



1st Lecture in Insect Ecology

Phylum Arthropoda

Insects and their relatives

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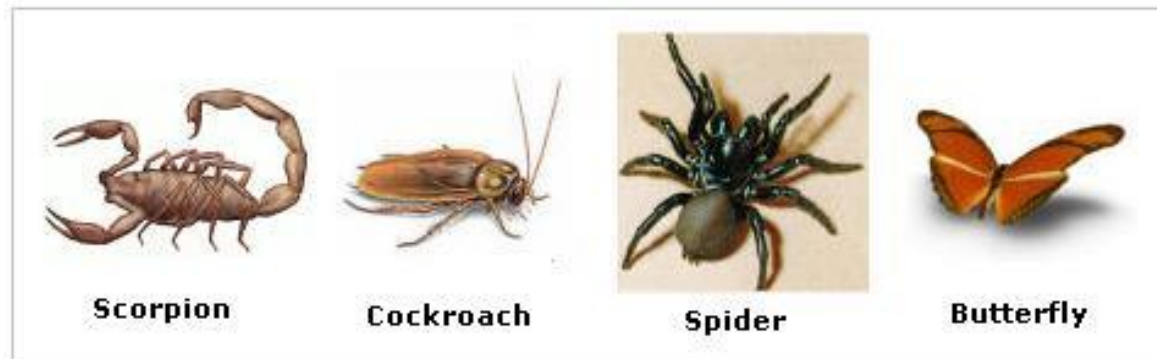
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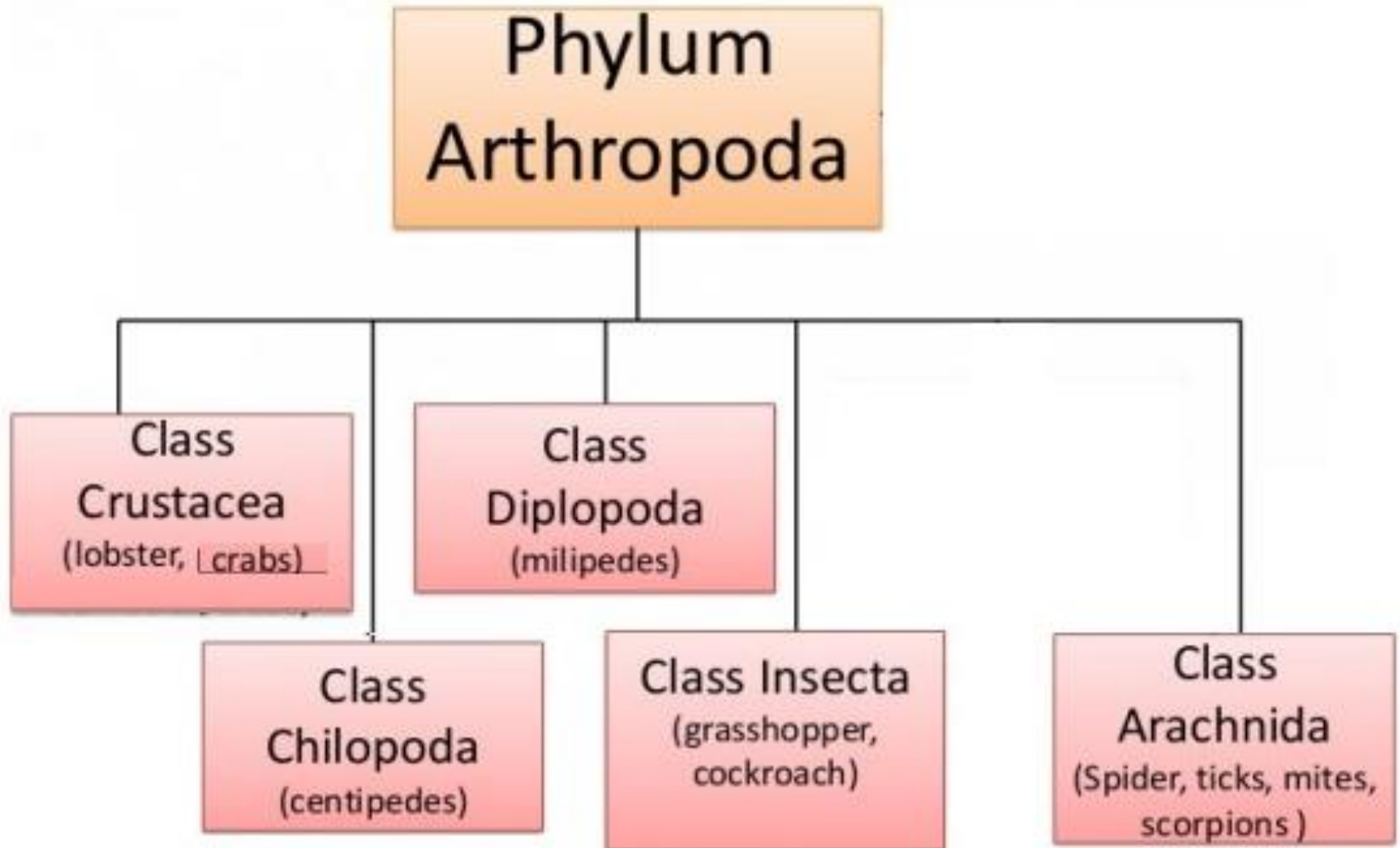
Characteristics of Arthropoda

1. Arthropods have segmented bodies; the exoskeletons of arthropods are made up of calcium-containing compound called chitin exoskeletons, and often have compound eyes.
2. They have open circulatory systems and complete digestive system.
3. Bilateral symmetry.
4. Jointed Appendages- each segment may has pair of appendages, such as: legs, wings and mouthparts.

5. The nervous system is dorsal.
6. Respiration by gills, tracheae, or spiracle.
7. Muscular system is complex and muscles attach to the exoskeleton.
8. Arthropods reproduce sexually, but some exhibit parthenogenesis.
9. Arthropods must molt, or shed their exoskeleton, in order to grow in size.



Classes of Arthropods



Class Crustacea: Crab, woodlice, crayfish, shrimp

1. Body grouped into three regions: the head, the thorax, and the abdomen. The head and thorax may be fused together to form a cephalothorax.
2. Two pairs of antennae.
3. Five to seven pairs of legs.
4. The majority of crustaceans are aquatic, living in either marine or freshwater environments, but a few groups have adapted to life on land, such as terrestrial crabs and woodlice.



Crayfish



Crabs



Woodlice

Class Diplopoda: Millipedes

1. Two pairs of legs per body segment.
2. Most millipedes are detritivores and feed on decomposing vegetation, feces, or organic matter mixed with soil.
3. Have very elongated cylindrical or flattened bodies with more than 20 segments.
4. Nocturnal.



Millipedes

Class Chilopoda: Centipedes

1. One pair of legs per body segment.
2. Centipedes are carnivorous and eat soil arthropods, snails, slugs, and worms.
3. Some species of centipedes can be hazardous to humans because of their bite in which the first pair of legs modified as venomous fangs.
4. Centipedes are mostly nocturnal predators.



Centipedes

Class Arachnida: e.g. Scorpion, Yellow Garden Spider, Blacklegged Tick

1. Most arachnids have two body regions: cephalothorax and abdomen.
2. Most arachnids have four pairs of legs.
3. Antennae are absent.
4. Most contain venom.



Scorpion



Yellow Garden Spider



Blacklegged Tick

Class Insecta: e.g. ladybug

1. Three body segments: head, thorax and abdomen
2. One pair of antennae.
3. Wings- usually two pairs of wings, although some have one pair of wings, or none.
4. Three pair of legs, one pair to each of the three thoracic segments.
5. Life cycle has either incomplete or complete metamorphosis.



fly



ant

www.visualdictionaryonline.com



termite



shield bug



ladybug

Roles of Arthropods in ecosystem:

- ✓ Pollination of flowering plants.
- ✓ Recycling plant and animal matter.
- ✓ Soil formation and mixing.
- ✓ Centrality to animal food chains.
- ✓ Use Arthropods as ecological indicators.

