Phylum Chordata

The Coyote is called *Canis latrans*, or barking dog.
There are three basic characteristics that distinguish phylum Chordata from all other animal phyla:

- (1) The presence of a flexible, rod-like, internal supporting structure called a *notochord*.
- (2) The presence of a hollow *dorsal nerve cord*. This lies just above the notochord. This tube will eventually form the brain and spinal cord of the adult.
- (3) *Gill slits* are present at some time in development. These are paired openings in the wall of the pharynx. In some vertebrates, gill slits are only seen in the embryo.
Vertebrates

1. They are a subphylum under the Phylum Chordata. This means they possess a dorsal nerve cord, notochord, and gill slits at the embryo stage.

2. Vertebrates are the most numerous (95%) and most complex of all chordates.

3. Possess a backbone which replaces the notochord and protects the nerve cord.
4. Anterior part of the dorsal, hollow nerve cord is enlarged into a brain (cephalization).

5. The body is usually divided into head, neck, and trunk. The head contains the brain and various sense organs.

6. A tail is present at some stage of development.

7. Jointed internal skeleton (*endoskeleton*).

8. Two pairs of appendages.
9. There is a ventral heart with two to four chambers. The circulatory system is closed, and red blood cells contain hemoglobin to bond to oxygen.

10. In aquatic vertebrates, gas exchange takes place in gills. In land vertebrates, it occurs in the lungs.

11. Large coelom containing increasingly complex organ systems.
12. The body covering, the skin, is made up of at least two layers: the epidermis and the dermis. The skin often forms other structures such as glands, scales, feathers, hair, nails, claws, horns and hoofs.
13. Group includes 7 classes:

- agnatha (jawless)
- chondrichthyes (cartilaginous)
- osteichthyes (bony)
- amphibia (e.g. frog)
- reptilia (e.g. alligator)
- aves (e.g. eagle)
- mammalia (e.g. human)
Lamprey (Agnatha) → chondrichthyes
Fish are the most numerous and widespread of all vertebrates.

- 59% salt water
- 40% freshwater
- 1% move regularly between salt and freshwater