

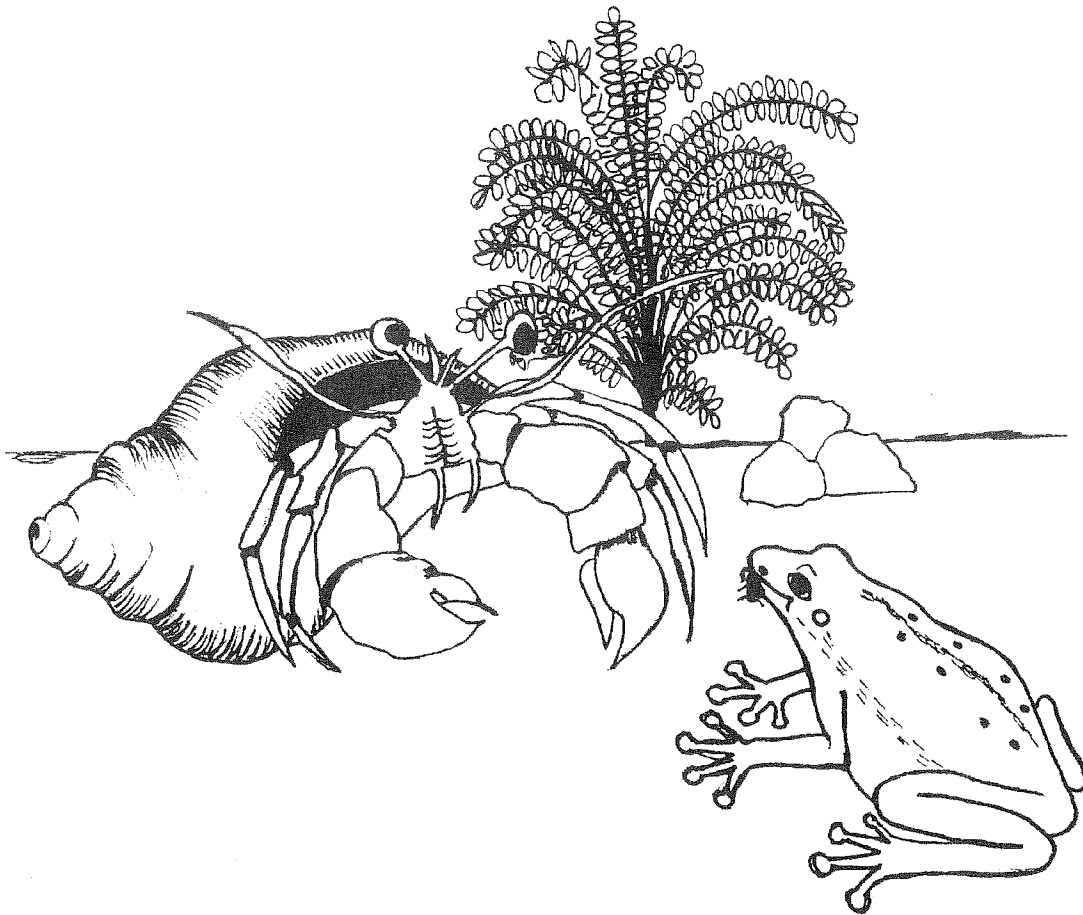
BATTLE CREEK AREA

Mathematics &  
Science Center

Student Journal

5LS

# Systems and Survival



A Fifth Grade Unit  
supporting the  
Michigan Science K-7 Content Expectations

Name: \_\_\_\_\_

Name: \_\_\_\_\_



Date: \_\_\_\_\_

**My School and Desk Supplies  
Organization Chart**

Write the name of each group at the top of your chart. List the objects in the correct column. Feel free to add additional columns if the objects do not qualify in five groups.



Name: \_\_\_\_\_

Date: \_\_\_\_\_

1

1. Explain the benefit of a classification system for living things.

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2. What factors do scientists consider when classifying plants?

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Name: \_\_\_\_\_

Date: \_\_\_\_\_

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3. What factors do scientists consider when classifying animals?

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4. What statement can you make about the classification of organisms using the *Animal Tree* and *Plant Tree*?

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A C T I V I T Y

**Physical and Behavioral  
Characteristics**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

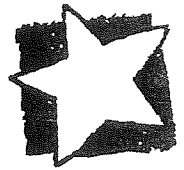
**2** .....

1. Draw an outline of the human body.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

A C T I V I T Y  
**Physical and Behavioral  
Characteristics (cont.)**



**2**

.....  
2. Make a list of the needs for survival for humans.

3. Complete the T-chart below. List the parts of the human that are used to get the needs to survive. Write how each part helps in obtaining the human needs to survive.

Human body part	How the part helps humans to survive



Name: \_\_\_\_\_

Date: \_\_\_\_\_

**2**

**Animal Card**

Name of animal: \_\_\_\_\_

Names of group members:

\_\_\_\_\_  
\_\_\_\_\_

1. What does the animal need to survive?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Describe the habitat of the animal.

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\_\_\_\_\_  
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\_\_\_\_\_  
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Name: \_\_\_\_\_

Date: \_\_\_\_\_

A C T I V I T Y  
**Physical and Behavioral  
Characteristics (cont.)**



**2**

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**Animal Card (cont.)**

3. What physical characteristics does the animal have to help it survive?

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4. What behavioral characteristics does the animal have to help it survive?

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Name: \_\_\_\_\_

Date: \_\_\_\_\_

**2**

1. Draw a picture of an animal that you know about in its habitat.



Name: \_\_\_\_\_

Date: \_\_\_\_\_

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2. Write what physical and behavioral characteristics help it to survive.

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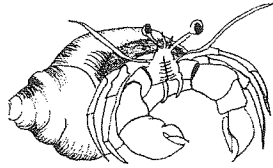
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Name: \_\_\_\_\_

Date: \_\_\_\_\_

**3****Hermit Crabs Find Their Homes**

I am a land hermit crab,  
And my life is neither lonely nor drab.

Unlike most crabs, I do not have my own hard shell,  
Instead, I find a discarded snail shell that serves me well.

I need a new shell as I continue to molt and grow,  
I enjoy shopping for shells, when I find the right fit - I know!

Each shell must be just the right size to fit all of me,  
I have ten legs, but only six you will see.

I use the six front legs for walking the beach,  
Where I scavenge for food that is within reach.

I am not a fussy eater by nature,  
I eat a wide variety of foods, to be sure.

I like rotting fruits, decaying wood, leaf litter, grasses and more,  
All washed in by tides to the ocean shore.

I locate my dinner in two different ways,  
I can smell it and watch for other crabs eating, I find that really pays.

I live in colonies of 100 crabs or more,  
We like to eat, sleep, and play together, life is no bore!

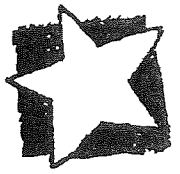
I have two pair of antennae that I use to feel when I walk,  
Along with two round eyes located on the end of eyestalks.

My left front leg has a large pincer or claw on the end,  
That I use to walk around and if I should need to defend.

My right front leg has a pincer or claw that is small,  
I use it to eat and drink - that is all.

I like it best above 72 degrees,  
And turn up the humidity, if you please.

So you see, I am a land hermit crab,  
And my life is neither lonely nor drab.



Name: \_\_\_\_\_

Date: \_\_\_\_\_

3

1. Use the information from the reading and complete the T-chart below. List the physical and behavioral characteristics of the hermit crab.

Physical Characteristics	Behavioral Characteristics

2. Choose one characteristic and tell how you think it will help the hermit crab to survive in its environment.

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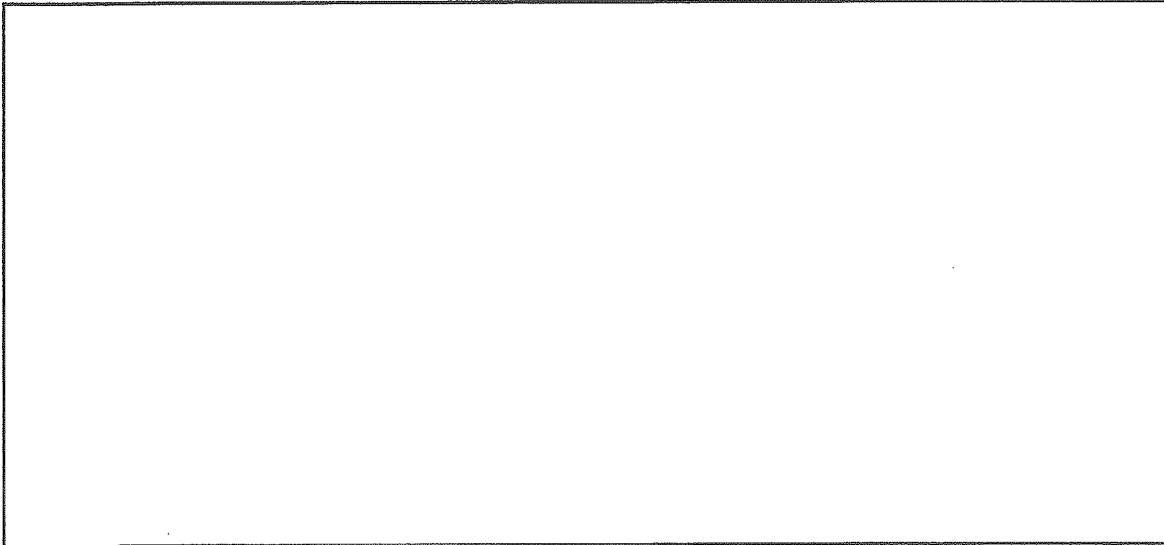


Name: \_\_\_\_\_

Date: \_\_\_\_\_

**3** .....

1. Draw and label a picture of the hermit crab.



2. Write about your observations of the hermit crab. Tell what physical and behavioral characteristics you observed.

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3. Record at least three questions you have about the hermit crab.

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Name: \_\_\_\_\_

Date: \_\_\_\_\_



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1. Draw a picture of the hermit crab in the classroom habitat.

2. Write about one physical characteristic you have observed and how it helps the hermit crab to survive in its habitat.

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3. Write about one behavioral characteristic you have observed and how it helps the hermit crab to survive in its habitat.

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Name: \_\_\_\_\_

Date: \_\_\_\_\_

**4****Jane Goodall**

Jane Goodall was born in London, England on April 3, 1934. She grew up in a home with parents who encouraged her to follow her dreams. She lived in the small town of Bournemouth on the southern coast of England. Jane had an interest in animals and their behavior since she was a small child. She read books about animals, such as *The Story of Dr. Dolittle* and *The Jungle Book*, and dreamed of going to Africa to see the exotic animals in the stories.

Jane Goodall completed her schooling and then attended secretarial school. She got a job with a documentary film company in England, where she worked until she was presented with the opportunity to travel to Kenya with a school friend. At the age of 23 she traveled by boat to Africa and began her career working with a renowned paleontologist and anthropologist named Louis Leakey. In the beginning, her work with Dr. Leakey involved hunting for fossils and identifying plants and animals that lived long ago. Later, she worked in a museum. Jane's dream of working with living animals remained. She was determined to find a way to observe animals in the wild, in their natural habitat, and learn about their behaviors.

In July of 1960, Dr. Leakey offered Jane a position studying wild chimpanzees on the shore of Lake Tanganyika in the Gombe National Park in Kenya. Finally, Jane would realize her lifelong dream! In the beginning, Jane found the work very difficult. The animals feared her and fled or hid when she was near. She searched the forest every day, keeping her distance and observing only from afar using binoculars. When she finally caught sight of chimpanzees in their habitat, she sat very still and only observed their behavior. Gradually, over many months, the chimpanzees became accustomed to this woman walking in their forest. One day, Jane observed an amazing behavior! She saw two male chimps strip leaves off sticks and make tools for digging termites out of a termite mound. Up until this time, scientists believed that humans were the only animals that made tools. Jane found evidence to the contrary.

Also in her first year of observations, Jane discovered chimpanzees hunting and eating bush pigs and other smaller animals. Up until this discovery, scientists believed that chimps were primarily vegetarians (herbivores).

Jane's research was beginning to reach other scientists and she was gaining notoriety. She was invited on television programs and featured in *National Geographic* magazine.

Name: \_\_\_\_\_

Date: \_\_\_\_\_



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**Jane Goodall**

At this point in her career, Jane felt it best to continue her formal education and entered Cambridge University as a Ph.D. candidate in 1962. By 1965 she had successfully completed her studies and earned the title of Dr. Jane Goodall.

Upon her return to Gombe National Park, Jane and her husband, Hugo van Lawick, started the Gombe Stream Research Center where graduate students and other scientists could come and assist in the research and observations of chimpanzees. Jane also discovered that the life of the chimpanzee was not always peaceful. At times, she observed chimpanzees demonstrate aggression and violence toward one another. Jane found that some female chimps killed other chimps' babies in their own troops. Jane was saddened by this behavior. She was also dismayed to discover that bands of rival chimpanzees ganged up on their neighbors to kill them. In early 1974, a four-year chimpanzee "war" began at Gombe National Park, which only ended when one group was wiped out. Until Jane reported her findings, scientists believed that humans were the only species to engage in long-term war.

What pleased Jane most was the observation of kindness, nurturing, cooperation, and friendship among chimpanzees. She observed an adoption of an orphaned chimp by a young adult male. The "new father" shared his nest and food, and carried the orphan on his back or clinging to his belly. There is no doubt the chimp would have perished without the adopted father.

The Center still exists today and trains primatologists (scientists who study primates) in research of animals in their natural habitat. The work at Gombe Stream Research Center also focuses on different subjects, including how chimpanzees learn behaviors. Recently scientists discovered that female chimpanzees learn to fish for termites differently than the male chimpanzees.

Today Jane Goodall spends the majority of her time traveling to different countries trying to inform people of the alarming rate of the disappearing forest in Africa. In all the countries where chimpanzees live, people are destroying the forest for different reasons - in many cases people are simply trying to survive by planting crops. Jane continues to work to try to save the habitat for the chimpanzees.





A C T I V I T Y

**Observing Hermit Crabs in the Classroom Habitat (cont.)**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**4**

1. In your group, read the selection on Jane Goodall.

2. What was the most important observation tool Jane used to learn about the chimpanzee?

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3. What is the advantage of observing the chimpanzee in its natural habitat?

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4. How can the class learn from Jane Goodall's observation methods when observing animals in the classroom habitat?

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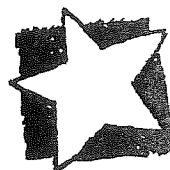
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Name: \_\_\_\_\_

Date: \_\_\_\_\_

**4**

In the *Hermit Crab Observation Log*, your class will record the time, temperature, and soil conditions before each entry. Write how this information might be helpful in learning more about the behavioral characteristics of the hermit crab.

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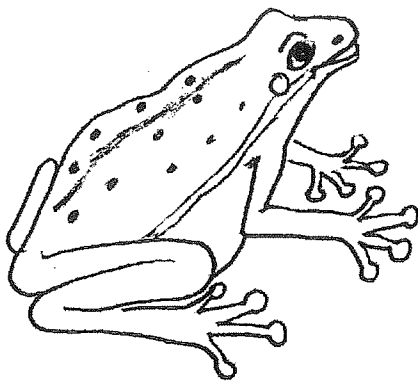
## 5

## Tree Frogs

Tree frogs are amphibians. All amphibians are cold-blooded animals. This means that their body temperature changes to the temperature of their surroundings. They take in oxygen through their moist skin and spend part of their time on land and part in the water.

Most tree frogs spend the major portion of their life in the trees, other high growing plants, or shrubbery. Most live in trees, but some make their homes in smaller plants, and a few species are ground dwellers. Their back color is usually a vivid green or brown, giving them excellent camouflage depending on the type of vegetation they choose for their habitat. Many tree frogs can change their color to the extent that when they are resting on a leaf, they are green and when they are resting on a branch or tree trunk, they are brown.

Tree frogs are relatively small frogs, measuring from less than one inch (2.5 cm) to more than four inches (10 cm). The males can be heard calling at night in the spring and early summer alongside swamps, ponds, and wetlands. Tree frogs have sticky pads at the ends of their fingers and toes to aid in climbing. The pads are rough and covered with a sticky secretion.



As the cold months approach, tree frogs dig into the soil of the forest floor. The cells in their tissues, muscles, and body fluids are protected from freezing by a special substance called glycerol. They make their own kind of anti-freeze!

Tree frogs are predators and eat insects such as crickets, fruit flies, houseflies, moths, and other insects. The tree frog may sit very still waiting to strike its prey or go on the prowl in search of a juicy morsel!

Name: \_\_\_\_\_

Date: \_\_\_\_\_

A C T I V I T Y  
Introducing the Tree Frog Into the  
Classroom Habitat (cont.)



5

- .....
1. Use the information from the reading and complete the T-chart below. List the physical and behavioral characteristics of the tree frog.

Physical Characteristics	Behavioral Characteristics

2. Choose one characteristic and tell how you think it will help the tree frog to survive in its environment.

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A C T I V I T Y

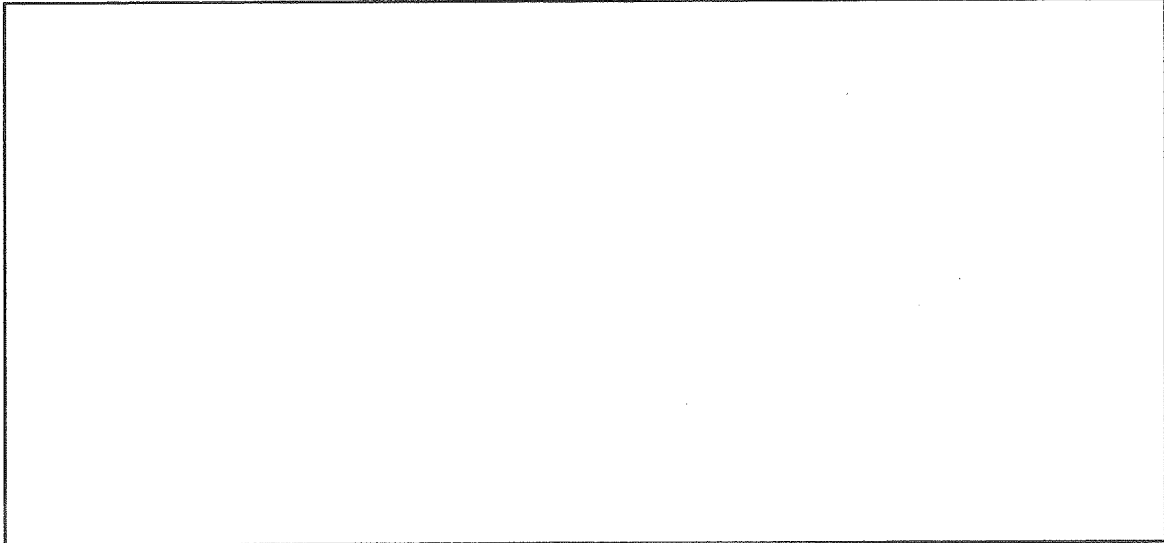
**Introducing the Tree Frog Into the Classroom Habitat (cont.)**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**5**

1. Draw and label a picture of the tree frog.



2. Write about your observations of the tree frog. Tell what physical and behavioral characteristics you observed.

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3. Record at least three questions you have about the tree frog.

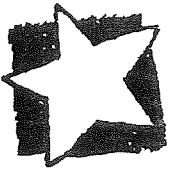
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Name: \_\_\_\_\_

Date: \_\_\_\_\_

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1. Draw a picture of the tree frog in the classroom habitat.

2. Write about one physical characteristic you have observed and how it helps the tree frog to survive in its habitat.

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3. Write about one behavioral characteristic you have observed and how it helps the tree frog to survive in its habitat.

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Name: \_\_\_\_\_

Date: \_\_\_\_\_

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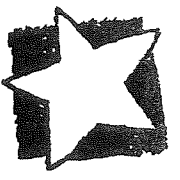
Choose one fact from the *Animal Facts* handout. Write how you would classify the fact as a physical adaptation, behavioral adaptation, or learned behavior. Tell why you classified your fact that way and if the characteristic is influenced by the environment or inherited.

Lined area for writing the response. It consists of 18 horizontal lines.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

A C T I V I T Y  
**Observing the Classroom  
Animals For Learned Behavior**



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1. What learned behavior would your group like to teach the classroom animals? Which animal do you think will respond the best?

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2. Write what procedure you would use to teach the classroom behavior.

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A C T I V I T Y

**Observing the Classroom Animals  
For Learned Behavior (cont.)**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**8**

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3. What materials would you need?



Name: \_\_\_\_\_

Date: \_\_\_\_\_

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**8**

1. What question are we asking?

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2. What do we already know about the eating behaviors of the crab and frog?

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3. What do we predict will happen?

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Name: \_\_\_\_\_

Date: \_\_\_\_\_

**8** .....

4. What materials do we need?

5. What procedure will we follow?

6. How will we keep track of our observations and results?

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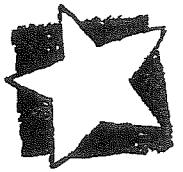
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Name: \_\_\_\_\_

Date: \_\_\_\_\_



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Mountain lion cubs get their nourishment from their mother's milk until they are three or four weeks old. Then the mother mountain lion introduces her cubs to meat for the first time. She returns to the den from a hunt and throws up a pile of soft meat. The cubs sniff it and lick it and take tiny nibbles. Then they dig in and consume the meat in large gulps. They have had their first taste of meat and they like it!

Read the description of the behavior of the mountain lions above.

1. List all the learned behaviors (acquired traits) you found in the reading.

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2. List all the instinctive behaviors (inherited traits) you found in the reading.

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3. Name a behavior from the reading, if any, that was caused by an internal cue.

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4. Name a behavior from the reading, if any, that was caused by an external cue.

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5. Describe how the eating behavior of the mountain lion might help it to survive.

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Name: \_\_\_\_\_

Date: \_\_\_\_\_

# 9

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## My Rock Story

1. Draw and label a picture of your rock.

A large, empty rectangular box with a thin black border, intended for a student to draw and label a rock.

2. Write about your rock. Be sure to include descriptive words, measurements, and your personal ideas about your rock.

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Name: \_\_\_\_\_

Date: \_\_\_\_\_



**Does My Rock Tell of Long Ago?**

1. What imprints or objects are in the rock? (Describe what you see.)

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2. Do you think the imprints are remains of ancient life forms?

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3. Compare what you see to modern life forms you know about. What do you think it might be?

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4. What evidence do you have that makes you think that?

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5. How do you think the imprint or object got into the rock?

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6. What does the material look like that surrounds the object or imprint?

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7. Compare the surrounding material to modern earth material. Does it look like anything you know about?

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8. Why do you think the rock is the size it is?

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9. Why do you think the rock is the shape that it is?

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Name: \_\_\_\_\_

Date: \_\_\_\_\_



**What Happened to the Dinosaurs?**

Fossils provide paleontologists and other scientists with evidence that different species of plants and animals roamed the Earth millions of years ago and are extinct today. Dinosaurs are only one example of animals that once thrived on Earth and are now extinct.

Dinosaurs were a major part of Earth's population of vertebrates. They lived about 225 million years ago until 65 million years ago. Huge turtles and fish-eating reptiles swam in the seas, the skies were filled with flying reptiles, and enormous lizard-like reptiles shook the land as they roamed the Earth. Dinosaurs became extinct about 65 million years ago, long before humans populated the Earth.

What happened to the dinosaurs? There are many theories that try to explain their disappearance, but no one is sure why they became extinct. Many scientists believe that the Earth experienced a catastrophic event that changed the climate so much that it became difficult for the dinosaurs to meet their needs to survive. All living things need air, water, food, and space or habitat to survive. Plants also need light to survive. A change in climate from warm to cool would change the way the living things met their needs. One leading theory is that there was an asteroid impact that raised a cloud of dust so thick and large that it blocked the sunlight necessary for plant growth.

Other scientists have a similar theory that a cloud of volcanic ash from massive volcanic eruptions may have created a huge cloud that lingered for a long period of time, making it impossible for plant life to survive. The dinosaurs were unable to survive without sufficient plant growth to eat and died out.





What Happened to the Plants and Animals From Long Ago? (cont.)

Name: \_\_\_\_\_

Date: \_\_\_\_\_

10 .....

1. What is the main idea on your group's card?

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2. How would the situation on your card affect the ability of plants and animals to survive?

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Name: \_\_\_\_\_



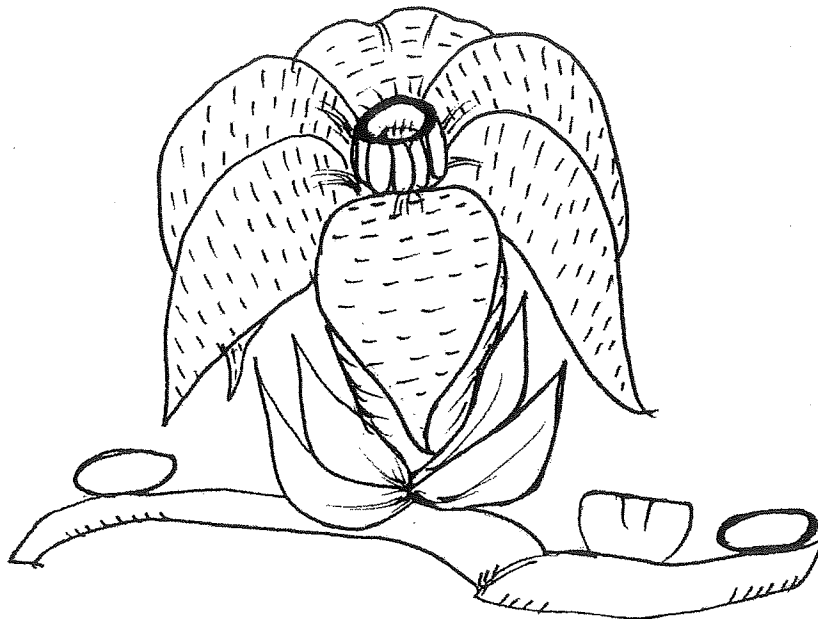
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**Rafflesia - The World's Largest Flower**

Rafflesia is a stemless, leafless, and rootless plant that has a terrible odor! The Rafflesia plant grows on the floor of the tropical forests in Malay Archipelago and Indonesia. The plants can be found at altitudes of 500 to 700 meters above sea level. In these tropical rain forests, the climate is continuously warm and humid, with humidity that frequently reaches 100% at night.

Rafflesia do not use photosynthesis to make and store their own food. Instead they obtain their food from the tropical vines that they live on. They have adapted to living without stems, leaves, and roots. Instead they start as a small, dark brown bud attached to the host, the stem or root of a jungle vine. The vine feeds itself, then becomes the host that feeds the Rafflesia!

It takes nearly nine months for the bud to mature to about the size of a head of cabbage and then the flower opens. The petals, usually five or six, are red in color with lighter orange-red spots. The Rafflesia grows up to 91 centimeters (36 inches) in width, with petals 3 cm (1 inch) thick and 46 cm (18 inches) long. The blossom can weigh up to 7 kg (15 pounds). The large flowers give off a putrid odor that attracts flies that normally feed on rotting animal flesh.





Name: \_\_\_\_\_

Date: \_\_\_\_\_

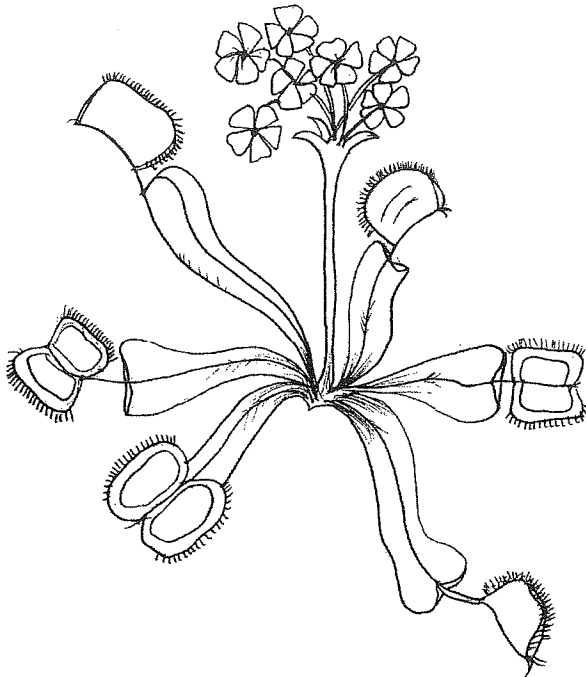
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### The Venus' Flytrap

The Venus' Flytrap is an insectivorous plant, which means that it eats insects! They are a good example of how plants have adapted over time. Like other plants, Venus' Flytrap uses carbon dioxide from the air and water from the soil, combined with energy from the sun, to make and store their own food through photosynthesis. However, the plants live in poor soil and are healthier if they get extra nutrients from insects!

The Venus' Flytrap grow in select boggy areas of North and South Carolina. Because of people's fascination with these plants, they have collected too many of them and they have become an endangered species. Today they are grown in greenhouses.

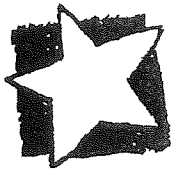
The leaves of the Venus' Flytrap have short, stiff hairs called sensitive or trigger hairs. When an insect lands on the leaves that are wide open and touches the sensitive hairs, the leaves snap shut, trapping the prey. The trap will shut in less than a second. It remains slightly ajar, and appears to be deciding if the insect is large enough to keep, then after a few minutes the leaves will shut tightly and form an airtight seal in order to digest the food. The leaf secretes digestive juices much like your stomach.



If the leaf has closed on a stone or other debris, it will reopen in about 12 hours and spit it out. If the leaf traps an insect that is too large and part of it is left hanging outside the leaf, the insect will begin to decay, and the bacteria will spread to the leaf and the leaf will turn black and fall off the plant.

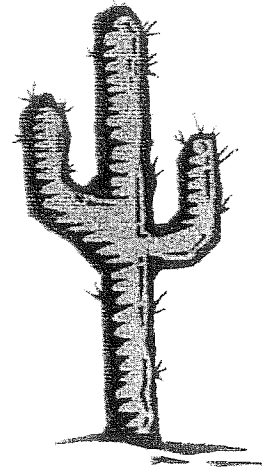
Name: \_\_\_\_\_

Date: \_\_\_\_\_



### The Saguaro Cactus

The Saguaro Cactus grows on the desert slopes and flats of the Sonoran Desert in southeastern California, southern Arizona, and northwestern Mexico. It is composed of a tall, thick, fluted stem that looks like a column. The stem can reach 18 to 24 inches in diameter, often with several large branches or arms curving upward. The outer covering of the stem is smooth and waxy and the trunk and stems have spines that measure approximately 2 inches. The spines are clustered in rows on the ribs of the trunk and stem.



When the rare rains fall on the desert habitat of the Saguaro Cactus, the outer covering of the cactus can expand like an accordion, increasing the diameter of the stem and, in this way, can increase its weight by up to a ton! The Saguaro has a shallow root system with a taproot that reaches down about one foot and smaller roots that run outward for a distance that equals the height of the plant. These roots wrap around rocks and provide adequate anchorage from wind that blows across the desert.

The slow growth and great capacity of the Saguaro to store water allow it to flower every year, regardless of rainfall. The flowers are creamy-white, 3-inch wide flowers with yellow centers that bloom in May and June. They are clustered near the ends of the branches. The flowers are night bloomers, opening into the cool night air and close about noon the following day.

The cactus produces a three-inch oval, green fruit that ripens just before the fall rainy season. The cactus fruit becomes food for many desert animals. Besides the fleshy pulp devoured by animals, the fruit contains as many as 4,000 seeds to be dispersed and grow into new Saguaro cactus. The Saguaro grows very slowly, perhaps an inch a year. They may live more than 200 years and reach heights of 15 to 50 feet. The average old Saguaro has five arms and is about 30 feet tall.



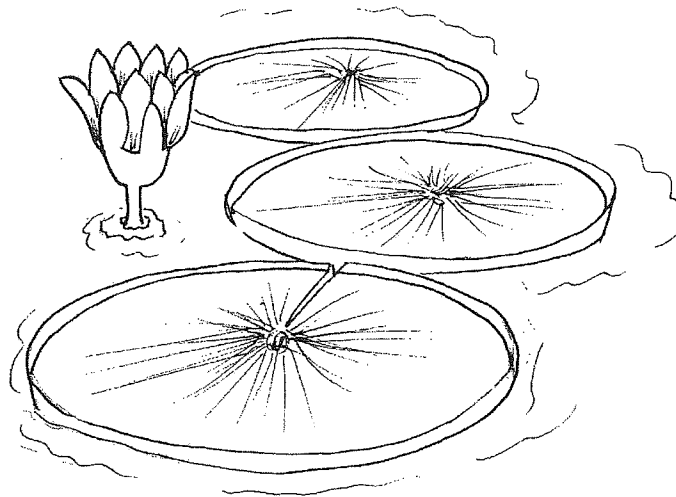
### The Giant Amazon Water Lily

The Giant Amazon Water Lily is also known as the Victoria Water Lily. It grows in the tropical climate of Brazil and the Amazon. The leaves of the Giant Amazon Water Lily can grow up to 8 feet in diameter and can hold up to 300 pounds. The plant has sharp spines on the stems and underside the leaves. While the topsides of the leaves are green, the undersides of the leaves are a deep maroon or coppery red color. The edges of the leaves turn up to form a rim. The Guarani Indians call the lily "Yrupe," which means platter. The leaves resemble a giant serving platter!

The growth rate of the Giant Amazon Water Lily is determined by the water levels of the River Amazon. The plant grows year round and its stems and roots can reach 6 feet or more below the surface of the water.

The fragrant, sweet-smelling blossoms of the Giant Amazon Water Lily open at night. The blossoms measure 9 to 12 inches in diameter. The first day they appear as a creamy white color, then the second day they are a pink color, and on the third day they turn a purplish-red before dying. The flowers are similar in appearance and structure to the typical water lily flower.

The flowers produce a seedpod that is about the size of a baby's head. The seedpods sink to the bottom of the pond and germinate in the muddy bottom. The plant also produces nutritious seeds about the size of a pea that are ground into delicious flour for baking and cooking by the people of the region.





Name: \_\_\_\_\_

Date: \_\_\_\_\_

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1. Write the question you are investigating.

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2. Write what you think will happen.

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3. List the materials you used.

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Name: \_\_\_\_\_

Date: \_\_\_\_\_

# 11

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4. Draw a picture of your plant investigation and write the steps you followed.

A large, empty rectangular box with a thin black border, intended for a student to draw a picture of their plant investigation and write the steps they followed.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

A C T I V I T Y  
What About Plants? (cont.)



11

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5. Make a table to record your observations and results.

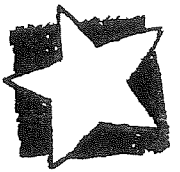




Name: \_\_\_\_\_

Date: \_\_\_\_\_

A C T I V I T Y  
Human Systems - Advertise the System!



12

1. Record the number of beats you felt in your pulse over 30 seconds.

Sitting at desk:


After running in place:


2. Write what conclusion you can draw after taking your pulse while sitting and after running in place.

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Name: \_\_\_\_\_

Date: \_\_\_\_\_

# 12

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## Advertise the System

Name of system: \_\_\_\_\_

Team members:

\_\_\_\_\_  
\_\_\_\_\_

What we think about _____ (name of system)	How can we find out?	What do we conclude?



Name: \_\_\_\_\_

Date: \_\_\_\_\_

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Read the article about swimmer Susie Maroney and respond to the questions that follow:

Australian swimmer Susie Maroney knows how to keep her body systems in great shape. In her sport, it is important to have a strong heart, strong lungs, and strong muscles.

When Susie was very young she was diagnosed with asthma, a disease that can make it difficult to breathe at times. To strengthen her lungs, her parents enrolled her in swim lessons at the age of three.

In 1997, at the age of twenty-four, Susie was the first person to swim from Cuba to Florida. Fifty people attempted the swim in previous years, and failed. Susie swam 107 miles in 24.5 hours. She swam in a shark cage, pulled by a boat to protect her from shark attacks. Every hour Susie tread water; she drank sports drinks and ate bananas and yogurt to keep the nutrients in her body.

Susie Maroney builds strength and stamina by swimming six hours a day, six days a week. Susie's muscles, including her heart, have gained strength to work hard over a long period of time. Her strong heart can pump more blood to her muscles, lungs, and all parts of the body. As the blood circulates, it carries oxygen and nutrients throughout the body. To keep going, her muscles need a continuous supply of oxygen and nutrients from the blood. If her muscles do not receive a sufficient balance of oxygen and nutrients, she may experience muscle fatigue and cramping.

Susie follows a healthy diet and gets plenty of rest at night to stay in top swimming shape.

- 1. Name two important human systems that had to keep working and remain strong during Susie Maroney's super swim.

\_\_\_\_\_  
\_\_\_\_\_

- 2. Explain why it is important for Susie Maroney and other athletes to build strength and stamina.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Name: \_\_\_\_\_

Date: \_\_\_\_\_

# 12

3. What did Susie's muscles, heart, and lungs need to keep her going for the long swim? Explain what they needed and how they got it.

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4. Do you think Susie could make the long swim if she drank pop and ate potato chips and candy bars? Explain why or why not.

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5. Why do some athletes eat a large amount of carbohydrates (carbo-load) before strenuous athletic events?

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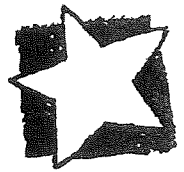
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**acquired traits** - Acquired traits are behavioral traits that are learned through instruction, observation, or trial and error, or physical traits that are acquired through environmental factors.

**adaptation** - Adaptation is any physical or behavioral change in a species of organisms that helps it to survive in its habitat.

**anatomical features** - Anatomical features are the physical structures that make up an organism.

**ancient life forms** – Ancient life forms are very old. They existed many thousands and millions of years ago.

**behavioral adaptation** - A behavioral adaptation is an instinct that helps the organism to survive.

**behavioral characteristics** - Behavioral characteristics are the behaviors or movements the animal displays that are related to how the animal responds to its environment (movement, actions, interactions).

**blood** - Blood is the red liquid that flows through the circulatory system.

**bones** - Bones are the hard material that forms the skeleton.

**castastrophic event** - A catastrophic event is a natural incidence or occurrence that causes destruction and change in the environment. Catastrophic events include volcanic eruptions, earthquakes, tsunamis, and severe weather events, such as hurricanes, tornadoes, and floods.

**circulatory system** - The circulatory system controls the movement of blood to and from all parts of the body. It contains the heart, the blood, and the vessels.

**classification** - Classification is the process of grouping things based on their similarities.



## Key Terms (cont.)

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**climate change** - Climate change is a long-term change in daily weather conditions, such as temperature, precipitation, and wind patterns. Climate change must experience the change in conditions for at least decades to millions of years.

**cold-blooded** - Being cold-blooded is having a body temperature that changes with the temperature of the surrounding air or water.

**digestive system** - The digestive system breaks down food into nutrients for the body.

**endangered species** - An endangered species is any organism that is in danger of becoming extinct.

**environment** - An animal's environment is its total surroundings; all the living and non-living elements or conditions that affect an animal's life, including other animals, plants, climate, water, light, and air.

**environmental factors** - Environmental factors are conditions or elements that influence the growth and development of organisms. Environmental factors include living and non-living elements, weather, water, light, air, and pollutants.

**excretory system** - The excretory system removes waste from body fluids and maintains a balance of health body fluids.

**external cues** - External cues are signals received by an organism through the environment, such as temperature changes and light changes.

**extinct** - Extinct plants or animals once lived on the Earth but have all died.

**flowering plants** - Flowering plants are plants that produce a flower.

**fossils** - Fossils are the remains or traces of ancient living things.



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**genetic relatedness** - Genetic relatedness is the closeness or distance between the heredity or inherited traits of individual organisms.

**growth** - Growth is the process of expanding or becoming larger.

**habit** - A habit is a behavior learned through repetition.

**habitat** - A habitat is the arrangement of food, water, shelter, and space necessary to the animal's survival.

**habitat destruction** - Habitat destruction is a process that results in the devastation of a natural habitat causing the displacement or death of plants and animals in the region. The habitat is changed or destroyed so it can no longer support the organisms in their growth and survival.

**heart** - The heart is a large involuntary muscle that pumps the blood through the circulatory system.

**heredity** - Heredity is the passing on of characteristics from parent to young.

**inherited traits** - Inherited traits are physical traits that are passed from parents to young.

**instinctive behavior** - Instinctive behavior is something that an animal does without prior instruction or automatically from birth.

**internal cues** – Internal cues are signals received by an organism through senses, such as hunger, thirst, and pain.

**invertebrates** - Invertebrates are animals without a backbone.

**learned behavior** - Learned behavior is something that an animal does with prior instruction and cannot accomplish without instruction.





## Key Terms (cont.)

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**modern life forms** – Modern life forms are plants and animals that exist right now or have existed within modern history.

**multicellular organism** - A multicellular organism is a plant or animal that has more than one cell.

**muscles** - Muscles are animal body tissue that can contract and produce movement.

**muscular system** - The muscular system is made up of all the muscles in the body and works with the skeletal system to provide movement.

**natural selection** - Natural selection is a process by which characteristics that make an organism more suited to its environment become more common in a species.

**needs to survive** - Needs to survive are the different things that organisms need to have in order to live. Air, water, food, and shelter are needs to survive for living things.

**nervous system** - The nervous system carries information from the brain to the body and from parts of the body back to the brain. The nervous system controls the actions of the body.

**nocturnal** - Nocturnal is a characteristic of organisms that are active at night.

**nutrients** - Nutrients are the parts of food used by the body for life.

**physical adaptation** – A physical adaptation is a structure or body part that helps the organism to survive.

**physical characteristics (traits)** – Physical traits or characteristics are the physical appearances and body structures that are related to how the animal meets its needs in its environment (size, color, shape, body coverings and structures).



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**repair** - To repair is to put something back in good condition.

**reproductive system** - The reproductive system is made up of the reproductive organs. Reproduction is the process of producing offspring for the survival of the species and passing on hereditary traits from one generation to the next.

**respiratory system** - The respiratory system brings oxygen to the body and takes carbon dioxide away from the body.

**single cell organism** - A single cell organism is a plant or animal that is made of only one cell.

**skeletal system** - The skeletal system is the human framework made up of bones and joints.

**survival** - Survival is the ability to continue to live, or continue to exist.

**transport** - To transport is to carry from one part of the body to another.

**vertebrates** - Vertebrates are animals with a backbone.

**warm-blooded** - Being warm-blooded is keeping about the same body temperature even when the outside temperature changes.



## Classification Glossary

### Animal Classification Glossary

Group	Description and Examples
Amphibians	Amphibians are egg-laying vertebrates typically living on land but breeding in water; aquatic larvae undergo metamorphosis into adult form. Amphibians are cold-blooded vertebrates. Examples of amphibians are frogs, toads, salamanders, and newts.
Annelids	Annelids are invertebrate worms with cylindrical bodies segmented both internally and externally. Annelids are cold-blooded. Examples of annelids are earthworms, ragworms, lugworms, and leeches.
Arthropods	Arthropods are invertebrate animals having jointed limbs and a segmented body with an exoskeleton made of chitin. Arthropods are cold-blooded. Examples of arthropods are insects, spiders, lobsters, and shrimp.
Birds	Birds are egg-laying vertebrates having the skin more or less covered with feathers. They typically have wings instead of front legs. Birds are warm-blooded animals. Examples of different birds are robins, eagles, ducks, emus, and ostriches.
Echinoderms	Echinoderms are invertebrates that live in the ocean. They have tube feet and symmetrical bodies. Examples of echinoderms are sea stars, sea urchins, and sand dollars.
Fish	Fish are egg-laying vertebrates. Fish usually have fins and are covered in scales or plates. They are cold-blooded animals. Fish breathe by means of gills and live entirely in the water. Examples of fish are trout, tuna, salmon, bass, sharks, gold fish, guppies, and marlins.
Mammals	Mammals are vertebrates that have skin that is mostly covered in hair. Mammals are warm-blooded animals. The young of mammals are born alive and are nourished with milk. Examples of mammals are bears, lions, humans, whales, deer, and mice.
Mollusks	Mollusks are invertebrate animals that have a soft unsegmented body usually enclosed in an external shell. Some mollusks have an internal shell. Mollusks are cold-blooded animals. Examples of mollusks with external shells are snails, clams, and oysters. Examples of mollusks with internal shells are squid and octopus.
Reptiles	Reptiles are egg-laying vertebrates that have the skin mostly covered in scales. They are cold-blooded animals. Examples of reptiles are snakes, lizards, and turtles.



Plant Classification Glossary

Description and Examples	Group
<p>Conifers are also called gymnosperms. They are woody trees or shrubs that reproduce from seeds. The seeds are usually produced in a cone-like structure such as a pinecone. Some conifers, such as the Yew and Ginkgo, produce their seeds inside a berry-like structure. Conifers absorb water from the soil through their roots, trunks, and branches. Conifers make and store their own food. Examples of conifers are cedars, firs, pines, redwoods, spruces, and yews.</p>	Conifers
<p>Ferns are leafy plants that reproduce from spores rather than seeds. The new leaves often expand by the unrolling of a tight spiral. Ferns are found in a variety of habitats. Ferns absorb water from the soil through their roots and transport it through stems to its leaves. Ferns make and store their own food. Examples of ferns include fiddlehead ferns, ostrich ferns, birds nest ferns, mosquito ferns, and cinnamon ferns.</p>	Ferns
<p>Flowering plants are also known as angiosperms. They grow flowers and produce seeds inside or around the fruit of the plant. Flowering plants absorb water from the soil through their roots and transport it through stems to its leaves. Flowering plants make and store their own food. The majority of plants are flowering plants. They include most trees, shrubs, and vines. Most fruits, vegetables, legumes, wheat, oats, and corn come from flowering plants. Examples of flowering plants include grasses, maple trees, oak trees, lilies, palms, carrot plants, tomato plants, and cherry trees.</p>	Flowering Plants
<p>Mosses do not absorb water through their roots and rely on surrounding moisture for water. They are small plants that produce spores for reproduction. Mosses grow in clumps or mats and have simple leaves with wiry stems. They do not produce flowers. They can be found growing on the ground, on rocks, and on other plants. Examples of mosses are deer moss, red moss, and peat moss.</p>	Mosses