



### Phylum Arthropoda

#### General Characteristics

1. **Exoskeleton** – UNIQUE CHARACTER
  - Secreted
  - Ecdysis (molting) to grow
2. Segmented body
3. Jointed appendages
4. Bilateral symmetry
5. Open circulatory system
  - Coelomate (body cavity)
  - Protostome (head first from gastrulation)

- In terms of numbers, distribution, and diversity, they are the most successful phylum of animals, and are divided into several subphyla and classes:

Subphyla **Chelicerata** includes:

**Class Merostomata**

Horseshoe crabs

### Class Arachnida:

Scorpions  
Spiders  
Ticks and Mites

- Most arachnids are terrestrial and carnivorous

Spiders, scorpions, ticks, mites  
65,000 species

- **two body regions: cephalothorax, abdomen**
- **eight legs**
- no antennae
- Mouth parts are chelicerae (modified appendages) which in spiders are fangs

### Crustaceans (technically a subphylum)

- Classes include crabs, shrimps, lobsters, barnacles, isopods. 44,000 species
- 2 body regions
- 2 pairs of antennae
- 5 or more pairs of legs
- Primarily aquatic, few terrestrial

### Millipede vs Centipede

<p><b>Diploids</b></p> <p><u>Millipedes</u> 10,000 species</p> <ul style="list-style-type: none"> <li>two pairs of legs per segment, first four segments have 1 pair legs</li> <li>one pair of antennae</li> <li>well-defined head</li> <li>usually cylindrical</li> </ul>	<p><b>Chilopods</b></p> <p><u>Centipedes</u> 2,800 species</p> <ul style="list-style-type: none"> <li>one pair of legs per segment</li> <li>well-defined head</li> <li>first pair of legs modified for envenomation <b>POISON!!!</b></li> <li>flattened top to bottom</li> </ul>
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### Class Insecta are the most diverse group of organisms

- Insects are the most numerous and successful arthropods. Grasshoppers, butterflies, beetles, ants, etc. 1,000,000 described world species.

They have

- a three-part body consisting of
  - head, thorax, and abdomen
  - Some adults have one or two pairs of wings attached to the thorax (some have none)
- 2 antennae
- lateral compound eyes
- 6 legs attached to the thorax (which has 3 segments)
  - wings (most, but not all insects)
- Indirect Development** The development of many insects includes metamorphosis

