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Animal Classification Unit

Instructions for use:

You can use this animal classification unit however best fits your needs. It is a great supplement to a curriculum teaching students about animal classes. It can also be used on it's own as a small unit on animal classification. Here are a couple ways you can use this document to create a fun hands-on learning project for your students.

Animal Book:

- 1. Use two colorful pieces of construction paper for the cover and back to your animal book
- 2. Add 6 blank sheets of copy paper in between the construction paper cover and backs.
- 3. Staple booklet along the left edge to create a booklet.
- 4. Color and glue the cover page of this document to the front of your animal book.
- 5. Read through the information for each animal class. As you proceed through the lessons, have students cut out the title block for that class along with the associated animals and glue them onto the appropriate pages in their animal book.

Animal Lapbook:

- 1. Use two file folders to create a double Lapbook. Lay one file folder flat on the table and fold each side in so they meet in the center. Do this with the other file folder, then glue the folders together along one of the folded edges.
- 2. Print the cover of this document and have students color and glue it to the front of the created Lapbook.
- 3. Inside paste the various title blocks for each classification leaving space to fit animals for each.
- 4. As you study through the classes, have students cut and paste associated animals underneath each category heading.

Additional ideas:

Independent research: Although several images for each class are provided in this unit, you might also have students search for their own animals using magazines, newspapers, and internet resources.

Create an animal wall: Using bulletin board paper, create a fun bulletin display in your classroom! Add a fun border, then tape the classification headings to the bulletin display. As you learn about the various animals, have students add them to your animal wall display.

Student Reports: See page 16 of this unit for a printable report. Have students research their favorite animal and complete a report on it, make sure to include a colorful drawing or image of the animal studied.

See them in person! Grab a pencil, clipboard, and the zoo checklists (found at the end of this unit) and take them on a field trip to your local zoo to see how many you can see in person!

Amphibians

<u>Definition:</u> Amphibians are a class of vertebrate that spend the first part of their life in water, then once they reach adulthood, can later live on land. Amphibians are cold-blooded (or ectothermic) meaning their body temperature is dependent upon their environment. Amphibians may spend their lifetime living on land and water. The word *amphibian*" means "living a double life."

<u>Life Cycle</u>: Egg —> Tadpole or Larva —> Adulthood

While a few species of frogs give birth to live young, most amphibians follow the same basic life cycle. Adults typically lay eggs in the water. The Amphibian hatches as a tadpole, or larva. At this time babies breath air by using gills. Gills are a respiratory organ that extract dissolved oxygen from water and excrete carbon dioxide into the water.

The larval state only lasts a few months followed by a brief metamorphic period. As they grow into adulthood some amphibians develop lungs which allow them to live on land.

<u>Species</u>: There are several different types of amphibian species. The most common are frogs and salamanders. Salamanders have more than 550 known species. Since salamanders absorb water through their skin, they must find shady but moist areas to live. Most can be found in South America and central Mexico.

<u>Habitat</u>: You might be surprised to learn that amphibians can survive in many different types of habitats. They can be found in forests, meadows, springs, streams, rivers, lakes, ponds, marshes, swamps, and even farm land!

<u>Diet</u>: Most amphibians prefer to snack on smaller insects. Using their sticky tongue, they adhere to their prey then quickly pull the prey back into their mouths. Some salamanders use something called "trichromatic color vision" to locate prey. This means they possess three independent channels for conveying color information.

Unique Qualities:

- Glass frogs have transparent skin through which you can see their internal organs.
- Some wood frogs found mostly I Canada and Alaska, survive by allowing their bodies to freeze during winter them, then "thaw" again once warmer temperatures return.
- Poisonous species tend to have bright coloring to warn potential predators of their toxicity.
- Some salamanders do not have lungs at all. Instead of needing to breathe air though lungs, they were designed to absorb all of the oxygen they need through their moist skin. The skin of salamanders secretes a mucus which helps keep their skin moist when on dry land.

- The largest amphibian to date is the Chinese Giant Salamander. It can reach up to 1.8 meters in length and weigh an average of 25 pounds!
- The largest frog is the Goliath Frog. It is an African species that can grow to about 12 inches in length and weigh around 6.5 pounds.
- The Bullfrog is the largest frog native to North America. It can grow to 18 inches and weight over 1.5 pounds.
- The smallest known frog is from Papua New Guinea with a recorded length of just 7.7mm. It is also the worlds' smallest known vertebrate.

Reptiles

<u>Definition</u>: Reptiles are a class of vertebrates that include snakes, lizards, turtles, crocodiles, and alligators. Unlike amphibians reptiles do not begin their life in the water. Although some reptiles give birth to live young, most lay eggs. And all reptiles breathe with lungs. Reptiles are cold-blooded (or ectothermic) meaning they rely on their environment to regulate their body temperature. As such reptiles cannot live in an area that experiences extreme temperatures.

All reptiles have dry, scaly skin. Turtles possess a hard protective shell instead of scales like a snake might have. If you look closely at most reptiles you will see that their skin typically helps them blend into their surroundings. Some also have bright colored skin to warn predators of their toxicity.

<u>Life Cycle</u>: Egg or live birth —> youth —> Adulthood

All reptiles go through a similar life cycle. Most reptiles lay eggs, although some give birth to live young. The young reptile develops into adulthood over the course of time. Snakes do not care for their young. After the mother lays the eggs, she slithers away never to return. If she did, she would most likely eat her young.

Reptiles are also one of the longest living species on the planet. Certain tortoises such as the Aldabra tortoise can live for more than 150 years!

<u>Species</u>: There are over 8.000 known species of reptiles, and they can be found on every continent except Antarctica where it is simply too cold for them to survive. While the majority of the world's snakes are non-venomous, about 500 species are. Most of the world's venomous snakes can be found in Australia. Venomous means that the snake can eject a poison into their prey upon striking them. Poisonous means that an animal excretes a toxin on their skin and is poisonous to the touch. Most reptiles do not tolerate cold very well and choose to live in warmer climates.

<u>Habitat</u>: Reptiles live in all habitats except very cold regions. They can typically be found in hot deserts, swamps, tropical jungles, caves, and even in the ocean.

<u>Diet</u>: Most reptiles prefer to snack on other small mammals such as birds, rodents, invertebrates, mammals, and even other reptiles. A few are herbivorous meaning they prefer fruits, grasses, shrubs, and marine plants such as algae.

Alligators and crocodiles will also feed on fish and other small mammals.

Most turtles are herbivorous meaning they feed on grass, leaves, shrubs, and fruit. Some will also feed on caterpillars and grubs that are caught up in the plants.

Sea turtles have different diets depending on species, but will typically eat jellyfish, shellfish, sea grass, or algae.

Unique Qualities:

- Most snakes and lizards do not smell through their noises like you and I do. Instead they flick their tongues into the air to capture scent particles.
- Snakes do not have eyelids! Instead they have a protective scale over their eyes to help protect them.

- The longest snake to date is an 8 year old python found in Kansas City, USA. Medusa dines on rabbits, hogs, and deer. She measures 25 feet, 2 inches.
- The smallest reptile currently known is the Madagascar Brookesia micra chameleon. It measures just 30 mm from nose to tail, that's just over an inch.
- The largest living reptile is thought to be the Komodo Dragon weigh in at 300 pounds and growing approximately 10 feet in length.
- The Leatherback Sea Turtle is also contender for largest reptile growing up to 8 feet long and weighing up to 1500 pounds.

Birds

<u>Definition</u>: Birds are the only class of vertebrates that have feathers. They also have wings, though not all birds can fly. All birds hatch from eggs, have two legs, and either a beak or a bill. Birds help us by eating insects that are harmful to plant life. They can either nest in trees, or on the ground in well covered brush. Birds that nest on the ground are usually a dull color to help them blend into their surroundings. This is called "camouflage".

Birds are warm blooded meaning that their body temperature stays the same regardless of their surrounding environment. Birds do not have teeth, instead they have either a beak or bill design to help them eat seeds and fruit. Some birds have long skinny bills that allow them to poke and drill into trees in search of insects.

Birds can live and breed on all seven continents including Antarctica. Some species have been known to live life on and in the world's oceans only coming ashore to breed.

Many bird species migrate to take advantage of seasonal temperatures that can affect available food sources. The migration of birds varies among different groups. Migration is typically triggered by length of daylight as well as weather conditions in a certain area. Before migrating birds will increase body fats to help them through the highly demanding energy requirements of migration.

Life Cycle: Egg -> youth -> Adulthood

All birds hatch from an egg. They are cared for by an adult parent until they're old enough to care for themselves. Contrary to what most people think, a birds nest is not its home. Instead it is simply a nursery for their eggs. After the baby birds leave the nest, the adults will usually leave as well.

<u>Species</u>: There are currently over 9,800 species of birds known today. Almost 1,200 are considered threatened with extinction. Most birds can fly which distinguishes them from all other vertebrate classes.

<u>Habitat</u>: Birds can live in suburban and even urban environments. Some species are area-sensitive requiring large areas of woodland or grassland. They can be found all over the world, even in Antarctica. Many birds build nests in trees or hidden in the overgrown areas on land.

<u>Diet</u>: Parents feed young with regurgitating food from a meal earlier in the day. Some birds actually create a form of milk called crop milk to feed their young. Depending on the species birds feast on a variety of insects, seeds, fruits, and even other rodents, mammals, fish, amphibians, and reptiles.

Unique Qualities:

- The hummingbird heart rate is the second fastest of all animals.
- Hummingbirds can fly backwards.
- Birds have hollow bones which help them fly.
- Honing pigeons are bred to find their way home over long distances. They have historically been used to carry messages back and forth.
- Some penguins have been recorded diving up to 300 meters deep into the ocean!

- The current smallest feathered creature is the hummingbird. It weighs just 1.8 grams and about 5cm (2 in) in length.
- The largest birds are the Ostriches which are flightless birds with a large body, small head, and long legs. They can run at speeds of up to 45 miles per hour. Adult ostriches weigh between 220 300 pounds and measure between 7 and 9 feet in height.

Fish

<u>Definition</u>: Fish are vertebrates (animals with a backbone) that live their entire lives in the water. Their bodies are covered with scales for protection. Instead of hearing, fish feel vibrations in the water. They can also smell extremely well. All fish have gills which help them breathe in the water. They also have fins that help them to swim. Fish are cold-blooded meaning that their body temperature changes when the temperature of the water changes.

Nearly all daylight fish can see in color and have vision that is nearly as good as a human's. They also have extraordinary senses of taste and smell. Although they cannot hear you, they can feel the vibrations caused by predators through the water. If you were to step into a pond, chances are all of the fish would quickly swim away.

<u>Life Cycle</u>: Egg or live birth —> youth —> Adulthood

Nearly 97% of all fish lay eggs, however some give birth to live young. Fish can produce high numbers of eggs which they release into the open water. The newly hatched fish are referred to as larvae, and are usually poorly formed carrying a yolk sac with them for nourishment. A they rapidly grow into juveniles, the young fish begin to feed on zooplankton.

<u>Species</u>: There are over 32,000 different species of fish known to man. This makes the fish species more diverse than any other group of vertebrates. Species of fish vary from fresh water fish to those that live in the salty waters of the world's oceans.

<u>Habitat</u>: Various species of fish prefer different habitats. All fish live in the water, but some can tolerate colder temperatures, while other prefer warmer climates. There are a variety of fresh and saltwater fish species. There are even deep water fish where there is no current, and almost total darkness. Still others prefer river banks, streams, marshes, and swamps.

<u>Diet</u>: Depending on the type of fish, they can be herbivores, carnivores, or scavengers. Most fish feed on anything from plankton to other fish smaller than themselves. Some fish also feed on algae and sea weed or pond weed.

Unique Qualities:

- Salmon hatch in freshwater streams or rivers. Then they swim downstream into the saltwater sea. Later
 when the time is right, they will swim back upstream to the place they hatched to lay their own eggs.
- Fish have gills which allow them to exchange oxygen and carbon dioxide thereby allowing them to breathe underwater.

- The whale shark is the largest known fish measuring about 65 feet in length and weighing up to 75,000 pounds, and living about 70 years.
- The Paedocypris, the smallest known fish to date, was found in the peat swamps of the Indonesian Island of Sumatra. It measures just 7.9mm in length and feeds on plankton.

Mammals

<u>Definition</u>: Mammals are a class of warm-blooded (endothermic) vertebrates. All mammals are alike in five ways. Mammals are unique in that they produce milk for their babies and typically take good care of their young. Mammals also have at least some hair, they are tetrapods meaning they have four limbs, and they have lungs with which to breathe air.

Mammals live all over the earth found on all seven continents. They can be found in very cold and hot climates, they can live underground, in caves, and in oceans.

<u>Life Cycle</u>: Live birth —> youth —> Adulthood

Except for a very few species which lay eggs, all living mammals give birth to live young. Parents continue to give care to their young until they are able to fend for themselves.

<u>Species</u>: There are around 5,000 currently known species of mammals. Most diverse are the rodents which include over 1,700 species.

<u>Habitat</u>: Depending on the species you will find mammals inhabiting all parts of the earth from the very hot climates, to the coldest. They inhabit grasslands, wetlands, seas, oceans, forests, mountaintops, polar regions and deserts.

<u>Diet</u>: To help maintain a high constant body temperature mammals need lots of energy. Therefore they need to eat a nutritious and well balanced diet. The diet of mammals ranges between species. There are herbivores who eat plants, carnivores who eat meat, omnivores who eat both plants and meat, and insectivores who eat insects.

Unique Qualities:

- Mammary glands produce milk with which mammals feed their young. These glands are present in both males and females, however the glands only fully develop in females allowing them to produce milk.
- Mammals have a unique set of three inner ear bones called the hammer, anvil, and stirrup. The middle ear bones
 transmit sound vibrations which are sent into the neural impulses allowing mammals to hear.

- The largest mammal known is the blue whale. It weighs between 110-160 tons and can grow to approximately 98 feet long!
- The smallest mammal known is the bumblebee bat, a.k.a. Kitti's hog-nosed bat. It measures just over an inch in length and weights just 2 grams (less than a US penny). The bumblebee bat lives in the limestone caves of Thailand and Burma.
- The fastest mammal is the cheetah who can run at speeds of up to 60-70 miles per hour.
- The slowest mammal is the sloth who moves at rates of less than 1 mile per hour.
- The tallest mammal is the giraffe who can grow up to 19 feet tall and weigh up to 2,800 pounds.
- The loudest mammal is the blue whale, and the second loudest is the howler monkey.

Arthropods

<u>Definition</u>: Insects are part of the arthropod class of invertebrates. They are all alike in three ways. They have six legs, three body parts (the head, thorax, and abdomen), and all have an outer skeleton. The insects head contains the antennae, eyes, and mouth. The thorax a.k.a. the motor room contains the insects legs and wings. And the abdomen contains its stomach and spiracles for breathing. Insects do not have lungs, instead they have spiracles (tiny tubes) which carry the oxygen through to the insects blood.

Some insects have complex or compound eyes meaning they have thousands of eyes fitted closely together to make one eye. This allows insects to see in almost all directs at once.

Spiders are not insects, they are arachnids. Spiders have eight legs, two body parts, and simple eyes.

Life Cycle: Egg —> larvae —> Pupa —> Adulthood

Most insects go through four stages of metamorphosis during their lives. Each time an insect changes it undergoes a process called molting. Sometimes the changes are profound, such as when a butterfly molts from its cocoon.

Most insects hatch from eggs, but a few species including some cockroaches, bugs, and flies, the eggs are retained in the females body until hatched. Some insects such as mosquitoes lay their eggs in the water, others deposit eggs on plants or on the ground.

The next stage insects pass through is called the larvae stages. In this stage insects appear as caterpillars feeding on vegetation. Larvae soon molt into the Pupa stage. During this stage the larvae is enclosed in a pupal skin or protective outer covering called a cocoon. The term "chrysalis" refers to the all silken cocoons of moths and butterflies. Once the insect emerges from their Pupa stage, they have reached their adult form.

<u>Species</u>: There are thought to be somewhere between six and ten million species of insects. They are among the most diverse species on the planet.

<u>Habitat</u>: Insects can be found in nearly all environments, with even a small amount residing in the world's oceans. Insects can move about by walking, or flying, and sometimes even swimming. Some species such as the water strider are even capable of walking on water!

<u>Diet</u>: Insects eat just about anything. Several species eat plants, and some may even eat other insects. Insects such as mosquitoes eat blood, while others snack on nectar from plants. And most insects are happy to polish off any crumbs you may leave behind. Some insects such as houseflies, predigest their food by secreting a form of saliva over their food before it is eaten.

Unique Qualities:

- Ants communicate with each other through the use of pheromones (chemical signals).
- Bees are found on every continent except Antarctica.
- Only male crickets chirp.

- The fairy fly currently holds the record for smallest insect. They are found in tropical regions through the world typically measuring only 0.5 to 1.0 mm long with the smallest measured at 0.139 mm in length.
- The fastest ground insect is the cockroach traveling about 3.4 miles per hour. The fastest flying insect is the Southern Giant Darner flying at nearly 60 miles per hour!
- The giant weta holds the record for the world's largest insect weighing in at 72 grams. The giant weta can be found in New Zealand.
- The Pharnacia serratipes holds the current record for the longest insect measuring at 21.5 inches long.
- Tarantulas can live up to 30 years, while a queen termite has been known to live up to 50 years.

Amphibians

- * Amphibians live on land and in water
 - * Amphibians have webbed feet
- * Amphibians breathe with lungs and gills
- * Amphibians have moist smooth skin, 4 legs, sometimes no legs
 - * Amphibians lay many eggs
 - * Amphibians are cold-blooded

Cut out the classification titles and glue them to the top of a blank sheet of paper. As you learn about each type of animal, glue the appropriate images to your pages.

Arthropods

- * Insects and Arachnids have exoskeletons
- * Insects have 6 legs, arachnids have 8 legs
- * Insects have 3 body parts, Arachnids have 2 body parts
- * Insects may have wings and antannae, Arachnids have no wings or antennae
 - * Insects have compound eyes, Arachnids have simple eyes

* Reptiles have scales, not fur

* Reptiles usually lay eggs, sometimes they give birth to live young

* Reptiles have dry skin

* Reptiles have ear holes instead of ears

* Reptiles have 4 legs or no legs

* Reptiles are cold-blooded

* Birds have feathers and wings

Fish breathe underwater using gills, not lungs

* Fish live in water

* Fish have scales and fins (not hair or fur)

* Fish lay MANY eggs

* Fish are cold-blooded

* Mammals have hair or fur

* Mammals give birth to live young

* Mammal mothers nurse their young with milk

* Mammals have lungs and need air to breathe

* Mammals that live on land have 4 legs and ears that stick out

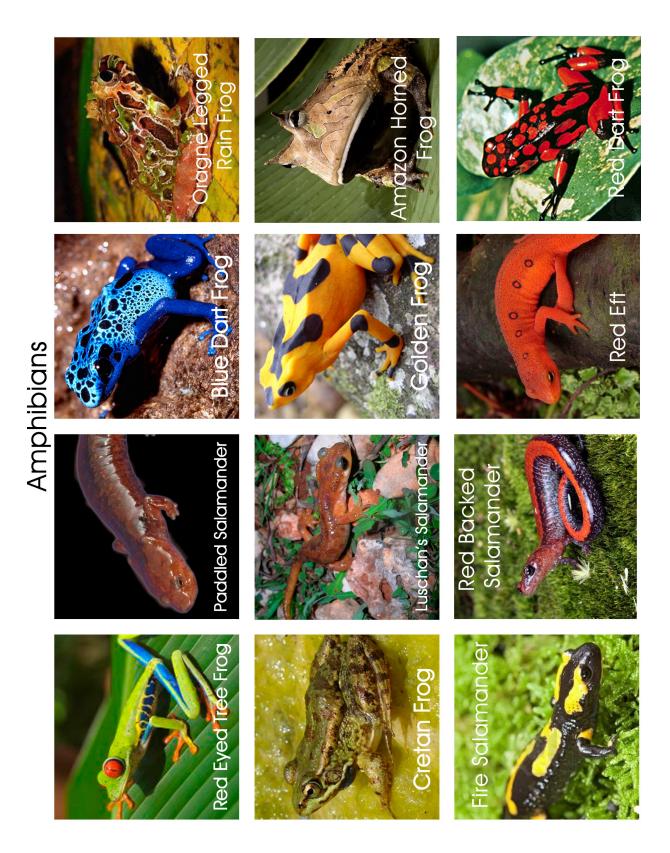
* Mammals are warm-blooded

* Birds have ear holes instead of ears

Birds have 2 legs

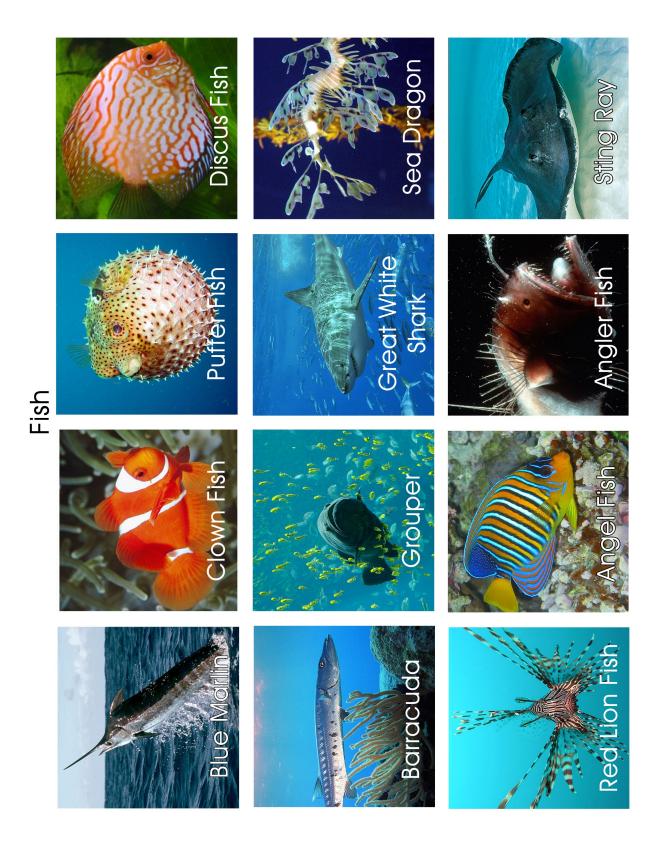
* Birds lay eggs

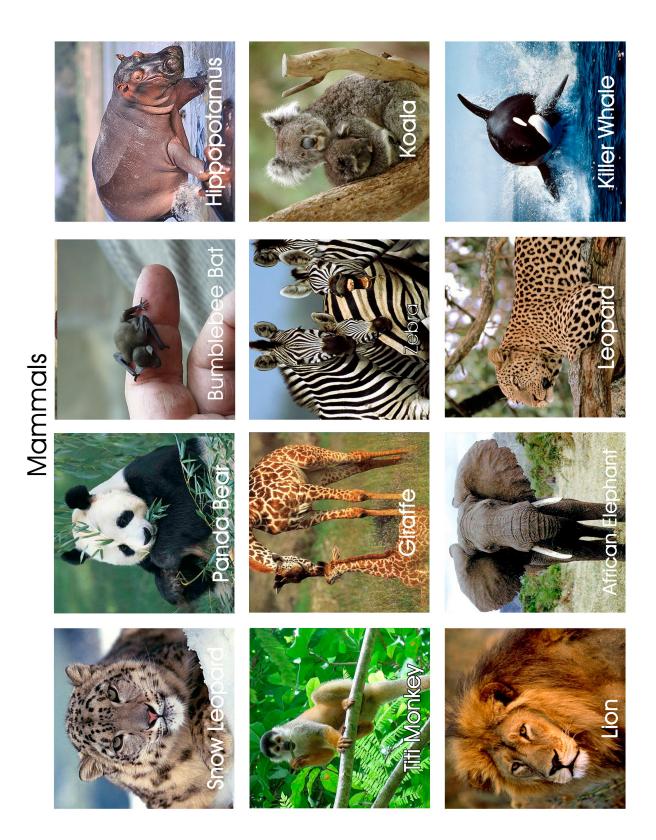
* Birds are warm-blooded

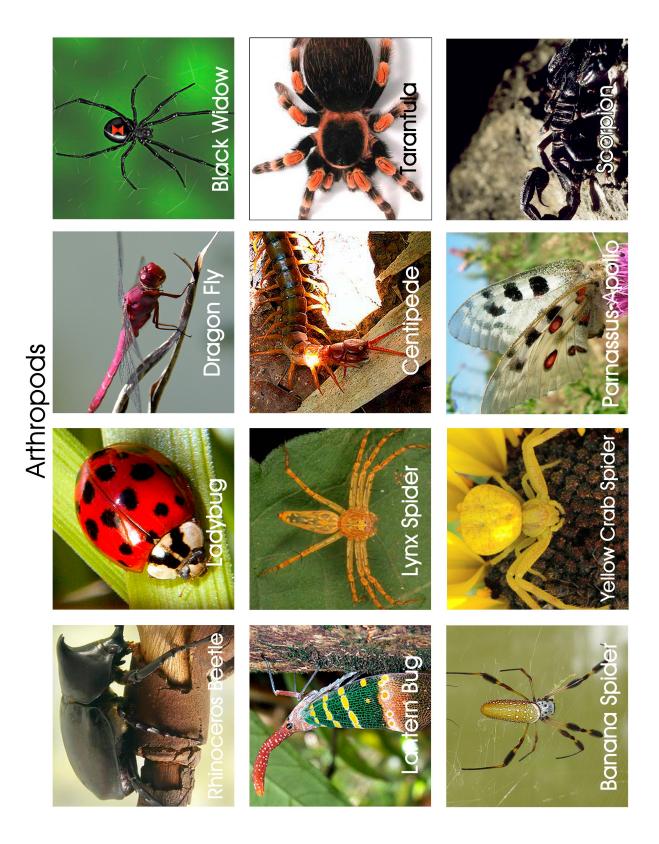












Animal Report by:	
Here is a picture of my animal: (Draw or paste a picture of the animal studied.)	
Animal:	
Country Found:	
Continent:	
Features:	
What kind of home does this animal live in?	
What does it eat ?	
When is this animal awake ? Day Night	
Classification: Mammal Fish Bird Reptile Amphibian	Arthropod
What is special or unique about this animal?	

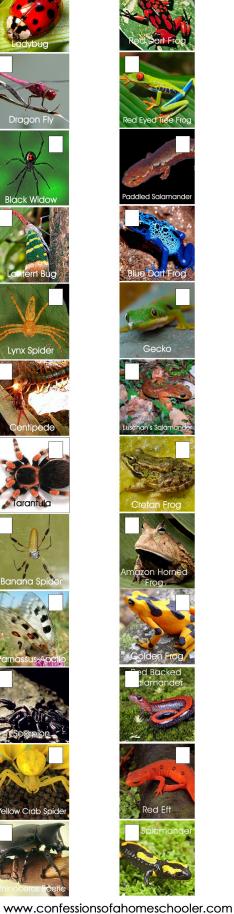
Zoo Animals
Write in animals for each classification as you find them!













Zoo Animals

Write in animals for each classification as you find them!

Birds	<u>Mammals</u>	Reptiles	Insects	Amphibians	<u>Fish</u>

Resources:

http://www.amphibiaweb.org/

http://en.wikipedia.org

http://reptileknowledge.com/

http://www.birds.com/

http://www.insects.org/

http://kids.nationalgeographic.com/kids/

Various other internet resources used in the creation of this document.