**Phylum Arthropoda: Jointed Legs**

**What is an Arthropod?**

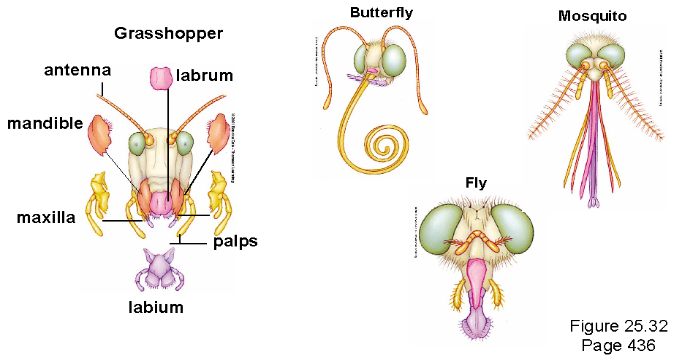
* Most dominant animal phylum on Earth making up 75% of all animals
* Name comes from Latin ‘jointed foot’
* Segmented bodies with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Protostomes – develop mouth first in early development
* Examples include spiders, crabs, ants and centipedes

**Body Plan**

* Triploblastic coelomates
* Tube-within-a-tube
* Exoskeleton: made of hard non-living \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_; provides strength and protection; \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to allow for movement

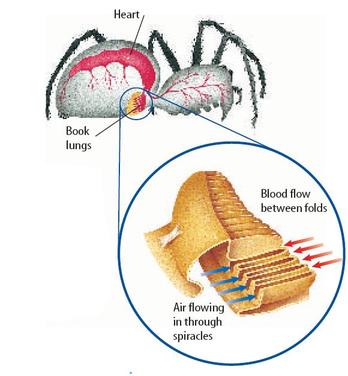
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: can be used for many purposes and adapted and modified

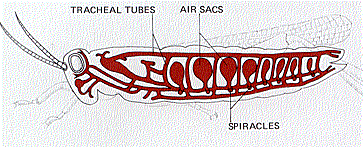


**Feeding**

* Hugely diverse phylum which includes herbivores to carnivores and filter feeders to parasites
* Arthropods have evolved \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ such as jaws, pincers and boring drill like structures that allow them to eat almost any type of food you can imagine

**Respiration**

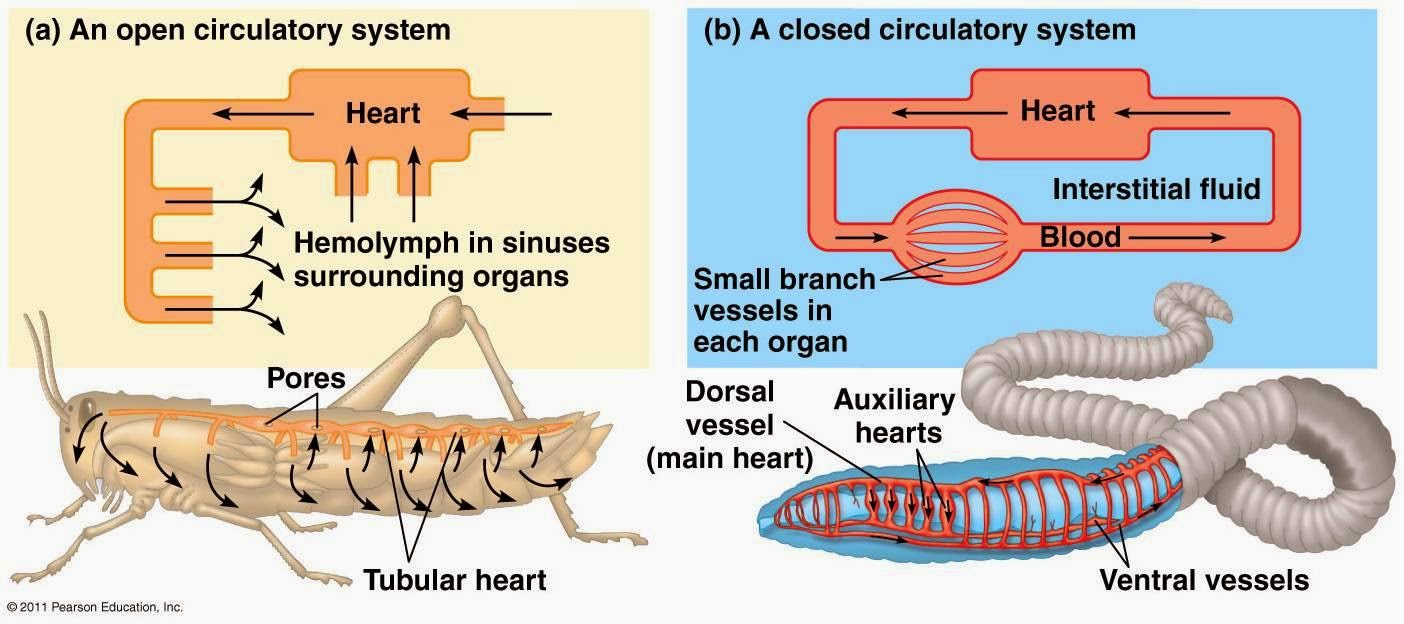
* Most aquatic arthropods such as crabs or lobsters use featherlike \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to breathe
* Terrestrial arthropods such as grasshoppers use a network of branching \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that extend throughout the body.
* Air enters the tracheal tubes through small openings on the side of the body called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



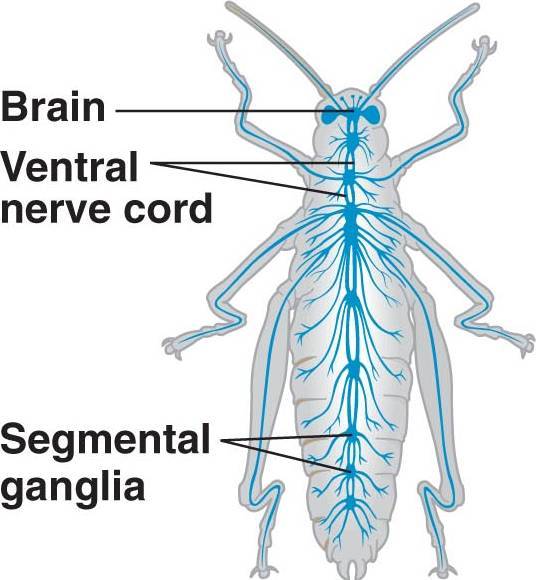
* Terrestrial arthropods such as spiders use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for respiration.
* Book lungs are organs that have layers of respiratory tissue stacked like pages of a book

**Circulation**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Blood leaves blood vessels into sinuses or cavities then collects in a large sinus surrounding the heart where it is pumped through the body



**Excretion**

* In terrestrial arthropods, excretion of cellular wastes such as ammonia by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – sacs which extract waste from the blood and add it to digestive wastes
* In aquatic arthropods, excretion of cellular waste may be by diffusion or may be by kidney-like organs called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in organisms such as crayfish

**Response**

* Well-developed nervous systems with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Several ganglia along the ventral nerve cord coordinate the movements of individual legs and wings
* Sophisticated sense organs such as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that detect colour and motion to antennae which detect chemicals



**Movement**

* Well-developed groups of muscles contract or relax when stimulated by the nervous system
* Different muscles \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Reproduction**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Fertilization is typically internal for terrestrial arthropods and aquatic arthropods may be internal or external

**Growth and Development**

* Exoskeletons do not grow as the animal grows, so arthropods undergo \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Molting is when the arthropod \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and builds a larger one to take its place

**Class \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ -** The Centipedes

Very annelid-like with repeating segments

*Setae are modified to crude appendages - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

Body segments have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

****Class \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_-** The Millipedes

Very annelid like but have an exoskeleton

*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

Body segments have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Class \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Development of body regions: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Have fused head and thorax called a “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_”

*Show major increase in segment specialization and many specialized appendages*

*Excellent \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*



**Class \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, ticks and mites

****Also have a fused cephalothorax but have 4 pairs of legs (an additional pair as mouth parts)

Use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Are all predators or parasites



**Class \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

*Compose about 65% - 70% of the animal kingdom*

Have three separate body regions and three pairs of legs

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Respiration with tracheal tubules, excretion by malpighian tubules

|  |  |
| --- | --- |
| Why are the insects so successful??  1. \_\_\_\_\_\_\_\_\_\_: tiny to minute - don’t eat much, can hide  2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: hard, yet great strength  3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ - don’t eat much  4. Reproduction: all sexual - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: many advantages | 6. Specialized \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_: eat many things  7. Adaption of exoskeleton: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ etc  8. Well-developed \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  9. Evolved \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  10. Very specific \_\_\_\_\_\_\_: minimizes competition |

