BIOLOGY

STUDY OF LIVING THINGS

(1)	Zoology	Study of animals
(2)	Botany	Study of plants

ZOOLOGY

(A)One celled animals (Unicellular)

(B) Many celled animals
(Multicellular animals)

UNICELLULAR ANIMALS

Protozoans

MULTICELLULAR ANIMALS

(a) Invertebrate

1. **Porifera**
2. **Coelenterata**
3. **Platyhelminthes**
4. **Nematoda**
5. **Mollusca**
6. **Arthropoda**
7. **Echinodermata**

(b) Vertebrate

1. **Chordata**
2. **Pieces**
3. **Amphibia**
4. **Reptilia**
5. **Aves**
6. **Mammal**

Zoology

Zoology means the scientific study of animals.

The study of animals

What is an animal?

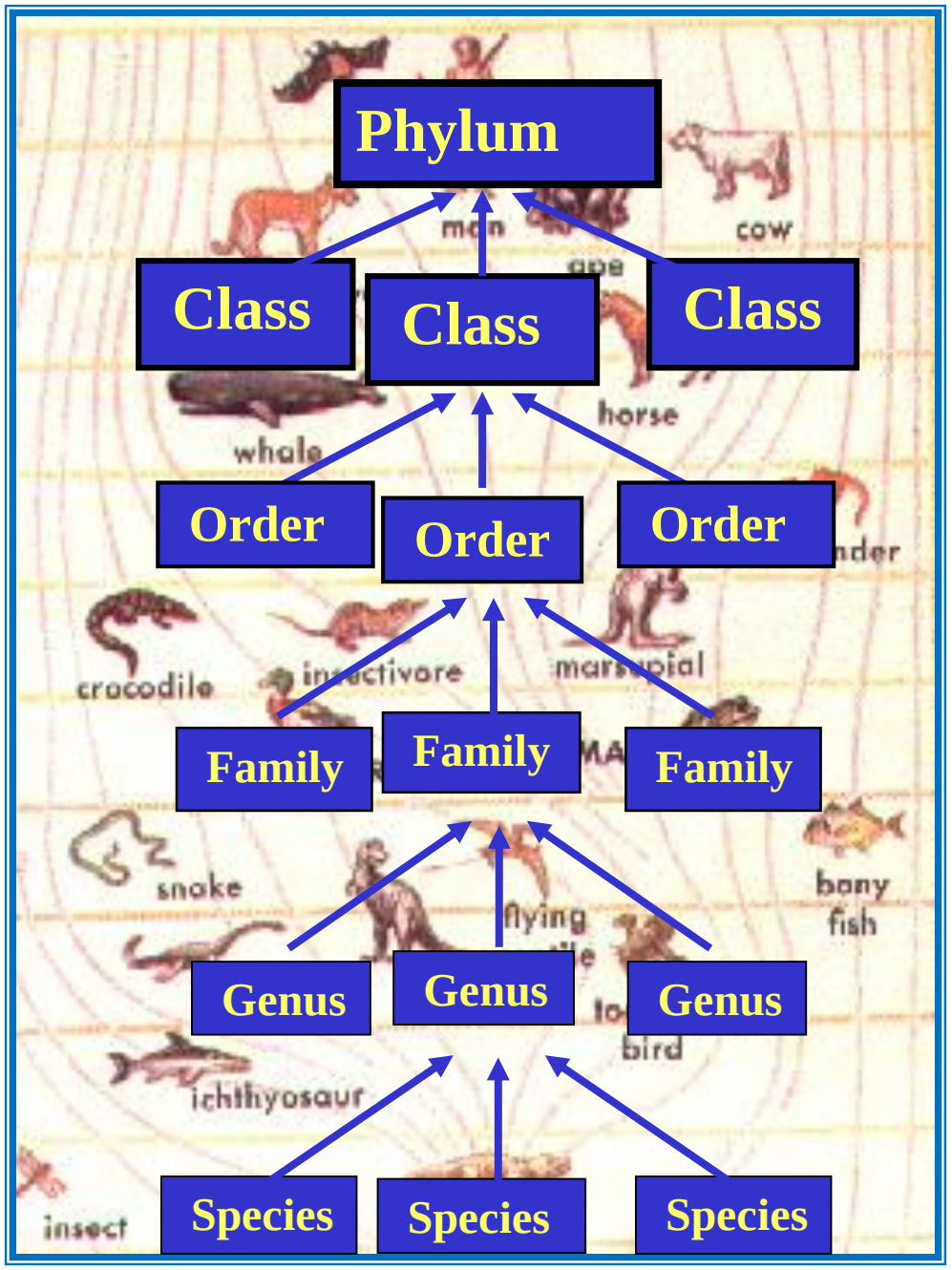
An animal is an organism that ingests organic materials and digests internally.

Why we need to study animals?

- Animals are involved in many aspects of human existence
- We rely on animals to maintain the interdependent web of our ecosystem
- The expansion of human populations and the degradation of habitats are threatening the nonhuman species
- We need to investigate and understand the interdependencies of species for our long-term survival.

HUMAN RELIANCE ON ANIMALS

- **FOOD SOURCES**  e.g. meat, eggs, diary products
- **ECONOMIC PRODUCTS**  e.g. leather, feather, silk, fur, wool
- **TRANSPORT & LABOUR** e.g. horses, oxen, buffalo, camels, elephant
- **BIOMEDICAL USES**  e.g. venom, insulin, antibodies
- **RESEARCH**  e.g. rats, guinea pigs, rabbits, monkeys
- **DISEASE CONTROL**  e.g. fishes, mosquitoes, house fly
- **ECOLOGICAL VALUE**  e.g. pollinating insects, decomposers 
- **ESTHETIC VALUE**  e.g. works of art, totem animals
- **AFFECTIONAL BONDS**  e.g. pets, wildlife parks, zoological gardens



CLASSIFICATION

- Chordata
- Mammalia
- Lagomorpha
- Leporidae
- Lepus
- Lepus cuniculus



SYSTEMATIC GROUPINGS OF ANIMALS

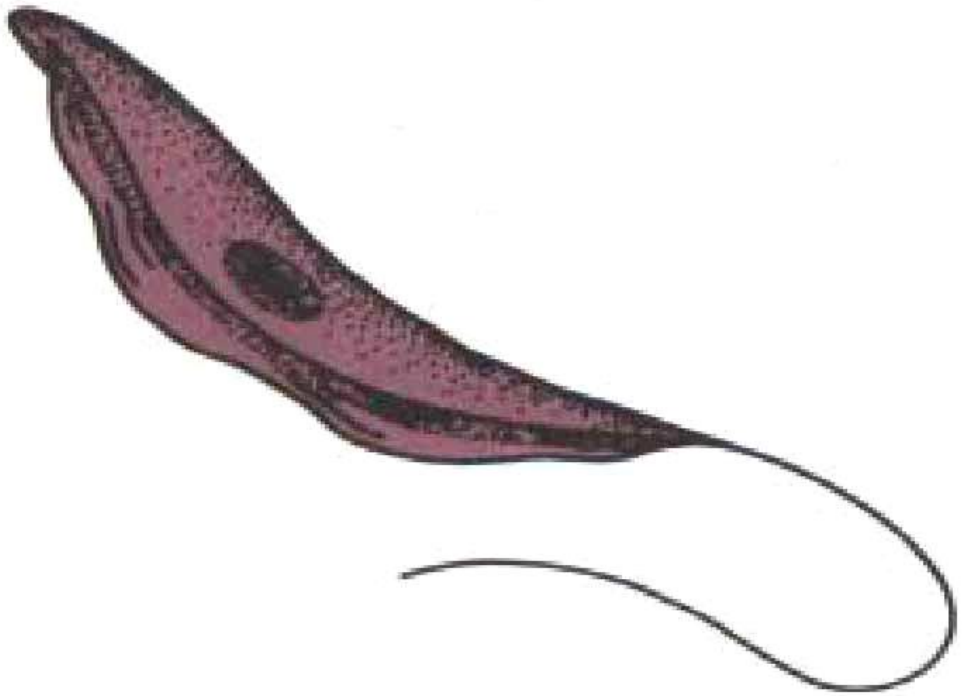
KINGDOM PROTISTA

Unicellular organisms

Phylum – Protozoa

Subphylum – Sarcomastigophora

Class - Mastigophora

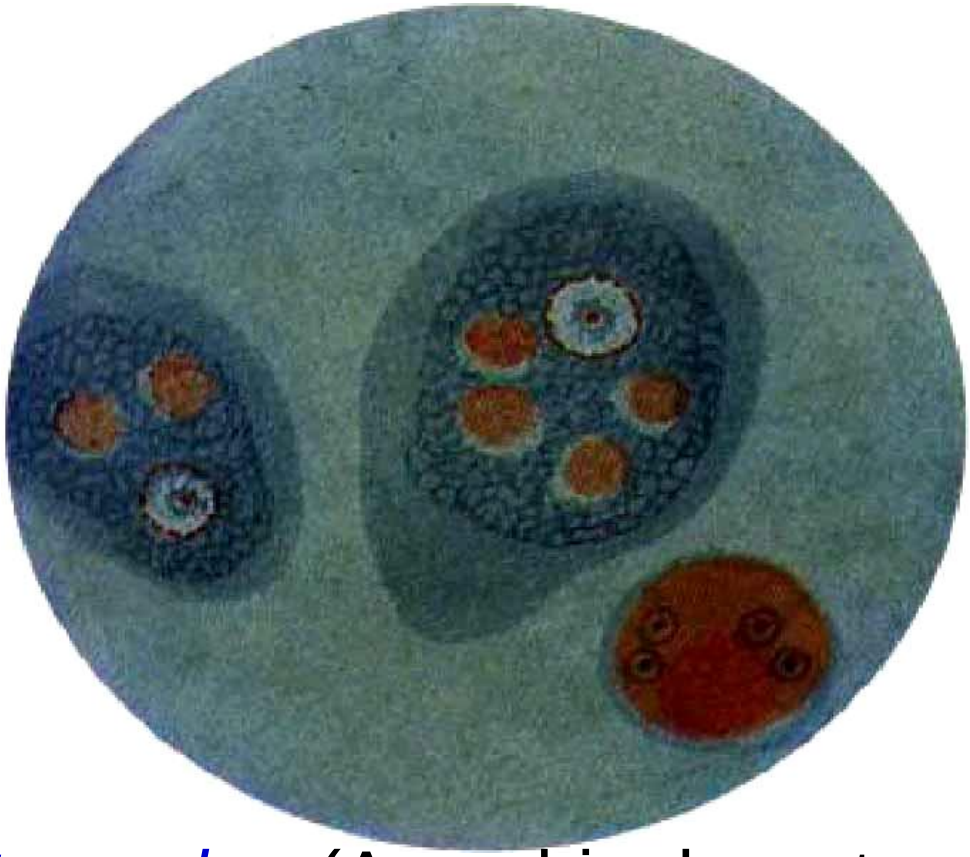


Trypanosoma (Sleeping sickness)

Phylum – Protozoa

Subphylum – Sarcomastigophora

Class - Sarcodina



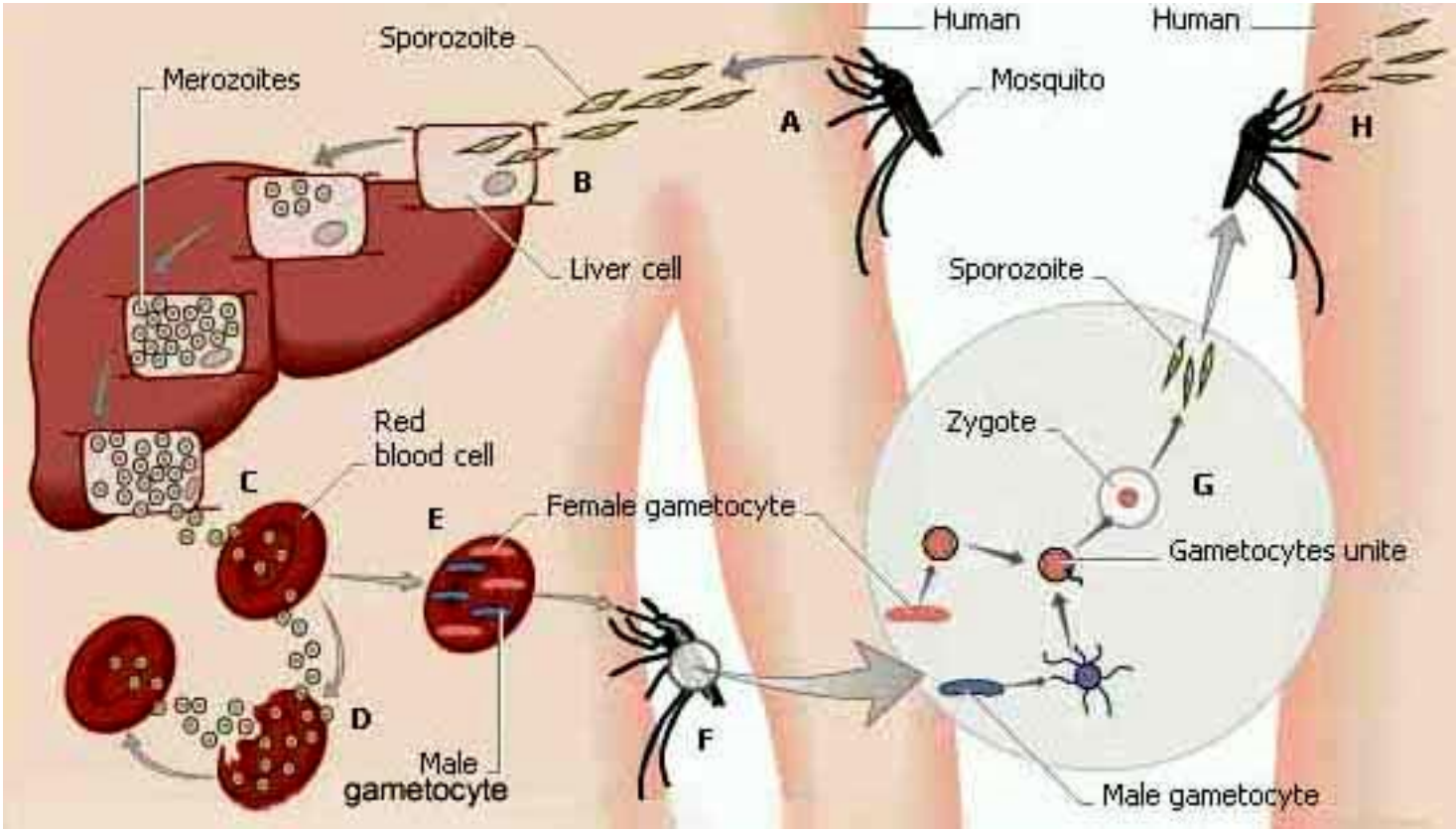
Entamoeba (Amoebic dysentery)

Phylum – Protozoa

Subphylum – Sporozoa

Class - Telosporea





Plasmodium (Malaria)

Phylum – Protozoa

Subphylum – Ciliophora

Class - Ciliata (Ciliates)



Balantidium (Parasite of the intestine in pigs)

KINGDOM ANIMALIA

Multicellular or tissue animals

Phylum – Porifera (Sponges)

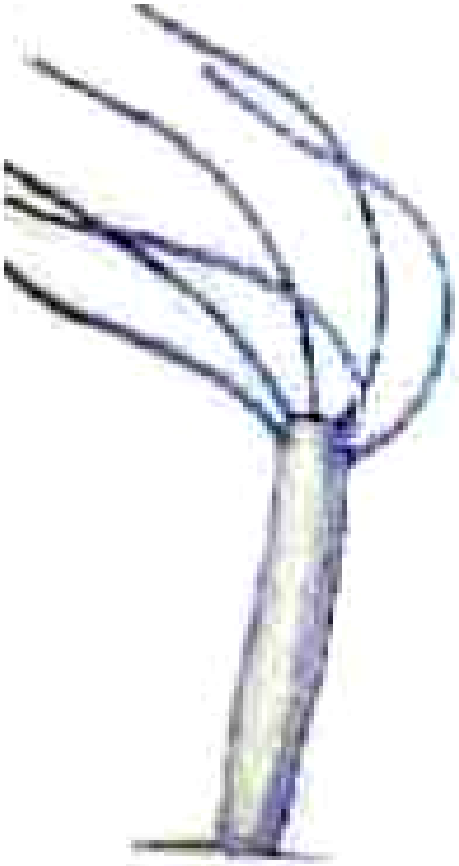
Class - Demospongiae

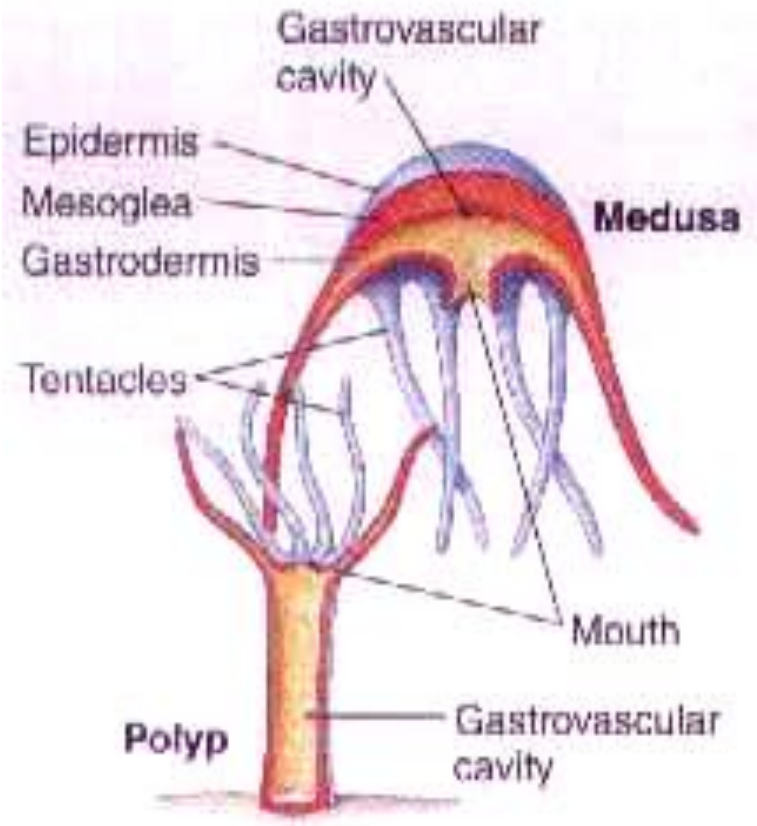


Euspongia (Bath sponge)

Phylum - Cnidaria (Coelenterata)

Class – Hydrozoa (Hydroids)





Hydra (Fresh water polyp)

Phylum - Cnidaria (Coelenterata)

Class – Scyphozoa (Jelly fishes)



Aurelia (Common jelly fish)

Phylum - Cnidaria (Coelenterata)

Class – Anthozoa (Corals)



Gorgonia (Sea fan)



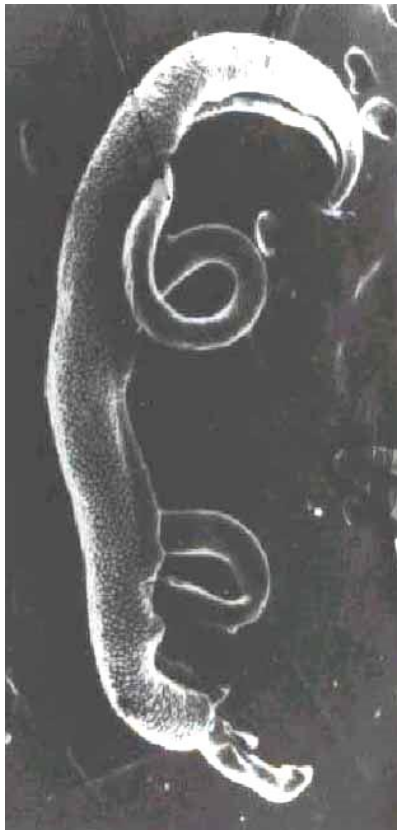
Astrangia (Stony corals)

Phylum – Platyhelminthes (flatworms)

Class – Trematoda (Flukes)



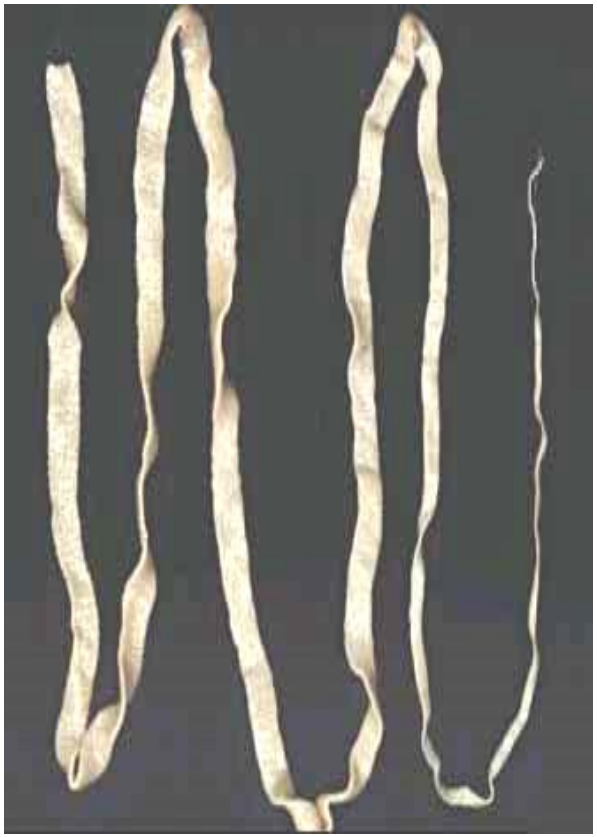
Fasciola (Liver fluke)



Schistosoma (Blood fluke)

Phylum – Platyhelminthes (flatworms)

Class – Cestoda (Tape worms)

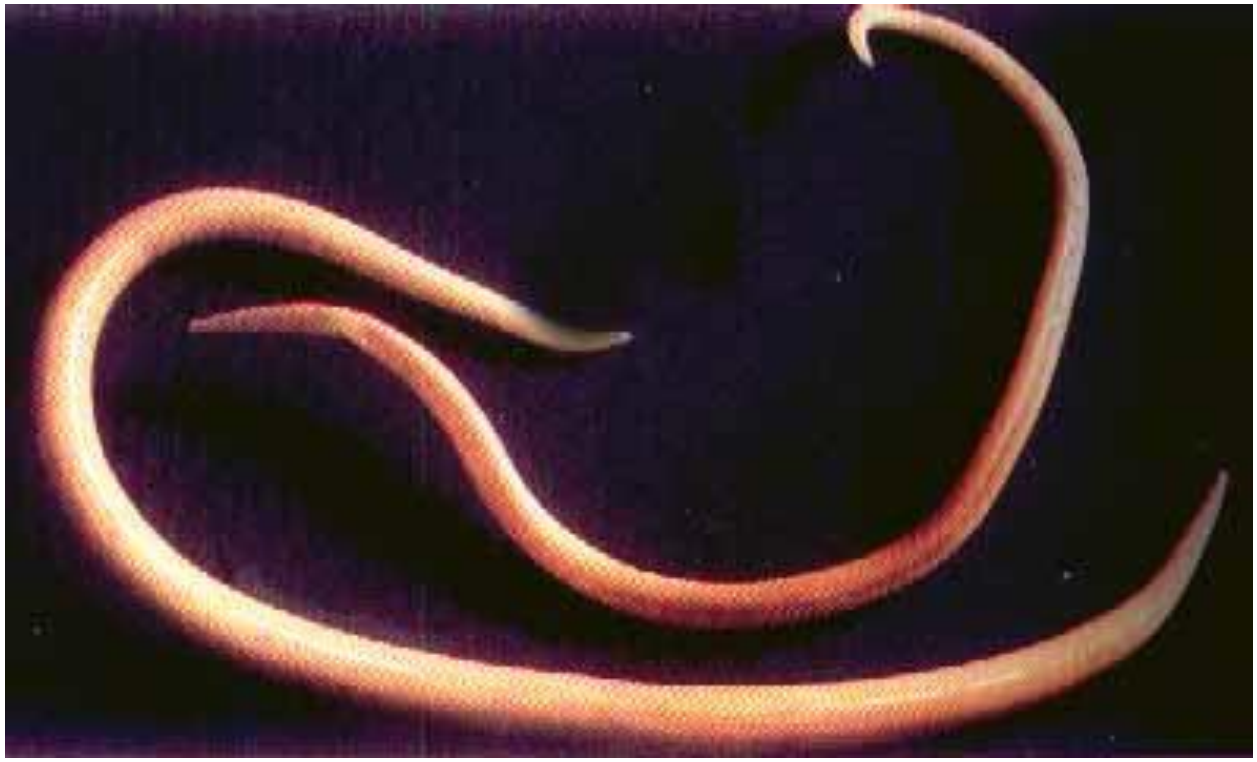


Taenia (Pork tapeworm)



Echinococcus (Dog tapeworm)

Phylum – Nematoda (Round worms)



Ascaris **(Roundworm)**

Phylum – Mollusca (Mollusks)

Class – Gastropoda (Univalve mollusks)



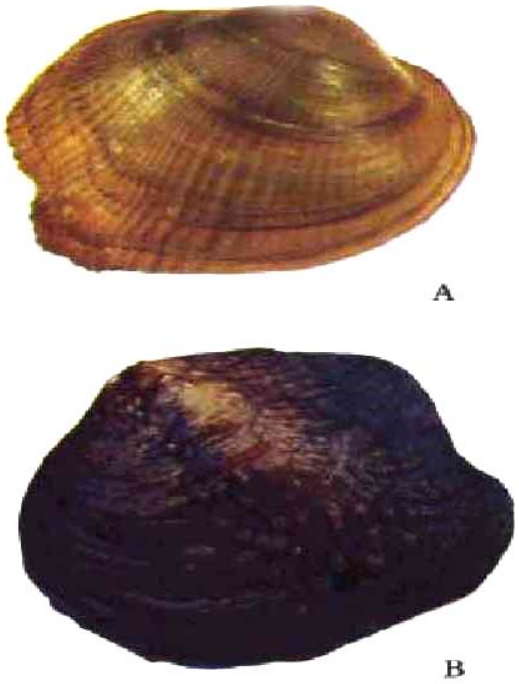
Helix (Snail)



Limax (Slug)

Phylum – Mollusca (Mollusks)

Class – Bivalvia (Bivalve mollusks)



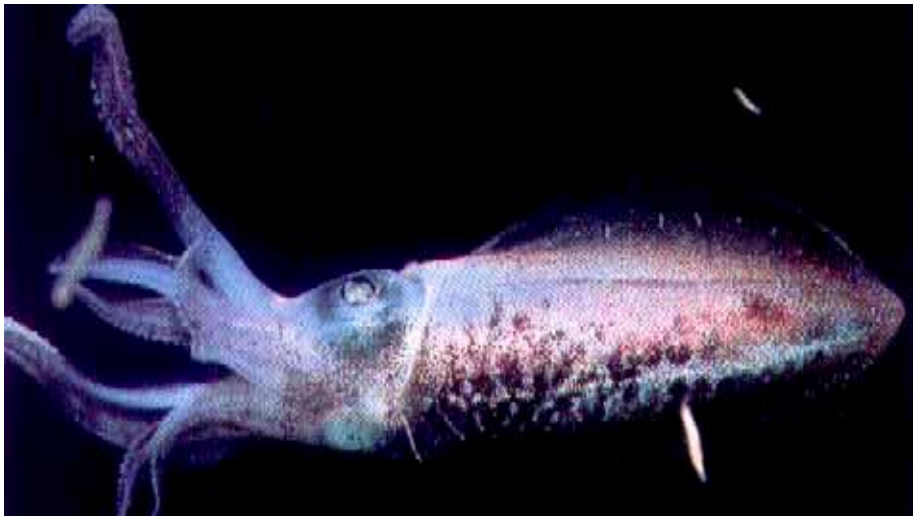
Ostrea (Oyster)



Mya (Clam)

Phylum – Mollusca (Mollusks)

Class – Cephalopoda



Loligo (Squid)



Octopus (Octopus)

Phylum – Annelida (Segmented worms**)**

Class – Oligochaeta (Earthworms)



Pheretima (Earthworm)

Phylum – Annelida (Segmented worms**)**

Class – Hirudinea (Leeches)



Hirudo (Leech)

Phylum – Arthropoda (Joint-footed animals**)**

Subphylum – Chelicerata

Class - Merostomata



Limulus (Horseshoe crab)

Phylum - Arthropoda (Joint-footed animals)

Subphylum - Chelicerata

Class - Arachnida



Spider



Scorpion



Mite

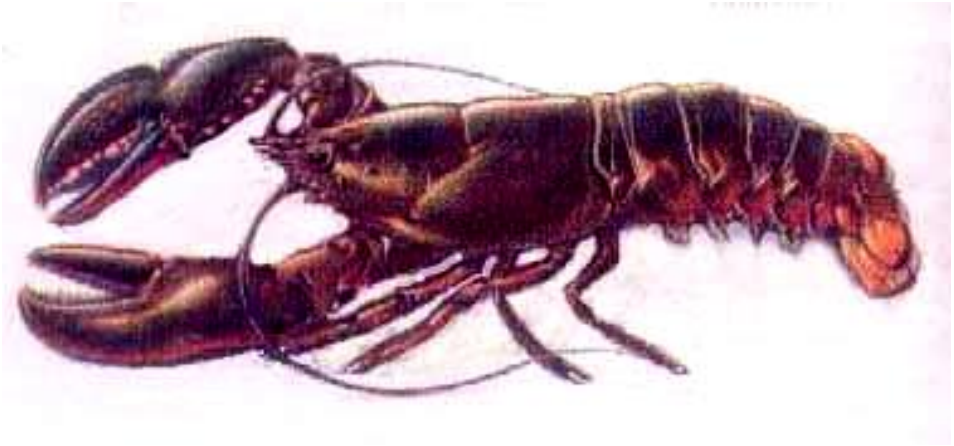


Tick

Phylum - Arthropoda (Joint-footed animals**)**

Subphylum - Mandibulata

Class - Crustacea



Lobster



Barnacles



Crab

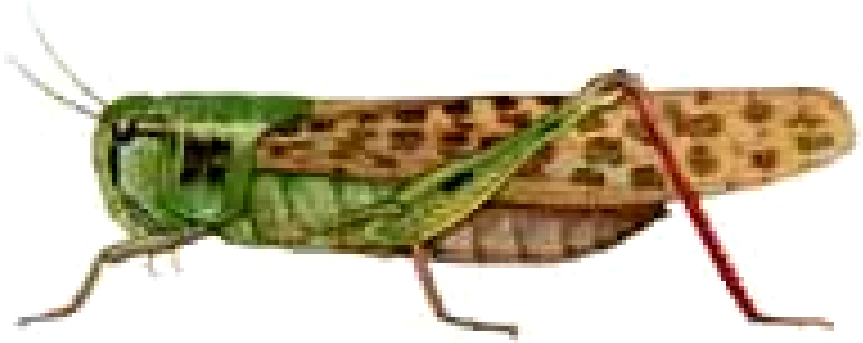


Astacus (Crayfish)

Phylum - Arthropoda (Joint-footed animals**)**

Subphylum - Mandibulata

Class - Insecta (Insects)



Melanoplus (Grasshopper)



Apis (Bee)



Musca (Fly)

Phylum - Arthropoda (Joint-footed animals**)**

Subphylum - Mandibulata

Class - Chilopoda

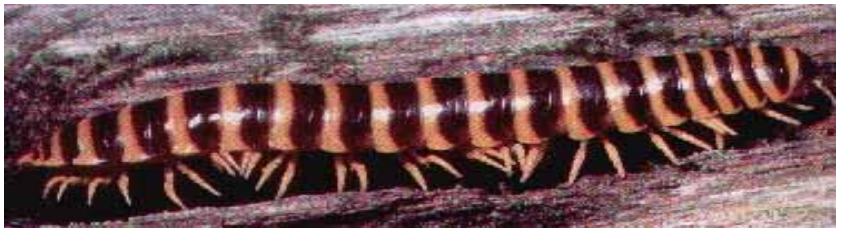


Scolopendra (Centipedes)

Phylum - Arthropoda (Joint-footed animals**)**

Subphylum - Mandibulata

Class - Diplopoda



Julus (Millipedes)

Phylum - Echinodermata (Echinoderms**)**

Class - Crinoidea



Sea lilies

Phylum - Echinodermata (Echinoderms**)**

Class - Stelleroidea





Starfishes





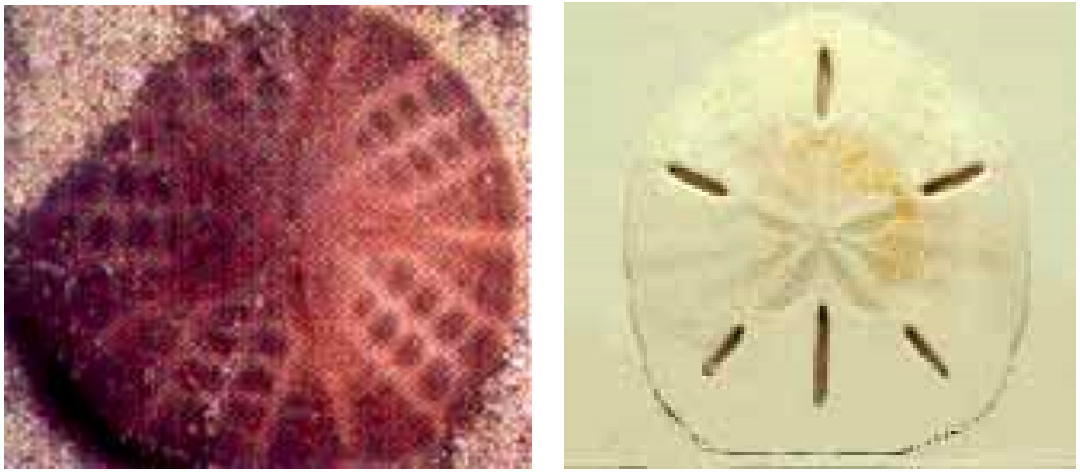
Brittle stars

Phylum - Echinodermata (Echinoderms)

Class - Echinoidea



Sea urchins



Sand dollars

Phylum - Echinodermata (Echinoderms**)**

Class - Holothuroidea





Thyone (Sea cucumber)