

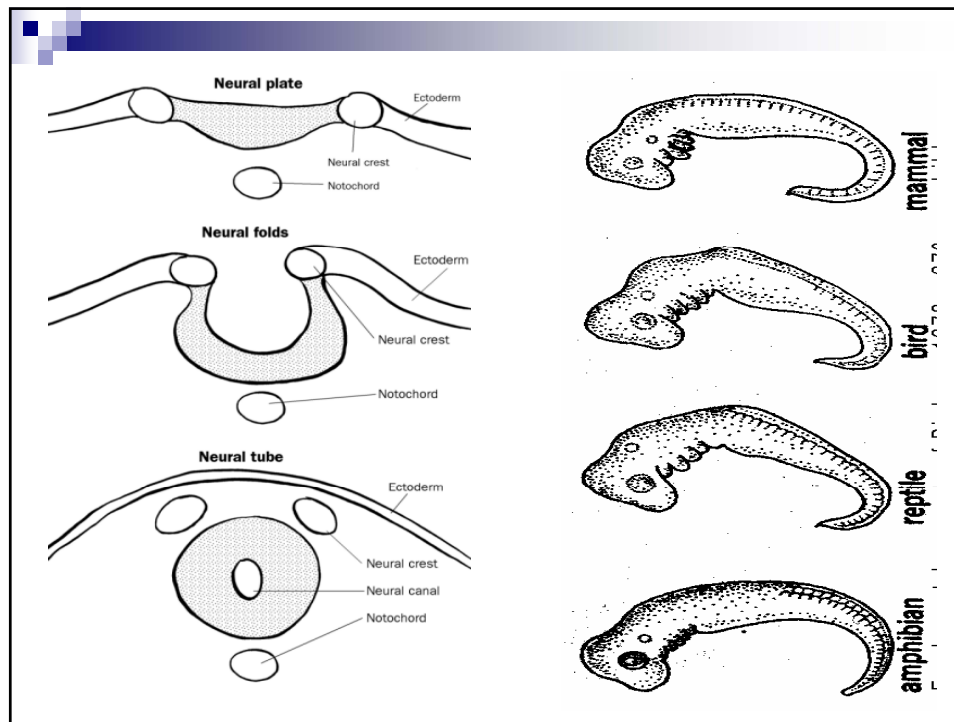
Phylum Chordata



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.

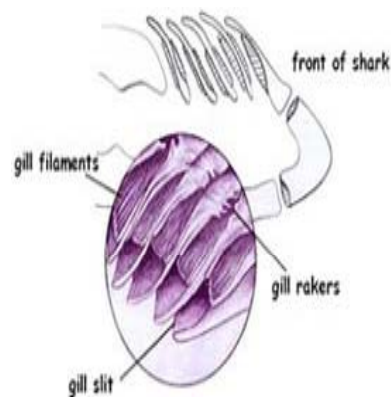


Vertebrates

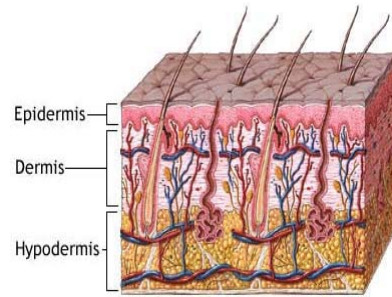
- 1. They are a subphylum under the Phylum Chordata. This means they possess a dorsal nerve cord, notochord, and gill slits at the embryo stage.
- 2. Vertebrates are the most numerous (95%) and most complex of all chordates.
- 3. Possess a backbone which replaces the notochord and protects the nerve 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.



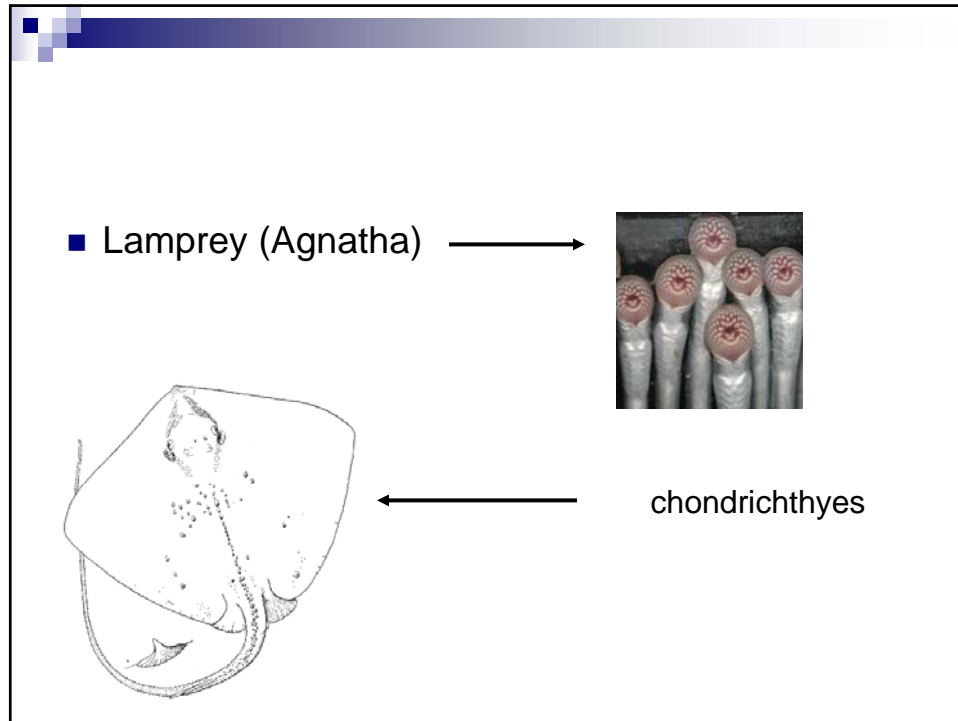
- 12. The body covering, the skin, is made up of at least two layers: the epidermis and the dermis. The skin often forms other structures such as glands, scales, feathers, hair, nails, claws, horns and hoofs.



ADAM

- 13. Group includes 7 classes:

| | | |
|---------------|------------------|------------------|
| FISH — | ■ agnatha | (jawless) |
| | ■ chondrichthyes | (cartilaginous) |
| | ■ osteichthyes | (bony) |
| | ■ amphibia | (e.g. frog) |
| | ■ reptilia | (e.g. alligator) |
| | ■ aves | (e.g. eagle) |
| | ■ mammalia | (e.g. human) |



- Fish are the most numerous and widespread of all vertebrates.
- 59% salt water
- 40% freshwater
- 1% move regularly between salt and fresh water