

### Characteristics of Animals

eukaryotic  
 multicellular  
 lack cell wall  
 heterotrophic  
 mostly sex reprod  
 diverse & complex developmental strats  
 - gastrulation, symmetry, germ tissue

### animal body plans: tissues

ectoderm    outermost covers embryos surface  
 endoderm    innermost, digestive tube  
 mesoderm    middle, connective tissues

### animal phylogeny- 'body plans'

combine morphological, molecular, fossil data

~ 35 animal phyla

**body plan**    set of morphological and developmental traits  
 symmetry, tissues, body cavities

### animal body plans: body cavities

coelomate            true coelom  
 pseudocoelomate    "fake" coelom  
 acoelomate            no coelom

### General points of agreement

animals share a common ancestor  
 sponges are basal animals  
 eumetazoa clade with true tissues  
 most animals are bilaterians  
 - 3 clades

### animal body plans: gastrulation

cleavage    rapid cell division in zygotes  
 blastula    embryonic stage of multicellular hollow ball from cleavage  
 gastrula    embryonic stage of dif. tissue layers created thru gastrulation  
 blasto-pore:    opening on embryo.. usually becomes anus

### protostomy vs deuterostomy

PROTOSTOMY	DEUTEROSTOMY
mouth first	anus first
sprial determinate	radial inderterminate
molluscs	chordates
bottom 8	middle 3



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Published 23rd March, 2022.  
 Last updated 23rd March, 2022.  
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