Lesson 1: Adaptations For Survival

Animal Adaptations & Behavior

Name: _____

Date: _____

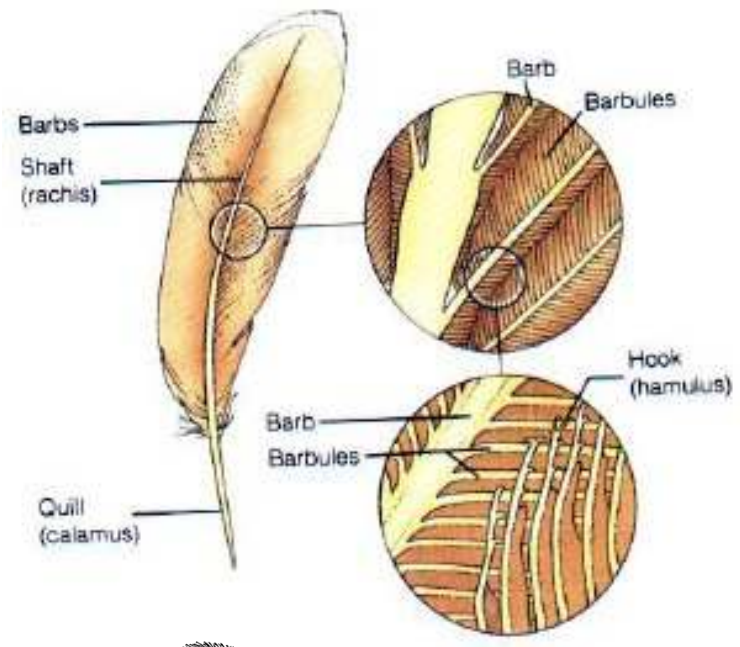
Adaptations for Survival
Lesson 1 Vocabulary

⇒ **Adaptation:** anything that helps an animal live in its environment
- can include body coverings and body parts

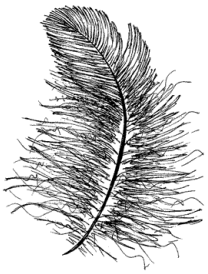
⇒ **Skin:** the outer covering of an animal's body
- forms an outer covering for protection of body organs
- Keeps the bodies of some animals at the correct temperature
- Sensitive to outside temperature change and pain
- Can hold water or release it depending on an animal's needs (amphibians)

⇒ **Scales:** small, thin plates that are part of the skin covering (some fish and reptiles)
- can be smooth, rough, or pointed
- added protection for the skin

⇒ **Feathers:** strong, lightweight outer body covering of birds
- parts of the feather lock together (hooklets) so hardly any air can pass through
- covered with a layer of body oil (oil waterproofs birds' feathers, keep a bird's skin dry, keep its body temperature correct, and help the animal float)



⇒ **Down:** soft, fluffy feathers on baby birds
- in older birds, down feathers are found close to the skin
- keep the bird's body at the correct temperature



down feather

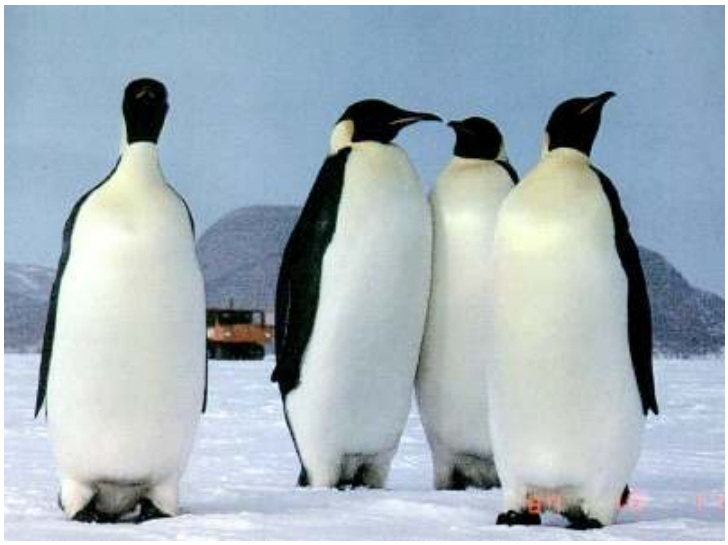
hooklet

⇒ **Fur:** covering of thick, soft hair
- thick fur traps air close to the animals body
- the air is warmed by the animals body, keeps the animal's body at the correct temperature

BODY PARTS FOR PROTECTION
Feet, Wings, & Mouthparts

⇒ **Feet & Wings**
- Find food to live in its environment (moves from place to place)
- **Examples:**
  - Badger: crawl around searching for food, have sharp teeth and claws for digging and tearing
  - Birds: fly in the air and some dive and swim in water
  - Eagle: large broad wings for soaring
  - Quail: stubby wings for quick, rapid flight
  - Penguin: flipper like wings for swimming
  - Sea lion: swallow food whole, flippers for swimming to catch food
  - Cat: padded feet for quietness, retractable claws for catching and tearing food
- Adapted for protection

badger



penguins

⇒ **Mouth Parts**

- Show adaptations for survival
- **Bill:** mouthpart of a bird
- **Examples:**
  - Woodpecker: strong, pointed bills, look like chisels, chisel into bark to find food
  - Finch: hard pointed bill like nutcrackers, eat seeds
  - Heron: long, spear-like bill to spear its food
  - Pelican: long, scoop-like bill to scoop its food
- **Teeth:** mouthpart that are used to tear, crush, and grind food
- **Examples:**
  - Cats, wolves, and dogs have pointed teeth to tear and crush meat they eat.
  - Giraffes, horses, and sheep have flat teeth to grind plants
  - Beaver has front teeth that keep growing longer, don't get longer because they gnaw and eat the inner bark of trees
  - A snake has curved teeth toward the back of its mouth, hold the food in the snake's mouth until the food is swallowed, snake can't chew its food, it stretches its jaw very wide to swallow its food whole

Woodpecker

Finch

Pelican

Heron

SUMMARY

- An animal must be able to protect itself and find food in order to live in its environment.
- Anything that helps and animal live in its environment is called an adaptation.
- Adaptations include body coverings and body parts.

What Adaptations Can You Observe? Activity

Materials:

construction paper	animal picture
index card	pencil
scissors	glue

What to do:

1. Cut out and paste your animal picture to your piece of construction paper.
2. On your index card write the following headings:
   - *Name Of Animal (top line)
   - *Environment (skip two lines)
   - *Adaptations: (skip one line)
3. Fill in the information on the index card
4. Glue the completed index card under the picture of your animal

What did you learn?

1. How does its body covering adapt the animal to its environment?

   _____
   _____
   _____

2. What body parts does your animal use for food getting? _____

   _____
   _____

What did you learn?

1. What body parts are used for both food getting and protection?

   _____
   _____
   _____

2. Explain how your animal could survive in another environment.

   _____
   _____
   _____

Feathers

Feathers cover the bodies of birds, which are the only animals with this kind of covering. Other vertebrates (animals with backbones) are covered with fur (mammals), scales (reptiles, fish) or smooth bare skin amphibians). Many invertebrates, such as mollusks, or crustaceans, have hard coverings like shells (snails, clams, oysters) or exoskeletons (lobsters, crabs, and insects).

Some scientists believe that feathers evolved from scales-such as those covering retiles. In fact, the feet of all birds and the legs of some are covered with scales instead of feathers.

Feathers protect birds by keeping their bodies warm. The feathers hold in body heat, insulating a bird's body against cold, outside air. In very cold weather, birds fluff their feathers to trap even more body warmth in the air space between feathers. Feathers also shed water, acting like "raincoats" for birds.

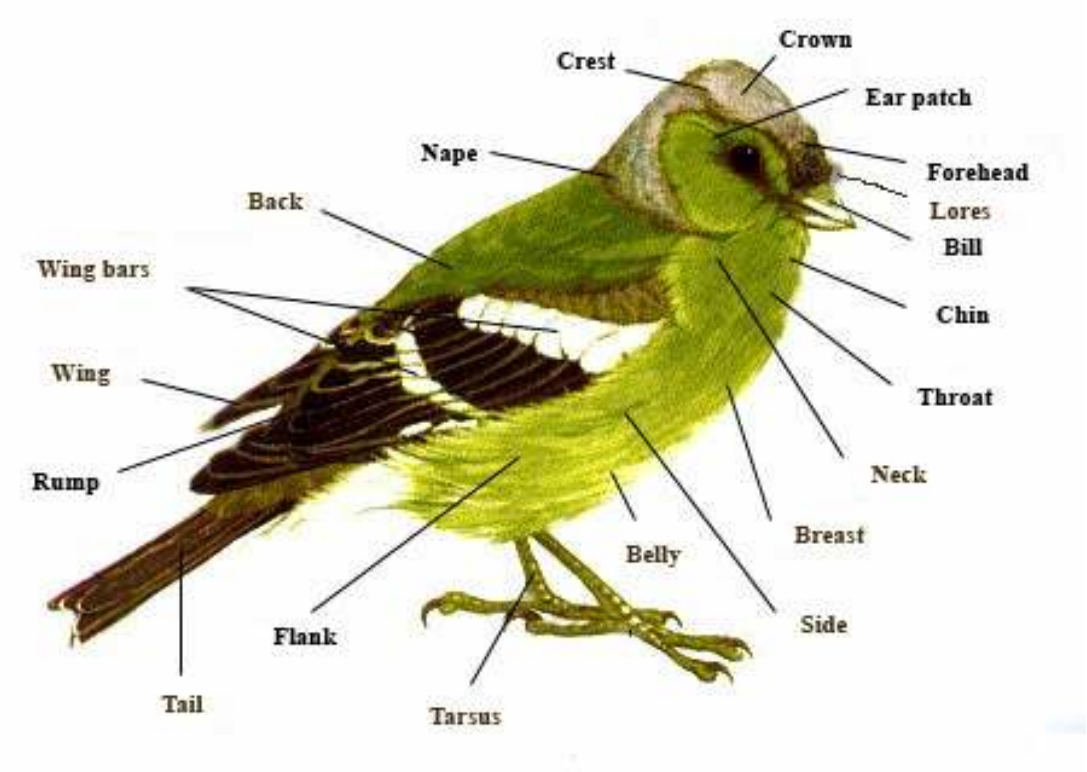
Colors and patterns of feathers provide protection from enemies through camouflage or warning coloration. These colors are used in the mating process, also.

Feathers greatly assist in fight, an adaptation, which allow birds to escape predators, protect their young by nesting high above the ground, or migrate to a different habitat to escape cold weather, breed or search for food.

Feathers consist of several parts. The main part of a feather is called the van, which is divided into two different parts that spread out from a hollow shaft running down the center of the feather.

Wings and Flight

Flight enables birds to move quickly from place to place. Many parts of a bird's body are adapted for flight, allowing it to resist the pull of gravity and move easily through the air. Its bones are hollow to reduce body weight. Its feathers are extremely light. It has no teeth inside its mouth to add extra weight. Its body has a streamlined shape to provide the least amount of wind resistance during flight. It has no outer ear to interfere with air currents. A bird's opened wings have an airfoil shape (curved upper surface, flat underneath) that keeps the bird aloft its boy has 175 different muscles, mainly in its chest, used to move its wings through the air. While all birds have wings, not are all capable of flight. An ostrich is too heavy to fly and relies on running instead. The penguin has small wings shaped like paddles and are used for swimming.



Feather Features Experiment

Materials:

feather	water
magnifying glass	strip of paper
eyedropper	paper towel

Question: What special features do feathers have to help a bird live in its environment? (land, air, water)

Hypothesis: I think that _____

_____

_____

_____

Procedure:

1. Examine a feather with a magnifying glass. Find the barbs, hooklets, and shaft. Rub them forwards and backwards. See how the parts lock together.

Observation_____

_____

_____

2. Blow on the strip of paper.

Observation_____

_____

3. With a partner, blow on the feather, holding the strip of paper behind the feather.

Observation_____

_____

_____

4. Fill the eyedropper with water. With a partner, drop one drop of water on the feather at a time, while holding it straight up and then tilting it.

Observation:_____

_____

_____

Conclusion

_____

_____

_____

_____

_____

Bills on Birds

Name: _____ Date: _____

Materials: FOR EACH PAIR OF STUDENTS:

2 clothespins, 2 flat pieces of wood about 4 inches long, 2 flat pieces of wood about 1 inch long, glue, drinking straw

Hypothesis: How does the size or shape of a bird's bill relate to the food it eats?

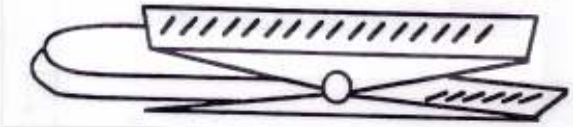
_____

_____

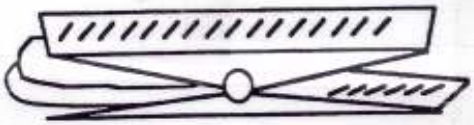
_____

Procedure:

1. Glue 2 long pieces of wood to one clothespin so that the clothespin "bill" can pick up the straw. Let it dry before using.



2. Glue 2 short pieces of wood to the other clothespin so that the "bill" can pick up the straw. Let it dry before using.



3. Try out the bills. Which one of the bills, the long bill or the short bill, crushes the straw? Explain your observation.

_____

_____

_____

_____

4. Gently try the bills on your finger. Which bill, the long bill or the short bill, presses harder on your finger? Explain your observation.

_____

_____

_____

_____

Conclusions:

1. Which bill would a seed eating bird most likely have? (Remember that seeds must be crushed) Explain.

2. Which bill would a berry eating bird most likely have? Explain.

3. Tell other information that you learned about bills from this experiment.

Bills & Feet Facts

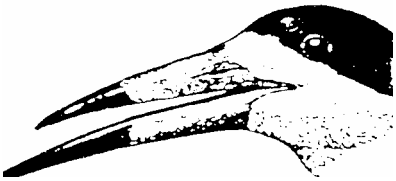
Bills: Are adapted to the ways in which birds get their food.

1. **<u>Spear Bills</u> are sharp and long.**

2. **<u>Predator Bills</u> are curved, heavy, and powerful.**

3. **<u>Chisel Bills</u> are pointed for cutting and drilling holes.**
   ex) woodpeckers

4. **<u>Scoop Bills</u> allow a bird to use the bottom half to scoop food out of the water.** ex) skimmers

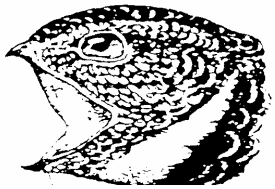


5. **<u>Strainer Bills</u> enable a bird to hold food while water is strained from it.**

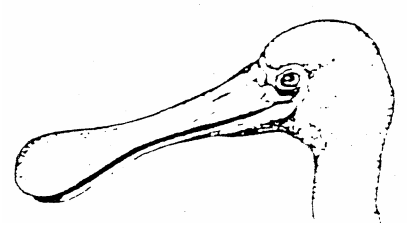
6. **<u>Cracker Bills</u> help birds break the hard shells of seeds.**
   ex) Grosbeaks

7. **<u>Prober Bills</u> helps birds probe the bark of trees for insects.**
   ex) Brown creepers

8. **<u>Trap Bill</u> opens wide & allows the bird to trap insects in midair.**
   ex) nighthawk



9. **<u>Detector Bill</u> use to sweep back and forth through the water to find food.**
   ex) spoonbill



Bills & Feet Facts

Feet: **Are adapted to help birds get their food and to allow them to move around when not in flight.**

1. **Swimmers-are webbed feet to help them paddle through the water in search of food.**

2. **Waders-help them search for food on the bottom of a marsh or bay while supporting them and giving them balance. Waders have long legs.**

3. **Climbers-have their toes facing in both directions. Their toes are like sharp claws which help them then climb trees looking for food.**

4. **Predators-curved, with sharp talons that allow them to catch and carry their food.**

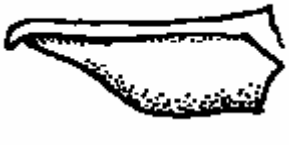
5. **Perchers-enable the bird to grasp a limb or branch. Each feet usually consist of three toes pointing forward and one pointing backward. The backward toe is as long as the front middle toe.**

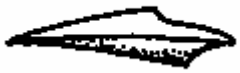
6. **Ground birds & Runners-their feet help them move through the undergrowth of the forest. Three toes point forward and the fourth toe is smaller and points backward.**

Bills & Feet Facts Activity

Directions: Refer back to the "Bills and Feet Fact" page you just read. Use this information to help you answer the questions below.

1. Name the type of beak pictured below.





_____ _____ _____

2. Which bill are best for spearing and chiseling? Explain _____

_____

_____

_____

3. Which bill is best for straining? Explain. _____

_____

_____

_____

4. Which bill is best adapted for tearing meat? Explain _____

_____

_____

_____

5. How can a bird's bill or beak tell us about what it eats? _____

_____

_____

_____

Bills & Feet Facts Activity Cont.

1. Name the type of feet pictured below.

_____ _____ _____

2. Which feet are best suited for swimming? Explain._____
_____
_____
_____

3. Why do wading birds have long legs? Explain._____
_____
_____
_____

4. Which feet are best suited to moving on the ground? Explain._____
_____
_____
_____

5. How can a bird's feet tell us about what the bird eats?_____
_____
_____
_____

How is the polar bear adapted to the environment?

Directions: Observe the drawing above and use your knowledge of science to answer the questions below.

1. Describe the polar bear's environment.

_____
_____
_____

2. Name two things the polar bear must be able to do to survive in its environment.

_____
_____
_____

3. How is the polar bear adapted to survive in its environment?

_____
_____
_____

Animals Adapt to the Seasons

When it gets cold, how do animals live? Look at the pictures below and read the statements about each animal. Write the correct animals name in the space provided in each statement.

Leopard Frog

Gray Squirrel

1. A snowy tree _____ lays its eggs before cold weather comes. It dies in freezing weather, but the eggs live.

2. The leopard _____ sins into the mud at the bottom of a pond. Here it spends the winter without moving.

3. The artic _____ fly 11,000 miles south in the winter. (many birds migrate to find food in the winter.)

4. The gray _____ is active all winter. It eats food it stored away during the fall.

Artic terns

Snowy Tree Cricket

Animal Adaption Review

Directions: **Name an animal for each example below. Name one adaptation of body covering or body part that helps the animal to survive in its environment.**

	Animal	Adaptation
1. Lives in the water.	_____	_____
2. Lives in a cold, icy climate.	_____	_____
3. Builds its nest in a tree.	_____	_____
4. Eats water plants and animals.	_____	_____
5. Feeds on grasses.	_____	_____

Animal	Body Covering	Body Part for getting food
		
		
		
		

Adaptations for Survival
Lesson 1 Questions

1. How do adaptations help an animal survive?

_____

_____

_____

2. What is skin?

_____

_____

_____

3. Name three added layers of body covering that come from skin tissue.

_____

_____

_____

4. Choose two birds. Explain how their bills are used to eat certain foods.

_____

_____

_____

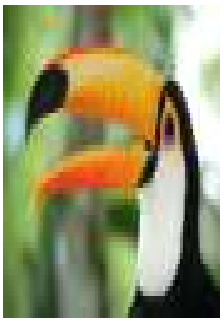
5. Think of one animal you know. What are its adaptations for food getting and protection?

_____

_____

_____

Adaptions For Survival Study Guide



<u>Adaptation-</u>is anything that helps an animal survive in its environment.

<u>Outer body coverings-</u>help an animal survive by:

1. **protecting its internal organs**
2. **helps regulate body covering**
3. **sensitive to temperature changes and pain**

Fish have <u>scales</u> for outer body coverings

Birds have <u>feathers</u> for outer body coverings

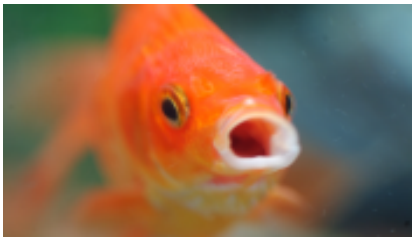
Bears have <u>fur</u> for outer body coverings

<u>Body parts used for protection:</u>

1. **Cats have <u>claws</u> for protection.**
2. **Wolves use their <u>teeth</u> for protection**
3. **Fish use their <u>scales</u> for protection**

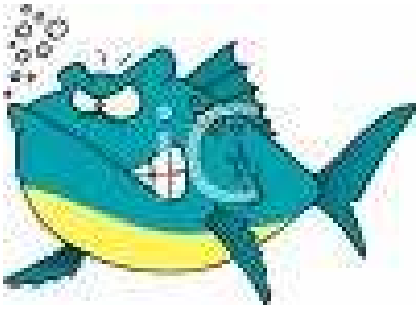
<u>Body parts use for food getting:</u>

1. **A bird uses its <u>bill</u> for getting food**
2. **A snake uses its <u>curved teeth</u> for food getting**
3. **A bear uses its <u>claws</u> for getting food**
4. **A fish uses its <u>mouth</u> for getting food**



Lesson 2: Special Adaptations

Animal Adaptations & Behavior



Name: _____

Date: _____

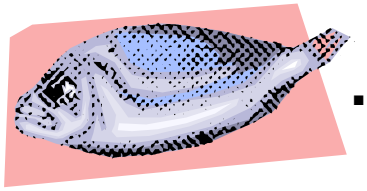
Lesson 2: Special Adaptations
Vocabulary

Camouflage: an adaptation for protection by being able to blend into the environment
- an animal is hidden from predators
- an animal is hidden from prey

⇒ **Protective Coloration:** a camouflage adaptation where animals are the same color as their surroundings
- Examples:
  - *Snowshoe hare*
  - *Ptarmigan:* in winter the bird becomes completely white except for some black on the tail

(ptarmigan)

⇒ **Counter Shading:** a camouflage adaptation in which the top side of an animal is a different color from the bottom side
- Examples:
  - *Most Fish:* when seen from above, the fish blend with the bottom of the lake, river or ocean, the bottom side is silver white, when seen from below, the fish blends with the water's surface and the sky
  - *Some Birds:* the underside is lighter than the top side



⇒ **Protective Resemblance:** a camouflage adaptation when animal looks almost identical to something in its surroundings
- Examples:
  - *Walking stick & Praying mantis*: looks like a twig on trees or shrubs
  - *Leaf butterfly*

⇒ **Mimicry:** kind of protective resemblance where one animal looks like some other animal
- a harmless animal will look like a more dangerous animal that has adaptations for protecting itself, predators are kept away
- Examples:
  - *Robber fly and Bumblebee:* Bumblebee has a painful sting for protection, robber fly does not
  - *King snake and Coral snake:* Coral snake has poisonous bite for protection, it has black bands surrounded by yellow, King snake has yellow bands surrounded by black
  - *Monarch and Viceroy butterflies:* Viceroys taste sweet, Monarchs have a bitter taste and predators spit them out, predators stay away from both because they look the same (mimicry)

- A predator might stay away from robber fly or king snake because they may mistake them for the dangerous animal because of the similar coloration

⇒ **Warning Coloration:** animals that stand out in their surroundings, have brightly covered body coverings
- bright colors warn predators to stay away
- Examples:
  - Monarch butterfly: has a very bad taste when eaten, has warning coloration
  - Bees and wasps

SUMMARY

- Animals that are the same color as their environment have *protective coloration*.
- *Counter shading* is an adaptation in which the top and bottom sides of an animal are two different colors.
- With *protective resemblance* an animal is almost identical to something in its environment.
- *Mimicry* is a kind of protective resemblance.
- Some animals that stand out in their environment have *warning coloration*.

QUESTIONS

1) What is camouflage?

_____

_____

2) How does a ptarmigan show protective coloration?

_____

_____

3) Name an animal with counter shading. _____

4) What adaptation for protection does a walking stick have?

_____

_____

5) Why is mimicry a helpful adaptation?

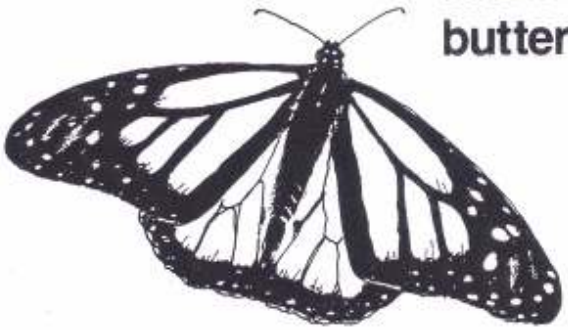
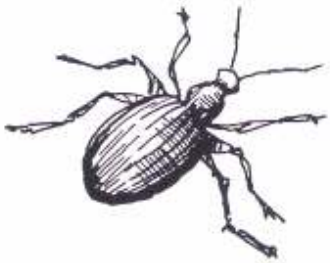
_____

_____

6) Why might a predator stay away from an animal with warning coloration?

_____

MIMICRY

Models	Mimics
Monarch butterfly 	Viceroy butterfly 
Bombardier beetle 	Gryllacris beetle 
Bumblebee 	Robber fly 
Honeybee 	Bee fly 
Hornet 	Hornet moth 

Insect Defenses

A **New Guinea weevil** has six legs, but it looks like a spider.

A **stick insect** blends in with leaves and twigs.

A **wasp** uses its stinger to defend itself

The wings of some **moths** blend it with the lichen on trees.

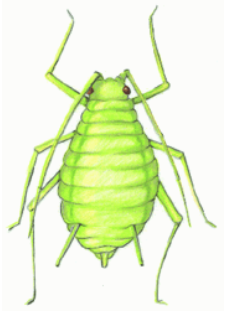
Some **hoverflies** look like wasps, which can sting.

The spots on the wings of an **owl butterfly** look like an owl's eyes.

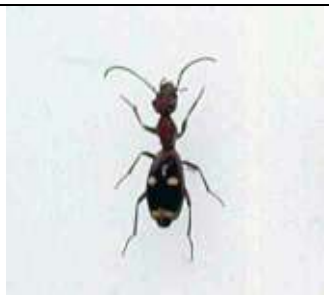
A **hawkmoth** caterpillar can make itself look like a poisonous snake.

Some **click beetles** blend in with the lichen on tree bark.

The **stinkbug** has pink spots. The spots warn enemies that it does not taste good.



An **aphid** uses its hind legs to kick away enemies.



The **African ground beetle** looks like a type of ant that stings.

A **bee hawkmoth** looks like a bee, but it can't sting.

Animals Defend Themselves

Animals must protect themselves from their enemies in order to survive. Six methods 0f defense are explained below the boxes. Match two animals to each method.

Python  **I wrap my body around my enemy.**	**Armadillo**  **I have bony plates covering my body.**	**Hognose Snake**  **I turn over on my back and stay still.**	**Treehopper**  **I look like a thorn on a rosebush.**
Honeybee  **My sting causes pain and swelling**	**Lobster**  **I crush enemies with my strong claws.**	**Antelope**  **My long legs help me run fast.**	**Ptarmigan**  **I turn snowy white in the winter.**
Bombardier Beetle  **I squirt a hot, irritating gas.**	**Porcupine Fish**  **I puff up my spine-covered body.**	**Opossum**  **I close my eyes and go limp.**	**Sparrow**  **I fly into thick bushes to hide.**

1. Escape
I move fast or hide where enemies can't reach me.

_____
_____

2. Weapons
My body or body parts are designed for fighting.

_____
_____

3. Armor
My special body covering protects me from enemies.

_____
_____

4. Playing Dead
I have the ability to make my enemies think I am dead.

_____
_____

5. Camouflage
My body helps me blend into the environment.

_____
_____

6. Mimicry
My body allows me to look like a dangerous animal.

_____
_____

Animal Protection

Animals have many ways of protecting themselves. Some animals have horns, claws, hooves, and sharp teeth. Others have protective coloring and are hard to see. Some have built-in armor. Many animals escaped by flying away, swimming fast, or running.

Look at each animal picture below. Write its name with the statement on how it defends itself.

Robin

Skunk

Porpoise

Turtle

Fox

Deer

Porcupine

Lobster

Rabbit

1. _____
shell, pinching claws

2. _____
wings for flying

3. _____
hard body covering

4. _____
smelly spray, sharp teeth and claws

5._____
good sense of hearing, swims fast

6. _____
protective coloring, hops fast

7. _____
protective coloring, sharp claws

8. _____
good sense of smell and hearing, sharp teeth, runs fast

9. _____
good sense of smell, and hearing, sharp hooves and horns, protective coloring

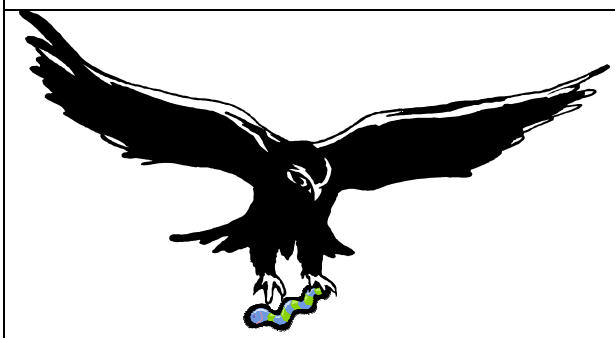
Survival and Change

Inferring, Finding Cause and Effect

A. For each of the animals shown below, name the trait or adaptation that helps it survive.

_____

_____



_____

_____

B. In a population of insects, there were two color variations: green and brown. One dry summer, all of the grass where the insects lived dried up and died. What do you think happened to the insects? Be sure to explain what happened to the green insects and the brown insects.

_____
_____
_____
_____
_____
_____

Animal Adaptation Review Worksheet

1. List at least 5 different kinds of bird's bills and the job they perform.

	Type of Bill	Job it Performs
A).	_____	_____
B).	_____	_____
C).	_____	_____
D).	_____	_____
E).	_____	_____

2. List at least 5 different kinds of bird's feet and the job they perform.

	Type of foot	Job it Performs
A).	_____	_____
B).	_____	_____
C).	_____	_____
D).	_____	_____
E).	_____	_____

3. What is mimicry? How does it benefit the animal? _____

_____

_____

_____

4. What is camouflage? How does it different form mimicry? _____

_____

_____

_____

5. What is migration? How does migration benefit the animal? _____

_____

_____

_____

Animal Adaptation Review Worksheet Cont.

6. Why is hibernation? Why does an animal hibernate? _____
_____
_____
_____

For questions 7-13: Circle the best answer

7. The top side of the animal is a different color from the bottom side.
a. protective coloration b. protective resemblance c. counter shading

8. An animal that has the same coloring as its surrounding has
a. protective coloration b. protective resemblance c. counter shading

9. An animal that looks almost identical to something in its surroundings has
a. protective coloration b. protective resemblance c. counter shading

10. Animals that stand out in their environment have
a. camouflage b. counter shading c. warning coloration

11. Mimicry is a kind of
a. protective coloration b. protective resemblance c. counter shading

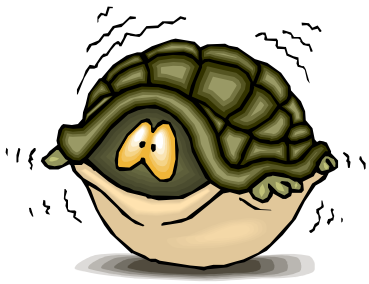
12. Protective coloration & protective resemblance are kinds of
a. camouflage b. counter shading c. warning coloration

13. Camouflage is an adaptation that helps an animal
a. get food b. protect itself c. both a & b

14. On the blank beside each animal, write the correct letter of the adaptation. (One letter is use twice)

Animal	**Adaptation**
_____walking stick	**a. protective coloration**
_____ ptarmigan	**b. warning coloration**
_____ coral & king snake	**c. mimicry**
_____ most fish	**d. protective resemblance**
_____ monarch butterfly	**e. counter shading**
_____ robber fly & bumblebee	

Special Adaptions Study Guide



<u>Camouflage-</u>is when an animal blends into his environment.

Camouflage helps an animal survive by hiding it from its predators. It also helps the animal hide from its prey.

<u>Protective coloration-</u>when an animal has the same color as their environment. An animal with protective coloration is a <u>ptarmigan.</u>

<u>Counter shading-</u>is when the top side of an animal is a different color from its bottom side. <u>Fish</u> have counter shading.

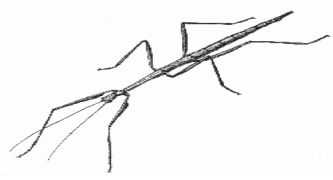
<u>Protective resemblance-</u> when an animal looks identical (alike) to something in its surroundings. A <u>walking stick</u> has protective resemblance. It look like a twig.

<u>Mimicry-</u>is when an animal looks like another animal. A harmless animal will look like a dangerous animal. <u>The robber fly and king snake</u> have mimicry they look like dangerous animals.

<u>Warning coloration-</u>is when an animal stands out in its environment. A <u>monarch butterfly</u> has warning coloration.

These adaptations help an animal survive:

- **<u>Protective coloration-</u>hides the animals from predators & prey**
- **<u>Protective resemblance-</u>hides the animal from predators & prey.**
- **<u>Warning coloration-</u>warns predators to stay away**



Animal Differences-Extra Credit Project

You learned that an adaptation is anything that helps an animal live in its environment. You have read and learned about several different types of adaptations. (camouflage, mimicry, protective coloration, etc). You learned that there are different adaptations among animals of the same kind. For example, all birds are not alike. Some have short bills while others have long bills. Their claws and wings may be different also.

Project Directions

A). Chose one kind of animal from the list below. Let's say you choose frogs, circle the name of your choice (frogs). Then look through magazines, and books for pictures of different kinds of frogs. Draw or cut out these pictures of frogs and paste them on a large sheet of construction paper. List at least ten differences you observe about the different types of frogs. List these differences on the Worksheet #1 that is attached.

B). Circle the name of your choice.

Frogs	**Birds**	**Spiders**	**Snakes**
Dogs	**Horses**	**Fish**	**Cats**

C). List three differences from your list on Worksheet #1. Explain how these differences help the animal survive in its environment. (Use of science vocabulary is required).

D). The project is worth a total of 20 points. Section A & B are worth 5 points and Section C is worth 10 points. (Your grade will be added to your quiz average).

E). Project due by _____, if want to earned the extra credit.

BE CREATIVE & HAVE FUN!!!!!!!!!

Lesson 3: Animal Behavior

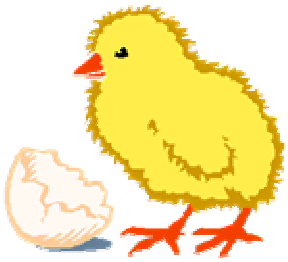
Animal Adaptations & Behavior Unit

Name: _____

Date: _____

Animal Behavior Vocabulary

Behavior
- everything a living thing does
- help an animal live in its environment



TWO TYPES OF BEHAVIOR

1) **Inborn Behavior**
   - behavior an animal is born with
   - not learned and is not taught
   - cannot be changed very easily
   - *Examples:*
     - *Baby chick hatching from its egg* (mother hen doesn't tell the chick when to break out of shell, no way for hen to teach her chick how to break the shell)
     - *Functions of the body* (breathing and digesting food)
     - *Human baby* (grasping of your finger when placed in the baby's open palm, crying, smelling, tasting, and response to temperature)
   - **Reflexes**
     - kind of inborn behavior, connected with some kind of action
     - *Examples:*
       - *Opening and Closing of the Iris of your eye:* When an animal moves from darkness into bright light, there is a change in the animal's eyes. In darkness, the colored parts, or irises, open wide to let in light. In bright light, the irises close so less light enters each eye.
   - **Instinct**
     - kind of inborn behavior, includes more than one action
     - *Examples:*
       - *Migration:* some birds migrate or fly south for the winter, response to several actions such as shorter days, colder temperatures, less food…
       - *Nest building, Web spinning*

   - **Social Behavior**
     - kind of inborn behavior
     - animals live together in an organized way
     - each member of group performs jobs that are helpful to the whole group
     - *Examples:*
       - *Ant colony*: queen lays eggs, other ants who feed and clean the queen, other ants take care of the eggs in a kind of nursery, some collect and store food, some dig tunnels and repair old ones, some are soldier ants (defend the nest from enemies)

       - *Bees:* queen bee lays eggs, males (drones) serve only to fertilize the eggs, female (workers) find food (worker bee des a dance at the entrance of the hive, signaling the other bees that food has been found in blossoming flowers nearby, circling motions tell the bees how far away the food is, straight line motions indicate the direction the bees should travel to find the food) **small crystals of magnetite have been found in the abdomens of bees (magnetite is a natural magnet)

2) **Learned Behavior**
   - behavior that is learned and can be changed
   - actions which result from experience or practice
   - intelligence is the ability to learn new behaviors
   - mammals have the highest intelligence of animals, people are the most intelligent, invertebrates have the lowest intelligence, although even insects can be trained to perform certain actions
   - *Examples:*
     - *Dog:* learns to sit up and bark when trainer says a command
     - *Humans:* play a piano, ride a bicycle, how to behave in the classroom, etc.

SUMMARY

- Behavior an animal is born with is called inborn behavior.
- Inborn behavior cannot be changed very easily.
- Reflexes and instincts are inborn behaviors.
- The behavior of animals living together in an organized way is social behavior.
- Learned behavior can be changed.

QUESTIONS

1) What is behavior?

_____

2) What is the difference between inborn and learned behavior?

_____

_____

3) Give two examples of a reflex. _____ _____

4) Give an example of an animal instinct. _____

5) Name three kinds of animals that have the adaptation of social behavior.

_____

_____

6) What type of behavior can be changed? _____

7) Give an example of learned behavior. _____

_____

Learning to Hunt

(1) Most meat-eating animals teach their young to hunt for food. Many baby animals learn by imitating their parents.

(2) Lion cubs follow their mother on hunts. They watch as she quietly tracks, or stalks, and pounces on her prey. During playtime, the cubs imitate her. They stalk leaves and jump on them.

(3) A mother tiger helps her cubs practice hunting skills by bringing a small live animal to the den. She lays it in front of them so that they can "capture" the animal and kill it.

(4) Wolves hunt in a group called a pack. During a hunt, the wolves let the pups join in chasing the prey. Only the adult wolves, though, make the kill.

(5) A mother otter teaches her pup to fish by first feeding it fish from her mouth. Later, she throws it a fish from a short distance away. The pup then swims and dives for it. The pup learns to fish on their own.

Directions: Write the answer to the question in a complete sentence. Then write the paragraph (1-5) that contains the answer.

1. How do wolves teach their young hunting skills? _____

_____

_____

_____**Paragraph** _____

2. How do many baby animals learn to hunt? _____

_____

_____

_____ **Paragraph**_____

3. Why does a mother tiger bring a live animal to the den? _____

_____

_____

_____ **Paragraph**_____

4. What do lion cubs stalk when playing? _____

_____

_____

_____**Paragraph**_____

5. What does an otter pup do when its mother throws it a fish? _____

_____

_____

_____

_____**Paragraph**_____

Directions: Read each main idea (A-E). Then underline the detail that doesn't support the main idea.

A. Kinds of Bees

1. **Bumblebees**
2. **Beetles**
3. **Honeybees**
4. **Carpenter bees**

B. What a bumblebee looks like

1. **A bumble bee is black and yellow.**
2. **A bumblebee is longer and broader that a honeybee.**
3. **A bumblebee is covered with fine, thick hair.**
4. **A bumblebee doesn't die when it stings.**

C. Carpenter bees

1. **Carpenter bees are fat and about an inch long**
2. **There are ten thousand kinds of bees.**
3. **Carpenter bees are black and shiny.**
4. **Carpenter bees dig holes in wood.**

D. How honeybees live

1. **Honeybees live in a hive with thousands of other honeybees.**
2. **Each honeybee in a hive has a job to do.**
3. **A honeybee has five eyes.**
4. **Honeybees build a honeycomb, in which to store their honey.**

E. How honeybees help us

a. **Bees fly about twelve miles per hour.**
b. **Honeybees give us honey.**
c. **Honeybees carry pollen from flower to flower. This helps seeds form.**
d. **Wax from honeycombs is used to make candles, lipstick, and chewing gum.**

Use the above main ideas and supporting details to write an essay about bees. (Hint: You should have a minimum of 6 paragraphs.). Make sure your essay is done on loose leaf paper, has a heading, has a title, and has correct spelling, punctuation, capitalization, grammar, and is done neatly and in cursive.

Animal Behavior

The behavior of an animal is the way in which the animal acts. There are two types of behavior.

Instinct is behavior that the animal knows from birth. It is behavior that the animal does automatically without thinking about it. For example, a bird building a nest, acts on instinct. No one had to teach the bird to build the nest.

Learned behavior is something that an animal learns to do. It is behavior that an animal would not do naturally. For example, a circus seal that balances a ball on its nose does so because someone taught the seal to do the trick. Balancing a ball on its nose is not part of the seal's natural behavior.

Directions: Write each phrase below under its correct heading.

- A bird feeding her young
- A bear hibernating in winter
- A horse performing in a horse show
- A skunk spraying because its in danger
- A dog catching a stick
- A dolphin jumping through a hoop

Instinct	Learned behavior
1._____	1._____
2._____	2._____
3._____	3._____

Writing: If you can teach an animal to do a trick, which animal would you choose and what trick would you teach it. Write a minimum of 3 paragraphs.

Animal Behavior Review

Directions: complete the outline by filling in the blanks with the correct information.

I. Behavior

A. Definition_____

B. Kinds of behavior

1. Inborn behavior:

a. Definition_____

_____

b. Types:

1. What is a reflex? _____

2. What is an instinct? _____

3. What is social behavior? _____

c. Examples:

1. Reflex_____

2. Instinct_____

3. Social behavior_____

2. Learned behavior:

a. Definition _____

_____

b. Examples:

1._____

2._____

II. Complete the chart below. Column one describes an action. Fill in column 2 with the correct type of behavior (instinct, social, reflex, or learned). In column three, write the definition of the type of behavior.

Action	Behavior	Definition
Riding a bicycle		
Birds migrating		
Worker bees in a colony		
Irises contracting to make pupils smaller		

Types of Animals Review

Animal Adaptations & Behavior

Animal Review Facts

Birds

- **Are the only animals with feathers**
- **Most birds can fly**
- **Have wings instead of front legs**
- **Feet an bill are especially designed for getting food**
- **Lay eggs**
- **Breathe through lungs**
- **Are warm blooded**
- **Young resemble parents**

Fish

- **Have slippery scales covering their bodies**
- **Live in water**
- **Equipped with gills for breathing**
- **Most fish lay eggs in water**
- **Are cold blooded**
- **Their temperature changes as the temperature of the environment changes**

Mammals

- **Have fur or hair on their bodies to help maintain a high uniform body temperature**
- **Are warm blooded**
- **Bear live young, care for their young and raise them**
- **Breathe with lugs**
- **Young mammals resemble parents**

Retiles

- **Have dry scales covering their bodies**
- **Some have plates (such as turtles)**
- **All classified as land mammals even though some species spend all their time in and around water**
- **Most lay eggs on land (eggs have leathery covering to prevent moisture evaporation)**
- **Rattlesnakes & garter snakes bear live young**
- **Cold blooded**
- **Do not care for their young**
- **Young resemble parents**
- **Inactive at low temperatures & hibernate during winter months**

Amphibians

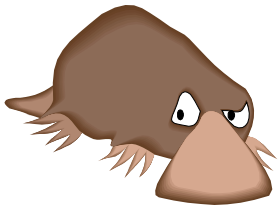
- **Have moist skin**
- **Live on land & water (amphibian means double life)**
- **Eggs are laid in water**
- **As babies, swim and breathe in water**
- **At a certain stage develop lungs & legs & leave the water**

Meet the Mammals

Not all animals are mammals. Mammals belong to the mostly highly developed group of animals called Mammalia. They are different from other animals.

- **Mammals are vertebrates. Have a backbone made up of individual bones called vertebrae.**
- **They are warm-blooded. Their body temperature is controlled by their body system not by the temperature of their surroundings.**
- **Mammals have hair or fur. Some, like whales, have only a few hairs on their body.**
- **They have well developed brains They learn through experience and can solve problems.**
- **They nurse their babies. Mother make milk in their bodies to feed their young.**
- **They give better and longer care to their babies than other animals do.**

Directions: Read about each animal and write if the animal is a mammal or not a mammal based on the information you read.



A platypus's young hatch from eggs. She nurses and cares for them for several months.

_____

A fish is covered with scales. The fish's temperature is 65 degrees F, the same as the water.

_____

The sea turtle lays her eggs in sand. Then, it returns to ocean and never comes back.

_____

A sheep has a backbone
Its body is covered with wool

_____

Kolo learned to use sign language to communicate with humans.

_____

A cat's normal.
temperature is 102 F
The air around it is 85 F.

_____

Mammal Meals

Directions: Read the story below. Find the definition of each word listed below in the story. Write the definition next to the word.

Food supplies mammals with the energy to carry out their activities and stay alive. The types of food mammals eat vary.

Most mammals (including elephants, giraffes, beavers, deer, and horses) are herbivores, or plant eaters. Lions, wolves, and similar mammals are carnivores, or meat eaters. Humans, bears, and raccoons are omnivores. They eat both plants and meat. A small group of mammals (including aardvarks and anteaters) are insectivores, or insect eaters.

At times when food is scarce, mammals migrate, or travel to find food. Gray whales leave their home in Artic waters and summer in Baja, California where food is plentiful. In winter, the bighorn sheep come down from the snow covered mountains to the valley below to find meadow grass.

Some herbivore mammals (like desert dwelling ground squirrel) estivate, or go to sleep during hot dry seasons, when plant life become scarce. While they are sleeping, they are conserving energy and don't need food. Some carnivore mammal (such as the woodchuck) hibernate, or go to sleep during cold seasons, when food is scarce.

1. Hibernate _____
_____

2. Omnivore _____
_____

3. Migrate _____
_____

4. Herbivores _____
_____

5. Carnivores _____
_____

6. Estivate _____
_____

7. Insectivores _____
_____

Sleepyheads

Every mammal needs sleep to gibe its body a rest and to renew its energy. When a mammal goes to sleep, it becomes inactive, its muscles relax, and it slowly becomes unaware of what is happening around it. Mammals sleep in different places. Some sleep on the ground, some sleep in trees, and others sleep in water.

Manatees sleep upside down on the river bottom.

Deer and rhinoceros sleep on the ground.

Koalas, mountain lions, & monkeys sleep in trees.

Sea otters sleep on the backs in the water.

Sea lions float on the surface of the ocean.

Prairie dogs sleep on the ground or in burrows.

1. What happens when a mammal falls asleep?

First, _____

Second, _____

Third, _____

2. Write the names of three places mammals sleep. Then write three mammals that sleep in that place.

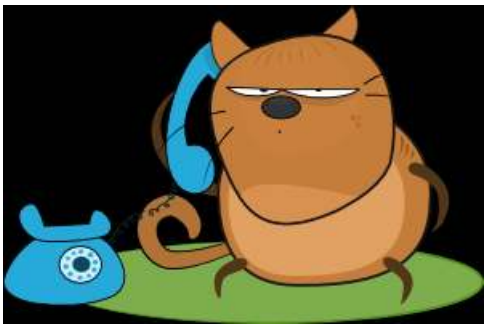
A._____ **B.**_____ **C.**_____

_____ _____ _____

_____ _____ _____

_____ _____ _____

Mammal Communication



Mammals can communicate. Although they do not talk as people do, they share information. Mammals are born knowing how to communicate with mammals of their own kind.

Some mammals use sound signals to communicate. Dogs and wolves bark. Lions use low coughs. Chimpanzees make sounds that have specific meanings. Prairie dogs whistle to warn one another of danger.

Scent is another way mammals communicate. A bear, for example, leaves its scent around its territory by plastering mud on trees and rubbing its back against the mud. Its hairs rub off and leave a scent indicating the bears' presence.

Some mammals communicate with their face and body. Wolves can back their upper lip and show their fangs when in danger. Gorillas pound their chest with their fists when they are angry.

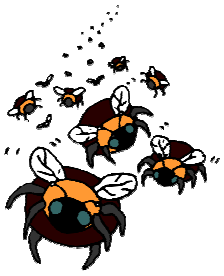
Touch is another form of animal communication. Horses, deer, and cattle show affection by nuzzling, licking, and neck rubbing. Chimpanzees sometimes hug to show affection.

Directions: Write True or False for each statement below.

1. **Some mammals use sound signals to communicate. _____**
2. **Mammals must be taught how to communicate._____**
3. **Bears communicate using scent messages._____**
4. **A wolf's face changes when it senses danger._____**
5. **No mammal communicates by touching. _____**
6. **Gorillas sometimes show they are angry._____**
7. **Horses never show affection. _____**
8. **Prairie dogs whistle when they are in danger. _____**
9. **Write three ways that a dog or cat can communicate with its owner.**
   A). _____
   B). _____
   C). _____

Animal Talk

Animals have many ways of "talking" to each other. Fill in the blanks with the correct word from the word box to find out how some animals talk.



Word Box

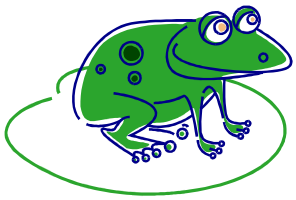
frogs kissing under warn
faces firefly dance

1. Bees do a _____ to tell other bees where to find food.

2. Some fish make lots of noise _____ water. They call out if they are in danger.

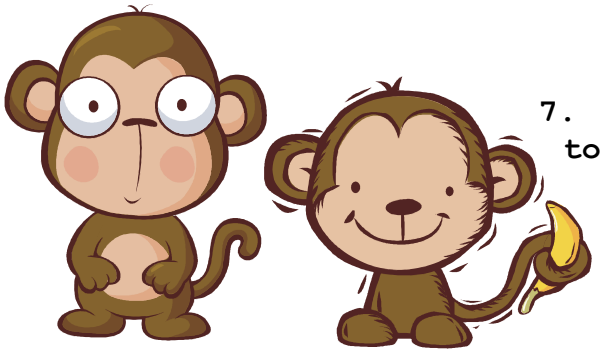
3. Ants give off odors to _____ other ants of danger.

4. The _____lights up. Males and females use their lights to find each other.



5. Male _____ attract females with their calls.

6. Prairie dogs look like they are _____ when they press their teeth against each other's faces. This tells them if they belong to the same group.



7. Chimpanzees use their _____ to tell other chimpanzees how they feel.

Reptiles & Amphibians

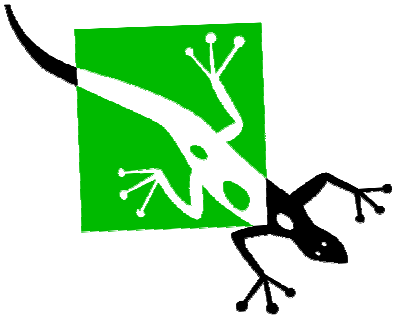
Reptiles and amphibians belong to a large group of animals with backbones. All of these animals are called vertebrates.

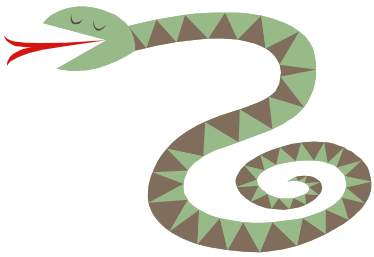
There are four groups of reptiles. They are snakes, crocodiles, lizards, and turtles. All reptiles are cold-blooded. Their bodies stay the same temperature as their surroundings. They have lungs and breathe air. Most reptiles hatch from eggs and some are born alive because the eggs hatch inside their mother. Most reptiles have tough, scaly skin that is dry and never slimy. All reptiles begin life on land. Dinosaurs are examples of extinct reptiles.

There are four groups of amphibians. They are frogs, toads, newts, and salamanders. Amphibians are cold-blooded. They have lungs, but they are not as well adapted as the reptile's lungs. Amphibians are not well adapted to life on land. They breathe through their skin, which must be keep moist. Amphibians lay their eggs in water. When they are young, they look like fish and breathe using gills. As adults, they breathe with lungs and live part of the time on land. The word "amphibian" means "living in two places."

Read each sentence. If the sentence is true about reptiles write "R" next to it. If it is true about amphibians write "A." If it is true about both of them write "B."

1. _____They lay eggs in water.
2. _____Crocodilians belong to this group of animals.
3. _____Their tough, scaly skin is dry and never slimy.
4. _____They are cold-blooded.
5. _____They breathe with lungs.
6. _____They name means "living in two places."
7. _____They have skin that must be kept moist.
8. _____They belong to a large group of animals with backbones called vertebrates.



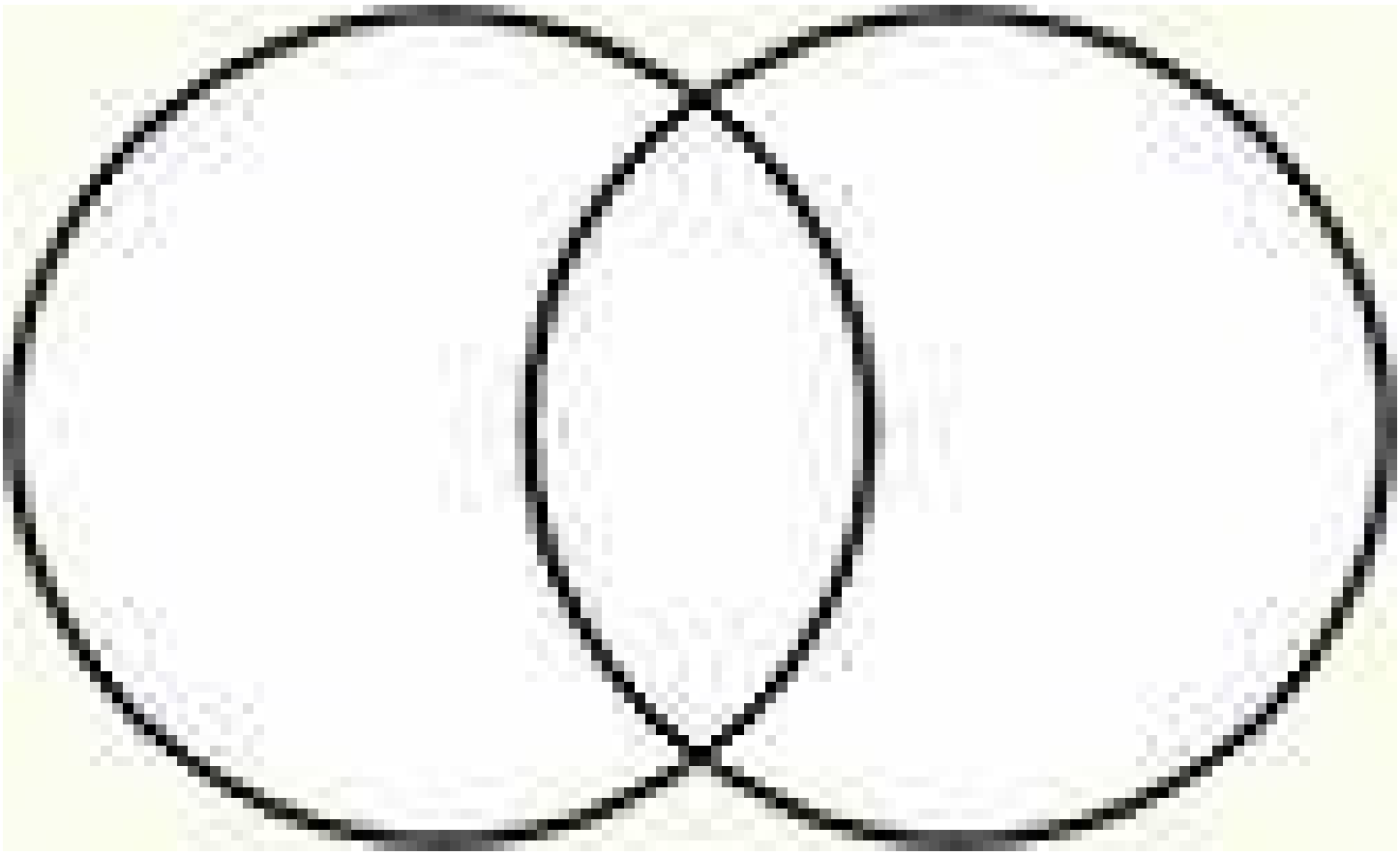


Reptiles & Amphibians

Compare and Contrast Exercise

Directions: Compare and contrast the reptile and amphibian using the information you just read about and complete the Venn diagram below.

Reptile **Amphibian**



Reptile or Amphibian?

Directions: Look at the pictures below. Under each picture name if the animal is a reptile or an amphibian.

Frog _____ **Salamander_____**

Turtle_____

Lizard_____ **Snake_____**

Reptiles Galore!

Directions: Read the article below. Write the correct word from the word box to fill in the blanks in the article.

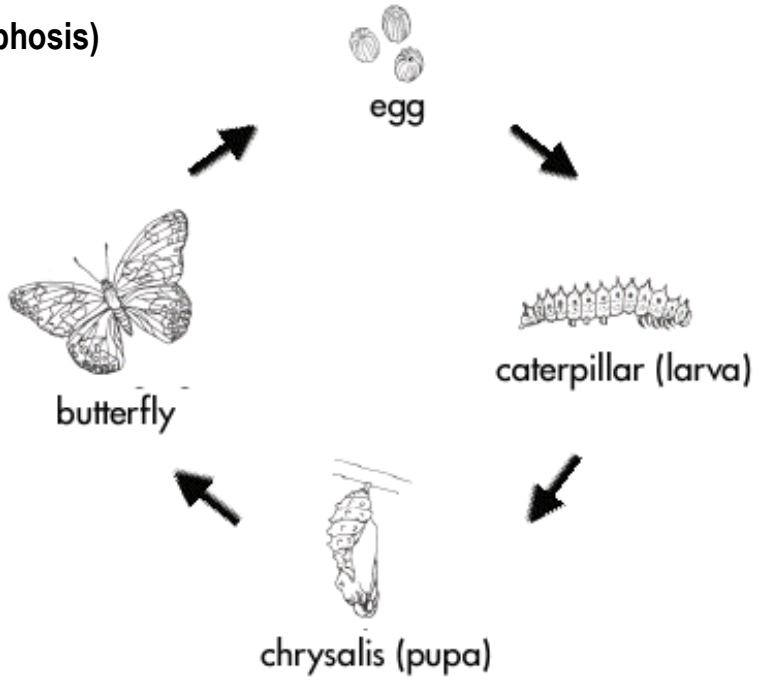
Alligator: a large reptile with a long tail and thick skin. **Cypress: a kind of evergreen tree with small needles and woody cones.** **Egret: a kind of heron with white feathers.** **Saw grass: a kind of plant with glasslike, sharp-spined leaves.** **Algae: simple plant life that lives in water.** **Rookery: a breeding place or colony of birds.** **Endangered: threatened with extinction.** **Sanctuaries: safe, protected places for wildlife where hunting is illegal.**

STATE OPENS SWAMP HABITAT

The state has opened a new swamp habitat that contains swamp creatures, such as a long-tailed _____ and other reptiles. A white-feathered _____ can be seen among the small needles and woody cones of the _____tree. The habitat also has _____ or safe places, for _____animals, animals that are at risk of becoming extinct. Among these safe places is a _____, where rare birds breed. Elsewhere, signs caution visitors about _____. It's sharp jagged leaves protrude from the water. _____, simple forms of plant life that live in water, have turned the water greenish-brown.

Animals Grow and Change

Butterfly (metamorphosis)



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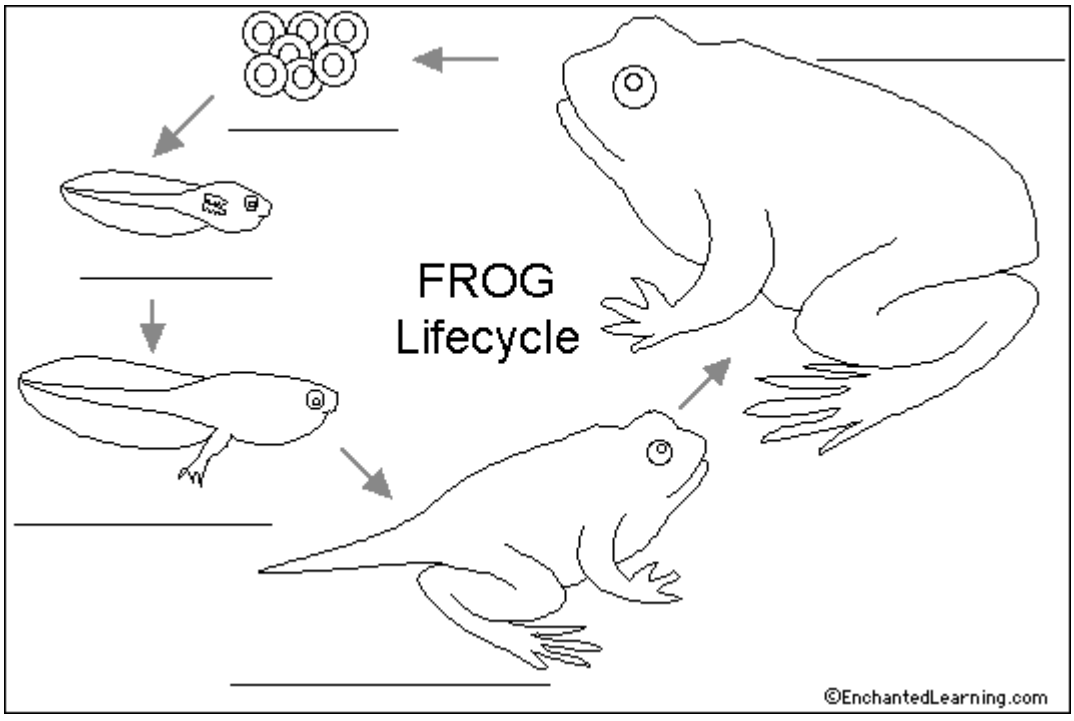
Frog



What A Group!

Many of the 4,000 animals that belong to the mammal group ate unique. Bats are the only members that can fly.

The largest mammal is the blue whale. It is 100 ft long (30m) and weighs about 100 tons (9 metric tons).

The smallest mammal is the Kitti's hog-nose bat; It's about the size of a bumblebee and weighs as much as a penny.

As beavers gnaw on logs, their teeth should wear down, but they don't. A beaver's teeth keep growing, so that stay about the same length.

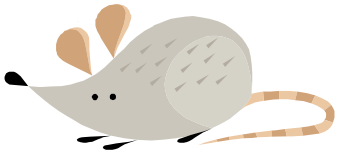
The platypus and the echidna are the only mammals that lay eggs instead of giving birth to live young. Even though they lay eggs, they still feed their hatched young with milk that they produce.

The Artic hare is brown color in the spring. It blends in with the tundra, or swampy treeless plain, where it lives. In the winter when the tundra is covered with snow, the hare's coat turns white.

The group of mammals with the most members are the rodents-rats, mice, chipmunks, squirrels, and porcupines.

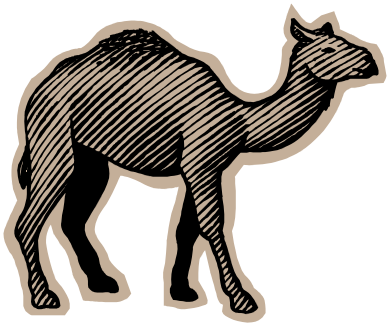
The maned wolf is called "the fox that walks on stilts." It has long legs that help it hunt for food in the tall grasses of the South American plains.

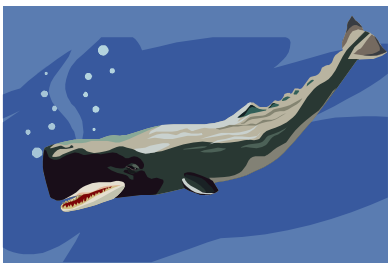
A camel has a pad on its foot that acts like a snowshoe. The pad spreads out as the camel walks and keeps the camel from sinking into the sand.



Name the Mammal!

1. **I am the smallest mammal._____**
2. **I am the largest mammal._____**
3. **I am a flying mammal._____**
4. **We are the only mammals that lay eggs. _____**
5. **Sometimes I'm brown, sometimes I'm white._____**
6. **My teeth keep growing._____**
7. **I have very long legs._____**
8. **I can walk on sand and not sink into it._____**
9. **We are the most numerous mammals. _____**





Animal Grouping Worksheet

Directions Part A: In the exercise below, arrange the Animals into two different groups. Give each group a title indicating what the members of the group all have in common.

1). German Shepard, Great Dane, Parrot, Irish setter, Canary, Husky, Robin, Pigeon

Title: _____ **Title: _____**

_____ _____

_____ _____

_____ _____

_____ _____

Directions Part B: Using the list below of living things, show how they can be classified into two different groups.

Mare, Trout, Quarterhorse, Woodpecker, Spaniel, Goldfish, Great Dane, Eagle, Bass, Beagle, Hawk, Stallion, Dalmatian, Shark

Group 1: _____ Group 2:_____

Directions Part C: Using the same data from above show how these living things can be classified into three different groups.

Group 1_____

Group 2_____

Group 3_____

Directions Part D: Use the sane list of data and classified these living things into four different groups.

Group 1_____

Group 2_____

Group 3_____

Group 4_____

Animal Facts

Directions: Fill in the blanks using the word bank below.

Word Bank:

snakes	**gills**	**head**	**rays**
eggs	**hummingbird**	**ostrich**	**hair**
feathers	**fly**	**legs**	**bones**
wings	**people**	**toads**	**moths**

Animals are divided into many groups. Some groups of animals include the insects, fish, amphibians, reptiles, birds and mammals.

Insects are small animals that have six jointed _____ and three body parts (the _____, the thorax, and the abdomen). Many insects can fly; flying insects have one or two pairs of _____. Some flying insects include butterflies, _____, dragonflies, flies, and mosquitoes. Some non-flying insects include springtails, fleas, and lice.

Fish are swimming animals that have scales and fins. Fish breathe oxygen that is dissolved in the water using _____. Most fish have bony skeletons, but some, like sharks and _____, have only cartilage.

Amphibians are animals that begin their life in the water, breathing with gills. As they grow, they breathe air using lungs, and many move to the land. Some amphibians include frogs, _____, salamanders, and newts.

Reptiles are cold-blooded animals with scales. Some reptiles are: the dinosaurs, lizards, crocodilians, and _____.

Birds are animals that have _____, wings, a beak, hollow _____, and an efficient, one-way breathing system. Most birds can _____, but some cannot. The biggest bird (and the fastest-running bird) is the _____, a flightless bird. The smallest bird is a type of _____ that is only as big as a moth.

Mammals are warm-blooded animals that nourish their young (using mammary glands) and have _____. Most mammals give birth to live young, but a few primitive mammals (like the duck-billed platypus) lay _____. Some examples of mammals are whales, bats, cats, dogs, horses, and _____.

Extra Credit: Using the data you just read about make a bar graph. Your bar graph should include a title, labels on your x and y axis, scale with the correct interval, and make sense. (Hint: Math book good resource on bar graphs).

Animals Quick Check

Directions: Use the word below to help you complete the sentences.

milk	scales	feathers	air	gills
reptiles	hair	land	meat	snakes

1. Young mammals feed on _____ from their mothers.
2. Birds have _____ covering most of their bodies.
3. Crocodiles and alligators are _____.
4. Most mammals have _____ or fur covering their bodies.
5. Amphibians begin life in the water, but most adults live on _____.
6. Reptiles have lungs, but fish have _____.
7. Mammals and birds breathe _____ just like reptiles.

Directions: Write "T" if the statement is true or "F" is the statement is false.

8. _____ Fish and reptiles have scales on their bodies.
9. _____ Animals in the mammal group are cold-blooded.
10. _____ All birds can fly.
11. _____ Insects have 3 body parts and six legs.
12. _____ Most marsupials (animals that have pouches) lay eggs.
13. _____ A spider is not an insect.
14. _____ Most fish, birds, and reptiles lay eggs.
15. _____ A snake is an amphibian.

Animal Adaptations & Behavior Unit Test Study Guide

Part I. Adaptations for Survival
Anything that helps an animal survive is called an adaptation.

Outer body coverings of skin helps an animal survive by protecting its internal organs and regulating the animal's body temperature.

Fish have scales as their outer body covering.

Birds have feathers for their outer body covering.

Polar bears have fur for their outer body covering.

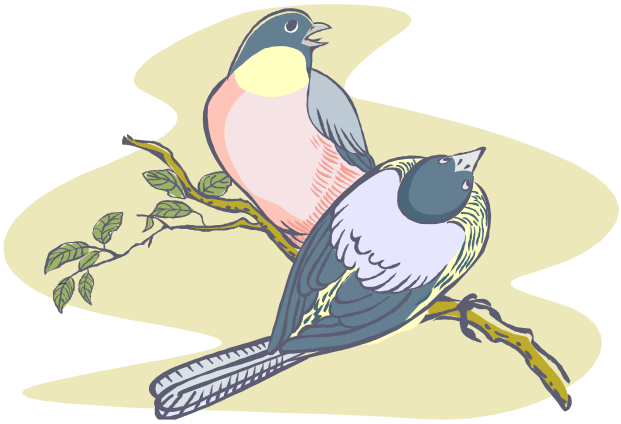
Wolves use their teeth for protection.

A bird uses his bill for food getting.

A snake uses its curved teeth for getting food.

A bear uses its claw for getting food.

A fish uses its mouth for getting food.



Part II. Special Adaptations
A walking stick has protective resemblance. It looks like a twig. Protective resemblance is when an animal looks identical (alike) to something in its surroundings.

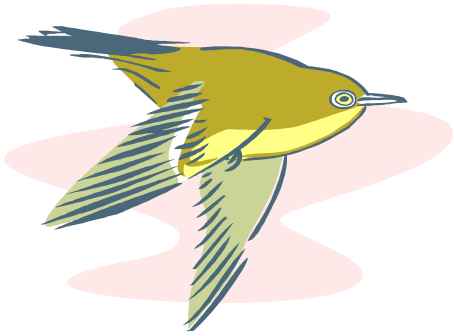
The robber fly and king snake have mimicry. They look like dangerous animals. Mimicry is when an animal looks like another animal. A harmless animal will look like a dangerous animal.

Camouflage is when an animal blends into its environment. It helps an animal survive by hiding it from predators and prey.

Counter shading is when the top side of the animal is a different color from the bottom side. Fish are an example of this type of camouflage.

A monarch butterfly stands out in its environment and warns predators to stay away, it is said to have warning coloration.

Protective coloration is when an animal h as the same color as their environment. An animal with protective coloration is the ptarmigan.



Part III. Animal Behavior
Everything that a living thing does is called behavior.

A behavior that an animal is born with is called inborn behavior. It is not taught, it cannot be changed easily.

A reflex is a type of inborn behavior that is usually connected with some kind of action. Your *irises contracting to make pupils smaller*, is an example of a reflex.

Instinct is an inborn behavior that includes more than one action. *Birds migrating* is an instinct.

Social behavior is an inborn behavior of animals living together in an organized way. *Worker bees in a colony* is an example of social behavior.

Behavior that can be changed is called learned behavior. *Riding your bicycle* is an example of learned behavior.