Phylum Arthropoda - II
(Crustaceans)

[Ex 14; p 211]

Subphylum Crustacea: (crabs, shrimp, crayfish, barnacles, pill bugs, water fleas)
body plan: cephalothorax, abdomen, tail
compound eyes
two pairs of antennae
mandibles for feeding
branched (biramous) appendages
respiration by gills
only living subphylum that is mostly aquatic

Major Classes:
Malacostraca (shrimp, crab, pill bugs, amphipods)
Branchiopoda (water fleas, tadpole shrimp, brine shrimp, fairy shrimp)
Maxillipoda (barnacles, seed shrimp, copepods)

Lab Activities: Subphylum Crustacea

A. Class: Malacostraca:
1. The Crayfish: Procambarus (p211):
   a. external anatomy:
      know: cephalothorax, rostrum, abdomen,
telson, carapace, gill chambers, gills,
copulating swimmerettes, openings to oviducts and seminal receptacle

   b. appendages; dissect and be able to recognize each major appendage and its parts as described in your lab manual on pp 212: antennae, mandibles, maxillae, maxillipeds, cheliped, walking legs, swimmerettes, uropod

   c. Internal Anatomy (p 215); dissect as described in your manual and know: heart, stomach, gastric teeth, digestive gland, mandibular muscles, gonads, intestine, antennal gland

2. Amphipods slide: Gammarus wm
   -note characteristics of class
   -note amphipods are laterally compressed

3. Be able to recognize examples of other members of the class on display

B. Class Branchiopoda
4. A water flea: Daphnia (p 218):
   a. observe swimming behavior of live specimens
   b. be able to recognize crustacean characteristics of the animal know: antennae, compound eye, GI tract

5. Tadpole shrimp live: (if available)
   -their carapace forms a large dorsal shield making them look somewhat like horseshoe “crabs” (Chelicerata)
   -note their swimming behavior, biramous appendages, two pairs of antennae and three eyes

6. Be able to recognize examples of other members of the class on display

C. Class Maxillipoda
7. Ostracods (seed shrimp) (p219)  
\hspace{1cm} \text{slide: ostracods wm}
\hspace{1cm} -note that the body of these crustaceans is enclosed in a bivalve shell

8. Copepods (p219)  
\hspace{1cm} \text{slide: copepods}
\hspace{1cm} -note characteristic shape; the antennae are used for swimming; often carry two large egg sacs along sides of abdomen

9. Barnacles (p219)  
\hspace{1cm} \text{preserved: barnacles}
\hspace{1cm} -note shell secreted by barnacle somewhat resembles some mollusc shells

10. Be able to recognize examples of other members of the class on display

\textbf{Demonstrations:}

\begin{itemize}
  \item Crayfish anatomy – some sheets may be useful for your dissection
  \item Subphylum: Crustacea
      -be able to recognize members of this subphylum and the three major classes
  \item Crustacean Larval Forms
      -observe the slide and be able to recognize the \textit{nauplius} larva and the \textit{cypris} larva as larval forms of Crustacea
\end{itemize}