

Dichotomous Keys to Arthropod Orders

Modified from the American Museum of Natural History



http://www.amnh.org/learn/biodiversity_counts/ident_help/Text_Keys/text_keys_index.htm



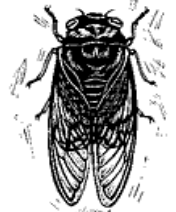

- Key A: Arthropods with Six Legs, with Well Developed Wings
- Key B: Arthropods with Six Legs, with Tiny or Missing Wings
- Key C: Arthropods with More Than Six Legs.





Orders important for Caterpillars Count! are highlighted in RED!


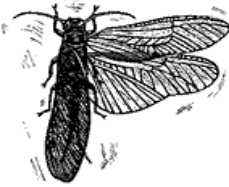


Tips: Only adult arthropods are included, and certain uncommon orders are not included. To use a key, read both descriptions in a couplet (for instance, 1a and 1b). Decide which sounds most like your critter, and move to the next couplet indicated. Should you reach a dead-end, use the numbers in parentheses to backtrack until you reach a couplet that you felt unsure about, and try following the other path. Some orders are found more than once in the keys, because the arthropods occur in different forms.





Key A: Arthropods with Six Legs, with Well-Developed Wings.

STEP	FROM	CHARACTERS	ORDER / CLASS
1a		One pair of wings. go to 2	
1b		Two pairs of wings. go to 3	
2a	1a	Hind wings reduced to tiny knobs (halteres), tip of abdomen without 2-3 thread-like tails	 <p>DIPTERA (Flies)</p>
2b	1a	Hind wings not reduced to tiny knobs, tip of abdomen with 2-3 thread-like tails (caudal filaments)	 <p>EPHEMEROPTERA (Mayflies)</p>

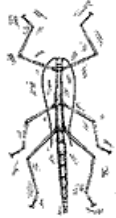


3a	1b	Front and hind wings have similar texture. go to 4	
3b	1b	Front wings a rigid or leathery covering for clear hind wings. go to 14	
4a	3a	Wings covered with powdery scales, mouthparts usually a coiled tube (proboscis) for sucking	 <p>LEPIDOPTERA (Moths / Butterflies)</p>
4b	3a	Wings not covered with powdery scales, mouthparts not a coiled tube. go to 5	
5a	4b	Wings slope downwards (rooflike) from the center at rest. go to 6	
5b	4b	Wings not held rooflike at rest. go to 9	
6a	5a	Wings covered with hair	 <p>TRICHOPTERA (Caddisflies)</p>
6b	5a	Hairless wings. go to 7	
7a	6b	Sucking mouthparts in the form of a rigid beak, often short and bristley antennae, body may look like a thorn	 <p>AUCHENORRHYNCHA (Hoppers, Cicadas)</p>
7b	6b	Mouthparts not in the form of a rigid beak, antennae not short and bristley, body never looks like a thorn. go to 8	
8a	7b	Wings with many cross veins	 <p>NEUROPTERA (Lacewings)</p>

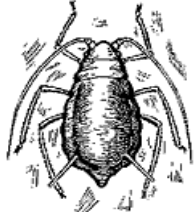

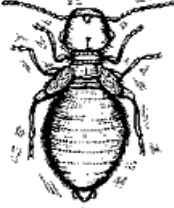
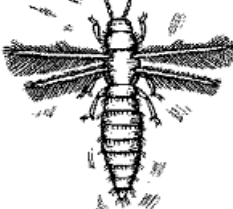

8b	7b	Wings without many cross veins	 <p>PSOCOPTERA (Bark lice)</p>
9a	5b	Front and hind wings similar in size and shape. go to 10	
9b	5b	Front and hind wings not similar in size and shape. go to 12	
10a	9a	Antennae always short and bristly	 <p>ODONATA (Dragonflies & Damselflies)</p>
10b	9a	Antennae never short and bristly. go to 11	
11a	10b	Wings held flat over abdomen when at rest, last abdominal segment not enlarged, usually found in colonies	 <p>ISOPTERA (Termites)</p>
11b	10b	Wings not held flat over abdomen when at rest, males with the last abdominal segment enlarged like a scorpion's stinger and held over the body, not found in colonies	 <p>MECOPTERA (Scorpionflies)</p>
12a	9b	Body very soft, without a narrow "waist". go to 13	




<p>12b 9b Body not exceptionally soft, often with a narrow "waist"</p>			 <p>HYMENOPTERA (Bees & Wasps)</p>
13a	12a	Hind wings wider than front wings, folded underneath like a fan	 <p>PLECOPTERA (Stoneflies)</p>
13b	12a	Hind wings much smaller than front wings, not folded underneath like a fan	 <p>EPHEMEROPTERA (Mayflies)</p>
<p>14a 3b Sucking mouthparts in the form of a rigid beak, front wings with clear tips (hemelytra), overlapping at rest, revealing a triangular panel on the back (scutellum)</p>			 <p>HETEROPTERA (True Bugs)</p>
14b	3b	Chewing mouthparts, front wings without clear tips. go to 15	

15a	14b	Rigid front wings (elytra) meet in a straight line down the middle of the back	 COLEOPTERA (Beetles)
15b	14b	Front wings not as above. go to 16	
16a	15b	Head visible from above. go to 17	
16b	15b	Head hidden from above by a hoodlike structure (pronotum)	 BLATTARIA (Cockroaches)
17a	16a	Front legs strong with prominent spines for grasping prey, hind legs long and slender	 MANTODEA (Mantids)
17b	16a	Front legs without spines or with weak spines, the femora of the hind legs are enlarged for jumping	 ORTHOPTERA (Grasshoppers & Crickets)





Key B: Arthropods with Six Legs, with Tiny or Missing Wings.


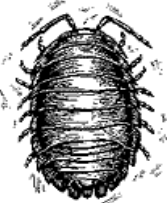



STEP	FROM	CHARACTERS	ORDER / CLASS
1a		Does not resemble a twig. go to 2	
1b		Slow-moving, resembles a twig	 <p>PHASMIDA (Walking sticks)</p>
2a	1a	Body very soft. go to 3	
2b	1a	Body not exceptionally soft. go to 8	
3a	2a	Mouthparts hidden within head, usually with a springlike structure (furcula) on the underside of the abdomen used for jumping	 <p>COLLEMBOLA (Springtails)</p>
3b	2a	External mouthparts, without a springlike structure on the underside of the abdomen. go to 4	
4a	3b	Visible projections at the tip of the abdomen. go to 5	
4b	3b	No visible projections at the tip of the abdomen. go to 6	
5a	4a	Long flattened body, tip of abdomen with 2 - 3 long tails (cerci , and if a third tail is present, a median caudal filament)	 <p>THYSANURA (Silverfish)</p>

5b	4a	Small pear-shaped body, tip of abdomen has two short projections (cornicles), some individuals have wings	 <p>STERNORRHYNCHA (Aphids)</p>
6a	4b	Usually found in colonies with many individuals (soldier caste), some of which have very large heads and mandibles (soldier caste) or mouthparts that look like a tube (nasuti caste)	 <p>ISOPTERA (Termites)</p>
6b	4b	Tiny insects that may be found in groups of many individuals, but they all have the same kind of mouthparts go to 7	
7a	6b	Chewing mouthparts, relatively long antennae, when individuals have wings the wings never have fringes of hair	 <p>PSOCOPTERA (Bark lice)</p>
7b	6b	Sucking mouthparts, fairly short antennae, adults may actually have barely visible wings with fringes of hair	 <p>THYSANOPTERA (Thrips)</p>
8a	2b	Body with a narrow "waist," antennae usually have a bend in the middle	 <p>HYMENOPTERA (Ants)</p>

8b	2b	Body without a narrow "waist", antennae don't usually have a bend in the middle. go to 9	
9a	8b	Tiny jumping parasites found on mammals or birds, where they suck blood	 <p>SIPHONAPTERA (Fleas)</p>
9b	8b	Not found on mammals or birds, chewing mouthparts. go to 10	
10a	9b	Prominent "pincers" at the tip of the abdomen (cerci)	 <p>DERMAPTERA (Earwigs)</p>
10b	9b	Without "pincers" at the tip of the abdomen	 <p>COLEOPTERA (Beetles)</p>

Key C: Arthropods with More Than Six Legs.

STEP	FROM	FEATURES	ORDER / CLASS
1a		Four pairs of legs. go to 2	
1b		More than four pairs of legs. go to 6	
2a	1a	Abdomen with distinct segments. go to 3	
2b	1a	Abdomen without distinct segments. go to 5	
3a	2a	Conspicuous "pincers" (pedipalps) in front of shorter legs. go to 4	
3b	2a	Without "pincers," long and slender legs	 OPILIONES (Daddy-Longlegs)
4a	3a	Fairly large, the abdomen ends in a stinger	 SCORPIONES (Scorpions)
4b	3a	Small, the abdomen does not end in a stinger	 PSEUDOSCORPIONES (Pseudoscorpions)
5a	2b	Body clearly divided into two main parts (cephalothorax and abdomen)	 ARANEAE (Spiders)

5b	2b	Oval-shaped body not divided into two main parts	 <p>ACARI (Mites & Ticks)</p>
6a	1b	Seven pairs of tiny legs, some roll up into balls	 <p>ISOPODA (Pillbugs, sowbugs)</p>
6b	1b	More than seven pairs of legs, they don't roll up into balls. go to 7	
7a	6b	Tiny bodies, 10 - 12 pairs of legs	 <p>SYMPHYLA (Symphylans)</p>
7b	6b	Bodies often fairly large, with > 15 pairs of legs. go to 8	
8a	7b	Flattened bodies, with one pair of legs attached to each body segment	 <p>CHILOPODA (Centipedes)</p>
8b	7b	Bodies usually tubelike, with two pairs of legs attached to each body segment	 <p>DIPLOPODA (Millipedes)</p>