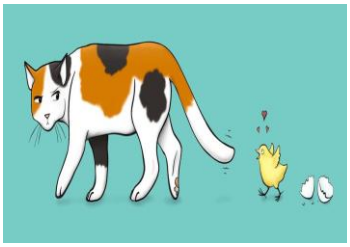
ANIMAL UNIT

Weeks 5 & 6

- **6.L.4B.2 Defense, Movement, Obtain Resources**
- **6.L.4B.3 Environmental Stimuli & Behavioral Responses**
- **6.L.4B.4 Learned vs. Inherited Behavior**



Name:_____ Block___

Reviewing what we have learned:

1-MINUTE MEMORY ACTIVITY: When your teacher says go . . . you will have one minute to name as many vertebrates as you can in the cloud bubble! *Hint: FARM B

1-MINUTE MEMORY ACTIVITY: When your teacher says go . . . you will have one minute to name as many arthropods as you can in the cloud bubble! *Hint: CIA

1-MINUTE MEMORY ACTIVITY: When your teacher says go . . . you will have one minute to name as many invertebrates as you can in the cloud bubble! *Hint: A MESS

Reviewing what we have learned: Use the [Classification PDF] to do the following activity.

Animal Classification 34 Question PowerPoint Activity

Animal Type 1-17	Vertebrate	Endothermic	Endoskeleton	Lays eggs	Invertebrate	Ectothermic	Exoskeleton	Live Birth
1. Aphid				x	x	x	x	
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								
11.								
12.								
13.								
14.								
15.								
16.								
17.								

Give an example of an animal and list its basic needs, draw a picture, and describe their adaptations that help it survive.

Basic Needs:

Adaptations:

Picture of:_____

Give an example of an animal and list its basic needs, draw a picture, and describe their adaptations that help it survive.

Basic Needs:

Adaptations:

Picture of:_____

Reviewing what we have learned: Use the Classification PDF to do the following activity.

Animal Classification 34 Question PowerPoint Activity

Animal Type 18-34	Vertebrate	Endothermic	Endoskeleton	Lays eggs	Invertebrate	Ectothermic	Exoskeleton	Live Birth
18. Snail				x	x	x	x	
19.								
20.								
21.								
22.								
23.								
24.								
25.								
26.								
27.								
28.								
29.								
30.								
31.								
32.								
33.								
34.								

Give an example of an animal and list its basic needs, draw a picture, and describe their adaptations that help it survive.

Basic Needs:

Adaptations:

Picture of:_____

Give an example of an animal and list its basic needs, draw a picture, and describe their adaptations that help it survive.

Basic Needs:

Adaptations:

Picture of:_____

ANIMAL VOCABULARY

- **6.L.4B.2 Defense, Movement, Obtain Resources**

STRUCTURES (DEFENSE, MOVEMENT, OBTAIN RESOURCES)

1. **<u>camouflage</u> -a structure for defense in which an animal can change colors and hide from a predator**

2. **<u>mimicry</u>- a defense that allows an animal to mimic another animal.**

3. **Structures for defense that allow an animal to make a <u>direct attack painful</u>:**
   - **horns**
   - **claws**
   - **quills**
   - **stingers**
   - **venom**

4. **Structures for defense that allow an animal to <u>change size to prevent attack</u>:**
   - **shells**
   - **emitting smells**
   - **emitting body fluids (ink)**

5. **Structures for defense that allow an animal to <u>flee or hide</u>:**
   - **body size**
   - **sensory organs**
   - **legs**
   - **wings**
   - **light-weight skeleton for flight**

6. **Structures for defense that allow an animal to construct <u>holes or tunnels for hiding:</u>**
   - **paws**
   - **toenails**

7. **Structures for <u>movement</u>:**
   - **legs**
   - **feet**
   - **arms**
   - **tails**
   - **fins**
   - **wings**
   - **body design**
   - **skeleton**

8. **Structures to obtain <u>resources</u>:**
   - **to chew, tear, and eat (beaks, teeth, jaws, tongues & tube shape mouth)**
   - **to grab & hold food (tentacles, pincers, claws, & fangs)**
   - **to consume food in water (filter structure in sponges & clams)**

<u>Camouflage</u>: Leaf-Tailed Gecko- This gecko camouflages itself by appearing to be a leaf with the colorings and markings of a leaf found in nature.

<u>Mimicry</u>: Hawk Moth-This moth caterpillar defends itself by mimicking a snake.

After metamorphosis it becomes a moth.

- **6.L.4B.3 Environmental Stimuli & Behavioral Responses**

ENVIRONMENTAL STIMULI

1. **shedding-an animal's response to temperature changes:**

- **to maintain internal temperatures when the weather is cold, animals form, thick coats of fur or feathers**
- **to provide a cooling effect when the weather is hot, animals shed this extra covering**

2. **sweating-an animal's response to temperature changes:**

- **an organism's way of getting rid of excess body heat**
- **sweat evaporates from the surface of the skin and cools the animal**

3. **panting-an animal's response to temperature changes:**

when an animal pants (breathes heavily), increased air flow causes an increase in evaporation from the animal's mouth and lungs, cooling the animal

4. **shivering- an animal's response to temperature changes:**

- **a mammal's mechanism to increase heat production**
- **an involuntary response to a drop in the temperature outside or within the body**
- **a method that the body uses to increase the rate at which energy is transformed into heat**

5. **blinking-an animal's response to changes in the environmental stimuli:**

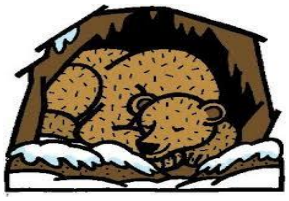
- **an automatic response to protect the eye**
- **some animals blink to keep their eyes covered with a tear film**
- **the film protects the eye from drying out and from infection**
- **protects the eye from being injured if a foreign object comes near the eye**

BEHAVIORAL RESPONSES

6. **food gathering-the process of finding food by hunting or fishing or the gathering of seeds, berries, or roots, may be seasonal**

- **storing food is a food gathering and storing process that many animals use to have food for winter**
  *** some animals that do this are squirrels, mice, and beavers**
- **storing nutrition in the form of fat is the process of overeating and reducing physical activity to conserve energy for cold weather or drought**
  ***some animals that do this are bears, penguins, walruses, chipmunks, and ants**

7. **hibernation-a state of greatly reduced body activity, used to conserve food stored in the body(temperature drops, heartbeat and breathing slows down, and it uses very little energy**



- **some animals that hibernate are ants, snakes, black bears, beavers, and ground squirrels**

8. **migration -the movement of animals from one place to another in response to seasonal changes(they travel to other places where food is available)**

- **they use the same route year after year**
- **some animals that migrate are monarch butterflies, orcas, caribou, and ducks**

9. **Courtship-A courtship behavior is the behavior of an adult of a species that is done to try to attract a mate. Animals use courtship behaviors in order to ensure that males and females of a species can recognize one another. Environmental stimuli, such as a change in the season, can stimulate courtship behaviors. Sensory cues, like chemical odors, sounds, or colors, can be used as courtship attractants in animals.**

The bright, colorful tail of the male peacock can be used as a sensory cue to attract potential mates.

ANIMAL VOCABULARY

LEARNED VS. INHERITED BEHAVIOR

- **6.L.4B.4 Learned vs. Inherited Behavior**

1. external stimuli- Animals have external stimuli from the environment that can cause them to change their behavior.

2. behavior is an activity or action, in response to changes in the environment, which helps an organism survive.

3. learned behaviors- Some animal behaviors result from direct observations or experiences.

4. Imprinting is a behavior in which newborn animals recognize and follow the first moving object they see. Usually, this moving object is the mother. The imprinting behavior cannot be reversed.



5. Conditioning (which includes trial-and-error learning) is a behavior in which an animal learns that a particular stimulus and its response to that stimulus will lead to a good or bad result.

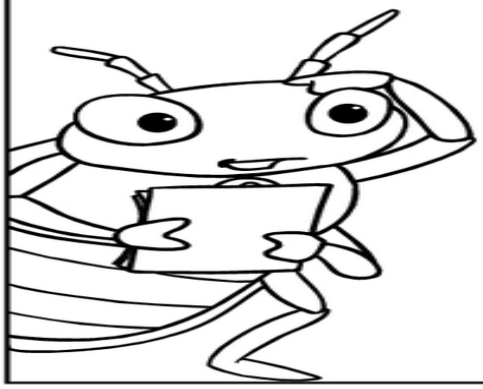
For example, chimpanzees learn to use small sticks to dig in the soil for insects, or a child learns that touching a hot object will cause pain



6. inherited behaviors or instincts- Some animal behaviors are passed from the parent to the offspring and are with the animal from birth.

***Examples of instincts are*:**

- **The ability to swim in whales or fish. They do not need to be taught how to swim.**
- **Crying in babies is an inherited behavior that is often a response to hunger, thirst, or sleepiness.**
- **When a snail digs a hole to lay its eggs, a bird builds a special kind of nest, or when a fiddler**
- **crab waves its claw to attract a female**



Insect Protection

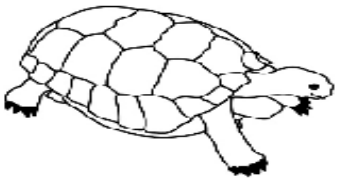
Camouflage: Some insects blend in with their surroundings, making it hard for predators to see them.

Mimicry: Some insects look like objects or harmful insects. Predators are fooled and don't attack.

Bad Taste: Once predators learn that certain insects taste bad, they stay away from them.

Fight: Some insects use their stingers or other body parts to defend themselves.

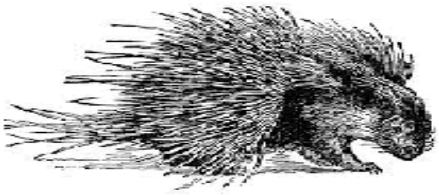
Each of the animals below have a special defensive adaptation.
a. Name the animal from the word box.
b. Describe its defensive adaptation



a. _____
b. _____

a. _____
b. _____

a. _____
b. _____



a. _____
b. _____

a. _____
b. _____

a. _____
b. _____

Word Box

opossum turtle walking stick
ostrich skunk porcupine

NAME _____ ANIMAL ADAPTATIONS

DATE _____ ACQUIRING FOOD AND WATER

Museum Thief

Unscramble the letters in parentheses to spell the name of the animal that matches the adaptation. Write the name in the blank.

Museum Animals

Centipede	vulture
koala	yak
cobra	sea lion
elephant	kangaroo rat
giant anteater	gila monster

_____ **1.** I only eat leaves from eucalyptus trees. I might eat rocks and dirt to help make digestion a breeze. *(aokal)*

_____ **2.** I go up and down high mountains without a care. I find my food here, but others wouldn't dare. *(kya)*

_____ **3.** I'd be a good detective with my telescopic eyes. Instead I use my skill to find where my next meal lies. *(lurtveu)*

_____ **4.** My tusks help me dig to underground water, which is especially nice when the weather's hotter. *(plehetna)*

_____ **5.** I "taste" the air with my tongue. Then I follow the smell to my food—that's how it's done. *(boarc)*

_____ **6.** My poisonous claws help me catch food in midair. I'm also quick, and my sight is better than fair. *(tedipcene)*

_____ **7.** Water is hard to find in the desert heat. The fat in my tail provides me with water—what a feat! *(igal somtren)*

_____ **8.** I have a long, sticky tongue but no teeth. With my sharp claws, I dig up the ground and slurp up the insects underneath. *(tagnitametea)*

_____ **9.** Getting food is a breeze for a swimmer like me. I can hunt deep underwater for a long time, you see. *(esa noli)*

_____ **10.** I drink recycled water from the moisture from my breath. In the desert, I have to do this or it will be my death! *(goraknoa tra)*

Bonus Box: Choose an animal adaptation from above. Explain what might happen if the animal lost this adaptation.

Amphibian Defense Mechanisms

Research and discover the type of defenses used by the following herpetiles.

Amphibians	Defenses	Resources Used
 Amazon Harlequin Toad		
 Axlotl		
 Caecilian		
 Giant Marine Toad		
 Leopard Frog		
 Marbled Salamander		
 Plains Spadefoot Toad		
 Red-spotted Newt		

Name _____ Date _____

Great Getaways

Animals have different ways of protecting themselves from danger. Help Camilla find out how each of her friends fuels its getaway.

Read each animal action described below. Decide which defense listed on the gas tank the animal is using. Write your answers in the spaces provided.

Animal Defenses
- protective coloring
- mimicry
- playing dead
- fighting with special weapons
- flight
- chemical defense

1. The opossum rolls over and becomes limp. _____
2. The markings of a white-tailed deer keep it hidden in a forest. _____
3. The cane toad squirts poison from glands on its head. _____
4. The hognose snake turns upside down, throws back its head, and holds very still. _____
5. An elephant uses its huge tusks to defend itself from hungry lions. _____
6. The springbok uses its long legs to outrun the enemy. _____
7. A hawkmoth caterpillar can puff itself up to look like a deadly viper. _____
8. A basilisk lizard can run on water to escape its enemy. _____
9. The horn of the rhinoceros helps to protect it from predators. _____

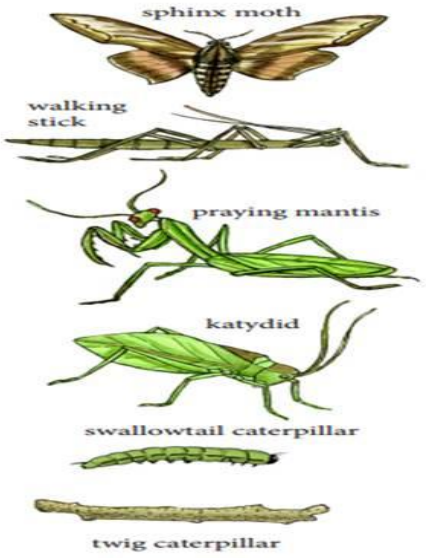
Bonus Box: *Camouflage* is a defense that allows animals to blend in with their surroundings. Which two defenses listed above are a type of camouflage? Explain how they are different.

Insect Camouflage

Structure and Function in Insects

Animals use camouflage or cryptic coloration in many different ways. When an animal's body color matches its surroundings, it's called ***blending camouflage***. When an animal has stripes, spots or other markings, these make the outline of their body hard to see and are called ***pattern camouflage***. When an animal hides by looking like the plants it eats (or the plant its prey eats), it's called ***disguise camouflage.***

Match each insect to the *type* of camouflage it uses (some use more than one).



blending camouflage
(color matching)

pattern camouflage
(distracting patterns)

disguise camouflage
(plant mimics)

Amsel, Sheri. "Classification of Living Things." Exploring Nature Educational Resource. © 2005 - 2015. March 7, 2015. <http://exploringnature.org/db/detail.php?dbID=87&detID=3125>

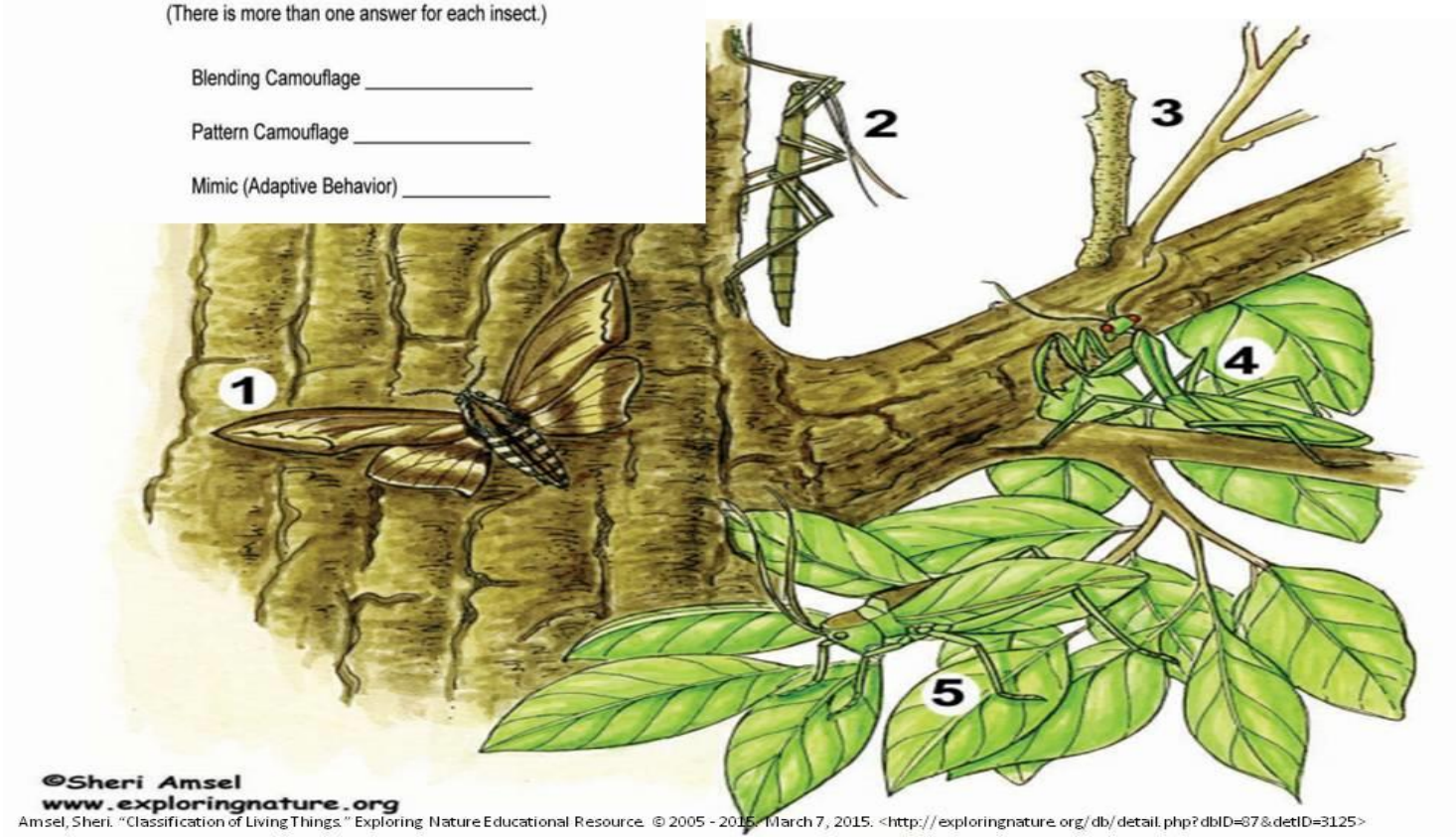
Camouflage Matching

Match the camouflaged insects below to the type of adaptive trait they are displaying.
(There is more than one answer for each insect.)

Blending Camouflage _____

Pattern Camouflage _____

Mimic (Adaptive Behavior) _____



Amsel, Sheri. "Classification of Living Things." Exploring Nature Educational Resource. © 2005 - 2015. March 7, 2015. <http://exploringnature.org/db/detail.php?dbID=87&detID=3125>

6.L.4B.3 Construct explanations of how animal responses (including hibernation, migration, grouping, and courtship) to environmental stimuli allow them to survive and reproduce.

Fill in the blank of either the stimuli or response that is missing.

Animal	*Stimuli*	*Response*
Moth		**Fly toward light**
Horse	**Fly landing on skin**	
Earthworm		**Move towards shade**
Fish	**Food**	
Dog		**Pant, sweat through foot pads**
	Food	
		Wag tail
Cat	**Heat**	
		Hiss and arch back
Human	**Particle in eye**	
		Shiver
	Heat	
		Blinking
	Tiredness	
		Sneeze
Squirrels, mice, beavers	**Seasons change**	
Bears, ants, walruses, chipmunks, penguins		**Body fat**
Snakes, groundhogs, beavers, ground squirrels	**Seasons change**	
Mammals, birds, caribou, ducks, orcas, Monarch Butterfly		**migration**
Arctic fox	**Season changes**	
Octopus		**Squirts out black inky fluid cloud**
Horned Lizard	**Flee predator**	
Skunk		**Squirts an oily, foul-smelling liquid that can cause pain, nausea, and burning eyes**
Bees/wasps	**Flee predator**	
Musk oxen		**Group of musk oxen may stand with all their horns out**
School of fish	**Flee or confuse predator**	
Zebras		**They will stand together to blur the vision of a predator.**
Male peacocks	**Courtship**	
Male deer		**Rub against trees to attract a mate.**

Notes Activity

Internal Stimuli (Inside your body)	External Stimuli (Outside your body)
Hunger **Thirst** **Sleep** ***This will no longer be tested on PASS, but it is included for this compare/contrast activity.***	**Cold?** **Predator comes?** **Warmer weather/longer days?**

Stimuli	*Write if it is internal or external?*
Sleepiness	
Sunlight	
Noise	
Hunger	
Heat	
Thirst	
Cold	
Seeing another animal	

Describe two different times when your behavior changed due to a stimulus in the environment.

Behavior Change #1

Behavior Change #2

- **6.L.4B.4 Learned vs. Inherited Behavior**

_____ is a specific action that an animal does that can be observed. Some behaviors are _____, or traits that the animal is born with. Some behaviors are _____ _____ that were taught to the animal, often by the parent.

_____ _____ is behavior that has changed because of certain experiences or practice. For example, a goldfish can be trained to come to the water's surface when a light is flashed. Many animals must learn how to hunt for food. When the _____ changes behavior patterns also change. An organism's pattern of behavior is related to the organism's environment. This can include:

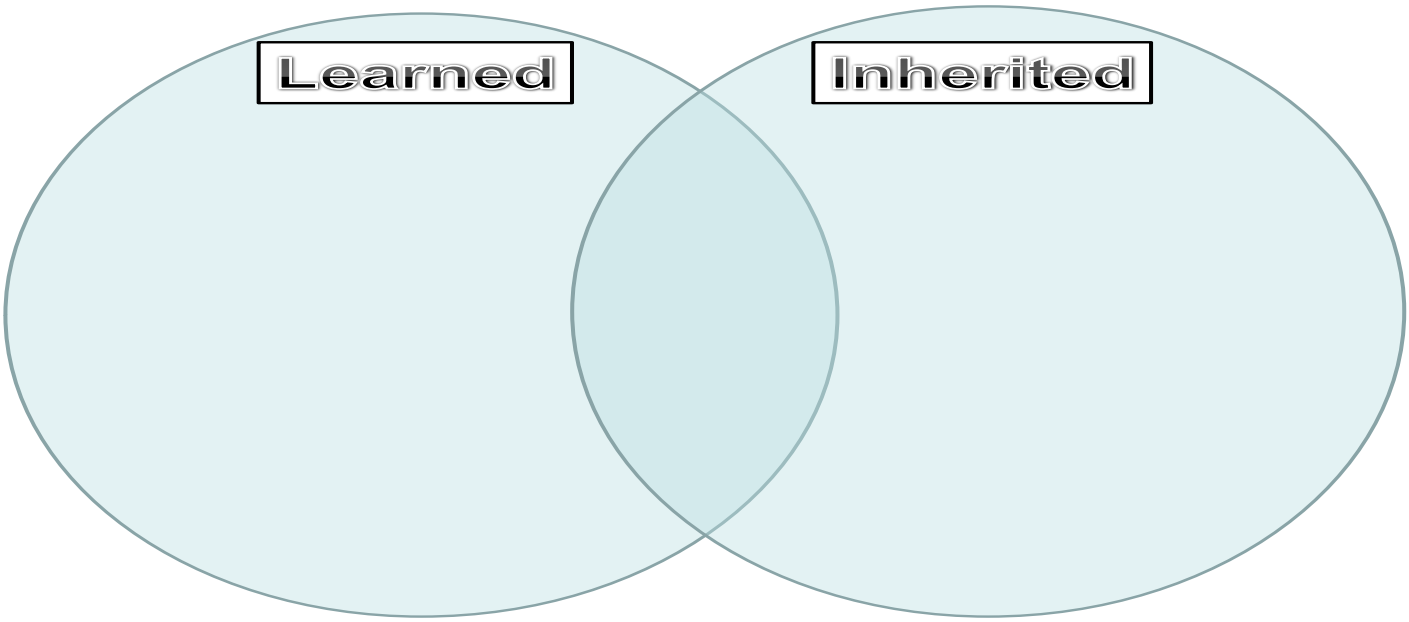
- **_____ and number of other organisms present.**
- **The _____ of food and other resources.**
- **The _____ characteristics of the environment.**

_____ _____ are behaviors that are passed on from parent to offspring. The simplest form of inherited behavior is a _____. A reflex is a simple automatic reaction (like a frog jumping when touched). A more complex inherited behavior is called an _____ (a snail digging a hole to lay its eggs, a bird building a special kind of nest, or a fiddler crab waving its claw to attract a female). The animals are acting on _____.

What the video clip is about	What you think is happening/behavior being explained or displayed?
Red Crab at Christmas Island http://www.youtube.com/watch?v=LNKgh6TfWXo&feature=related	
Ghost Crab http://www.youtube.com/watch?v=U7TbfpPUTtw&feature=related	
Fiddler Crab Waving http://www.youtube.com/watch?v=W2x-GjmYmFc&feature=related	
Peacock's Dance http://www.youtube.com/watch?v=6x4FJseTnJU	
Tarantula Molting http://www.youtube.com/watch?v=2CONWvddogc&feature=related	
Leafy Sea Dragons http://www.youtube.com/watch?v=9MKkr_1Kqcw	

Place these behaviors in the correct part of the Venn Diagram. Remember that some behaviors are learned in some species and inherited in others. For example, a fish is born knowing how to swim, but humans have to be taught.

Item Word Box		
• *swimming* • *singing* • *blinking* • *hunting* • *drinking*	• *washing hands* • *running to the ocean* • *walking* • *picking fruit* • *answering a doorbell* • *robins building a nest*	• *Babies grasping things* • *grazing* • *avoiding fire* • *following a parent* • *crying* • *drinking*



Review:

Animals have special structures that enable them to survive in their environment. These structures allow them to defend themselves, to move, and to obtain resources.

Structures for defense

- **_____- Allow an animal to hide from a predator or warn a predator (mimicry)**
- **Allow an animal to make a direct attack painful (for example horns, claws, quills, stingers, or venom)**
- **_____-prevent a direct attack with smells or body fluids (ink)**
- **Allow an animal to escape from predators legs for speed or for jumping, _____- to fly away.**
- **Allow an animal to construct holes or tunnels to run into and hide or to climb (for example paws or toenails)**

Structures for movement

- **Allow animals to move to fulfill their needs such as finding _____ and escaping _____ legs, feet and arms, tails, fins, wings.**

Structures to obtain resources

- **Allow an animal to chew, tear, and eat its food or drink (for example mouth parts including beaks, teeth, flexible jaws, tongues, tube-shaped)**
- **Allow an animal to grab and hold its food (for example tentacles, pincers, claws, fangs)**
- **Allow an animal to consume food found in the water (for example filtering structures for filter feeders in sponges or clams)**

-

Animals have physical responses that are caused by environmental stimuli. Examples of animal responses to temperature changes that help maintain internal temperature include:

Shedding

- **To maintain internal temperatures, animals may form thick coats of fur or feathers to insulate their body from cold weather; in hot weather animals will shed this extra covering, providing a cooling effect.**

Sweating

- **Sweating is an organism's major way of getting rid of body heat.**
- **When sweat evaporates from the surface of the _____, it cools the animal.**

Panting

- **Panting is another way of getting rid of body heat.**
- **When an animal pants (breathes heavily), increased air flow causes an increase in evaporation from the animal's mouth and lungs, cooling the animal.**

Shivering

- **Shivering is a mammal's mechanism to increase _____ production.**
- **Shivering is an involuntary response to a drop in the temperature outside or within the body.**

Examples of common responses to changes in environmental stimuli include:

Blinking

- **Blinking is an _____ response that helps to protect the eye from drying out and from potential infection or to protect the eye from being injured.**

Food gathering

- **The process of finding food by hunting or fishing or the gathering of seeds, berries, or roots, may be seasonal.**

Storing food

- **Many animals will begin to gather and _____ food for the winter.**
- **Examples-_____, mice, or beavers.**

Storing nutrition in the form of fat

- **Many animals will overeat and reduce their physical activity to_____ energy in response to environmental stimuli such as cold weather or drought.**
- **Examples- bears, _____, walruses, chipmunks, or ants.**

A complex set of responses to stimuli is called *behavior*-

- ***Behavioral responses* refer to how animals cope with _____ in their environments.**

Hibernation

- **As a result of cold, winter weather (stimulus) some animals will hibernate.**
- **_____ is a state of greatly reduced body activity, used to conserve food stored in the body.**
- **The animal's body temperature drops, its heartbeat and breathing slow down, and it uses very little energy.**
- **Examples- ants, snakes, _____, beavers, and ground squirrels.**

Migration

_____ is the movement of animals from one place to another in response to seasonal changes.

- **Migrating animals usually use the _____ routes year after year.**
- **The cycle is controlled by changes in the amount of daylight and the weather.**
- **Examples-monarch butterflies, orcas, caribou, and _____.**

- ***Grouping*: This social behavior occurs when certain animals travel together in groups to _____ individuals within the group or to fool a predator into thinking the group is one large organism.**
- **Examples-herds (buffalo, zebra, cattle), packs (wolves), or schools of fish.**

Courtship

- **Courtship in animals is usually a behavioral process for adults of a species try to attract a potential _____.**
- **Courtship behaviors ensure that males and females of the same species recognize each other.**
- **Environmental stimuli, such as seasonal changes, will stimulate courtship.**
- **Often sensory cues (for example, chemical odor cues, sounds, or color) will serve as courtship attractants in animals.**

A behavior is an activity or action, in response to changes in the environment, which helps an organism survive.

- **Some animal behaviors result from direct observations or experiences and are called _____.**
- **_____ is a behavior in which newborn animals recognize and follow the first moving object they see. Usually, this moving object is the mother. The imprinting behavior cannot be reversed.**
  _____ (which includes trial-and-error learning) is a behavior in which an animal learns that a particular stimulus and its response to that stimulus will lead to a good or bad result.

- **Some animal behaviors are passed from the parent to the offspring and are with the animal from birth. These are called *inherited behaviors,* or _____.**

- **Examples of instincts are:**
- **The ability to _____ in whales or fish.**
- **_____in babies is an inherited behavior that is often a response to hunger, thirst, or sleepiness.**
- **A bird builds a special kind of nest, bees making a hive, or ants making a hill.**

Circle the answer selection that follows the question that is most correct. Ex.

sweat glands-foul smelling glands-spines-thick fur

1. **Which of these is not a response of a cold-blooded animal to its environment?**
   move slow in cold-cool off by sweating-move to a sunny rock to get warm-change body temperature with outside temperature
2. **Which internal stimulus causes an animal to drink? *sweating-panting-shivering-thirst***
3. **Which is the main reason that animals migrate? *change of season-good food supply-too much living space-a long drought***
4. **What kind of protection do many mollusks have? *backbones-endoskeletons-poisonous glands***
5. **Which trait would most likely be inherited from a human parent? *ability to read-understanding division-long fingers-how to swim***
6. **Which of these is not a characteristic of mammals? *Breathing through lungs-feeding young with mother's milk-external skeleton-fur***
7. **Which of these is an animal's response to a decrease in the air temperature? *shivering-shedding-sweating-panting***
8. **Which of the following most helps arctic tundra animals survive in cold temperatures? *White fur-sharp teeth-thick fur-good eyesight***
9. **An insect looks like a small twig, so it can hide from its predators. This is an example of _____.**
   hibernation-migration-camouflage-mimicry
10. **What does the term endothermic mean?**
    body temperature changes outside temperature-slows down and eats little in winter-body around a constant temperature-heat reduction
11. **A dog's ability to smell other animals is which of the following? *inherited trait-acquired trait-endothermic trait-learned trait***
12. **How are vertebrates different from invertebrates?**
    vertebrates do not live in water-vertebrates have backbones-vertebrates walk on four feet-vertebrates may have wings
13. **Which of these animal responses is not caused by an external stimulus? *blinking-sweating-panting-sleeping***
14. **How does panting help an animal stay at a safe body temperature?**
    protects the animal from cold water-causes water to evaporate from the skin-converts stored energy in food-gets rid of excess heat
15. **What classification level contains all the different animals that have a backbone? *kingdom-phylum-class-order***
16. **Which body structure protects skunks from predators? *sweat glands-foul smelling glands-spines-thick fur***

Fish

- Fish have a backbone, _____ and _____.
- They _____ eggs in _____.
- They live in _____ and use _____ to get oxygen from the water.
- They **do not** have a _____ temperature.
- Some examples of fish are _____, _____ and _____.

Amphibians

- Amphibians have a _____.
- They _____ eggs in _____.
- During their life cycle they change from a stage when they live entirely in water to a stage when they can live on _____.
- They **do not** have a _____ temperature.
- Some examples of amphibians are _____ and _____.

Reptiles

- Reptiles have a _____.
- They have _____ that cover their skin.
- They lay eggs _____ or in a nest.
- They have _____ to breathe, but **do not** have a _____ temperature.
- Some examples of reptiles are _____, _____, and _____

Birds

- Birds have a _____.
- They _____ eggs on land or in a _____.
- They **do** have a _____ temperature.
- Some examples of birds are _____, _____, and _____.

Mammals

- Mammals have a _____.
- They have _____/fur on their bodies.
- They have _____ babies and feed young with _____.
- They breathe with _____.
- They are **endothermic** which means they have a _____ temperature.
- Some examples of mammals are _____, _____, and _____.

Arthropods

- Have _____ legs, segmented _____, and some have wings.
- They have hard _____ coverings called *exoskeletons*.
- They obtain oxygen from the air through gills or _____.
- Examples: _____, _____, _____

Sponges

- Very simple animals that have many _____ (holes) through which water flows.
- Water moves into a central _____ and out through a _____ in the top.
- Sponges _____ their food and eliminate wastes through this passage of water.
- They have specialized _____ for obtaining food and oxygen from the _____.

Segmented Worms

- Have long _____-like bodies that are divided into segments.
- They are the _____ organisms with a true nervous system and blood contained in vessels.
- A long _____ tube runs down the length of the worm's inner body.
- Worms take in dissolved _____ from the water through their skin.
- Examples: _____, _____

Echinoderms

- Have _____ that extend from the middle body outwards.
- They have _____ feet that take in _____ from the water and spines.
- Examples: _____

_____

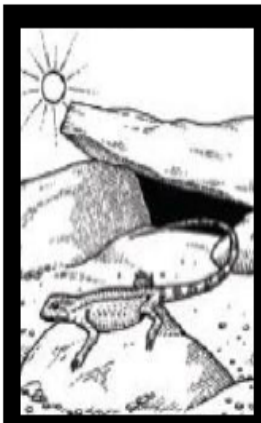
Mollusks

- Have _____ bodies; most have a thick muscular foot for _____ or to open and close their shells.
- They have _____ developed body systems than sponges or worms.
- They take in oxygen through _____ or lungs, and some have shells.
- Examples: _____

_____

_____

_____



Describe what is happening in the two different photos. Explain what type of animal this is and if it is endothermic or ectothermic.

Dimensional Analysis Problems

How to Solve One-Step Dimensional Analysis Problems

Sample Question:
How many mL are there in a 15 L container?

15 L = _____ mL

Steps to Dimensional Analysis

- Step 1: Write out your problem.
- Step 2: Write all conversion factors as fractions.
- Step 3: Include all units with all numbers.
- Step 4: Arrange conversion factors, so that units cancel diagonally (what goes up, must come down).
- Step 5: Numbers on top are multiplied.
- Step 6: Numbers on bottom are divided.

$$\frac{15\ \cancel{L}}{1} \bullet \frac{1000\ mL}{1\ \cancel{L}} = 15{,}000\ mL$$

plug in the conversion

Conversion
1 L = 1000 mL

★ Cross out the diagonal units (what goes up, must come down) leaving the mL by themselves.

Conversion Factors	
1 L = 1000 mL	365 days = 1 yr
1 mL = 1 cm^3	7 days = 1 week
1 kg = 1000 g	52 weeks = 1 yr
1 kg = 1,000,000 mg	1 min = 60 sec
1 km= 1000 m	1 hr = 60 min
1 m = 100 cm	24 hrs = 1 day

#1 How many meters will a person run during a 10 kilometer race?

#2 Charlie drove rode his bike 320 meters to the grocery store. How many kilometers did he bike?

#3 How many cubic centimeters are in a 50 mL cup of water?

#4 The average American student is in class 330 minutes/day. How many hours/day is this?