HIGHER CLASSIFICATION OF SUBPHYLUM VERTEBRATA

SUPERCLASS AGNATHA
CLASS CONODONTA  extinct
CLASS CEPHALASPIDOMORPHA  extinct
CLASS PTERASPIDOMORPHA  extinct
CLASS MYXINOIDEA
CLASS PETROMYZONTIA

SUPERCLASS GNATHOSOMATA
CLASS PLACODERMI  extinct
CLASS CHONDRICHTHYES = cartilaginous fishes
   SUBCLASS ELASMOBRANCHII
   SUBCLASS HOLOCEPHALI
CLASS TELEOSTOMI = boney fishes
   SUBCLASS ACANTHODII  extinct
   SUBCLASS ACTINOPTERYGII
       SUPERORDER PALEONISCIFORMES = sturgeons
       SUPERORDER NEOPTERYGII = most modern fish
   SUBCLASS SARCOPTERYGII
       SUPERORDER ACTINISTIA = coelacanths
       SUPERORDER DIPNOI = lungfish

leads to TETRAPODA

“TETRAPODA”

CLASS AMPHIBIA
   SUBCLASS LEPOSPONDYLI  extinct
   SUBCLASS LISSAMPHIBIA

“SAUROPSIDA”

CLASS REPTILIA
   SUBCLASS PARAREPTILIA = turtles
   SUBCLASS DIAPSIDA
       LEPIDOSAUROMORPHA = lizards and snakes
       ARCHOSAUROMORPHA = various “dinosaurs”
           ICHTHYOSAURIA  extinct
           PTEROSAURIA  extinct

THECODONTIA

leads to DINOSAURIA  mostly extinct
       SAURISCHIA
       CLASS AVES = birds

“SYNAPSIDA”

CLASS THERAPSIDA
   leads to MAMMALIA
       SUBCLASS MONOTREMATA = includes platypus
       SUBCLASS THERIA
           INFRACLASS METATHERIA = marsupials
           INFRACLASS EUTHERIA = placental mammals
Some Comments

The purpose of learning the higher classification of the Vertebrata is to understand the major taxa (named groups) and their relationships. Some of the organisms and their names are difficult to learn because they are rather foreign to you, or their names are nearly unpronounceable.

To help you along the way, here’s some notes on how the Diversity Quiz will work on Wednesday –

a). We are learning the higher classification listed on the previous page.

b). I’ll ask you for the classification of a given vertebrate or group with a starting point (see examples, below).

c). The best way to learn this (in my opinion) is to associate the names with organisms. Keep asking yourself, who are these guys. Refer to Kardong’s Chapter 3 for help.

d). The tetrapod groups will not start above Tetrapoda. That is, don’t include Gnathostoma to Dipnoi with them.

Some examples.

If have a shark in my hands and ask – What is this critter’s higher classification? A correct reply would be – Gnathostomata, Chondrichthyes, Elasmobranchi

What is a coelacanth’s higher classification – beginning with Gnathostomata? Correct reply would be -- Gnathostomata, Telostomi, Sarcopterygii, Actinistia

What is a snake’s higher classification – beginning with Sauropsida? Correct reply would be -- Sauropsida, Diapsida, Lepidosauromorpha

What is a duck’s higher classification – beginning with Dinosauria? Correct reply would be -- Dinosauria, Saurischia, Aves

What is an opossum’s higher classification – beginning with Therapsida? Correct reply would be -- Therapsida, Mammalia, Theria, Metatheria

Name two extinct major groups of agnathans? Possibilities are Conodonta, Cephalaspidomorpha, Pteraspidomorpha.

Name two extinct archosauromorphs? Ichthyosauria and Pterosauria.

. . . and so on.