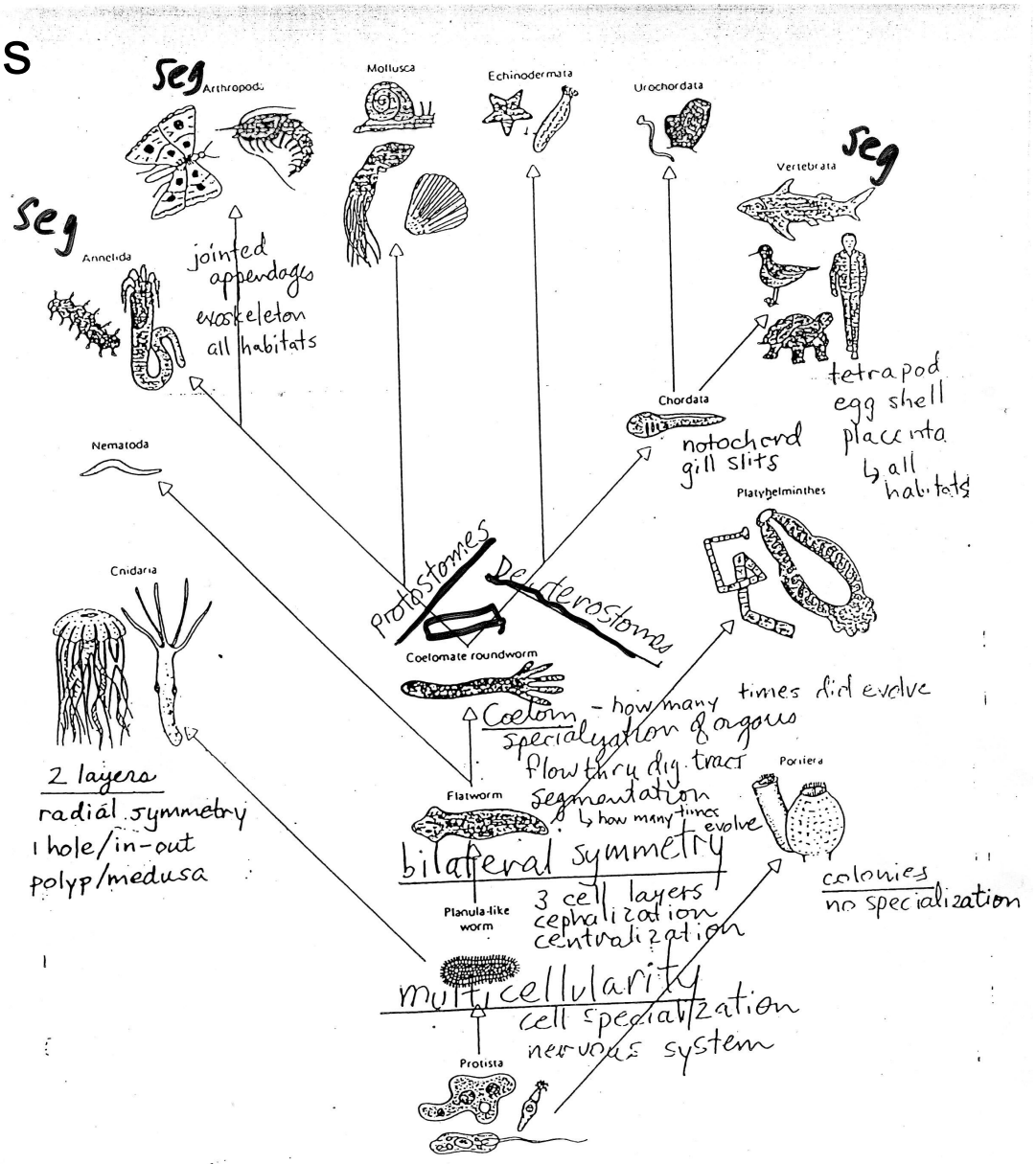
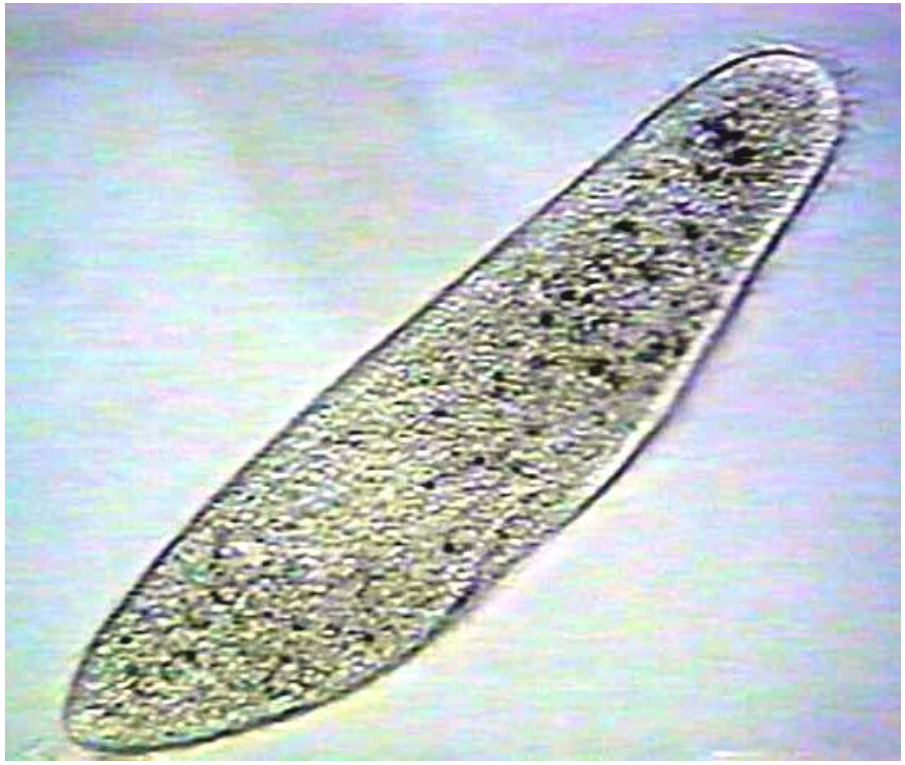
Major animal groups and evolutionary innovations



Evolution of different animals according to one widely held theory, based on the structure and development of modern animals.

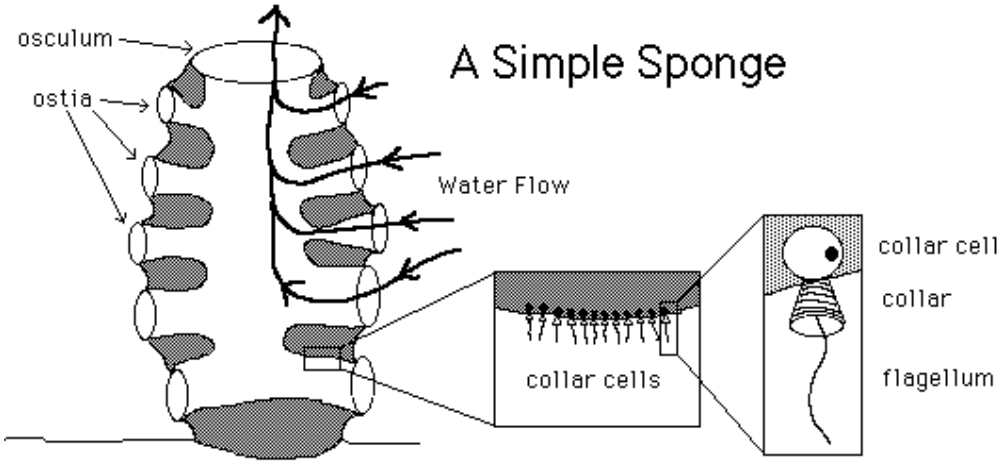
Protists

eukaryotes; unicellular



Porifera

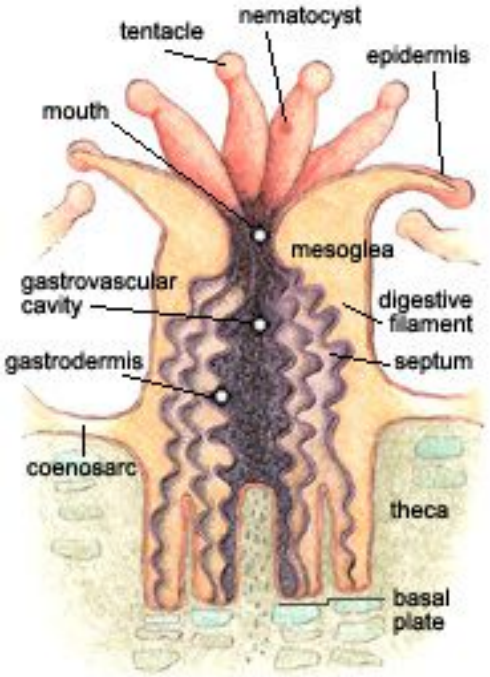
sponges; colonial rather than truly multicellular



Metazoa: true animals
Phylum Cnidaria

corals, jellyfish, anemone
truly multicellular (2 embryonic cell layers)

Coral anatomy

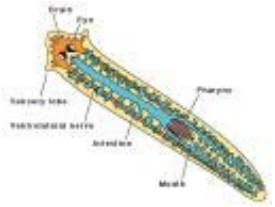


Zooxanthellae essential to reef ecosystem
(photosynthetic symbiotic algae in coral polyps)

Bleached corals due to expulsion of algae

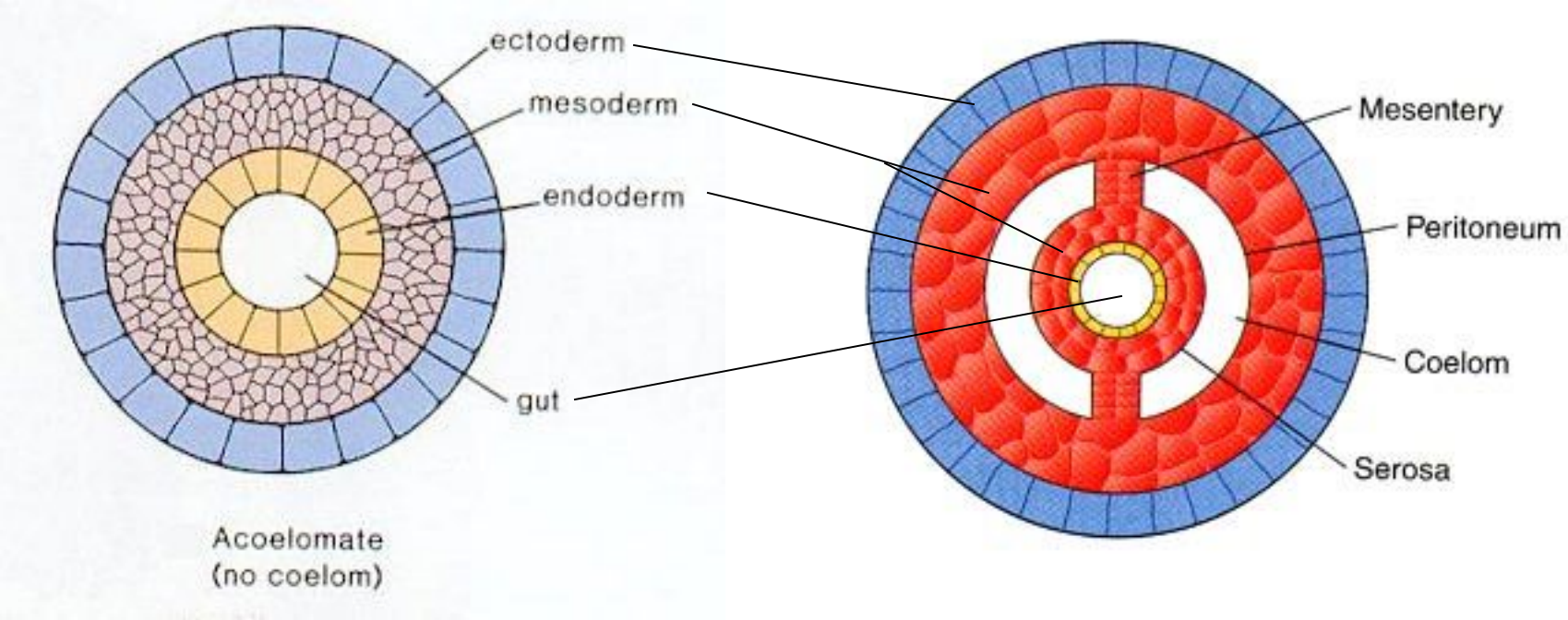
Triploblastic: 3 embryonic cell layers

- Platyhelminthes: bilateral symmetry
  cephalization
  centralization

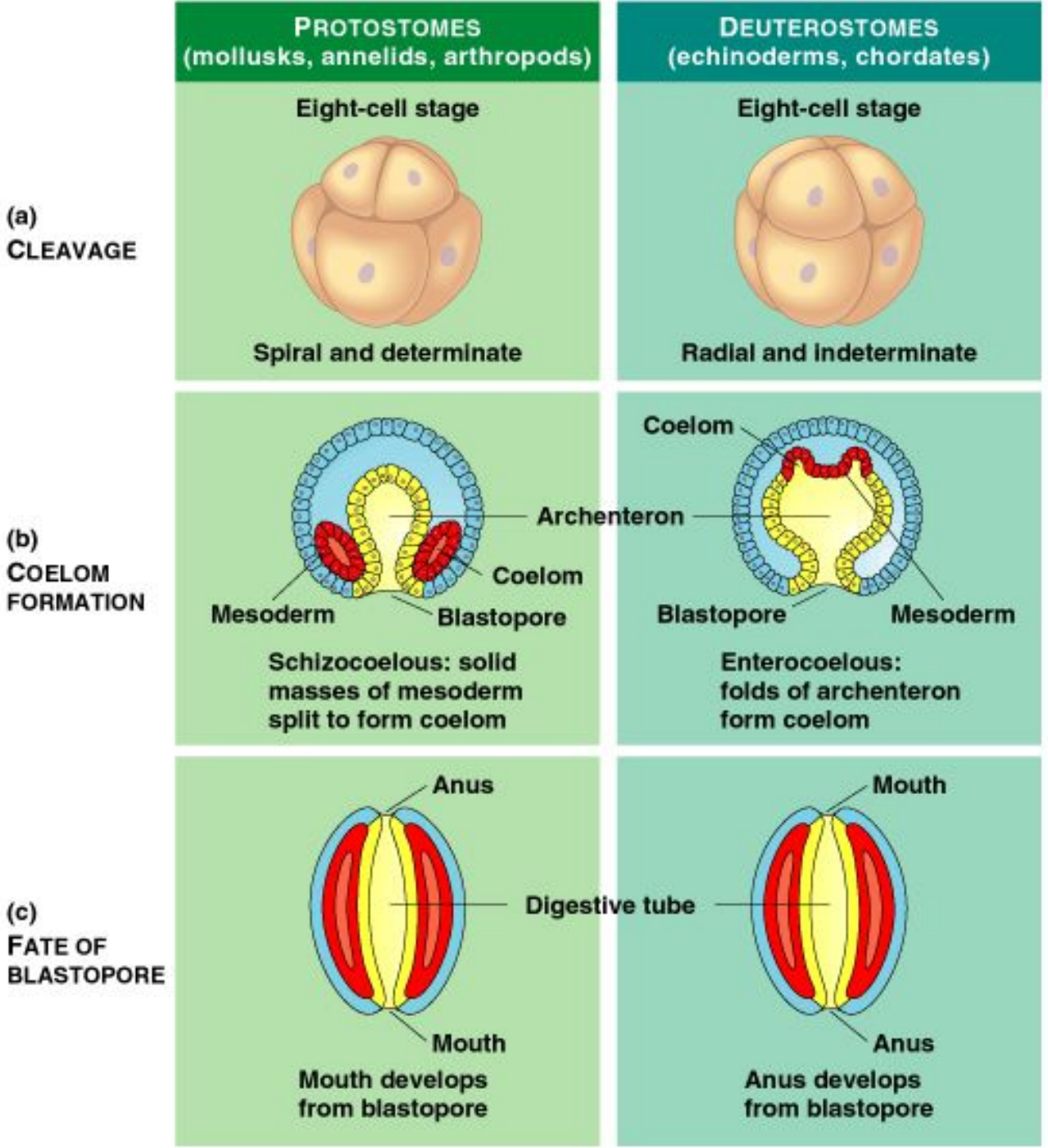


3 embryonic layers
No coelom

3 embryonic layers
coelom



- Flow through digestive tract
- Regional specialization
- Segmentation

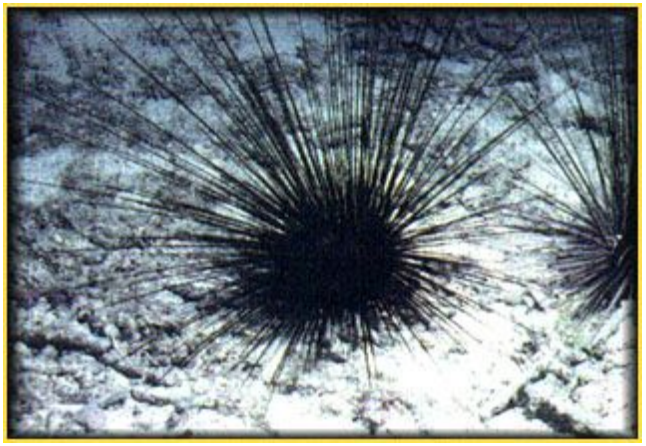


Protostome: Phylum Annelida

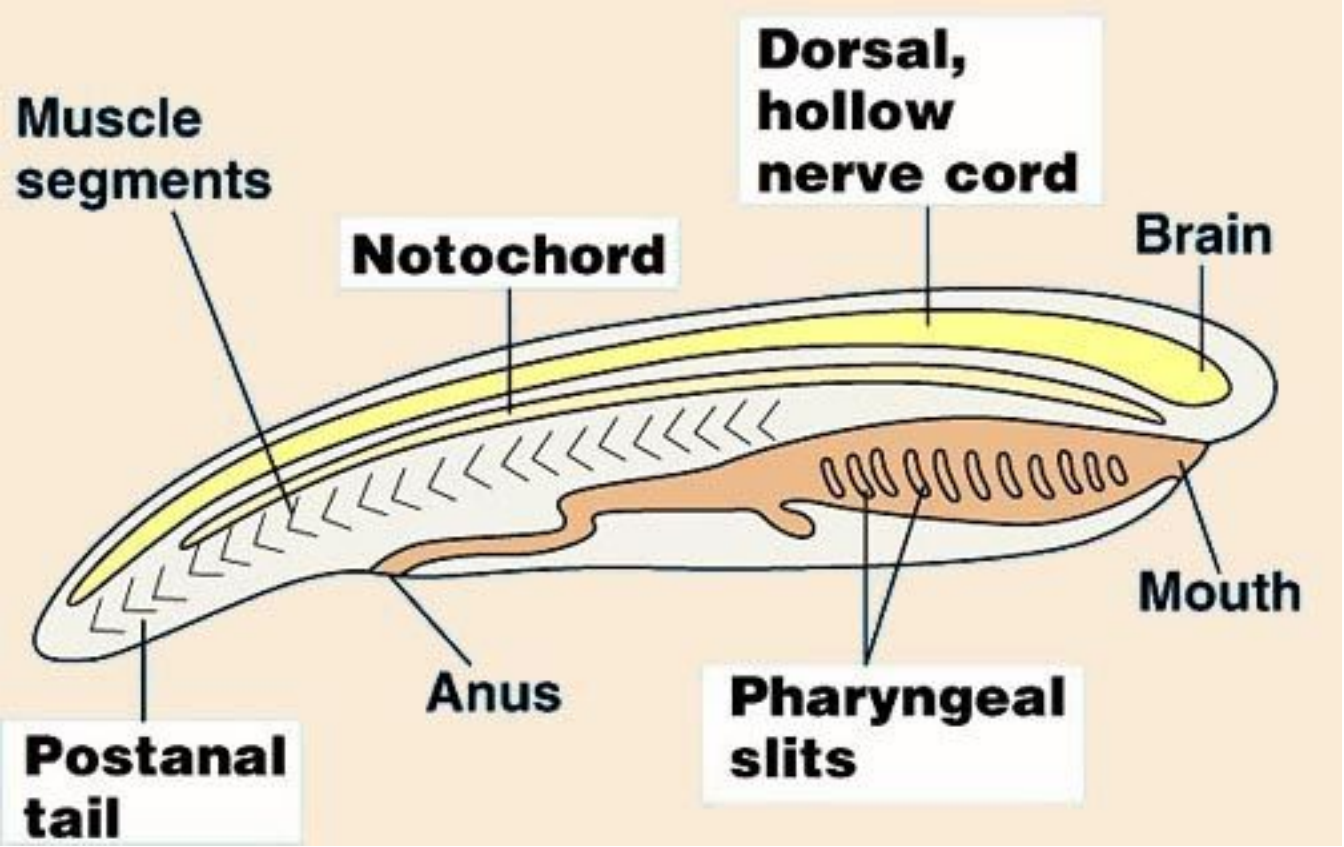
Protostome: Phylum Mollusca

Protostome: Phylum Arthropoda

Deuterostome: Phylum Echinodermata

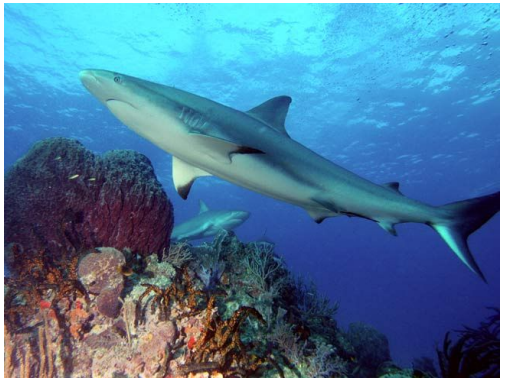


Deuterostome: Phylum Chordata

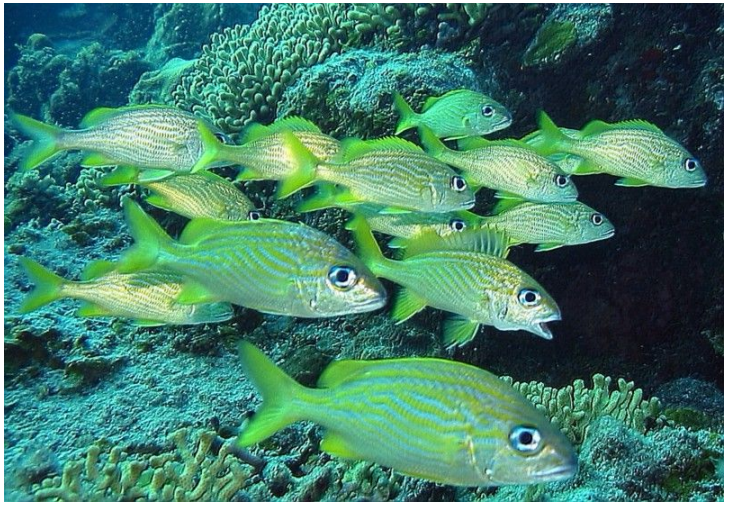


Tunicates (invertebrate chordates)

Subphylum Vertebrata: class chondrichthyes



Subphylum Vertebrata: class Osteichthyes



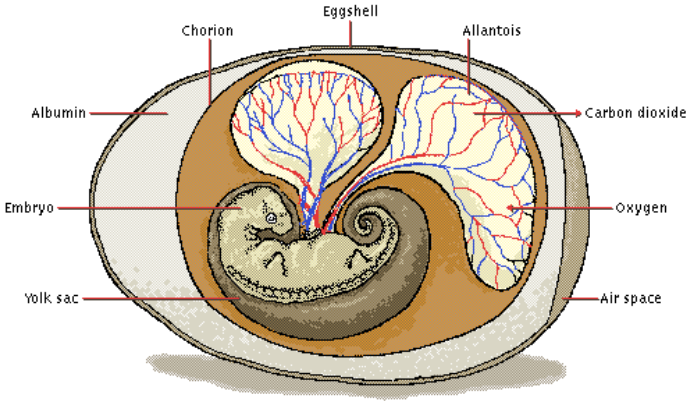
Subphylum Vertebrata: class amphibia

anurans

caecilians

urodeles

Subphylum Vertebrata: class reptilia amniotic egg

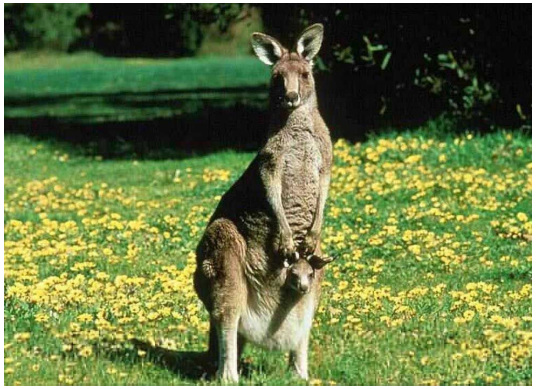


Subphylum Vertebrata: class aves

Subphylum Vertebrata: class mammalia

monotreme

marsupial



placental