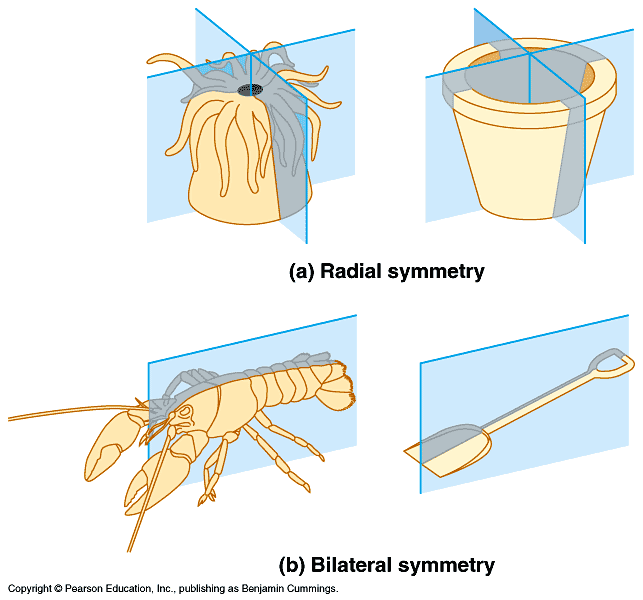
Life Sciences 11 **Kingdom Animalia - Introduction** Name:

Date:

**By the end of the lesson you should be able to:**

Describe the 5 ways we classify animals - symmetry, germ layers, body plan, segmentation, animal evolution & early development pattern

**Animal Characteristics**

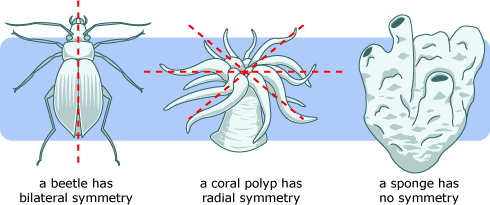
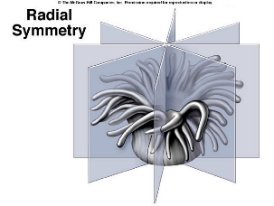
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with a high degree of cell specialization.
* Type of cells: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Mode of nutrition: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by ingestion.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cell walls.

**Classification Criteria**

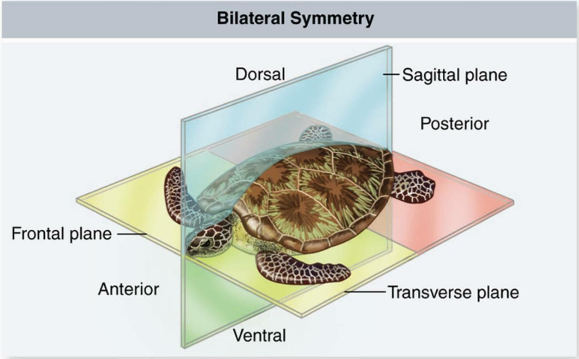
**1. Symmetry** (body axis)

* With the exception of some sponges, every kind of animal exhibits some type of body symmetry.
* Two types: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

A. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

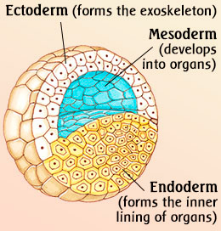
* Can be divided into \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ through central axis
* These have a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shape
* Think of a bicycle wheel
* As a result, they have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ like this sea anemone.



B.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Can be cut into two equal halves \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_, through the mid dorsal line.
* Results in in anterior, posterior, ventral, dorsal, left and right.
* Allows for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (concentration of sense organs and nerve cells at the front end of the body)

**2. Germ layers**

* Early in animal development, cells will choose, or differentiate into three layers called germ layers.
* The word germ means grow - the germ layers in animals grow to form the various tissues and organs
* Three types: No germ layers, diploblastic, triploblastic

A. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

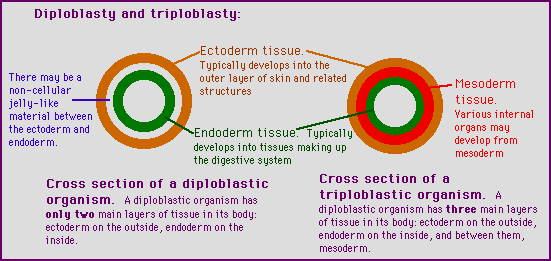
* This is the most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as these animals develop \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

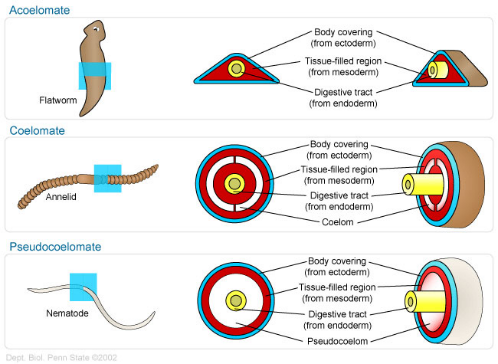
B. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* \_\_\_\_\_\_\_\_\_\_\_\_ germ layers: ectoderm and endoderm
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: outer layer (forms ­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: inner layer (forms lining of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

C. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* \_\_\_\_\_\_\_\_\_\_\_\_ germ layers
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ grows between the ectoderm and endoderm.
* Forms \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and most of remaining internal organs
* This is the highest level





**3. Body Plan:** type of body cavity

The evolution of a body cavity, called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, provided a place for organs and organ systems to grow

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: no coelom

* poorly developed organs

B. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: false coelom

* Have a body cavity between endoderm and mesoderm layers
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ through digestive tract
* Some organs systems develop in this space

C. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: true coelom

* Have a body cavity located between the mesoderm of the body wall and the new layer of mesoderm around the gut
* Allows for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Highest level of development

**4. Segmentation** leads to specialization and body regions

1. Non-Segmented: no specialized sections



1. Segmented: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



C. Segmented \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Body segments fuse together to become body regions which focus on one set of tasks

**5. Animal Evolution & Early Development Pattern**

* We typically study animals in three groups which reflect their evolutionary history.

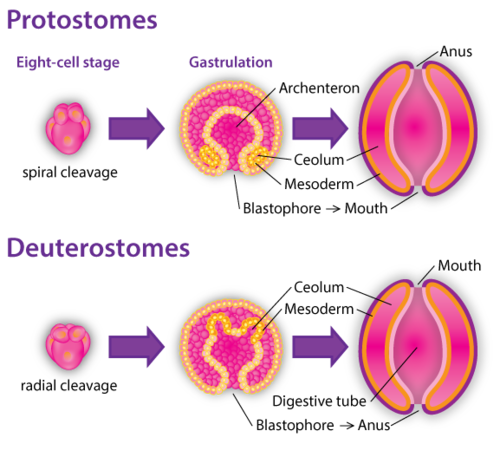
**A. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:**

* These phyla demonstrate a fairly linear evolution (simple biology)
* They include: Porifera, Cnidaria, Platyhelminthes and Nematodes

**B. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:**

**i. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* This is one of two main branches of animal evolution
* Named this way due to embryo development (\_\_\_\_\_\_\_\_\_\_\_ develops first from blastopore)
* They include the Annelids, Molluscs, and Arthropods

****

**ii. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* These are the animals on the other great branch of animal evolution (\_\_\_\_\_\_\_ develops first)
* Include the echinoderms and lower chordates

**C. Vertebrates**

* Represent the most highly evolved animals (\_\_\_\_\_\_\_\_\_\_\_\_\_)

We will learn how different phylum and groups of animals do the following processes of life:

* + Feeding
  + Respiration
  + Circulation
  + Excretion
  + Response
  + Movement
  + Reproduction

