Chapter 6 General Science

The Animal Kingdom

**invertebrate-** an animal that does not have a backbone

**parasite-** an organism that lives on or in another organism, called a host, and causes harm to that organism

**host-** a living thing that supports a parasite

**mollusk-** an animal with a soft body that is not divided into segments

**arthropod-** an animal with an outer skeleton, joined appendages, and a body divided into separate parts, called segments

**appendage-** a part that extends out from the body, such as a wing, a leg, an arm, or a claw

**crustacean-** an arthropod with two body segments and five pairs of legs

**vertebrate-** an animal with a backbone

**cold-blooded-** having a body temperature that changes with the environment

**warm-blooded-** having a body temperature that stays fairly constant

**amphibian-** a cold-blooded vertebrate with wet, slippery skin and two pairs of legs; able to live on both land and in water

**reptile-** a cold-blooded land vertebrate, usually with four legs and clawed toes

**migrate-** to move long distances each year to reach warm areas and better feeding grounds

**mammal-** a warm-blooded vertebrate that has hair on its body; the mother’s body makes milk to feed its young

**6-1 From Simple to Complex**

We will hear some sounds of different animals. See how many you can name.

<http://www.kidsplanet.org/games/js/whoami.html>

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

We will now play a guess the animal game at the following site:

<http://www.braingle.com/trivia/16737/guess-the-animal.html>

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

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

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

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

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

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

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

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

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

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

You will now spend some time at the following site: <http://www.kidsplanet.org>

\* There are many interesting facts about animals. You probably know a lot about some or many animals. Let’s share some things you know.

\* Did you realize that you are an animal? Were you aware that we have 656 muscles! That sounds like a lot but a caterpillar has about 2,000 muscles.

We will now look at a variety of interesting animal facts from the following website:

<http://www.sciencekids.co.nz/sciencefacts/animals.html>

Mr. Cutright will discuss them with you.

**What are Animals?**

\* All protists, monera, fungi, and plants are made of cells, just as animals are. They also share the five characteristics of life.

They are:

1.  Made of cells

2.  Reproduce

3.  Obtain and use energy- (eating/digest/excrete)

4.  Grow and develop/repair- (goes along with #3)

5.  Respond to environment/stimuli

Still, there are many differences between members of the animal kingdom and simple organisms.

Moving

\* Animals can move around. Animals can fly, swim, run, or walk. Plants move their leaves and bend their stems toward sunlight. However, they cannot choose to get up and move to a different place.

Getting Food

\* Animals need to get food. They must find plants or other animals to eat. Plants can make their own food, using the chloroplasts in their cells.

Cell Functions

\* Animals have specialized cells. These are cells that do special jobs. Different cells carry out different functions. Plants have cells that do special jobs also. However, the cells of protists, monera, and fungi are not specialized. Each cell does the same thing.

Special Cells, Special Jobs

\* Most of the organisms you have read about so far are one-celled. A few organisms, like mushrooms, are made of many cells. However, the cells in a mushroom are almost alike.

\* Nearly every animal cell has a nucleus, a cell membrane, mitochondria, and other cell parts. Different kinds of animal cells, though, have different shapes and sizes, depending on what jobs they do.

\* think of a one-celled organism as a store run only by one person. That person has to do all the work. Bigger stores hire many workers. Each person has a specialized job. Some people sell, others keep track of the money, and still others are in charge of whole departments. The bigger the store is, the more specialized the jobs are. This is also true of animal cells. The more complicated the animal is, the more specialized cells it has.

**6-2 Invertebrates**

\* Animals come in all shapes, sizes, and colors. These features help them survive their environments. Any body feature, process, or behavior that allows an organism to survive in its environment is called **adaptation**. Common animal adaptations are teeth, spines, horns, poisons, odor, speed, and even the ability to stand still for a long time. Color is also important in adaptation. Many animals use color, or **camoflague**, to blend in with their environment so they can hide. Others have bright colors to attract mates.

We will now discuss **invertebrates**.

**Sponges**

\* A sponge is an animal that lives in water and often grows on rocks. Sponges have existed for more than a half a billion years. Some sponges are smaller than a penny. Others can be up to almost 7 feet tall! A sponge’s body has many holes that let water pass through it. The sponge gets oxygen and food from this water. The water also carries away waste.

\* There are more than 9,000 species of sponges. Most of them live in the oceans, but 150 species of sponges live in fresh water. Most cleaning sponges found in the kitchen are **synthetic**, or made by people. They are not natural sponges. Perhaps you have seen a dried natural sponge. It is usually a tan color and has an uneven shape. These sponges are really the remains of once-living sponges.

\* Sponges are like plants in some ways. They spend most of their lives attached to one object. However, when they are young, they move around, as animals do. Also, they trap food, as animals do.

**Worms**

\* Worms are another type of invertebrate. There are many kinds of worms. What are worms used for? Are they helpful to the environment? Describe.

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

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

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

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

\* A tapeworm is a ribbon-like flatworm. Some tapeworms grow to 44 feet long. The tapeworm is a **parasite**. It needs a **host** to survive. The tapeworm absorbs nutrients from the host’s digested foods. Tapeworms have no organs for digesting foods. They absorb the nutrients through their body surface. Earthworms eat/ingest soil and digest the organic matter in it.

\* A roundworm has more parts than a tapeworm. The roundworm can digest its own food. It has a mouth and a butt (anus). An earthworm is the kind of worm people dig up for fishing. It has even more parts than the roundworm and a **segmented** body. Segmented means divided into separate parts. An earthworm has a *crop* for storing food and a *gizzard* for grinding food. It also has five hearts for pumping blood throughout its body.

**Mollusks**

**Mollusks** means “soft body.” Snails, slugs, clams, oysters, squid, and octopuses are all mollusks. Most snails and slugs live in water. A few live on land. Many mollusks have hard shells that protect their bodies. Snails have a tongue-like structure called a *radula*, which is covered with thousands of tiny teeth. Snails that live in water use their radulas to scrape up algae.

**Spiny-Skinned Invertebrates**

\* Sand dollars and sea stars are spiny-skinned invertebrates. They belong to this group of animals that live in salt water. The name “spiny-skinned” comes from the sharp spines on their skin. The spines help to protect the animal from enemies.

\* Sea stars often eat oysters. A sea star, once called a starfish, grasps its prey firmly by using hundreds of tiny-tubed feet. Each tube foot is tipped with a suction cup. It uses its five strong arms to pull the oyster open. Then the sea star actually pushes its own stomach out of its mouth. It puts its stomach into the oyster shell and digests the oyster. Then, it swallows its own stomach again.

**Arthropods**

**Arthropods** have **appendages**. Wings, arms, legs, and claws are examples of appendages.

See how many arthropods you can name in two minutes. Go! \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

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

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

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

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

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

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

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

Some appendages can bend. Spiders, scorpions, cockroaches, ticks, crabs, lobsters, bees, mosquitoes, ants, and grasshoppers are all arthropods.

\* Arthropods are divided into many groups, or classes. The number of body segments and appendages determines which class an arthropod is in. Three classes of arthropods are insects, crustaceans, and spiders.

Insects

Insects are the largest group of arthropods. Insects are by far the most common land animals. There are more than 800,000 species of insects. An insect is an arthropod with a body that is divided into three parts:

1.) Head

2.) Thorax

3.) Abdomen

Insects have three pairs of legs and usually two pairs of wings. They also have feelers, called **antennae.**

\* Many insects, such as bees and butterflies, are useful to humans. Honeybees make honey. Many bees and butterflies spread pollen. Some insects are harmful. Fleas get diseases from rats and pass them to animals or humans. Flies and cockroaches feed on garbage and animal waste and spread harmful organisms.

\* Insects are the only invertebrates that can fly. However, some insects, such as silverfish, lice, and fleas, are wingless and cannot fly.

Spiders

\* Many people think spiders are insects. However, these arthropods have only two body segments and four pairs of legs. Also, they have no antennae. Scorpions, mites, and ticks all belong to the same class as spiders.

\* Lyme disease is a bacterial disease humans get from the bite of a tiny tick. Most ticks pick up the bacteria from the blood of infected deer or mice. To protect yourself in yards or fields in warm weather, wear light-colored clothes, long sleeves, pants tucked into socks or boots, and insect repellant. Check for ticks daily, and remove them with tweezers only. If a rash or flu develops, see a doctor. The usual treatment is antibiotics. Other diseases transmitted to humans by ticks include Rocky Mountain spotted fever.

Here are some interesting facts about ticks: <http://northtexaskids.com/ntkblog/index.php/top-ten-facts-you-need-to-know-about-ticks/>

Crustaceans

\* The lobster is an example of a **crustacean**. The front pair of legs are usually called claws. The other four pairs of legs are called walking legs. Crabs and crayfish are also crustaceans. Crustaceans are used by humans as food.

We will learn some crustacean facts at the following site:

<http://www.findfast.org/facts-about-crustaceans.htm>

**6-3 Vertebrates**

\* There are five main groups of **vertebrates**. Humans, snakes, zebras, birds, fish, rats, and frogs are all examples of vertebrates.

\* Vertebrates are more complicated organisms than invertebrates. Vertebrates have larger brains, more digestive parts, and more reproductive parts. Most vertebrates also have appendages.

\* Vertebrates can be **cold-blooded** or **warm-blooded**. The body temperature of cold-blooded animals changes with the environment. The body temperature of warm-blooded animals stays fairly constant. It does not change much. Fish, amphibians, and reptiles are cold-blooded. Birds and mammals are warm-blooded.

\* The whale shark is the largest cold-blooded animal in the world. It can grow to 39 feet long. The blue whale is the largest warm-blooded animal. It can grow to over 100 feet long. Despite their enormous size, both the whale shark and the blue whale feed on small animals that they filter out of the water, using baleen, or sieve-like structures in their mouths.

Fish

The simplest vertebrates are fish. Salmon, trout, sharks, and minnows are all examples of fish. Fish are cold-blooded vertebrates with fins, scales, and gills. The fins help fish swim.

Fishes’ bodies are covered with scales. Look at the picture of a fish scale on Google. You can see rings on many of them. The scales on a fish grow with the fish, much like the rings on a tree grow as it gets older. Each year, another ring is added to the scale. You can tell how old a fish is by counting the rings on its scales.

Fish do not have lungs to breathe air. They have gills instead. As water goes through slits in the gills, oxygen is absorbed right into the blood. The blood carries the oxygen to all parts of the fish’s body. Fish can remove up to 85% of the oxygen in the water that passes over their gills.

Amphibians

\* Frogs, toads, and salamanders are kinds of amphibians. Most **amphibians** have sticky tongues that they use to catch insects.

\* The word *amphibian* means “able to live on both land and in water.” Frogs, for example, spend most of their lives on land. However, they lay their eggs in water. Amphibian eggs have no shell. There are more than 3,800 species of frogs and toads and about 450 species of salamanders. Most salamanders are found in North and Central America.

\* Young amphibians have gills, like fish. They use their gills to get oxygen from the water. When they mature, they have lungs for breathing air that are developed. They also leave the water for the land. However, most amphibians live in wet places. They need to keep their skin wet. When a frog is completely underwater, it can absorb oxygen through its skin.

\* Some species of frogs are believed to have healing powers. They may be linked to cures for Alzheimer’s disease, depression, and fatigue.

Reptiles

\* **Reptiles** are cold-blooded vertebrates. Most reptiles have four legs and clawed toes. Some examples of reptiles are lizards, turtles, snakes, alligators, and crocodiles. Reptiles all have have lungs for breathing air. Because snakes and some lizards have no legs, they move along on their bellies. Some snakes have as many as 300 pairs of ribs.

\* Snakes are not slimy, as many people think. They are warm and dry. From time –to-time. a snake sheds its outer layer of its dry, scaly skin. Some snakes have fangs and a poison called **venom**.

\* Reptiles live in very dry places. Their bodies are covered with hard scales, almost like plates. This lets a reptile bake in the hot sun for hours without drying out. The hard coating keeps in moisture.

\* Reptiles lay eggs. The leathery cover on an egg protects the young reptile inside. It also keeps the egg from drying out when laid on land. A crocodile’s bite is very strong. It’s jaws are very weak when it comes to opening them. In fact, a person can keep their jaws shut by holding them. Crocodiles swallow their food whole. A full grown crocodile hold about 5 pounds of rocks in its stomach to grind up the food.

\* If you are bitten by a snake, do not try to suck out the venom. Wash the wound with soap and water. Wrap the wound and proceed calmly to get medical help. Almost 8,000 venomous snakebites occur in America each year. Wear boots and walk slowly around them. Stay on hiking paths. Do not climb on or lift rocks.

Birds

\* A bird is a warm-blooded vertebrate with feathers and wings for flying. Birds also have hollow bones, which make the bones lighter. Because birds are light, it is easier for them to fly. Birds also have two legs.

\* There are more than 8,600 different kinds of birds. See how many you can name in 3 minutes. Go! \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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

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

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

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

Hummingbirds are the smallest. A hummingbird weighs less than an ounce. Ostriches are the largest birds. An ostrich can weigh up to 300 lbs. Like reptiles, birds lay eggs and make nests.

\* Many birds **migrate**. That means they fly long distances each year to reach warm areas and better feeding grounds. Sometimes they migrate to nest or mate. The blackpoll warbler is a bird about the size of a sparrow. It flies from Canada to New England each year. It flies during the night and rests during the day. It stays in New England for about two weeks eating insects. Then it flies to South America. This is a distance of about 2,500 miles.

\* The record for long-distance migration by a bird is held by the arctic tern, which flies between the Arctic Circle and Antarctica. It can cover a distance of 11,200 miles!

Mammals

**Mammals** feed milk to their young, The milk is produced by the mother. Most mammals also give birth to live young. Most babies do not hatch from eggs. At birth, most mammals are already formed as young animals. Humans, elephants, dolphins, tigers, bears, and bats all are examples of mammals.

\* Most mammals have big brains. They have two sets of appendages (all legs or legs and arms), and many have tails. Most mammals live on land. However, some, like whales and seals, live in water. The blue whale is the largest mammal on Earth. The shrew is the smallest mammal.

\* Some mammals carry a virus in their saliva that causes the disease **rabies**. Rabies is spread mostly by animal bites. Dog bites once caused most rabies in humans. Today, rabies is usually spread to humans by bats, skunks, raccoons, and foxes in the wild. Never go near unknown dogs or any wild animals. If you are bitten, go to a hospital or see a doctor right away. Rabies must be treated within 2 days of infection. It is too late once symptoms appear, about 7-10 days after a bite.