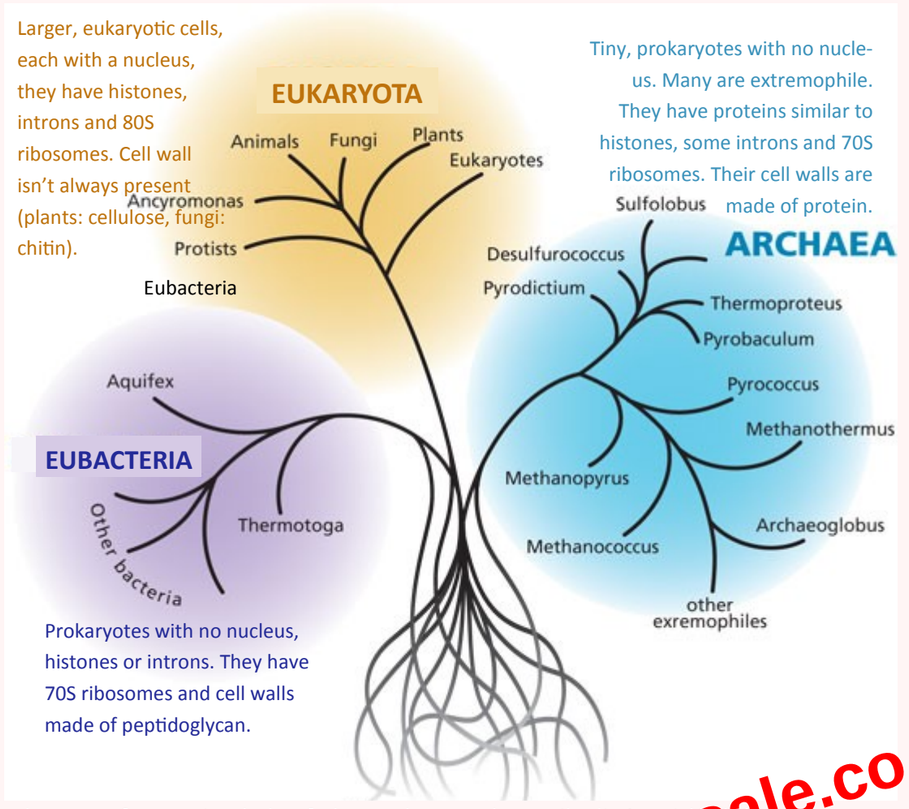


There are four main phyla of plants, they can be easily distinguished by studying their external structure:

Bryophytes (mosses)	Filicinophytes (ferns)
They have structures similar to root hairs called rhizoids—no roots. Simple leaves and stems; e.g. liverworts have a flattened thallus. No vascular tissue. Spores are produced in a capsule; this capsule develops at the end of a stalk.	They have roots, leaves and short non-woody stems. Their leaves curl up in a bud and divide into leaflet pairs (pinnate). Vascular tissue present. Spores produced in the sporangia on the underside of leaves.
Coniferophytes (conifers)	**Angiospermophytes (flowering plants)**
Shrubs or trees with roots, leaves and woody stems. Narrow leaves with thick waxy cuticle. Vascular tissue present. Seeds develop from ovules on the surface of the scales of female cones. Males cones produce pollen.	Usually have roots, leaves and stems. Stems of shrubs and trees are woody. Vascular tissue present. Seeds develop from ovules inside the ovaries of flowers. Fruit develops from ovaries to disperse the seeds.

TAXONOMY

Organisms are all classified into three domains: archaea, Eubacteria and Eukaryota. The evidence for this is RNA sequences which evolve slowly in all organisms, therefore it is a study of the earliest evolutionary events.

Viruses are not classified by domains because they are not considered to be living organisms.

There are over 30 Phyla of animals. Recognition features of several large phyla are shown here:

Porifera: sponges
No clear symmetry. Attached to a surface. Pores through body. No mouth or anus.

Cnidaria: Jellyfish
Radially symmetric. Have tentacles and stinging cells. Mouth but no anus.

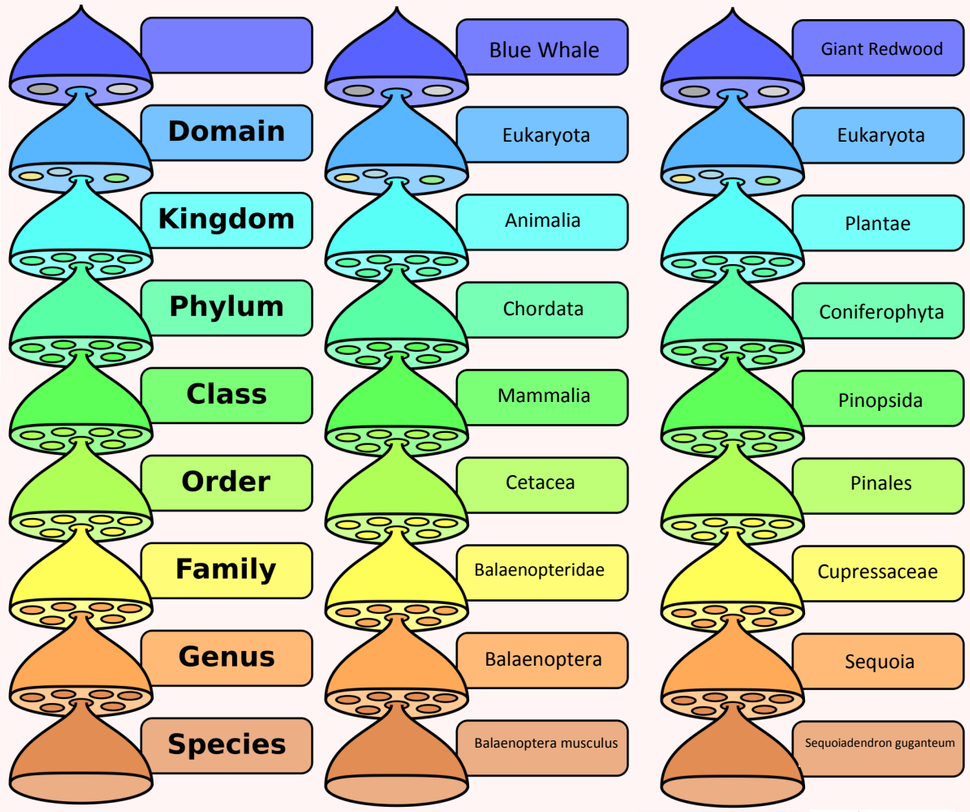
Platyhelminths: Flat worm
Bilaterally symmetric. Flat bodies. Unsegmented. Mouth but no anus.

Annelida: Earth worm
Bilaterally symmetric. Bristles often present. Segmented. Mouth and anus.

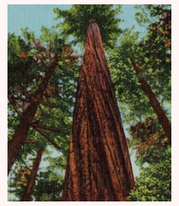
Arthropoda: Scorpions and spiders
Bilaterally symmetric. Have an exoskeleton. Segmented. Jointed appendages.

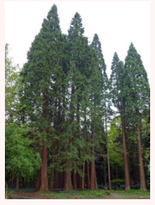
Mollusca: Snails
Muscular foot and mantle. Shell usually present. Segmentation not visible. Mouth and anus.

Chordata: Bony Fish
Notochord. Dorsal nerve cord. Pharyngeal gill slits. Post-anal tail.



Remember!
King Phillip Comes Over For Great Sex.





Almost all chordates have a backbone consisting of vertebrae. Apart from fish, all these vertebrates are tetrapods with Pentadactyl limbs, though in some species the limbs have become modified or lost through evolution. Recognition features of the five major classes of vertebrate are shown here:

Reptiles: Lizards
Dry scaly impermeable skin. Lungs with extensive folding. Internal fertilisation. Soft shells around eggs. One type of teeth.

Bony ray-finned fish:
Scales grow from the skin. Gills with a single gill slit. Fins supported by rays. Swim bladder for buoyancy. External fertilisation.

Birds: Blue Tit
Feathers growing from skin. Longs with parabronchial tubes. Wings instead of front legs. Hard shells around the eggs. Beak but no teeth.

Amphibians: Frogs
Soft moist permeable skin. Lungs with small internal folds. External fertilisation in water. Protective gel around eggs. Larval stage lives in water.

Mammals: Elephants
Hairs growing from the skin. Lungs with alveoli. Give birth to live young. Mammary glands secrete milk. Teeth of different types.