

# Animals

- multi-cellular
- eukaryotic
- heterotrophs
- no cell walls

All animals →

- 1) feed
- 2) respiration
- 3) circulation
- 4) excretion
- 5) response
- 6) movement
- 7) reproduction.

As animals get more complex (2)  
we tend to see:

- (1) high levels of cell specialization
- (2) high level of internal organization
- (3) Bi lateral Symmetry
- (4) Cephalization
- (5) Body Cavity

Protostomes - most invertebrates

Deuterostomes - echinoderms (sea stars)  
and vertebrates

3 Germ Layers → in embryo development

- (1) endoderm - lining of digestive tract, respiratory
- (2) mesoderm - muscles, circulatory
- (3) ectoderm - skin, sense, nerves

# Cephalization

→ Concentration of sense organs and nerve cells at the front (anterior) end of body.

→ bilateral symmetry → leads to more cephalization

ORGAN SYSTEMS work together to maintain Homeostasis

Sponges

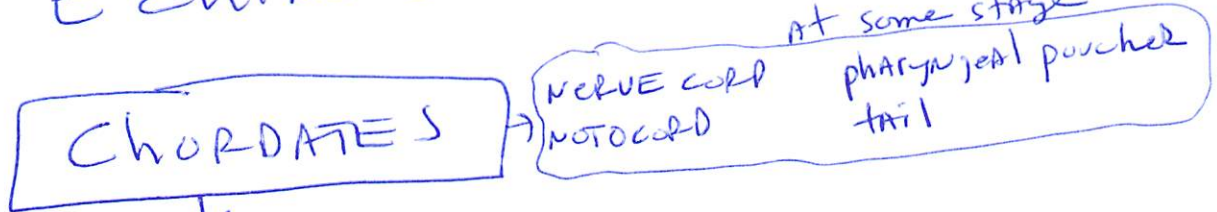
Cnidarians

Worms

Mollusks

Arthropods

Echinoderms



Fishes

Amphibians

Reptiles

Birds

Mammals

# Mammals

⑤

- ① Hair
- ② Mammary Glands
- ③ Breathe Air
- ④ 4-chambered hearts
- ⑤ Endotherms

→ appear about 220 mya  
from reptiles

→ circulatory  
respiratory  
endocrine  
digestive  
excretory

} work  
together  
to  
maintain  
homeostasis !!