

Displaying Insects

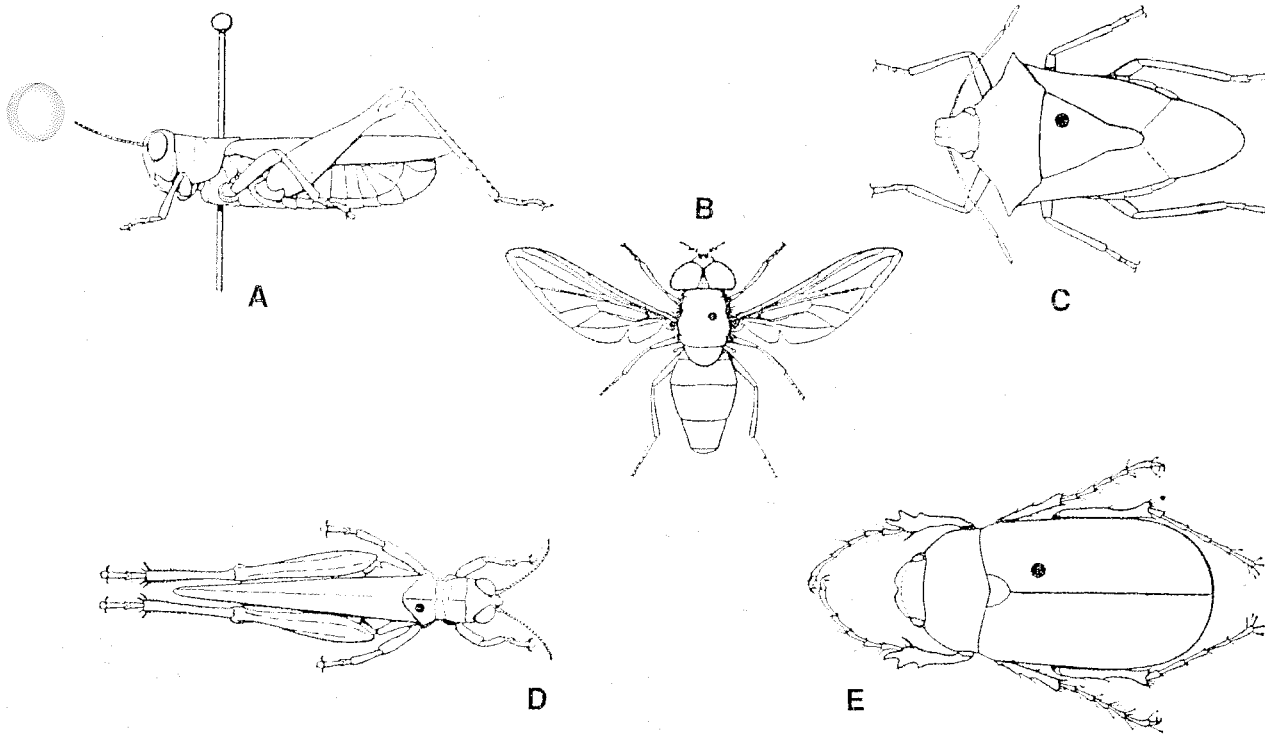
Pinning Insects

Each group of insects has its own characteristics of shape and body balance, making it necessary to correctly place the pin in the insect. Pin insects shortly after they are killed, before they become brittle and break.

Use only the insect pins you buy at a local hobby shop or commercial equipment supply house. Pin sizes 2 and 3 are adequate for most collections. (Never pin insects with hat pins, straight pins, etc.)

Once the insect is pinned to the block of soft wood (balsa wood) or styrofoam, additional pins should be used to spread the insect's legs, antennae and/or wings. When it dries and hardens (after about two to three days), antennae and wings will remain in these more natural positions.

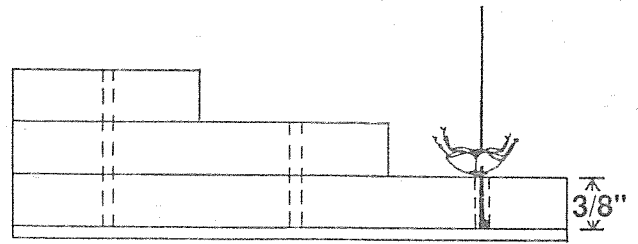
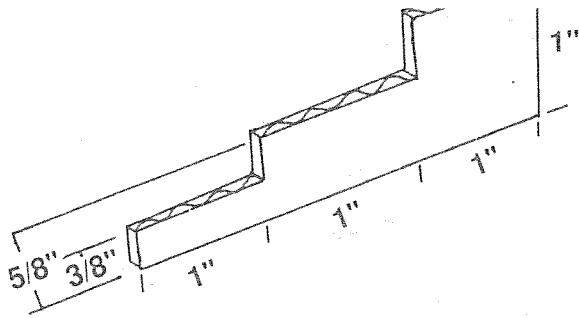
Methods of pinning insects. (A) A pinned grasshopper in lateral view. The black spot in the other figures shows the location of the pin in the case of (B) flies, (C) bugs, (D) grasshoppers and (E) beetles.



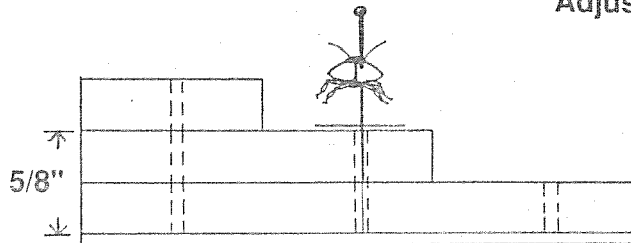
Something To Do

Make A Pinning Block

Medium and larger-sized insects should be pinned vertically through the body, using the pinning block to set the height of the insect on the pin. A simple temporary pinning block maybe made of corrugated cardboard. A more permanent type of pinning block can be made of wood.



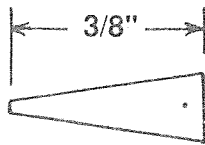
Adjusting Height of Insect on Pin



Adjusting Height of Label

How To Card Point Small Insects

Select heavy paper, such as filing cards, for cutting out card points.



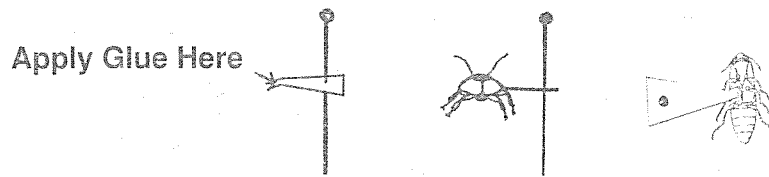
A Card Point

Cut the points in the shape shown. The points should be about 3/8-inch long.

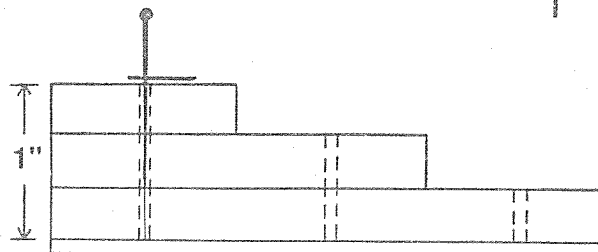
Put a pin through the base of the card point and push it up on the pin to about 1/4-inch from the top of the pin. Use a pinning block to get uniform heights of the points.

With a pair of tweezers, bend the tip of the card point down, as shown in sketch.

Put a tiny drop of glue on the bend-down part of the card point and press it gently to the underneath right side of the insect. Clear fingernail polish or any clear drying glue may be used. Be sure the insect is "square with the world" and not at an angle. This takes practice!



Glue insect on
Card Point



Adjusting Height of Card Point

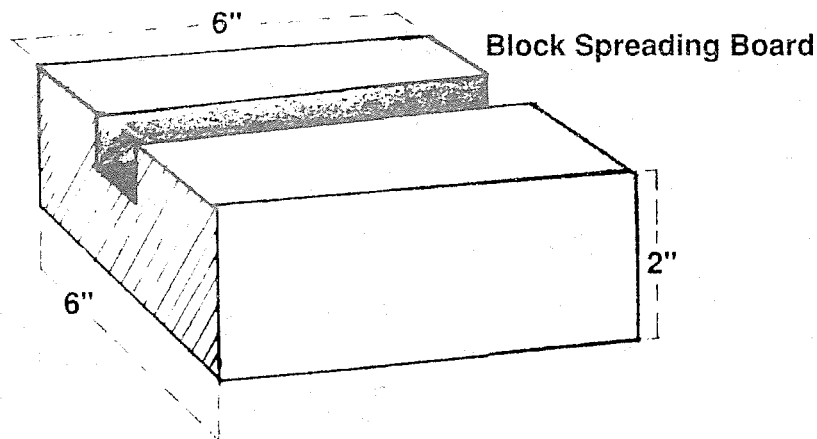
Make A Block Spreading Board

You'll need:

- ▼ Block of softwood (balsa wood) or styrofoam approximately 6 x 6 x 2 inches.
- ▼ A hand saw or pocket knife.

What to do:

Saw or cut a wide groove across the block. The groove should be about 1/4-inch wide and 1/2-inch deep. This makes a slot for the body of the insect to rest in when spreading. You may wish to make three or four of these blocks (some with broad and some with narrow slots) for spreading small or large butterflies or moths.



Spreading Butterfly Wings

Put an insect pin through the center of thorax of a freshly killed butterfly. (If the insect has dried, see your leader for instructions for relaxing specimens.) One-fourth inch of the pin should be exposed above the thorax. Make sure the insect does not tip from side to side or from front to back on the pin. (See Figure A.)

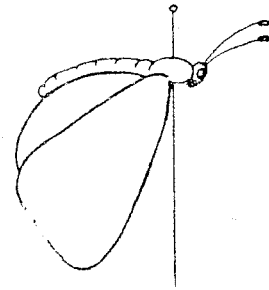


Figure A

Push the pin straight down in the center of the slot of your pinning board until the outstretched wings are just level with the surface of the pinning board. (See Figure B.)

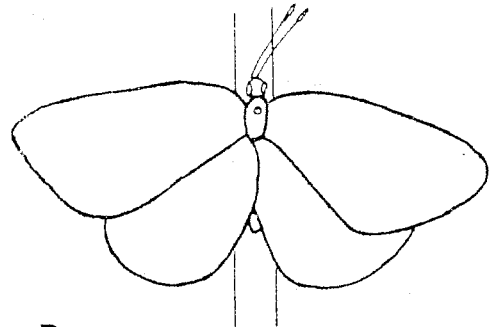


Figure B

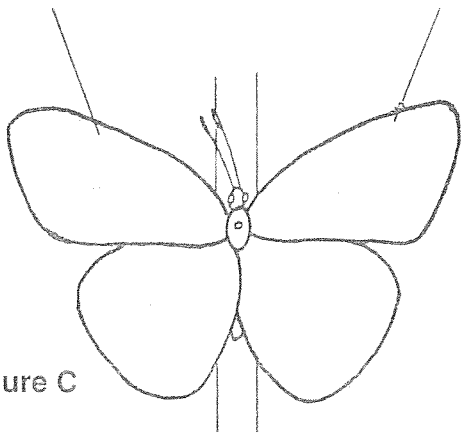


Figure C

Insert an insect pin lightly in each front wing near the front margin and just behind one of the heavy wing veins. Move the front wings forward gently until the hind margins of the front wings are in a straight line, at right angles to the body. (See Figure C.)

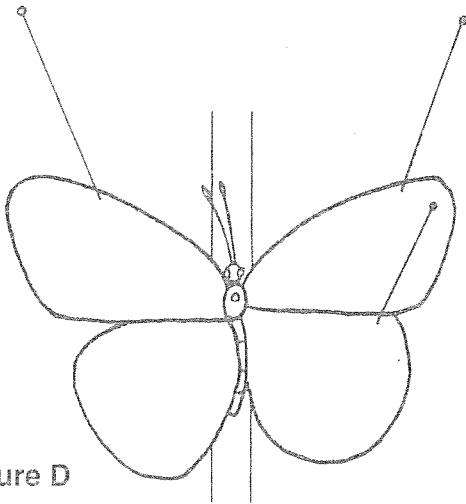


Figure D

With a pin placed behind the heavy vein in the hind wing, move each hind wing forward until the gap between the front wing and hind wing is closed to just a notch, as shown in the right side of Figure D.

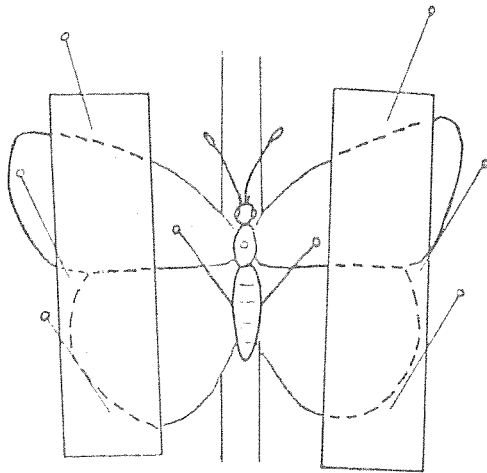


Figure E

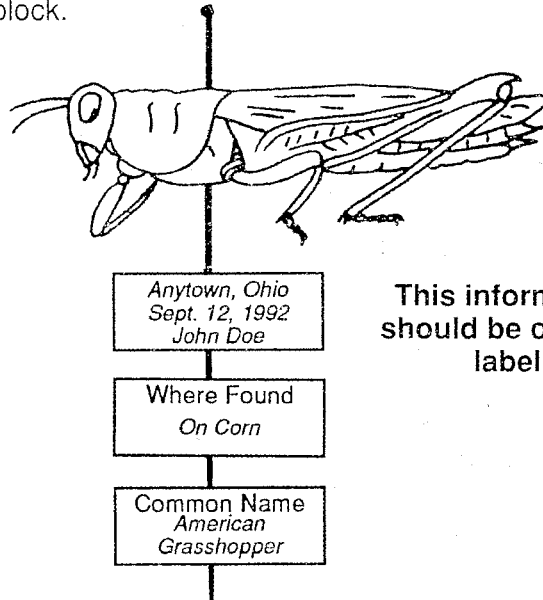
Lay some narrow strips of paper over the wings. Pin them in place as shown. Remove the other pins that are through the wings. The pins holding the paper strips in place should not go through the wings but should be close to them to keep enough pressure on the wings to prevent their slipping out of place. Some entomologists use transparent paper so they can see if the wings have slipped out of place while the specimen is drying. Paper that is too thin will not give enough pressure on the wings. If the abdomen tends to sag, it can be propped up with pins until it dries. (See Figure E.)

Pins can also be used to keep the antennae in place while the specimen dries. Depending on the moisture in the air, the specimen should remain on the board from four to eight days.

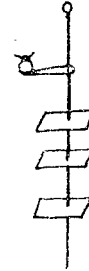
Note: As you gain more practice spreading butterflies, you will want to use a method which does not puncture the wings. This method is shown in some entomology books.

Labeling Insects

Labels should be printed on heavy paper, such as for file cards. The most important label is the one that tells where, when and by whom the insect was collected. Every pinned insect should have this label. Remember, a specimen without a date, locality and collector label is practically worthless. The "where found" and "common name" labels may also be added if you know this information. Place labels at the desired height on the pin by means of a pinning block.



This information should be on each label.



This is how the labels should be arranged on the pin.

Something To Do

Make A Collection Box

You'll need:

- ▼ Cigar box, 2 x 6 x 8 inches or any other similar sized sturdy box.
- ▼ Piece of corrugated cardboard, soft fiberboard or styrofoam.
- ▼ Glue
- ▼ Moth crystals – to keep pests out of collections.
- ▼ Pill box or safety match box – to hold moth crystals.
- ▼ Insect pins of No. 2 or No. 3 size.
- ▼ Insect labels.

What to do:

- ▼ Cut the cardboard to fit bottom of box.
- ▼ Smear glue on bottom of box and insert cardboard.
- ▼ Line box with white paper.
- ▼ Fill match box or small pill box with moth crystals.
- ▼ If the pill box is air tight, punch some holes in the lid.
- ▼ Pin the box in a corner of the cigar box.

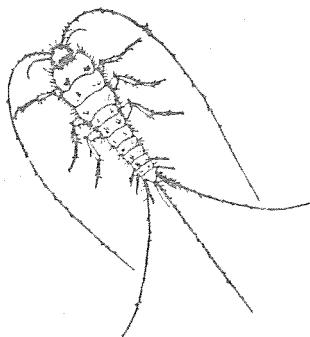
Identifying Your Insects

Each insect you collect will belong in a particular order. This is the system used in grouping insects. From the description given of the orders and the illustrations shown, place your insects in the orders in which they belong.

Thysanura

(meaning tassel tail)

(Bristletails, Silverfish)



Wings – None

Mouthparts – Chewing

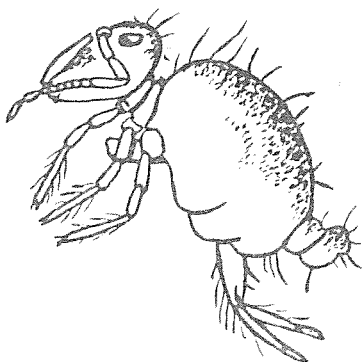
Metamorphosis – None

Added note – Silver-colored insects with long antennae and two or three long antennae-like appendages at the end of the abdomen. The silverfish feed on rayons, starched clothes, book-bindings and other materials having starch or glue. Can be found in feed or flour mills where starchy foods are handled or in sinks and bath tubs of homes.

Collembola

(meaning glue bolt or bar)

(Springtails)



Wings – None

Mouthparts – Chewing

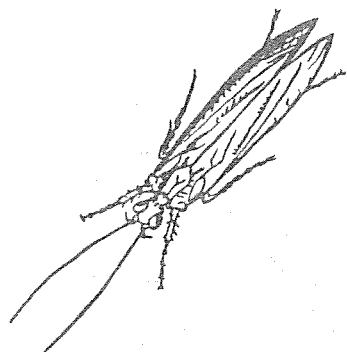
Metamorphosis – None

Added note – Very small insects less than 1/5-inch long. Flip themselves into the air by means of a spring-like part (furcula) under the abdomen. Found in damp places, such as under decaying vegetation, stones and boards.

Trichoptera

(meaning hair wing)

(Caddisflies)



Wings – Two pairs

Mouthparts – Chewing

Metamorphosis – Complete

Added note – Wings covered with short hairs and held roof-like over body when at rest. Found near water.

Isoptera

(meaning equal wing)

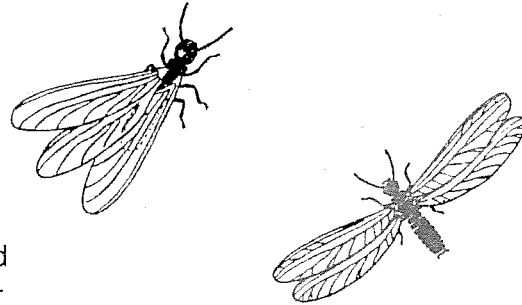
(Termites)

Wings – Two pairs of the same length
(workers are wingless).

Mouthparts – Chewing

Metamorphosis – Gradual

Added note – Kings and queens may be collected while swarming and workers may be found infesting wood. Look under wood on the ground.



Ephemeroptera (Ephemerida)

(meaning short lived)

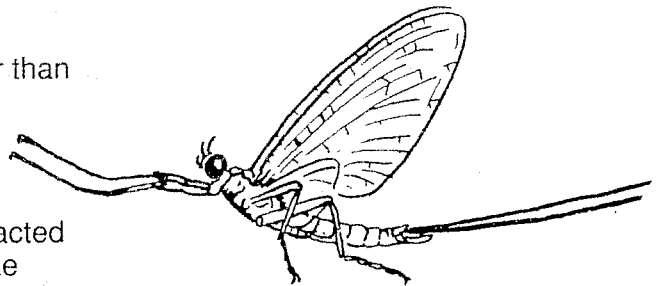
(Mayflies)

Wings – Two pairs. The first pair much larger than second pair. Held vertically when at rest.

Mouthparts – None

Metamorphosis – Incomplete

Added note – Found near water and are attracted to lights. Have two or three long antennae-like appendages at the end of the abdomen. (Cerci).



Plecoptera

(meaning plaited wing)

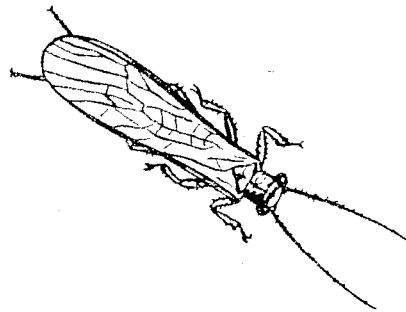
(Stoneflies)

Wings – Two pairs

Mouthparts – Chewing

Metamorphosis – Incomplete

Added note – Found near running streams.



Odonata

(meaning tooth)

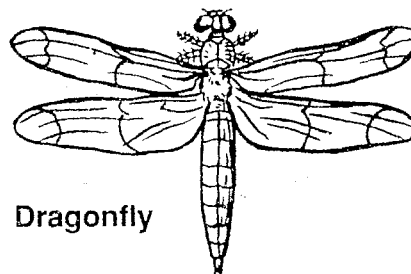
(Dragonflies, Damselflies)

Wings – Two pair

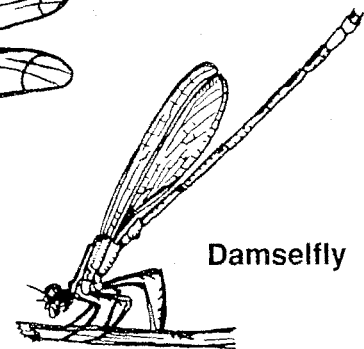
Mouthparts – Chewing

Metamorphosis – Incomplete

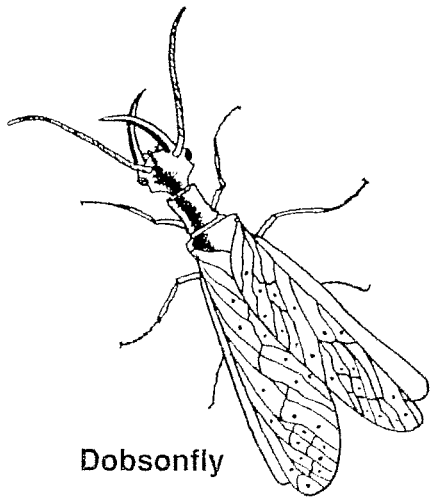
Added note – Feed on other insects. Usually found near water. (This is a very old order. It is often found in fossils).



Dragonfly



Damselfly



Dobsonfly

Neuroptera

(meaning nerve wing)

(Dobsonflies, Lacewings, Ant Lions)

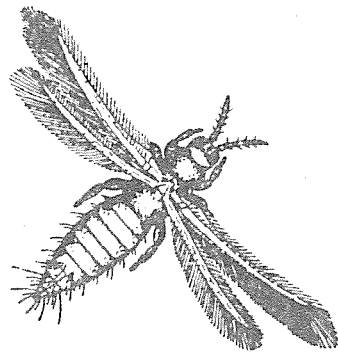
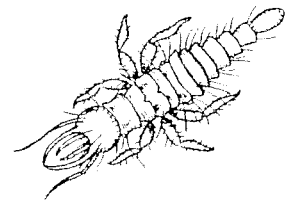
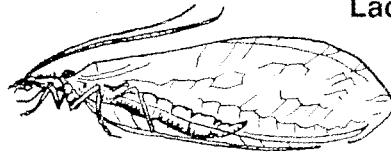
Wings – Two pairs, many fine net-like veins.

Mouthparts – Chewing

Metamorphosis – Complete

Added note – Have long antennae. Found near streams, at lights, or on trees and plants.

Green
Lacewing



Thysanoptera

(meaning fringe wing)

(Thrips)

Wings – Two pairs or none

Mouthparts – Rasping, sucking

Metamorphosis – Gradual

Added note – Very small insects only 1/8-inch long or less. Feeds on many plants.

Psocoptera (Corrodentia)

(meaning rub small)

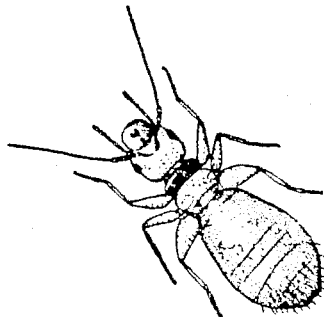
(Book and Bark Lice)

Wings – Some wingless, some with two pairs.

Mouthparts – Chewing

Metamorphosis – Gradual

Added note – Found in old books and papers or on bark of trees or on damp stored grain.

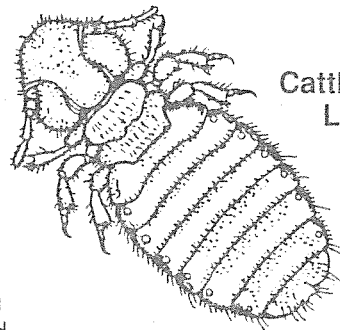


Mallophaga

(meaning wool to eat)
(Chewing Lice)

Wings – None
Mouthparts – Chewing
Metamorphosis – None

Added note – Live on birds and to some extent on mammals. Feed on hair, feathers, scales and dried blood.



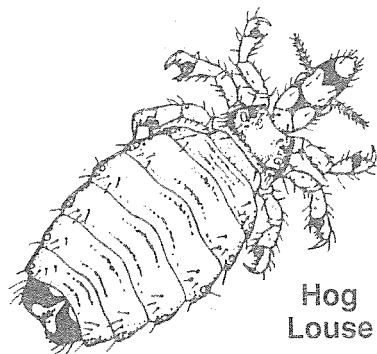
Cattle Biting Louse

Anoplura

(meaning unarmed tail)
(Sucking Lice)

Wings – None
Mouthparts – Piercing, Sucking
Metamorphosis – None

Added note – Head narrow and long. Claws pincer-like. Feeds on mammals.



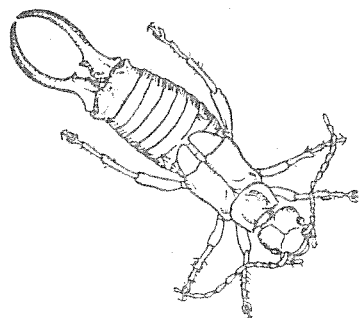
Hog Louse

Dermaptera

(meaning skin wing)
(Earwigs)

Wings – Two pairs
Mouthparts – Chewing
Metamorphosis – Gradual

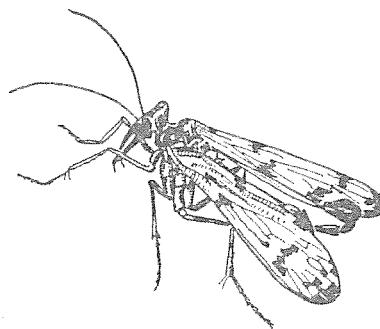
Added note – Front pair of wings hard like those of beetles but very short, hind pair membranous. Have a pair of pincers (Cerci) on end of abdomen. Found on plants, decayed matter and sometimes in houses.



Mecoptera

(meaning length wing)
(Scorpionflies)

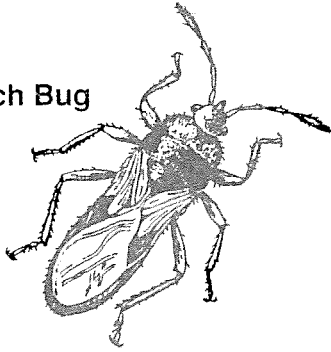
Wings – Two pairs, long and narrow
Mouthparts – Chewing
Metamorphosis – Mouthparts at the end of a long broad snout. Found on low vegetation in dense woods or sometimes in open fields.



Hemiptera

(meaning half wing)
(True Bugs)

Chinch Bug



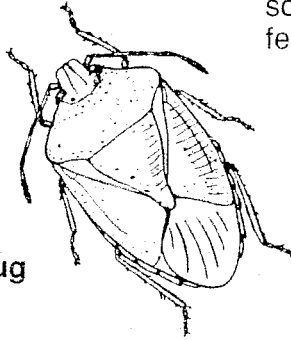
Wings – Two pairs. The front pair is half leathery and half membranous. Hind pair is membranous.

Mouthparts – Piercing, sucking

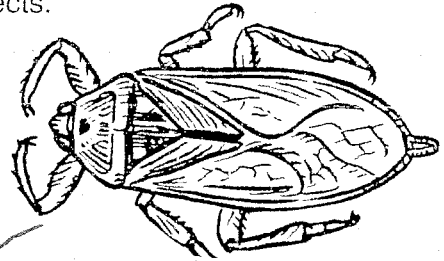
Metamorphosis – Gradual

Added note – Most live on land but a few live in the water. Most feed on plant juices but there are some which feed on animals and others which feed on other insects.

Green Stink Bug



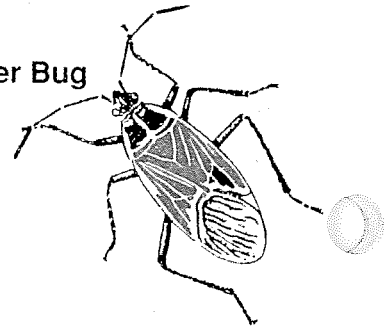
Giant Water bug



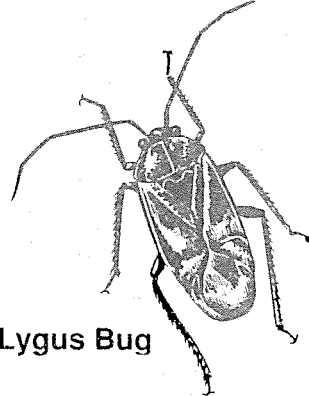
Sycamore Lacebug



Boxelder Bug



Lygus Bug



Homoptera

(meaning same wing)

(Aphids, Scales, Leafhoppers, Cicadas)

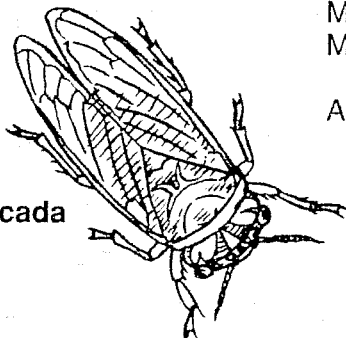
Wings – Two pairs or wingless

Mouthparts – Piercing, sucking

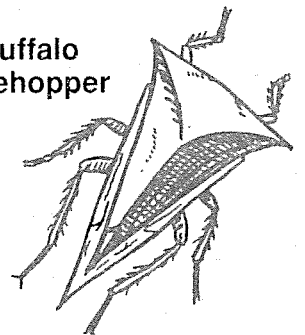
Metamorphosis – Gradual

Added note – All feed on plants

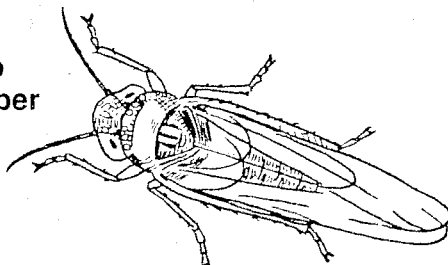
Cicada



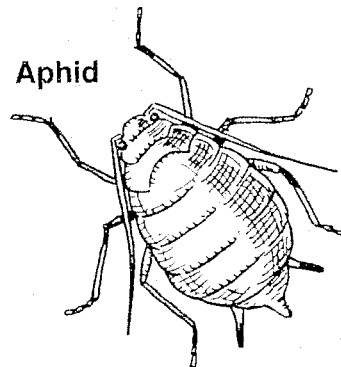
Buffalo Treehopper



Potato Leafhopper



Aphid



Coleoptera

(meaning sheath wing)

(Beetles)

Wings – Two pairs

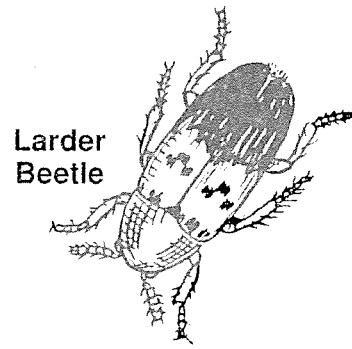
Front pair – Hard and shell-like (Elytra)

Hind pair – Membranous

Mouthparts – Chewing

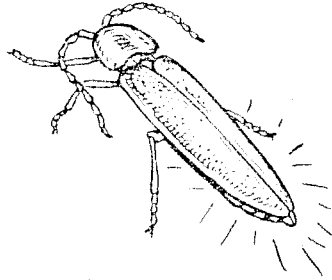
Metamorphosis – Complete

Added note – This is the largest order of insects in the world and they are found almost everywhere.

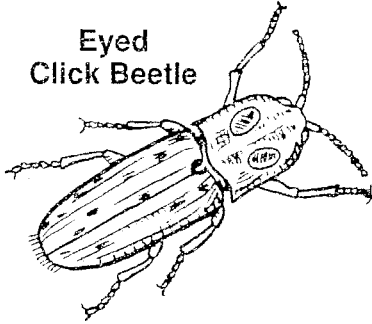


Larder Beetle

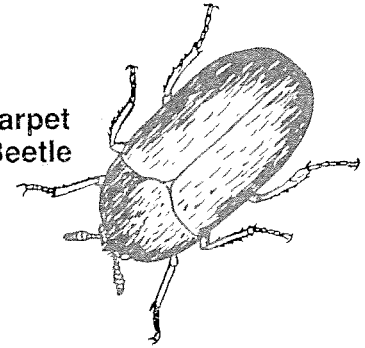
Firefly or Lightning Bug



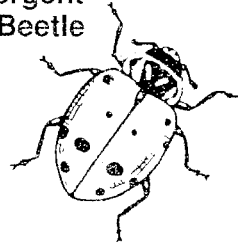
Eyed Click Beetle



Carpet Beetle



Convergent Lady Beetle



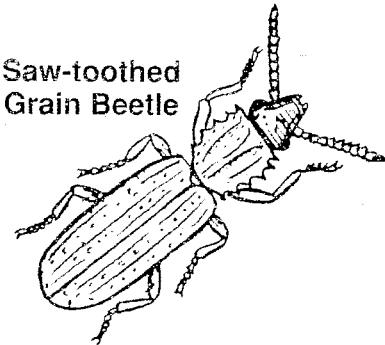
Clover Leaf Weevil



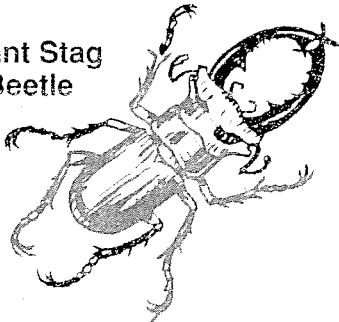
Whirligig Beetle



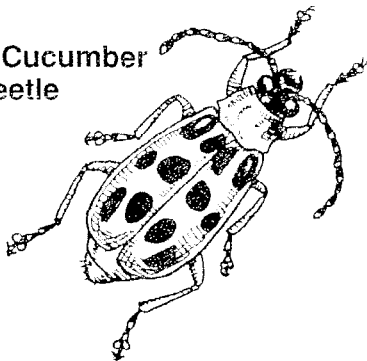
Saw-toothed Grain Beetle



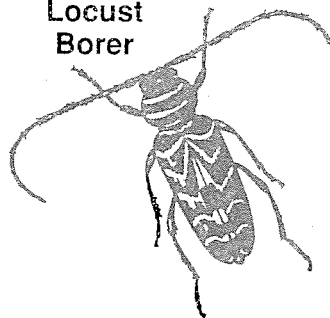
Giant Stag Beetle

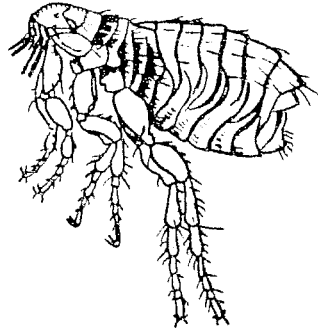


Spotted Cucumber Beetle



Locust Borer





Siphonaptera

(meaning tube without wings)

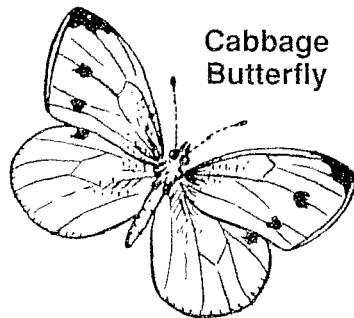
(Fleas)

Wings – None

Mouthparts – Piercing, sucking

Metamorphosis – Complete

Added note – Live on animals. Collect them by dusting a cat or dog with pyrethrum powder and place the animal over a white cloth. Fleas will drop off on cloth.



Cabbage
Butterfly

Lepidoptera

(meaning scale wing)

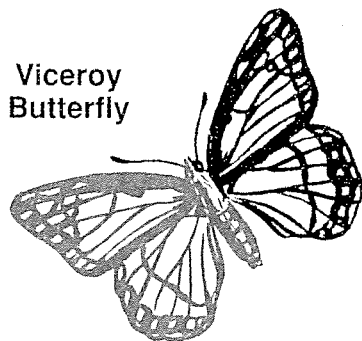
(Butterflies, Moths, Skippers)

Wings – Two pairs

Mouthparts – Siphoning (Sucking)

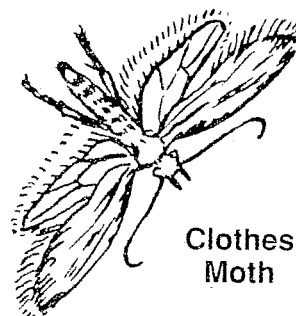
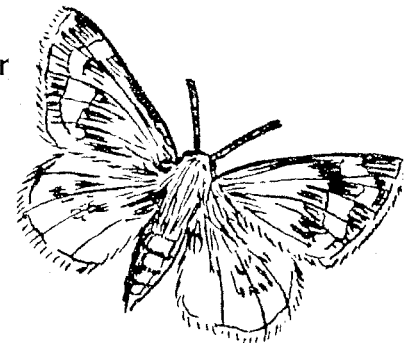
Metamorphosis – Complete

Added note – Most moths hide during day and are active at night or early evening. Butterflies are active in the day and are usually brighter colored than the moths. Skippers have the tips of the antennae bent back like the handles of walking canes.



Viceroy
Butterfly

Giant
Skipper



Clothes
Moth

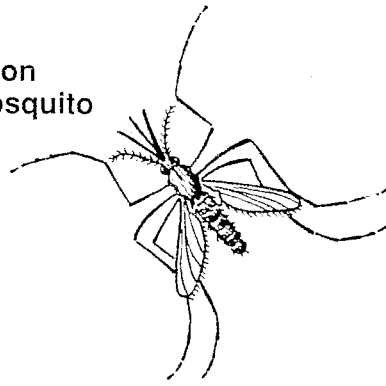
Diptera

(meaning two wings)
(Flies, Mosquitoes, Midges)

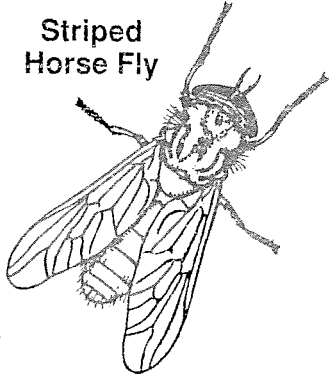
Wings – One pair
Mouthparts – Piercing-sucking, sponging-lapping
Metamorphosis – Complete

Added note – Found around flowers, decaying vegetation, on animals and in houses and barns.

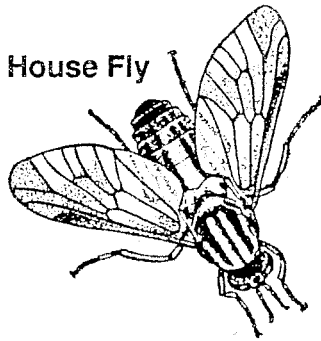
Common
Malaria Mosquito



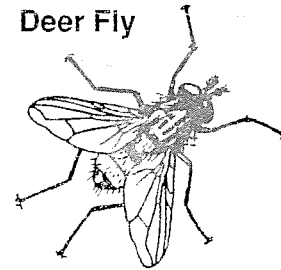
Striped
Horse Fly



House Fly



Deer Fly

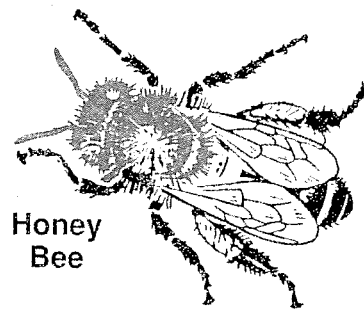


Hymenoptera

(meaning membrane wing)
(Bees, Wasps, Ants)

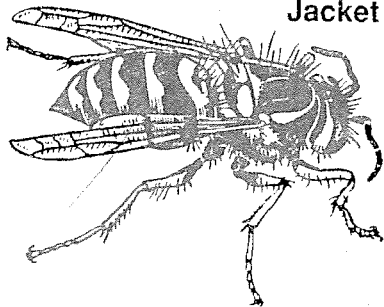
Wings – Two pairs. Worker ants are wingless.
Mouthparts – Chewing
Metamorphosis – Complete

Added note – One of the largest orders of insects and found almost everywhere.

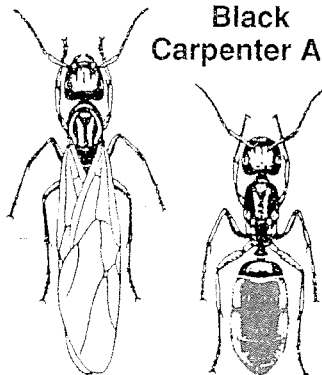


Honey
Bee

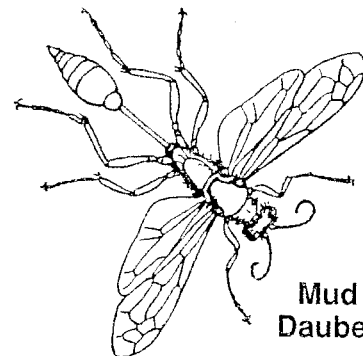
Yellow
Jacket



Black
Carpenter Ant



Mud
Dauber



Orthoptera

(meaning straight wing)

(Grasshoppers, Crickets, Roaches)

Wings – Two pairs (walking sticks and camel crickets are wingless)

Top pair – Leathery

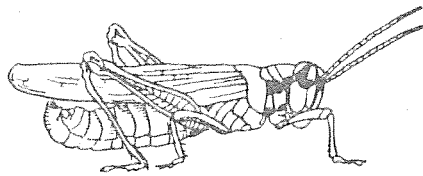
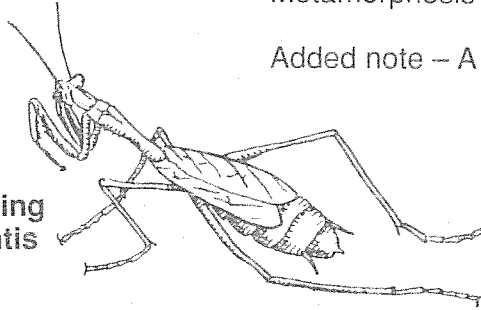
Bottom pair – Membranous and folded under top pair (fan-like).

Mouthparts – Chewing

Metamorphosis – Gradual

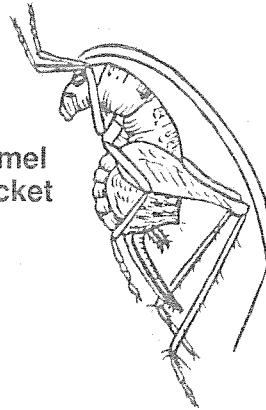
Added note – A very common order of insects

Praying
Mantis

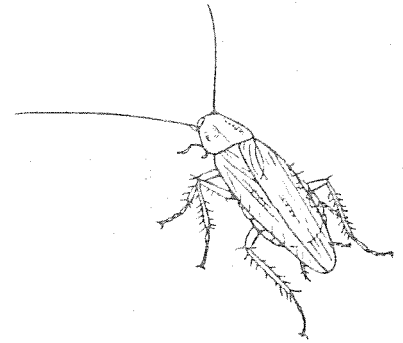


Red-legged
Grasshopper

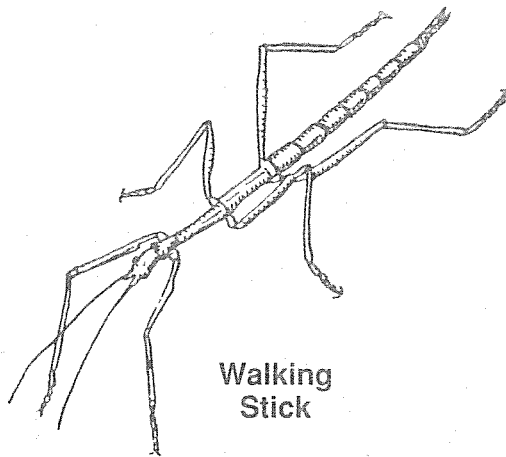
Camel
Cricket



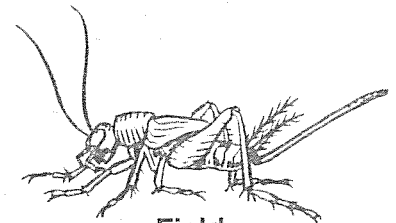
American or
German Cockroach



Walking
Stick



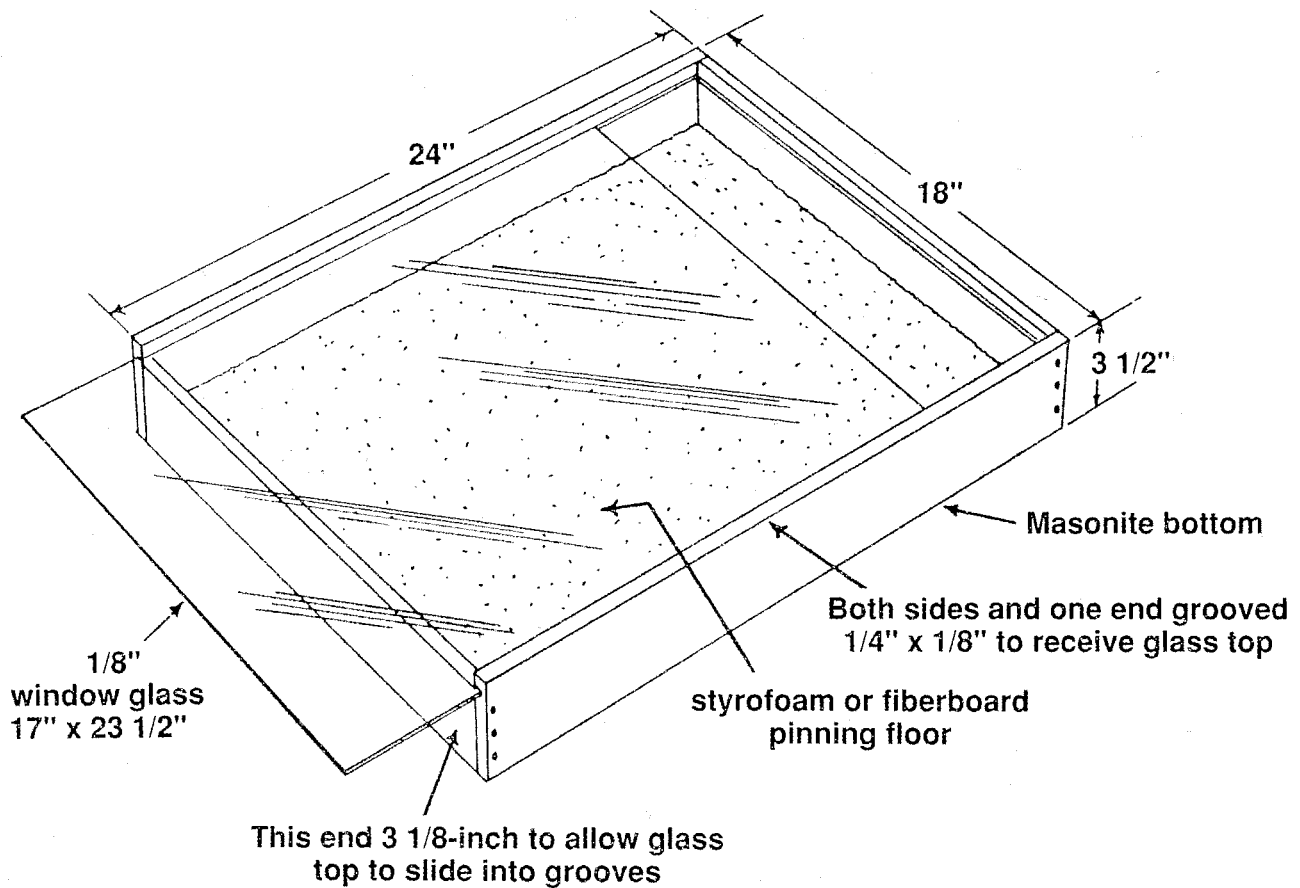
Field
Cricket



Glass Top Display Case

Materials needed for a glass top display case, 18 x 24 inches.

- ▼ One piece of masonite or hardboard for bottom – 18 x 24 inches.
- ▼ Two side pieces of pine – 3/4 x 3 1/2 x 24 inches.
- ▼ One end piece of pine – 3/4 x 3 1/2 x 16 1/2 inches.
- ▼ One piece of pine – 3/4 x 3 1/8 x 16 1/2 inches.
- ▼ One piece of styrofoam or soft fiberboard for pinning floor – 16 1/2 x 22 1/2 inches.
- ▼ One piece of window glass 1/8 inch thick – 17 x 23 1/2-inches.



Labels

Cut out and use these labels.

Common Name <i>American Grasshopper</i>	Where Found <i>On Corn</i>	<i>Anytown, Ohio Sept. 12, 1992 John Doe</i>	Common Name	Where Found	
Common Name	Where Found		Common Name	Where Found	
Common Name	Where Found		Common Name	Where Found	
Common Name	Where Found		Common Name	Where Found	
Common Name	Where Found		Common Name	Where Found	
Common Name	Where Found		Common Name	Where Found	
Common Name	Where Found		Common Name	Where Found	
Common Name	Where Found		Common Name	Where Found	
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Common Name	Where Found		Common Name	Where Found	
Common Name	Where Found		Common Name	Where Found	
Common Name	Where Found		Common Name	Where Found	
Common Name	Where Found		Common Name	Where Found	
Common Name	Where Found		Common Name	Where Found	

MECOPTERA Scorpionflies	NEUROPTERA Lacewings	THYSANURA Caddisflies	THYSNURA Silverfish
ORTHOPTERA Grasshoppers, Roaches, Crickets	ODONATA Dragonflies, Damselflies	ANOPLURA Sucking Lice	PLECOPTERA Stoneflies
COLEOPTERA Beetles	HOMOPTERA Aphids, Leafhoppers	MALLOPHAGA Biting Lice	ISOPTERA Termites
DIPTERA Flies	LEPIDOPTERA Moths, Butterflies	THYSANOPTERA Thrips	EPHEMEROPTERA Mayflies
STREPSIPTERA Twisted-wing parasites	HEMIPTERA True Bugs	CORRODENTIA Book and Bark Lice	COLLEMBOLA Springtails