

Biodiversity Chapter 32 Notes

- Most Animals are Invertebrates
- 15 different phyla

General Characteristics of Animals

- Eukaryotic
- Heterotrophic
- Multicellular
- Feed by ingestion (compared to photosynthesis or absorption)
- Lack cell walls
 - o Held together by structural proteins (collagen)
- Has Nervous/Muscle tissue
- Store carbs as glycogen
- Reproduce sexually with characteristic development of the early embryo (Hox Genes)
 - o Some can alternately reproduce asexually

Hox Genes - a sequence of nucleotides that evolved very early & have been conserved virtually unchanged

Early Embryonic development in Animals

Zygote → 8-cell stage → Blastula → Gastrula

Blastula - hollow ball of cells

Blastocoel - the hollow center inside the Blastula

Blastopore - hole in Gastrula that becomes either the mouth or anus

Endoderm, Ectoderm, Mesoderm - embryonic tissue layers.

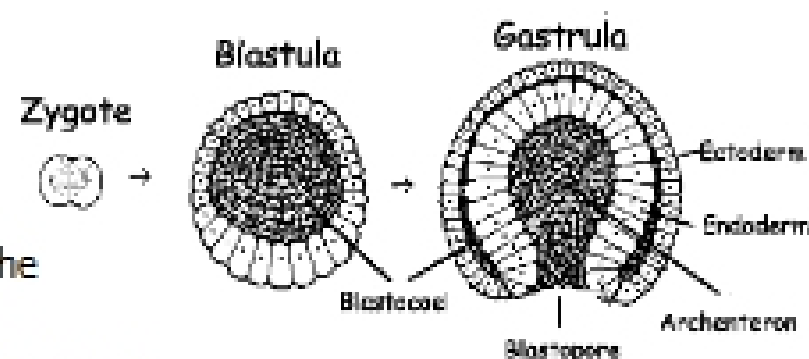
Endoderm - becomes Gastrointestinal tracts or mouth (in some animals)

Mesoderm - becomes Muscles

Ectoderm - becomes Skin

Protostome - Blastopore becomes mouth, other side becomes anus

Deuterostome - Blastopore becomes anus, other side becomes mouth



The Cambrian Explosion

- when many different phyla of animals came to be
- Some jellyfish, sponges & soft-bodied mollusks already existed, but that's it
- Burgess Shale Fossils show animal fossils that may be pre-cambrian
- **Choanoflagellates** (see picture)
 - o Single celled
 - o Protists
 - o Colonial (right)



- o Inhale through ingestion
- o Sponges are made up of collar cells, which look JUST LIKE choanoflagellates
 - Cells like this are only found in animals
- o Choanoflagellates are the ancestor to animals (Sponges are the most primitive animals)

Radial Symmetric Animal - no left or right, but rotationally the symmetric

Bilaterally Symmetric Animal - has a left and right/top and bottom/front and back

Anterior - Front of a bilateral Animal

Posterior - Back of a bilateral Animal

Dorsal - Top of a bilateral Animal

Ventral - Bottom of a bilateral Animal

Diploblastic - 2 tissue layers (endoderm, ectoderm). Radial animals are diploblastic.

Triploblastic - 3 tissue layers (endoderm, mesoderm, ectoderm). Bilateral animals are triploblastic.

Epithelial Tissue - lines the body cavity

Features of Protostomes	Features of Deuterostomes
8-cell stage: cleavage cells spiral	8-cell stage: cleavage cells radial symmetric
8-cell stage: cells are determinate	8-cell stage: cells are indeterminate
Schizocoel - Solid masses of mesoderm split to form coelom	Enteroocoel - Fold of archenteron form coelom.
Mouth develops from blastopore (see image on pg. 1)	Anus develops from blastopore (see image on pg. 1)

Determinate - cells know what they'll develop into

Indeterminate - cells do not know what they'll develop into