

Hokie BugCamp Key to Insect Orders

Entomologists use dichotomous keys to help them identify insects. Learning how to use a dichotomous key will help you in identifying all sorts of plants and animals! Here are the steps to successfully using a key:

1. Collect or take a picture of the insect you want to identify.
2. Go to question one and select which option most accurately matches your insect.
3. Follow the result of your selection to another question.
4. Keep following steps two and three until you arrive at a result that is an order of insect.
5. Compare your insect with pictures of the result. If it still doesn't seem right then try going through the key again from the beginning.
6. If you still cannot find the right description then you can ask a professional entomologist for help!

This key was made specifically for Hokie BugCamp and to identify insects caught on Virginia Tech's Blacksburg campus. There are MANY insects that this key does not cover because they are either not common to Blacksburg or they are too small to pin for an insect collection. There are many additional resources that you can use to help you identify insects that this key does not cover. Those resources include:

- The Insect ID Lab at Virginia Tech - our on-site expert can help answer your questions.
- BugGuide.net - crowd-sourced insect identification website with a lot of great pictures!
- Hokie BugFest Facebook Page - send us a message with a picture of your insect.
- Field Guides - there are many printed books that you can look to for more information about insects and where they live.

Description	Result
(1) How many legs does it have?	
3 pairs of legs (see A)	Go to (2)
Less than 3 pairs of legs or more than 3 pairs of legs (see B)	<u>Not an adult insect</u>



B



A



B

(2) Does it have wings?	
Yes (see A)	Go to 4
No (see B)	Go to 3



B



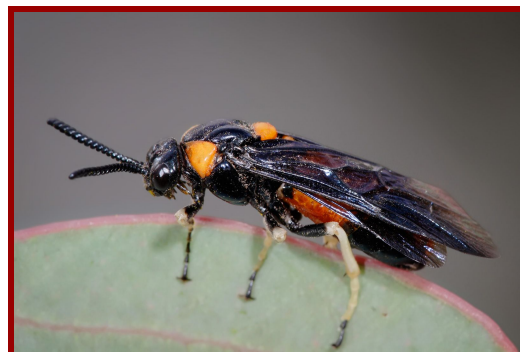
A





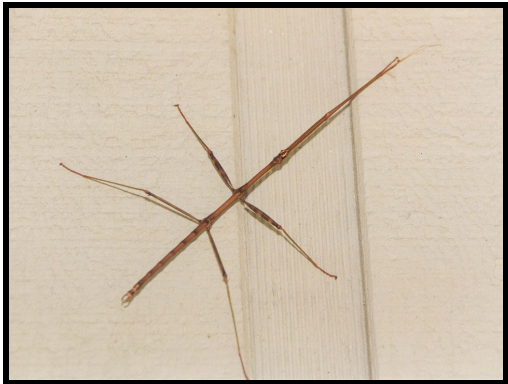



B



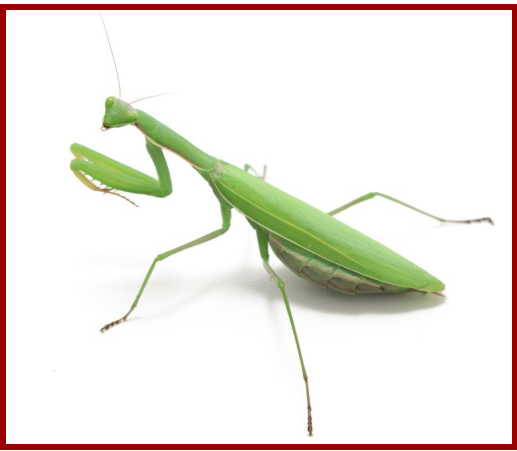






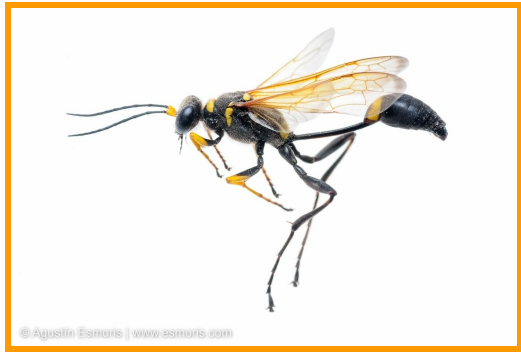
B



A

(3) What does its body look like?	
Narrowly constricted at the “waist” between thorax and abdomen (see A)	<u>Hymenoptera</u>
Very small and mostly soft-bodied with a light coloration, some with larger heads than others (see B)	<u>Isoptera</u>
Looks like a stick and has chewing mouthparts (see C)	<u>Phasmida</u>
<div> <div>B</div> <div>A</div> <div>C</div> </div>	
(4) How many pairs of wings does it have?	
One pair of wings, look for little white knobs (halteres) behind the forewing (see A)	<u>Diptera</u>
Two pairs of wings	Go to 5
<div> <div>A</div> <div>A</div> <div>A</div> </div>	

(5) What do the wings look like?	
Large wings covered in tiny scales, may have some clear areas (see A)	<u>Lepidoptera</u>
Other	Go to 6
<div data-bbox="232 615 634 1010">  </div> <div data-bbox="662 457 1029 1010">  </div>	
(6) Does the insect have a very long “neck” region and raptorial forelegs?	
Yes (see A)	<u>Mantodea</u>
No	Go to 7
<div data-bbox="232 1371 745 1818">  </div> <div data-bbox="773 1455 1240 1818">  </div>	

(7) Are the forewings hardened and mouthparts made for chewing?	
Yes (see A)	<u>Coleoptera</u>
No	Go to 8
<div data-bbox="203 457 522 898">  <p>A</p> </div> <div data-bbox="522 499 1192 898">  <p>A</p> </div>	
(8) Does it have thin “tails” coming out of the end of its abdomen?	
Yes (see A)	Go to 9
No (see B)	Go to 10
<div data-bbox="203 1331 857 1646">  <p>A</p> </div> <div data-bbox="857 1297 1403 1646">  <p>B</p> </div>	
(9) How many “tails” does it have?	
2 and holds its wings flat over its back (see A)	<u>Plecoptera</u>
3 and holds its wings upright over its back (see B)	<u>Ephemeroptera</u>



A



B

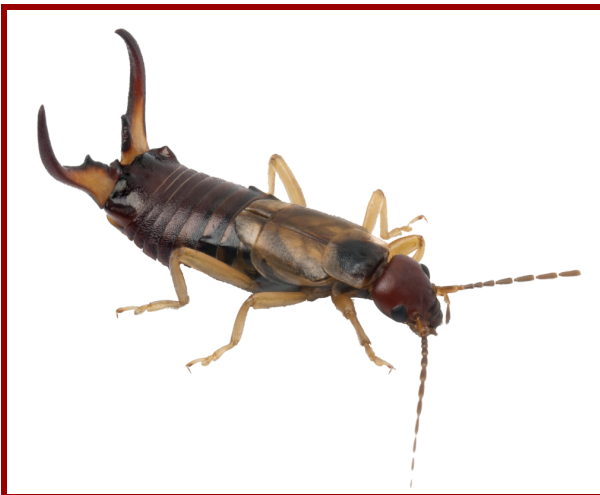
(10) Does it have a set of “pincers” on its rear end?

Yes (see A)

Dermaptera

No






Go to 11



A

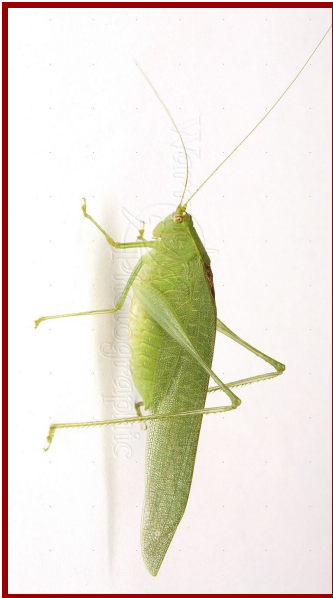


A

(11) Does it have piercing/sucking mouthparts?	
Yes (see A)	<u>Hemiptera</u>
No	Go to 12
<div> <div>  </div> <div>  </div> </div>	
<div>  </div>	
(12) Does the insect have an elongated head?	
Yes (see A)	<u>Mecoptera</u>
No	Go to 13
<div> <div>  </div> <div>  </div> </div>	

(13) Do they have a long thin body with a pair of equally sized wings and very short antennae?	
Yes (see A)	<u>Odonata</u>
No	Go to 14
<div data-bbox="232 426 659 743" data-label="Image"> </div> <div data-bbox="686 426 1062 743" data-label="Image"> </div> <div data-bbox="207 758 615 1155" data-label="Image"> </div>	
(14) Are the wings transparent with MANY criss-crossing veins?	
Yes (see A)	<u>Neuroptera</u>
No	Go to 15
<div data-bbox="232 1493 659 1913" data-label="Image"> </div> <div data-bbox="686 1451 1024 1913" data-label="Image"> </div> <div data-bbox="1057 1451 1401 1913" data-label="Image"> </div>	

(15) Does the insect have large hind legs for jumping?	
Yes (see A)	<u>Orthoptera</u>
No	Go to 16



A



A



A

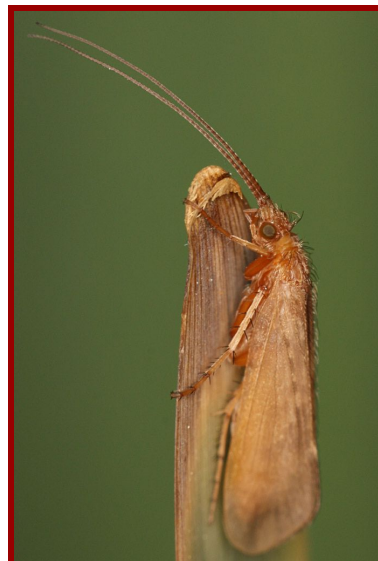
(16) Do the wings have tiny hairs on them?	
Yes (see A)	<u>Trichoptera</u>
No	Go to 17






A



A



A

(17) Is the body oval shaped and somewhat flattened?	
Yes (see A)	Blattodea
No (see B)	Hymenoptera
<div> <div>  </div> <div>  </div> <div>  </div> </div>	