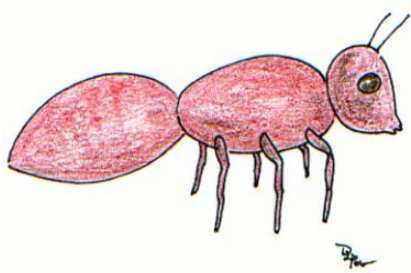


4:3a Entomology

- Entomology is the study of insects.
- All insects belong to Phylum Arthropoda ~ the “jointed legged” animals.

- ❖ They belong to class Insecta, one of a number of classes in this phylum.



- ❖ Other classes of arthropods include:
 - The crustaceans [for example shrimp and

- lobsters]

- Arachnids [spiders and their allies]
- Centipedes and millipedes
- Plus many others

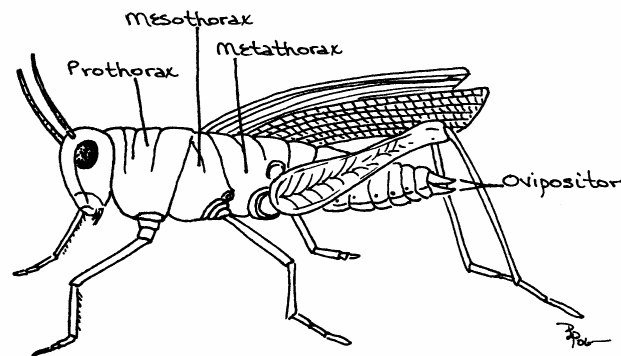
- Class Insecta is the largest of all taxonomic categories.

- ❖ There are more insects than all the other animal types combined.

- ❖ Biologists presently recognize nearly one million species.

4:3b Entomology

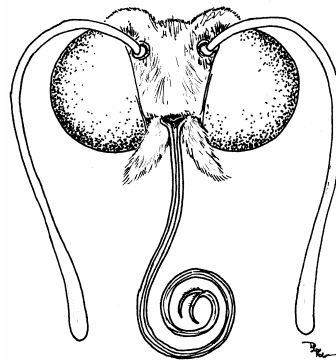
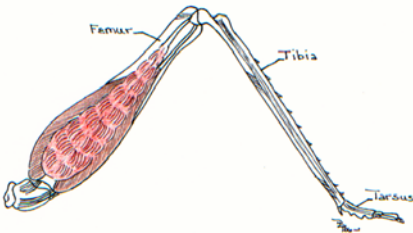
- Due to the size of Class Insecta, most entomologists do not attempt to study the entire group.
 - ❖ Instead, they focus on smaller subgroups.
 - ❖ Typically they focus their studies on a single order.
 - ❖ For example,, an entomologist might specialize on just Order Lepidoptera – the butterflies.
- Major characteristics of animals in Class Insecta:
 - ❖ Bodies consist of 3 sections:
 - Head
 - Thorax
 - Abdomen



The three body sections consist of the head, thorax (shown divided into three sections) and the abdomen.

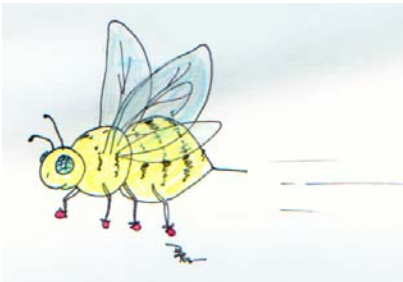
4:3c Entomology

- ❖ The abdomen consists of 9 to 11 segments.
- ❖ The thorax is divided into three sections:
 - The prothorax is the most anterior section.
 - The mesothorax is in the middle.
 - The metathorax is most posterior.
- ❖ Insects have one pair of legs arising from each thoracic segment.
- ❖ Like all arthropods, their legs are jointed.
- ❖ Because they have 6 legs, insects are sometimes referred to as “hexapods.” (Greek for “six feet.”)
- ❖ All insects have one pair of antennae arising from their head.



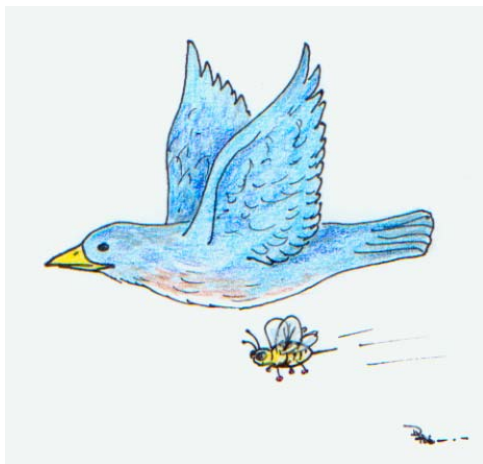
4:3d Entomology

- These antennae serve a variety of functions such as:
 - sense of touch
 - sense of smell
 - and sometimes even to detect sounds.
- ❖ Insects are the only invertebrates capable of true flight.
 - Among vertebrates only birds and some mammals (the bats) are capable of true flight.
 - Most species of adult insects have one to two pairs of wings.
 - These wings arise from both the mesothorax and the metathorax.
 - Their wings are:
 - Non-homologous to wings of birds and bats.



4:3e Entomology

- This means the wings of insects arise from different embryonic tissues than do those of birds and bats.
- Analogous to wings of birds and bats.
 - This means their wings accomplish the same function as do those of birds and bats.



- Veins give support to their wings.
 - These veins make distinctive patterns.
 - The vein pattern is distinctive of each

species and, therefore, is valuable in insect identification.



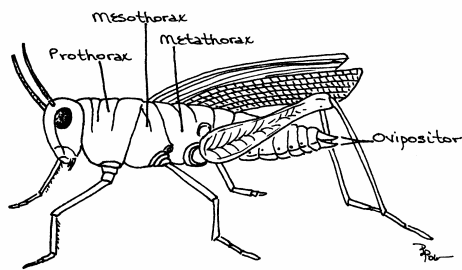
4:3f Entomology

❖ Like other arthropods, insects have an exoskeleton composed of chitin.4:3f Entomology

- Insect exoskeletons have less chitin, however, than those of other arthropods.
- This makes them lighter – thus facilitating flight.

❖ Reproduction:

- Insects are dioecious (male and female occupy separate bodies).
- External reproductive structures are on the last abdominal segment.



○ In most female insects the structure is a an elongated appendage called the ovipositor.

○ The ovipositor is used to deposit eggs.