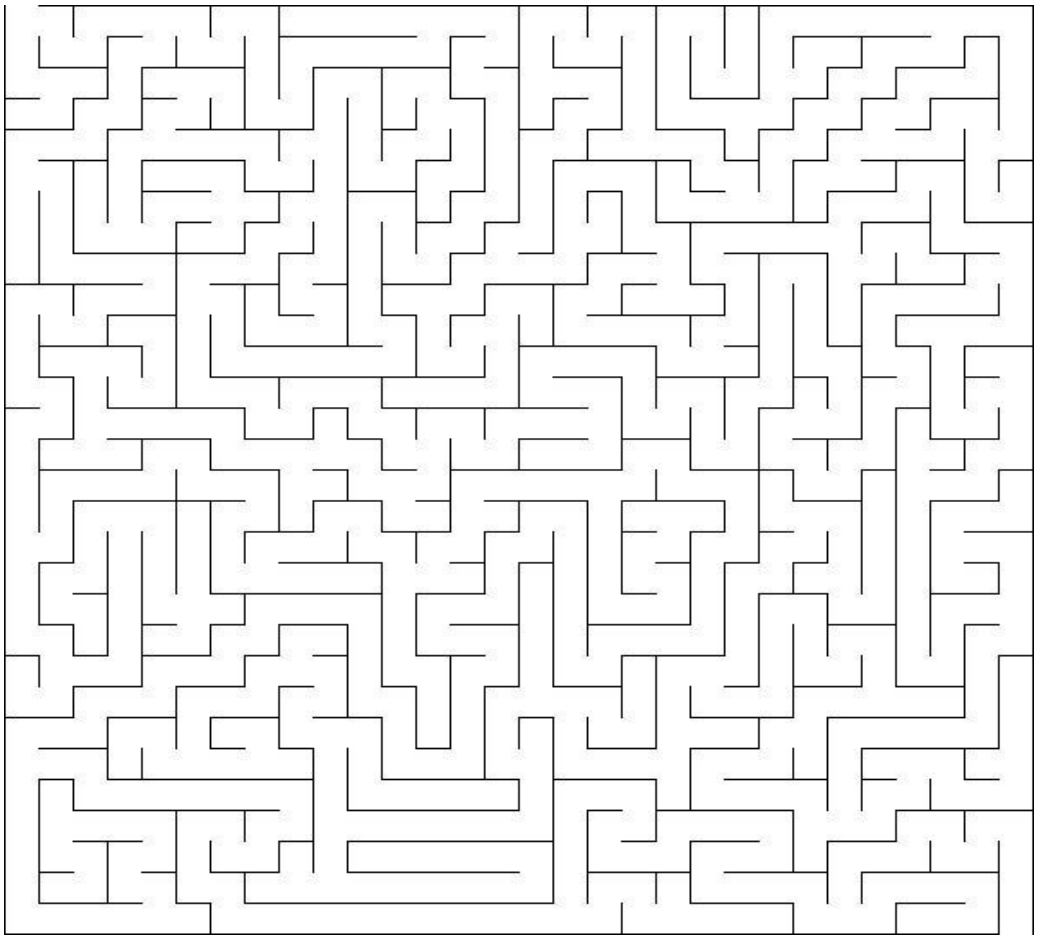
Circle or color in the differences.

Find the Differences!

ORIENTEERING MAZE

Complete the maze.

START



FINISH

Psalm 119:105 says, “Your word is a lamp to my feet and a light to my path.” Wouldn’t this maze have been easier if the right path was highlighted?! When we know God’s Word, it acts as a highlighter for our lives, showing us the right thing to do.

Welcome to ANGELES CREST

CHRISTIAN CAMP

1-12 North Cabins
3 The Pines Mtg Room
13-20 South Cabins
21 Staff Housing
22 First Aid
23 Dining Hall
24 Camp Office
25 Heritage Hall (Chapel)
26 Camp Director's House
27 Apartment 1
28 Apartment 2
29 Ponderosa Lodge
30 Amphitheater
31 RV / North Parking
32 Paintball
33 Acorn / Check-in
34 Rec Event Mtg Area
35 BB Gun Range
36 Bathrooms
37 Tree House
38 Turf Field
39 Basketball Court
40 Whale Watch
41 Hatchet Throwing
42 Sand Volleyball

P Parking
43 Swimming Pool
44 Craft Shack
45 Game Room / Store
46 Climbing Wall
47 Zip Line
48 Horseshoes
49 Archery
50 Shower/Bathroom Facility