Classifying Organisms

Age: 5th Grade

GSE: S5L1. Obtain, evaluate, and communicate information to group organisms using scientific classification procedures.

> a. Develop a model that illustrates how animals are sorted into groups (vertebrate and invertebrate) and how vertebrates are sorted into groups (fish, amphibian, reptile, bird, and mammal) using data from multiple sources.

Learning Objective: Students will observe animals in your home or in your backyard and look at traits to find out how they are classified.

Gather your Gear

- Classifying Organism Worksheet (below)
- Pencil/pen
- Clipboard
- Binoculars/magnifying glass (optional for observations)

Get Ready

A little background information for you to have before the lesson.

Scientists classify animals according to their body characteristics. This orderly arrangement of the animal kingdom shows how the various kinds of animals are related.

Taxonomy is the science of classification of living things. There are seven basic ranks, as well as many intermediate ranks, which define animals:

> **Kingdom** is the highest rank. The most easily recognized kingdoms are those for plants and animals. There is some disagreement among scientists over the other kingdoms. Some scientists include a kingdom for fungi, one for protists (one-celled organisms), and one or two kingdoms for various types of bacteria.

> **Phylum** is the largest subdivision of the animal kingdom and covers animals of broadly similar characteristics. The phylum *Chordata*, for example, includes all animals with any kind of backbone. This rank also includes invertebrates which are animals with no backbone. The phylum *Arthopoda* includes insects, spiders, and crustaceans.

> **Class** is the main subdivision of phylum, bringing together animals with a closer relationship. The phylum group is then divided into even smaller groups, known as classes. The *Chordata* (vertebrates) phylum splits up into *Mammalia* (Mammals), Actinopterygii (Bony Fish), *Chondrichthyes* (Cartilaginous Fish), *Aves* (Birds), *Amphibia* (Amphibians) and *Reptilia* (Reptiles).

> **Order** takes the subdivision a stage further. *Mammalia*, for example, is divided into 19 orders, among them *Marsupial*, *Primates*, *Rodentia*, and *Carnivora*.

> **Family** includes animals that are recognizably similar. For example, among the *Carnivora* (flesh eaters), the family *Felidae* includes all cat-like animals. Family names end in the suffix *-idae*.

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Genus is a group of closely related animals within a family. For example, the *Felidae* include the genera *Panthera* (big cats such as lions), *Felis* (cats that purr but do not roar), *Acinonyx* (the cheetah, with its nonretractable claws), and *Lynx* (the lynx).

Species is the most specialized division. It defines animals that are of the same kind and can interbreed.

Lesson

1. It will be important to go over or review (if they are familiar) the following:
   a. Taxonomy and the hierarchy of classification. In addition, review how scientists go about classifying animals.
   b. Review what a vertebrate and invertebrate are, as theses will be the two phylum that we will focus on for this activity.
   c. It is also important for the students to remember that vertebrates are broken down by class into mammals, reptiles, birds, amphibians and fish (make sure the students are familiar with characteristics of each).
2. After this refresh, the students can begin the observation. Tell the students to go observe in a green space/backyard for 15-20 minutes. They should list all the animals they see on the Classifying Organism Worksheet.
3. After they are done observing, they will go back through each animal they saw and categorize them by class and vertebrate/invertebrate.
4. Reviewing their data, they should summarize in a paragraph the types of organisms that they observed and defend their categorization of the animals.

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Observe the organisms you see in your greenspace. Name each organism and categorize it into a class and identify whether it's a vertebrate and invertebrate.

	Name of organism	Class/Group Reptile, bird, mammal, fish, amphibian, or non-vertebrate	Vertebrate/Invertebrate
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			