

## VIDEO GUIDE: External Insect Morphology

**Directions:** Watch the video and answer the following questions.

1. What is the substance that gives the exoskeleton its strength?

**Chitin is the strong, flexible material that makes the exoskeleton strong.**

2. List five out of the seven main types of mouthparts **and** give an example of an insect that has that mouthpart (for example: sponging mouthparts on house flies).

**Chewing – Crickets**

**Piercing-sucking – Mosquito**

**Rasping-sucking – Thrips**

**Siphoning – Moth**

**Cutting-sponging – Horse fly**

**Chewing-lapping – Bees**

**Sponging – House fly**

3. Describe compound eyes and ocelli.

**Ocelli are small, simple light sensing organs. It is common for insects to have 2-3 of them, especially on top of the head.**

**Compound eyes are larger and are made up of thousands of hexagon-shaped photoreceptor structures that can sense brightness and color.**

4. On what part of the thorax is a hind wing, pronotum, and scutellum found (note: each are found on a different part of the thorax)?

**Hind wings are found on the meso- or metathorax. Pronotum are found on the prothorax, and scutellum are behind the pronotum also on the prothorax.**

5. Describe the following wings and give an example of an insect/order that has them.

- a. Membranous – **Thin and transparent. Found in Odonata and Neuroptera**

- b. Leathery – **Forewings are thick and leathery to protect membranous hindwings. Found in Orthoptera and Blattodea**

- c. Elytra – **Elytra are hardened forewings that form a protective shell over the hindwings when closed. Found in Coleoptera.**

- d. Hemelytra – **The first 2/3 of the forewings (measured from the thorax) are hardened, and the outer part is membranous. The forewings and hindwings are both used for flight. Found in Hemipterans.**
  - e. Halteres – **Hind wings are stick-like and only used for balance. Found in Diptera.**
  - f. Fringed – **Thrips have feather-like wings with a strong central spike and dense lateral hairs.**
  - g. Scales – **Found in Lepidoptera with scales covering the wings, Mosquitoes have scales along wing veins.**
6. Describe the function of the five type of legs **and** give an example of an insect with that type.
- Cursorial – Good at running. Cockroaches have cursorial legs.**
- Fossorial – Good at digging. Mole crickets have fossorial forelegs.**
- Natatorial – Good at swimming. Water boatmen have natatorial legs.**
- Raptorial – Good at grabbing. Praying mantids have raptorial forelegs.**
- Saltatorial – Good at jumping. Grasshoppers have saltatorial legs.**
7. What are the male and female parts called?
- Females have an ovipositor for depositing eggs, and males have an aedeagus.**