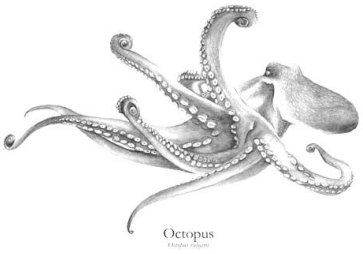
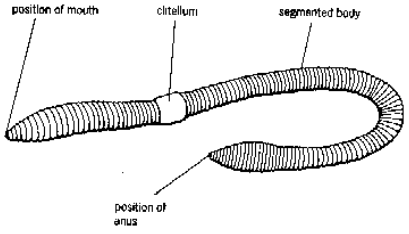
Mollusks, Worms, Arthropods, & Echinoderms

I. Mollusks - comes from the Latin word soft bodied
   A. Phylum Molluska
   B. Characteristics
      1. Soft Bodied
      2. Mantle - thin layer of tissue that secretes a shell
      3. Gills - water to organism CO_2 , O_2 exchangers
      4. Visceral mass – contains body organs
      5. Muscular foot - means of movement
      6. Open Circulatory system
      7. Classified by movement (Kind of foot) or shell
   C. Classes of mollusks
      1. Gastropods
         a. Gastro means stomach and pod means foot
         b. Includes snails, slugs, abalones, whelks, conches, sea slugs
         c. All have single shells and or move on stomach by mucus
         d. All have a radula for scraping algae and other food
      2. Bivalves
         a. Means two shells
         b. Includes clams, oysters, scallops and mussels
         c. Filter feeders
         d. Two part shell
         e. Move by opening and closing shell
      3. Cephalopods
         a. Means head foot
         b. Well developed head
         c. Foot divided into tentacles with suckers, well developed nervous system
         d. Large eyes
         e. Closed circulatory system
         f. Move by jet propulsion by forcing water out their siphon tube



   D. Mollusks value
      1. Provide food for humans and other organisms
      2. Provide pearls
      3. Harmful - can damage crops and host human parasites

II. Annelida – segmented worms
   A. Characteristics
      1. Have body cavities with organs
      2. Each segment has bristle like structure called setae for movement
      3. General structure of the earth worm
         a. Systems
            1) Digestive
               a) Mouth, crop, gizzard, intestines, anus
            2) Circulatory system of two main vessels, 5 aortic arches that pump blood
            3) Nervous system that responds to the environment
            4) Respiratory system that exchanges oxygen and carbon dioxide through the skin



5) Reproductive system (hermaphrodite)

4. Leeches
   a. Don't have setae
   b. Feed blood from other organisms
   c. Saliva contains anti clotting chemical
5. Marine worms - polychaetes p. 380

III. Arthropods are in the phylum arthropoda

A. Characteristics
1. Name means jointed foot
2. Largest phylum
3. Have segmented bodies
4. Have appendages
5. Have body cavity and an open circulatory system
6. Complete digestive system
7. Nervous system with brain
8. Exoskeletons made from chitin
9. Organism molts exoskeleton when it grows

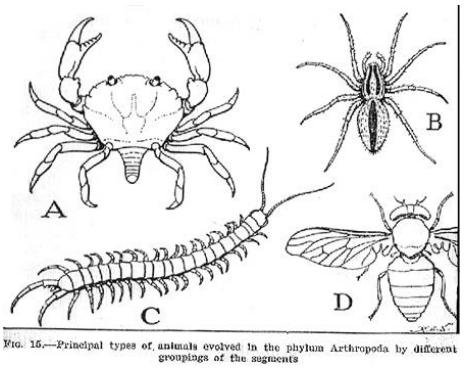
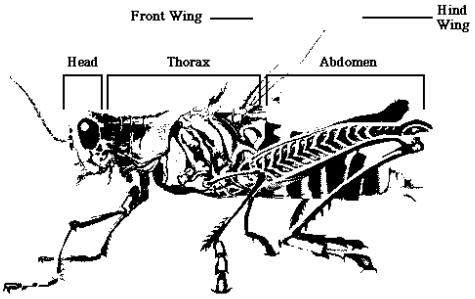
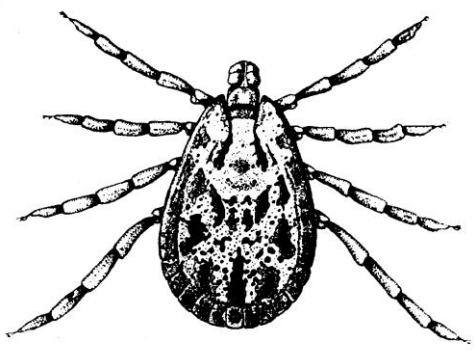


FIG. 15.—Principal types of animals evolved in the phylum Arthropoda by different groupings of the segments

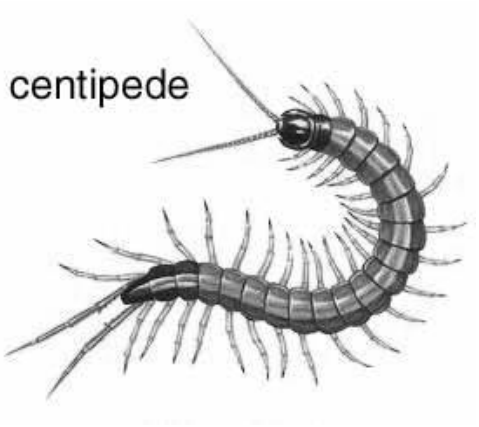
B. Class insecta
1. Body plan
   a. Head
      1) Antennae
      2) Eyes
      3) Mouth
   b. Thorax
      1) Three pairs of jointed legs
      2) 1 or 2 pair of wings
   c. Abdomen
      1) Segmented with spiracles for breathing
      2) Reproductive structures



2. Reproduction - separate sexes and female lays eggs
   a. Metamorphosis - changes that a species goes through becoming an adult
      1) Complete
         a) Egg
         b) Larvae
         c) Pupa
         d) Adult
      2) Incomplete
         a) Egg
         b) Nymph
         c) Adult

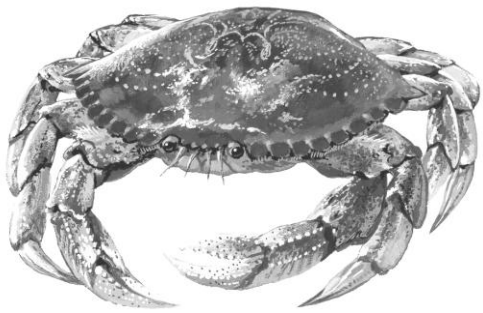


C. Arachnids class arachnida
1. Characteristics
   a. 2 body regions
      1) Cephalothorax
      2) Abdomen
   b. 4 pairs of legs
   c. Spiracles and book lungs
   d. Includes ticks, mites, scorpions, spiders, tarantulas, harvestman



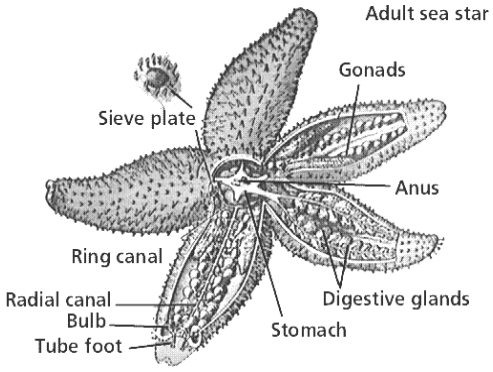
D. Centipedes and Millipedes
   1. Centipedes are predacious
   2. Millipedes are herbivorous
   3. Centipedes have 1 pair of legs /segment
   4. Millipedes have 2 pair of legs /segment

E. Crustaceans - Class crustacea
   1. Characteristics
      a. Jaws called mandibles – crush food
      b. 1 and 2 antennae
      c. Have 1,2 or 3 body segments
      d. 5 pairs of legs
         1) The first pair of many have claws to catch and hold food
         2) 2cnd pair – 5th used for moving
      e. Some have five pair of appendages on abdomen called swimmeret's
         1) For movement, reproduction and water over gills
      f. Can regenerate appendages
      g. Examples include lobster, crab crayfish, shrimp, and pill bugs



IV. Echinoderms

A. Spiny skinned animals
   1. Characteristics
      a. Marine bottom dwellers
      b. Internal skeleton of Calcium Carbonate plates covered by a spiny skin
      c. Have a water vascular system
         1) Tube feet
         2) Ring canal
      d. Do not have a complete digestive system



B. Echinoderm classification
   1. Sea stars – 5 or more arms around a central point
   2. Brittle stars - move more quickly and break off parts as defense
   3. Sea Urchins and sand dollars
   4. Sea cucumbers