

INSECT COLLECTION INSTRUCTIONS

Object:

1. To collect a minimum of 10 different insects.
2. To kill, mount, number, and display the insects.
3. To identify the 'order' the insect is in.
4. To 'verify' the collection with the date and place the insect was collected.

Directions:

1. First you need to collect the insects. A net, towel, your hands, jars, and other methods can be used. Some insects are out during the day (diurnal), others are active at night (nocturnal). Some can bite or sting. If you want some tips, just ask.
2. Second, the insect must be killed. The easiest way is to put the insect into a container and put the container into the freezer for a couple of days. Don't leave it there too long, or the insect will dry and become brittle. You can also use a 'killing jar'. Simple killing jars consist of a baby food jar (or a bigger jar) with a half inch of plaster of Paris poured into the bottom (cotton balls will work but are messier), and a tight fitting lid. Put 10 drops of finger-nail polish remover onto the plaster, and seal up the jar. It should last several days before needing to be re-charged.
3. The insect must be pinned, or otherwise mounted. It is important to do this soon after the insect is dead, because the insects dry and become very brittle, and they break into millions of smithereens when you try to pin them. (See mounting instructions page)
4. Display the insects by arranging them neatly and numbering them from 1 to ...
5. Include the important information. The insect number, name, date, and place should be listed on the label. Date should be listed as (month, day, year). Place should be listed as (place, county, state).

Notes:

Insects can be identified now, or you can wait and do it in class at school. Please note several very important tidbits:

- * your collection will be graded. (see the SCORE SHEET page)
- * the more 'kinds' of insects you collect, the better off you are. The insect 'class' is divided into 'orders', and each 'order' you have represented in your collection is worth points toward your grade. (see the ORDERS OF INSECTS page)
- * As you identify the insects, be sure to use the Scientific Name (see the PETERSON'S FIRST GUIDES - INSECTS page). Identify insects by the scientific name of their Order and their Family (example: Odonata, Libellulidae)
- * The best book to use is Peterson's First Guides - Insects, which is available in the classroom (and from which the page was typed).

INSECT COLLECTION SCORE SHEET

name _____

Each area below is checked, and points are given. The total points determines the grade.

10-29	30-44	45-59	60-79	80+
D	C	B	A	A+

I. Neatness of mounting, display, and numbering

The mounting is how each insect is pinned. The display is how the insects are arranged and shown all together. Insects should be numbered from 1 to ...

1	4	8	12	20
not mounted but displayed	poorly mntd and displayed	mntd OK dspld OK & numbered	neatly mntd and dspld & numbered	very neatly mntd (legs too) and dspld & numbered

II. Variety of the collection

Variety is shown by having many different 'orders' of insects represented. Each different order correctly identified will be given credit as shown:

Number of orders:	1	2	3	4	5	6	7	8	9	10	more
Points received:	1	2	4	7	10	15	20	25	30	35	?

III. Identification of each insect

Each numbered insect should be correctly identified using the SCIENTIFIC NAMES as listed on the Peterson's First Guide - Insects sheet. Each correct order name and each correct family name is 1 point.

O means correct X means wrong ? means ? [] means duplicate

Order	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Family	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

IV. Correct verification

The date and place the insect was collected should be included.

1	4	8	12	20
included for 4 or less OR both are not included	5-9 include <u>date</u> and <u>place</u>	all 10 have <u>date</u> and <u>place</u>	all 10 have <u>mo.</u> , <u>day.</u> , <u>yr</u> AND general <u>place</u>	all 10 have <u>mo.</u> , <u>day.</u> , <u>yr</u> AND <u>place.</u> , <u>county.</u> , <u>state</u>

MOUNTING AND PRESERVING INSECTS

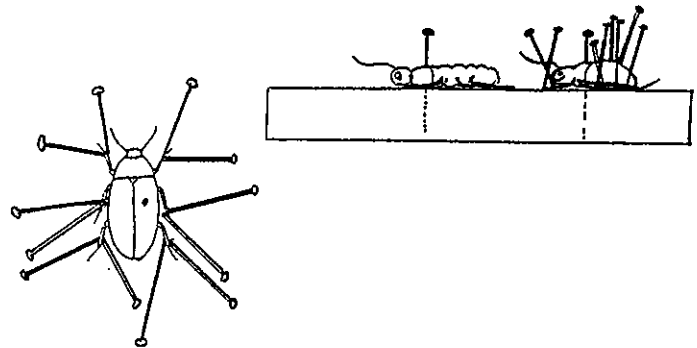
Most insects are preserved dry, normally on pins, and will keep that way indefinitely. Some soft bodied insects shrivel when dried, and must be preserved in liquid instead. Very small, or delicate, insects may be mounted on paper 'points'. Insects to be pinned should be mounted as soon as possible because once they are dry and brittle, they break very easily.

Relaxing specimens - Dried insects can sometimes be relaxed by placing them into a humid atmosphere for a few days. A jar with wet sand or damp cotton balls (add something to prevent mold) can be used. Sometimes this will loosen an insect up enough so you can move it and pin it without it 'exploding'.

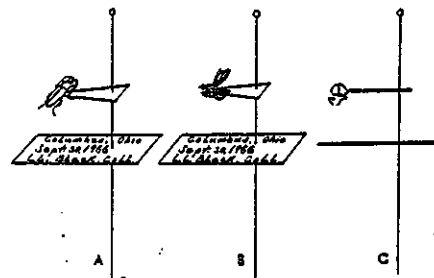
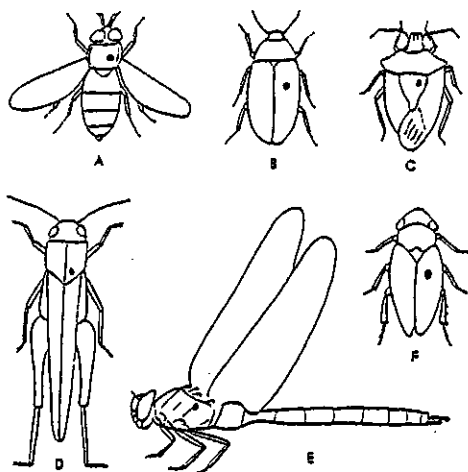
Pinning - Most insects are pinned when they are mounted. There are special insect pins that are longer (1.5") and thinner and rustproof than straight pins (they even come in different sizes, 00 very thin, 1 thin, 3 thicker, 5 very thick). You may use what ever pins you want, however, and common straight pins are fine for your collection.

Most insects are pinned vertically through the thorax (the second body part, between the head [body part one] and the abdomen [body part three]). Beetles and hoppers may be pinned through the front part of the right wing so that the legs on the underside aren't damaged.

The easiest way to pin an insect is to place the dead, limp insect onto a piece of styrofoam that is an inch thick. Then hold the insect and push the pin through it, down into the styrofoam, until about 1/4" of pin remains above the insect. If you want to place legs or wings into any position, now is the time to do that, too. Move them and use copious amounts of pins to hold them in place for several days until the insect has dried. After the insect has dried, I move it from this 'pinning and drying' board to the box and styrofoam it will be kept in.



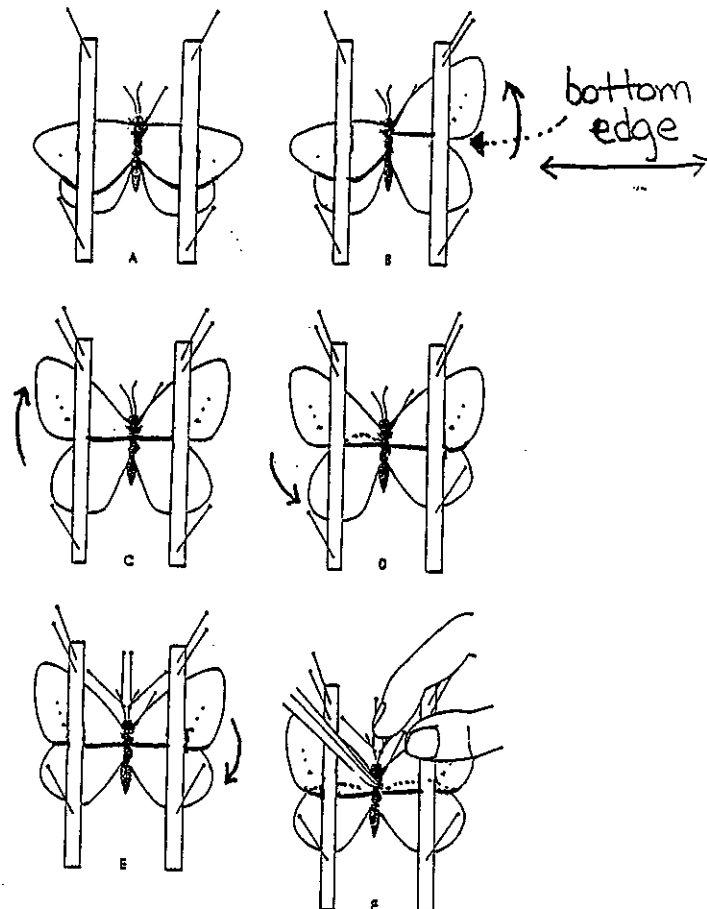
Very small, or very delicate, insects may be mounted on triangular 'points' instead of directly onto pins. Points are made of 3x5 card material and are about 1" long, and are about 1/2" wide at their base. A small dab of glue is placed on the tip of the point and the insect is put onto the glue. A pin is then put through the base of the point.



How insects are pinned. The black spots show the location of the pin in the case of flies (A), beetles (B), bugs (C), grasshoppers (D), dragonflies and damselflies (E), and leafhoppers, froghoppers, and planthoppers (F).

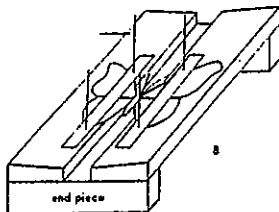
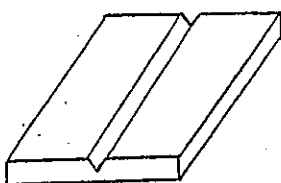
Butterflies, moths, dragonflies, and similar insects can be mounted with their wings spread out so they look really neat. The best way to do this is to use a 'spreading board', and the best spreading board is simply a piece of 1" styrofoam that has a 'V' slit cut in it.

The body of the insect is placed into the 'V' slit and a pin is put through the thorax down into the styrofoam (this is the only pin that stays with the insect). Then the wings are carefully forced to the sides. The front wings are moved so that their bottom edge is perpendicular to the insect, and the hind wings are moved so that they underlap the front wings a teeny bit. Then paper strips are placed over the wings and pinned down to hold the wings in place until the insect has dried.



Easy butterfly board

"Official" mounting board



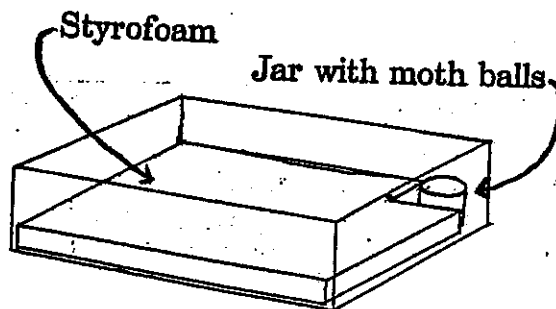
Steps in spreading a butterfly.

Protection of a collection from pests -

After the insects have dried on the mounting boards, they may be moved to the final collection box, and carefully arranged by order or family.

Insect collections are subject to attack by dermestid beetles and other pests that may demolish an insect collection to little piles of dust. Collections can be protected if a repellent like moth balls (paradichlorobenzene or naphthalene) is included. The repellent can be placed into a small container and put in a corner of the collection box.

The collection should be checked occasionally for signs of damage.



Shoe box or Shirt box, etc.

(or even a fancy wooden case)

Label Info

1. Numbered
2. Date collected
(mo/day/yr)
3. "Order"
(scientific.... english)
4. "Family"
(scientific... english)
5. Place collected
(general place, plus
county, plus state)

17

8/1/99

Hemiptera..... Bugs

Miridae..... Leaf Bugs

Riverside Park

Washington Cty, WI

Insect Collection Tag Information

What to include:

The tag should include the following information:

a number, from 1 to

the ORDER and FAMILY of the insect

(in scientific, and maybe in common too)

the place it was collected

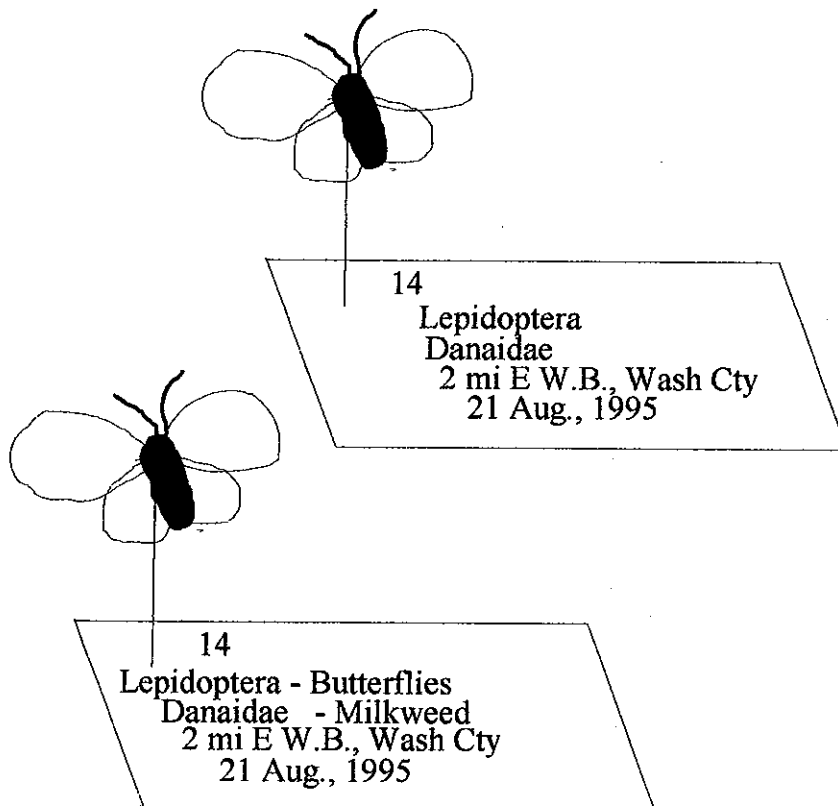
the date it was collected

the collector's name if it was someone other than yourself

How it should look:

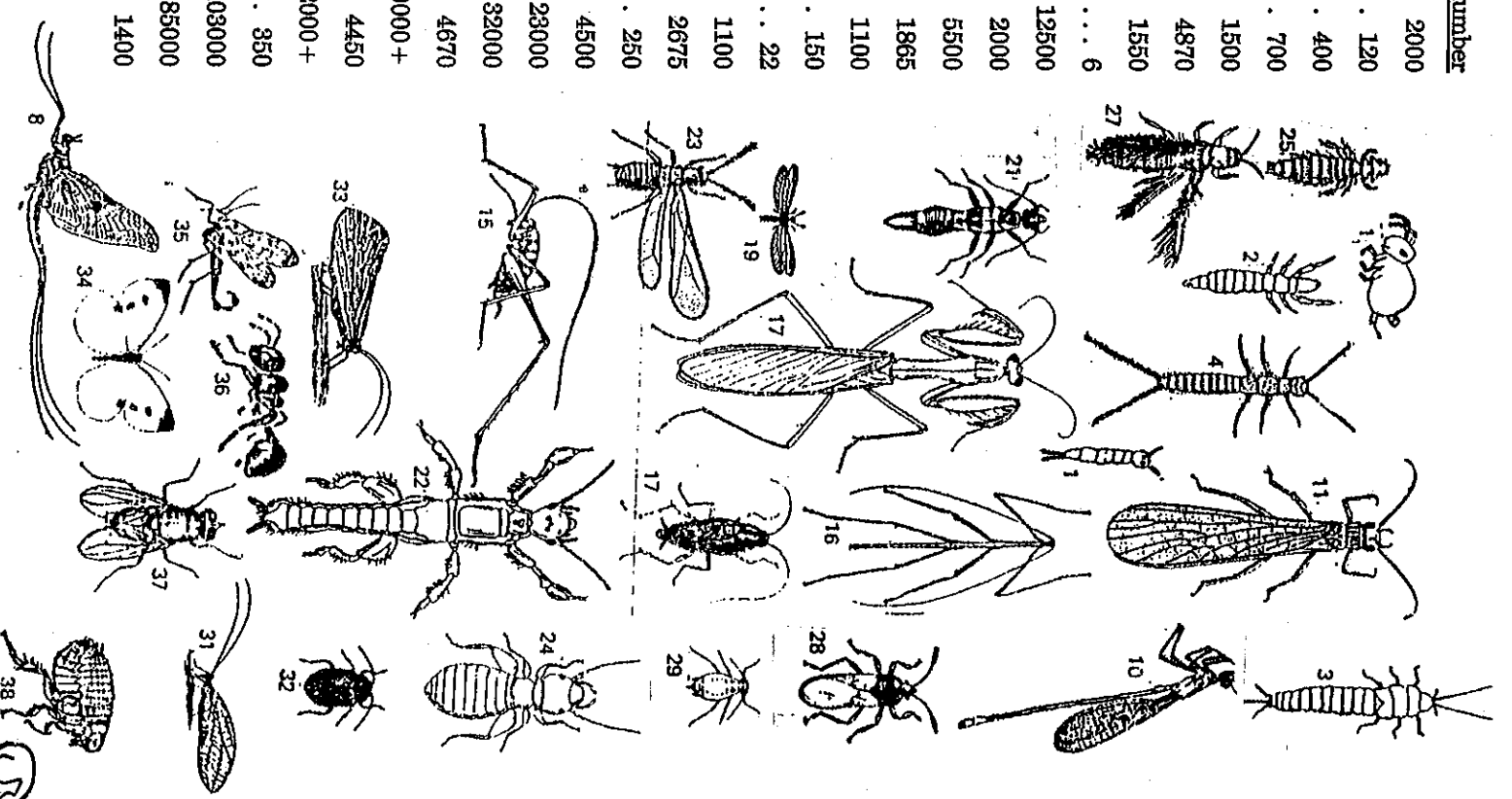
The tag can be done in several different ways. As long as the NUMBER, ORDER, FAMILY, PLACE, and DATE are on the label neatly and consistently, that is all that matters.

The label might look like this:



GUIDE TO THE ORDERS OF INSECTS

Order	common name	size in mm	metamorphosis	mouthparts	number			
1.	Collembola	springtails	.....	gradual	.....	chewing	.....	2000
2.	Protura	proturans	.....	gradual	.....	sucking	.....	120
3.	Thysanura	thysanurans	.....	gradual	.....	chewing	.....	400
4.	Diplura	dipfurans	.....	gradual	.....	chewing	.....	700
8.	Ephemeroptera	mayflies	.....	agua nymph	.....	vestigial	.....	1500
10.	Odonata	dragonflies	.....	agua nymph	.....	chewing	.....	4870
11.	Plecoptera	stoneflies	.....	agua nymph	.....	chewing	.....	1550
14.	Grylloblattodea	rock crawlers	.....	nymph	.....	chewing	.....	6
15.	Orthoptera	grasshoppers	.....	nymph	.....	chewing	.....	12500
16.	Phasmida	walkingsticks	.....	nymph	.....	chewing	.....	2000
17.	Dictyoptera	cockroaches	.....	nymph	.....	chewing	.....	5500
19.	Isoptera	termites	.....	nymph	.....	chewing	.....	1865
21.	Dermoptera	earwigs	.....	nymph	.....	chewing	.....	1100
22.	Embioplera	webspinners	.....	nymph	.....	chewing	.....	150
23.	Zoraptera	zorapterans	.....	nymph	.....	chewing	.....	22
24.	Psocoptera	booklice	.....	nymph	.....	chewing	.....	1100
25.	Mallophaga	biting lice	.....	nymph	.....	chewing	.....	2675
26.	Anoplura	sucking lice	.....	nymph	.....	pierce, suck	.....	250
27.	Thysanoptera	thrips	.....	nymph	.....	pierce, suck	.....	4500
28.	Hemiptera	bugs	.....	nymph	.....	pierce, suck	.....	23000
29.	Homoptera	cicada	.....	nymph	.....	pierce, suck	.....	32000
31.	Neuroptera	neuropterans	.....	agua larvae	.....	chewing	.....	4670
32.	Coleoptera	beetles	.....	larvae	.....	chewing	.....	290000+
33.	Tricoptera	caddisflies	.....	agua larvae	.....	weak chewing	.....	4450
34.	Lepidoptera	butterflies	.....	larvae	.....	sucking	.....	112000+
35.	Mecoptera	scorpionflies	.....	larvae	.....	chewing	.....	350
36.	Hymenoptera	wasps	.....	larvae	.....	chew, suck	.....	103000
37.	Diptera	flies	.....	larvae	.....	chew, suck	.....	85000
38.	Siphonaptera	fleas	.....	larvae	.....	pierce, suck	.....	1400



As found in Peterson's First Guide - Insects

(6)

Common Names

Scientific

<u>Order</u>	<u>Order</u>
<u>Family</u>	<u>Family</u>
Springtail	Collembola
.....	Entomobryidae
Bristletail	Thysanura
.....	Lepismatidae
Mayflies	Ephemeroptera
.....	Ephemeridae
Dragonflies	Odonata
Common Skimmers	Libellulidae
Darners	Aeshnidae
Narrow-winged Damselflies	Coenagrionidae
Broad-winged Damselflies	Calopterygionidae
Spread-winged Damselflies	Lestidae
Grasshoppers	Orthoptera
Short-horned G	Acrididae
Long-horned G	Tettigoniidae
Cave/Camel Crickets	Gryllacrididae
Crickets	Gryllidae
Tree Crickets	Oecanthinae
Mantises	Mantidae
Walkingsticks	Phasmitidae
Cockroaches	Blattidae
Termites	Isoptera
.....	Rhinotermitidae
Stoneflies	Plecoptera
.....	Perlidae
Earwigs	Dermaptera
.....	Forficulidae
Book Lice	Psocoptera
.....	Psocidae
Chewing Lice	Mallophaga
.....	Trichodectidae
Sucking Lice	Anoplura
.....	Pediculidae
Thrips	Thysanoptera
.....	Thripidae
Bugs	Hemiptera
Waterboatmen/Bkswrms	Corixidae
Giant Water Bugs	Belostomatidae
Water Striders	Gerridae
Stink Bugs	Pentatomidae
Leaf Bugs	Miridae
Ambush Bugs	Phymatidae
Assassin Bugs	Reduviidae
Red Bugs	Pyrrhocoridae
Scentless Plant Bugs	Coreidae
Seed Bugs	Lygaeidae
Bed Bugs	Cimicidae
Cicada, Hoppers,	Homoptera
Cicada	Cicadidae
Trechoppers	Membracidae
Froghoppers	Cercopidae
Planthoppers	Fulgoroidea
Leaf Hoppers	Cicadellidae
Aphids	Aphidae
Scale Insects	Coecoidae
Dobsonfly	Neuroptera
Dobsonfly	Corydalidae
Lacewing	Chrysopidae
Antlions	Myrmeleontidae

Beetles	Coleoptera
Tiger Beetles	Cicindelidae
Ground B	Carabidae
Water B	Halphidae
Carrion B	Silphidae
Rove B	Staphylinidae
Dermestid B	Dermestidae
Soft-winged Flower B	Malachiidae
Lightning Bugs	Lampyridae
Net-winged Beetles	Lycidae
Soldier B	Cantharidae
Click B	Elateridae
Metallic Wood Boring B	Buprestidae
Blister B	Meloidae
Darkling B	Tenebrionidae
Stag B	Lucidae
Scarab B **	Scarabaeidae **
Long-horned B	Cerambycidae
Ladybird B	Coccinellidae
Leaf B	Chrysomelidae
Snout B	Curculionidae
Caddisfly	Trichoptera
.....	Hydroptilidae
Butterfly	Lepidoptera
Swallowtail	Papilionidae
Whites/Sulfurs	Pieridae
Gossamer-winged B	Lycanidae
Brushfooted B	Nymphalidae
Nymphs	Satyridae
Milkweed B	Danaidae
Skippers	Hesperiidae
Sphinx Moths	Sphingidae
Giant Silkworm M	Saturniidae
Geometers	Geometridae
Tent Caterpillars	Lasiocampidae
Tiger M	Arctidae
Noctuids	Noctuidae
Tussocks M	Liparidae
Snout M	
Clothes M	Tineidae
Clear-winged M	Aegeriidae
Ctenuchids	Ctenuchidae
Flies	Diptera
Crane F	Tipulidae
Mosquitoes	Culicidae
Midges	Chironomidae
Biting Midges	Ceratopogonidae
Black F	Simuliidae
Horse F	Tabanidae
Robber F	Asilidae
Bee F	Bombyliidae
Long-legged F	Dolichopodidae
Flower F	
Fruit F	Tephritidae
Pomace F	Drosophilidae
Bot F	Oestridae
House F	Muscidae
Fleas	Siphonaptera
.....	Pulicidae
Wasps	Hymenoptera
Sawflies	Tenthredinidae
Horntails	Siricidae
Ichneumons	Ichneumonidae
Braconids	Braconidae
Chalcids	Chalcididae
Gall Wasp	Cynipoidea
Cuckoo Wasp	Chrysididae
Velvet Ants	Mutillidae
Spider Wasp	Pompilidae
Vespid Wasp **	Vespidae **
Sphecid Wasp	Sphecidae
Ants	Formicidae
Bees **	Apiidae **

** denotes families that are very large and are further divided into sub-families