



## Animal Abilities – 3<sup>rd</sup> Grade

### Summary

Students will learn how animals have special traits that help them survive. They will observe the skulls and pelts of various animals to determine adaptations of how an animal finds food and survives in its environment. They will model the life cycles of different types of animals. Students will view various arthropods and document their traits. Students will participate in a game that demonstrates why certain animals benefit from living in groups. *This program is 2 hours.*

### Objectives

- Students will determine what type of food animals eat by looking at animal *skulls*
- Students will determine the different body parts of *arthropods* through observation
- Students will discover the benefits for certain animals to *live in groups*
- Students will determine what habitat animals are adapted for by looking at *pelts*
- Students will learn how baby animals look more or less like their parents as they go through *life cycles*

### Key Terms

*Arthropods* – a grouping of animals that includes insects, arachnids, and crustaceans; these animals have exoskeletons, molt in order to grow, and have jointed legs.

*Life Cycle* – the growth that a living thing goes through from birth to death

*Zoology* – this is the study of animals; a zoologist is a scientist who studies animals (not someone who works in a zoo – although some zoos may have a zoologist on staff, this is rare).

*Adaptations* – an organism's body parts or behaviors that help it survive in the wild.

### Background Information

#### *Arthropods*

Arthropods are the most diverse group of animals in number of species. They have segmented bodies; muscles are attached to the inside of their rigid exoskeletons. Their jointed appendages permit complex movements, and different appendages are specialized for different functions. Encasement of the body within a rigid exoskeleton provides the animals with support for walking in water or on dry land and provides some protection against predators. Insects belong in a classification of arthropods called hexapods. All have six legs and a segmented body with three parts: a head, thorax, and abdomen. They also have a single pair of antennae on the head and all their legs are attached to the thorax. Insects can be determined by their external mouth parts. Insects have compound eyes. Most (not all) have two pairs of wings.

#### *Life Cycles*

Some animals, such as insects and frogs, change their form completely in the course of their life cycle. This is called metamorphosis. There are two kinds of metamorphosis: complete and incomplete. Complete metamorphosis is when young form looks very different than the adult form, such as in frogs and toads. Insects such as butterflies, moths and ladybugs undergo complete metamorphosis. Their young, called larvae, feed and grow, then develop hard cases called pupae. Inside the pupae, they change into adults. Complete metamorphosis often gives a form in which the animal can survive the winter. The young usually live in different habitats and have different diets than the adults, so they do not compete for food or space. Other insects, such as locusts, go through incomplete metamorphosis. This means that the young called nymphs, look similar to their parents, although some body parts, such as their wings, are not yet formed. Nymphs shed their skins several times as they become larger, as they grow, their wings and reproductive organs develop.

#### *Skulls*

Many predators are referred to as carnivores; animals that consume other animals. Omnivores are animals, such as raccoons and humans, that eat both plants and other animals. The diet of some omnivores differs at different

life stages; many songbirds, for example, eat fruit or seeds as adults but feed insects to their young. Animals that eat plants are called herbivores. Many different kinds of herbivores may feed on a single kind of plant, consuming different parts of the plant or eating the same part in different ways, and often herbivores feed on plants without killing them. You can tell a lot about an animal by looking at its skull. But studying the placement of the eye sockets you can tell if the animal is a predator (eyes facing front) or prey (eyes on the side). But studying the teeth you can tell what the animal eats. Like humans, the animals that live in our own backyards have incisors, canines, and molars. Molars are used for grinding up plant material, canines are used for tearing flesh, and incisors are used for biting. Herbivores have lots of molars and no canines while carnivores have canines and no molars. The photos below show (from left to right) an opossum skull (an omnivore), a mountain lion skull (a carnivore), and a deer skull (herbivore):



### Groups

Most animals engage in certain behaviors that allow them to survive more efficiently. One of those behaviors is when animals live in groups. This social behavior has both benefits and costs:

#### Pros:

- Improved foraging efficiency
- Reduce the risk of group-members becoming prey
- Alarm calling=reduction of predation

#### Cons:

- Reduce the amount of food available to each individual
- Increased competition for mates, as well as food
- Attract attention of predator
- Increase the risk of disease transmission

Here are some examples of animals that are known for working in groups (from left to right) – bees, dolphins, coyotes:

