II. Growth and Development in Arthropods

A. What is a problem with exoskeletons?

They must be replaced with larger ones in order to allow the body inside to increase in size as it matures

B. Describe the steps that occur during molting:

1. *The epidermis digests the inner part of the exoskeleton, absorbing the chitin to recycle it*

2. *Secretes a new exoskeleton inside the old one*

3. Arthropod pulls completely out of its old exoskeleton (may eat what's left – more recycling)

4. The animal then expands to its new, larger size, and the new exoskeleton stretches to cover it

5. Wait for the new exoskeleton to harden; during these few hours to a few days, the new shell is soft and the animal is quite vulnerable

Giant Spider Crab Molt

BBC Blue Planet crab molt

C. What is the difference between complete metamorphosis and incomplete metamorphosis?

- ***Complete Metamorphosis involves VERY different physical appearances at the different stages of growth (usually: egg, larva, pupa, adult).***

Butterfly LifeCycle

- ***Incomplete Metamorphosis involves stages with a physical appearance that more closely resembles one another (usually: egg, nymph, adult).***

Preying Mantis Lifecycle

28-2 Spiders and Their Relatives

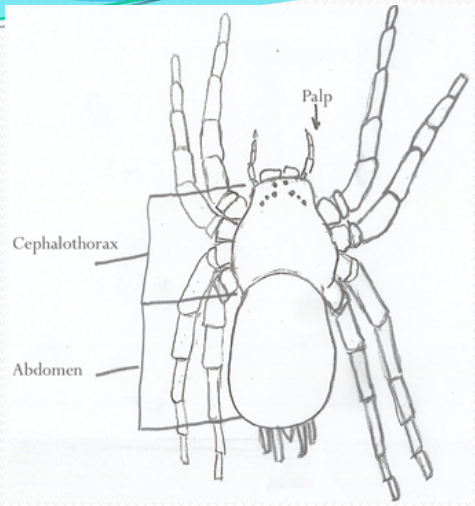
I. Spiders and Their Relatives

Terrestrial Arthropods Video

A. Subphylum Chelicerata has 3 main characteristics

1. *Two-part body*
2. *Mouthparts called chelicerae*
3. *Lack sensory "feelers" (antennae) on the head*

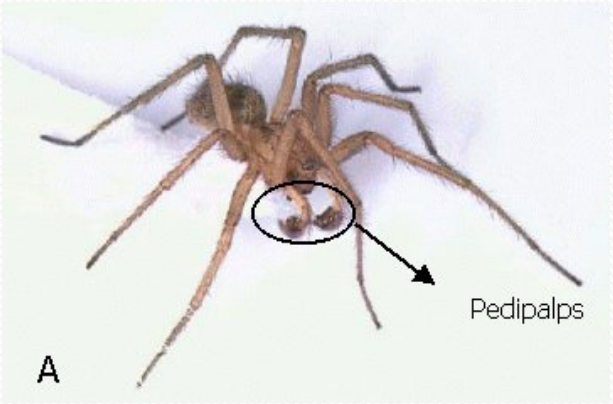
II. Arachnids



A. Characteristics:

1. ***Four pairs of walking legs on their cephalothorax***

2. ***Carnivores that have pedipalps adapted for capturing and holding prey and chelicerae adapted for biting and sucking out their soft parts***



B. Some examples of Arachnids:

1. *Spiders*

2. *Mites and ticks*

3. *Scorpions*

C. Spiders

1. Diet: *Insects*

a. Describe how a spider eats.

- It uses its hollow fingerlike chelicerae to inject paralyzing venom into it.

- When the prey is paralyzed, it introduces enzymes which break down the tissues into the wounds made by the chelicerae.

- It sucks up the liquefied tissues with its esophagus and specialized pumping stomach.

2. Silk: ***strong, flexible protein***

a. Why do arachnids build silk structures?
Produce webs for catching food, cocoons for eggs, wrappings for prey