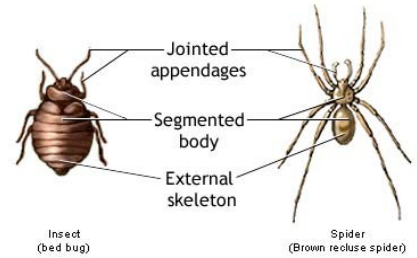


Arthropods

- Subphylum Trilobitomorpha (trilobites)
- Subphylum Chelicerata (spiders, scorpions, horseshoe crabs, sea spiders, sea scorpion)
- Subphylum Myriapoda (centipedes, millipedes)
- Subphylum Crustacea (brine shrimp, barnacles, fish lice, lobsters, crabs, shrimp)
- Subphylum Hexapoda (insects)

Three Basic Characteristics of Arthropods (Insects and their Relatives)



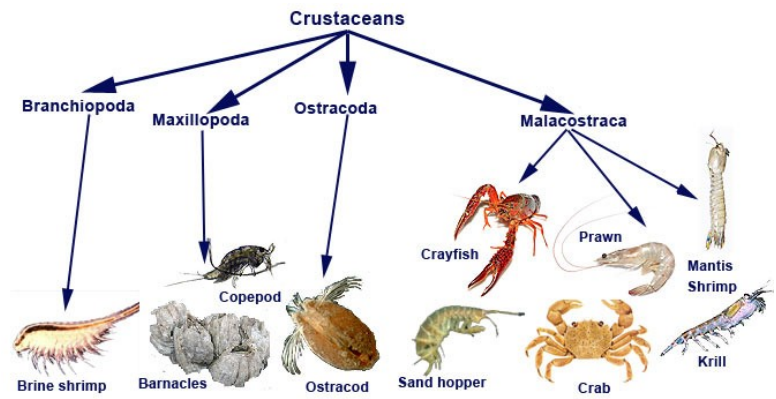
ADAM

General

Most diverse, more species than other phyla. The insects alone have more than a million described species and equates to half of all known organisms. The name arthropod means jointed foot, or jointed leg, and aside from vertebrates are the only animals with joints. They have adapted to live in all earth environments. They range from microscopic to 13 feet (Japanese spider crab)

Body Plan

Invertebrates with exoskeleton and jointed appendages. Attached to the exoskeleton may be setae, or hair-like projections. They use hydraulic pressure to extend their legs. All arthropods will molt, or shed their shells to grow a larger one. Most have open circulatory systems or some open-ended arteries. All have heart(s) and a coelom. They breathe through gills or book lungs. Their excretory systems are well developed. They also have well developed senses, with chemo-receptors (scent and taste) and ocelli (eyes). Many can hear as well.



History

Most arthropods were present during the Cambrian explosion (about 560 mya). Early arthropods are similar to segmented worms (think of the centipede).

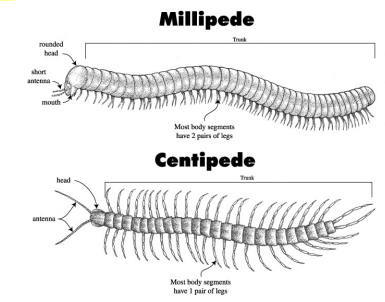
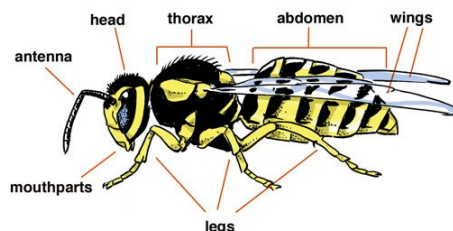
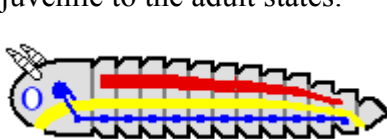


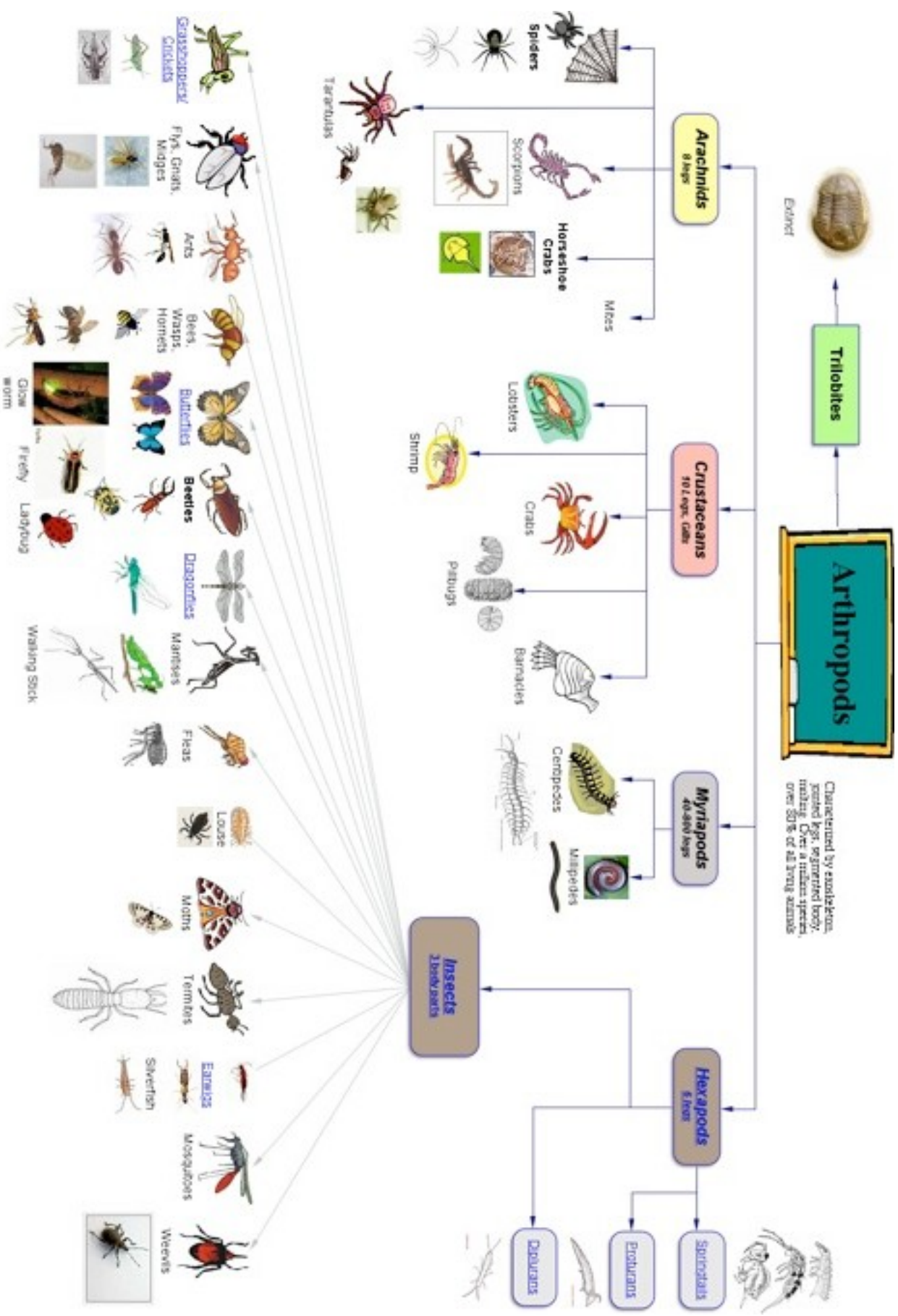
Reproduction

Only a few arthropods are hermaphroditic, such as barnacles. Even those only behave as a single sex throughout their lives. Most arthropods have a single sex. Some of the marine arthropods have external fertilization, but most of the land arthropods have eggs that are fertilized internally. Some do produce packets of sperm that the female must pick up. Most arthropods lay eggs, but scorpions give live birth. From birth, many will either grow or transform from the juvenile to the adult states.

Subphylum Chelicerata → *chelicerae*

- Class **Xiphosura**: horseshoe crabs
- Class **Arachnida** → **pedipalps, 4 pairs of legs, lack antennae**
 - Order **Scorpiones**: scorpions
 - Order **Uropygi**: whip scorpions
 - Order **Pseudoscorpiones**: pseudoscorpions
 - Order **Opiliones**: daddy-longlegs
 - Order **Acari**: mites, ticks
 - Order **Araneae**: spiders





Arthropods

Characterized by exoskeleton, jointed legs, segmented body, molting. Over a million species, over 50% of all living animals



Trilobites

Extinct

Arachnids
8 legs



Spiders



Scorpions



Horseshoe Crabs

Mites

Tardigrades

Crustaceans
10+ legs, Copepods



Lobsters



Crabs



Shrimp



Barnacles

Myriapods
40-800 legs



Centipedes



Millipedes

Hexapods
6 legs



Springtails

Proturans

Diplurans

Insects
3 body parts



Scanscoptera/Cockles



Flies, Gnats, Midges



Ants



Bees, Wasps, Hornets



Butterflies



Beetles



Dragonflies



Mantises



Flies



Louse



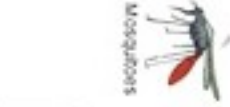
Moths



Termites



Silverfish



Mosquitoes



Weevils



Glow worm



Firefly



Ladybug



Waking Sock