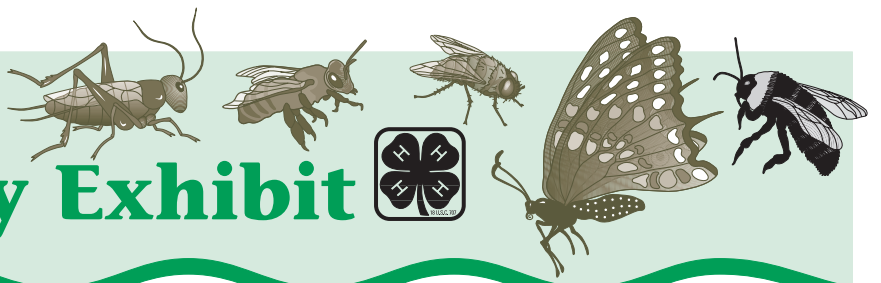


Making an Entomology Exhibit



What kinds of stuff can you do with bugs?

There are all kinds of things that you can do with bugs (bugs are only one type of insect!); below are just a few ideas. Your project is all the things you want to learn about insects. This project can be related to insect biology, behavior, importance, or control. Your exhibit is a portion of your project that you choose to share with others. You start with a goal:

Insects are cool and interesting creatures and make great 4-H projects!

Use your Entomology Project Activity Guides to help get you started thinking about your goals and the fun things that you can learn about insects!

Bug watchers (4H 423A), *What's Bugging You* (4H 423B), *Dragons, Houses and other Flies* (4H 423C), and *the Group Helpers Guide* (4H 423LDR)

Listed below are some exhibits you can do as part of your insect project.

Clover Kids: grades K-3

1. Draw and label the body parts of several kinds of insects. Identify the insects that you label.
2. Display useful products made by insects.
3. Make an original artwork using insects as a topic.
4. Collect insects at various stages of their lives and make a display showing these stages.

5. Count fireflies in your backyard and keep a notebook of what you see over a several week period. Compare spring to summer counts.

Junior 4-H members: grades 4-6

1. Collect and display different insect "homes," the insects that built them, and how they were constructed.
2. Make and display a traditional insect collection. See "Take a Closer Look," page 2.
3. Observe and make a working exhibit to demonstrate the various ways insects communicate with each other.
4. Make a diorama from an old box of insect relatives (i.e., spiders, ticks, mites, etc.) showing the habitats that they live in and around.
5. Become involved in the Monarch butterfly tagging program and make a map showing where butterflies travel. Visit the website www.monarchwatch.org for more ideas.

Intermediate 4-H members: grades 7-8

1. Make a working exhibit on the construction of an insect net, capture bottle, or other devices for collecting insects or include "how to pin insects." Check the directions for pinning on page 3.
2. Study the role of insects in movies, television, or music and make a video or audio tape using some of your own ideas and insects. Critique children's movies such as "Antz." Did it accurately show bug behavior?
3. Tour a local greenhouse or nursery and find out what insect problems they have and how they manage them. Make a mural showing management methods.
4. Collect insects and display them according to whether they are destructive, beneficial, or of no economic importance.
5. Study the various methods insects use to defend themselves and make a comic book, including drawings, describing these behaviors.

Senior 4-H members: grades 9-12

1. Make a display of several insects that carry or spread animal or plant diseases and communicate the significance of those diseases, and how they may be controlled.
2. Study and observe the effects of pollution on insects by examining the abundance and differences of aquatic insects above and below a pollution or waste runoff site. Give a speech telling the effects of pollution on insects and what the effects might be if these insects became extinct.
3. Design and grow a "butterfly" garden and keep a written or photographic journal of dates, times, numbers, and types of butterflies that frequent the garden.
4. Visit a local agricultural supply store and make an inventory of the different insecticides or other control products and their uses. Display how to use and dispose of these products safely, including alternatives that may be used in place of these products.
5. Study the various career opportunities available in entomology and interview an expert about career preparation and his/her likes and dislikes about the job. Write a children's story telling the pros and cons of working with insects. For further information write to the Entomological Society of America, 9301 Lanham, Annapolis, MD 20706.

Fair note:

You cannot bring live animals for an entomology exhibit to the fair. They have to stay for several days and will not live in the stuffy indoors that long!

If you plan to take your entomology project exhibit to a county fair, you can use some of the following information to get started.

Your exhibit will be judged on three things:

1. Learning involved
2. Workmanship and technique
3. General appearance and design



1 Learning involved: These questions need to be answered somewhere on your exhibit

- What was the goal of your project?
- What is the goal of this exhibit?
- What were the most important things that you learned as you worked toward this goal?
- What skills did you learn while doing this exhibit?
- What were decisions and challenges that you faced and how did you handle them?
- What worked, what didn't? List the resources that you used.
- What did you learn about insects?
- How did this exhibit help you better understand the relationship between nature and people?
- What would you like to do on this project area next year?



2 Workmanship and techniques

- Completeness—does your project have a finished appearance? Is the workmanship constant and neat?
- Following guidelines, labeling, spreading butterflies and moths, pinning



3 General appearance and design

- Does your exhibit look neat and attractive?
- Did you consider the appearance from a distance?
- If your exhibit is a poster, did you use elements of design as well as workmanship?

**Take a closer look!
Is your exhibit an insect collection?**
Here are some things you will need to know to have a successful exhibit.



1. Go to your local bookstore or library and get a book that lists the orders and species of insects (*Golden Guide of Insects*, and National Audubon Society field guides are good books). You will need to identify what you have found, and the library is a good place to start.

- For a beginning general collection youth should display at least 5 orders and 25 species. An advanced general collection should have at least 15 orders and 110 species. Display a specialized collection by habitat, month, night or day, or life cycle.
- When displaying lifecycle collections, 5 different insect species should be used. We recommend using more than 2 orders. For insects that undergo complete metamorphosis, all stages except the egg should be displayed. For insects that undergo simple metamorphosis, display at least 3 stages of development (*Bug Watchers*, 4H 423A, pages 16-19). You can do seasonal collections, collecting twice a month for 12 months or collecting one month in the fall and comparing it to one month in the spring. Labeling, pinning, and storage are discussed below.

Labeling: Two labels are needed, written in ink, of uniform size made from stiff paper (filing cards work great) so they don't bend or droop. These should be placed below the pinned insect. The top label should contain 1) location or place collected, 2) date collected, 3) collectors name. The bottom label should contain 1) where found (habitat) and 2) insect common name.

Pinning: See illustrations below. Pins can be purchased at the Iowa State University Book Store on the ISU campus, phone: (515) 294-5684, e-mail: www.ubs.iastate.edu. They have several sizes; get number 2 or 3. See also *What's Bugging You? Entomology Project Activity Guide 2*, 4H 423B, page 17.

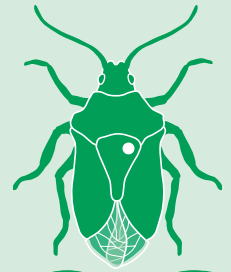
- All pins are placed vertically and to the right of the midline with $\frac{1}{4}$ to $\frac{1}{3}$ of the pin projecting above the specimen so that the pin may be grasped without damage to the insect.
- Pinning your butterflies takes special care. See the illustration to the right for pinning butterflies. See the illustration on page 4 for spreading butterfly wings.

Insect Pinning Areas

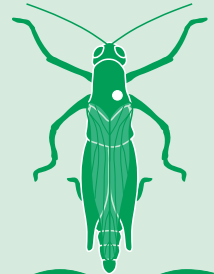
(Hymenoptera) Bees, wasps, and flies (Diptera) are pinned through the thorax between the bases of the forewings.



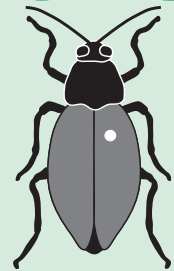
True bugs (Hemiptera) are pinned through the triangular area between the wing bases.



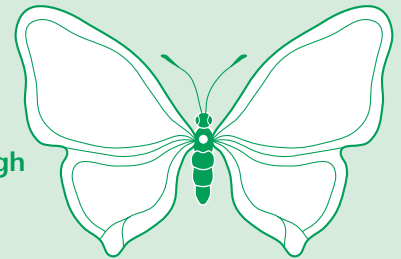
Crickets, grasshoppers, and other Orthoptera are pinned through the saddle-like pronotum.



Beetles (Coleoptera) are pinned through the front part of the forewing.



Moths, butterflies, and skippers (Lepidoptera) are pinned through the front part of the thorax.



Pinning butterflies and moths takes special care. See the illustrations on page 4. The butterfly wings should be open so that you can see the wing patterns. A board of foam insulation can be used to make an easy platform for spreading wings. Cut a groove down the middle of the board about $\frac{1}{2}$ " wide and $\frac{1}{2}$ " deep (Figure A). Use the groove of the board for the body of your butterfly. Pin the body into the groove (try to use the same pinhole after drying). Several small strips of paper should be cut ahead of time for placing over the wings (Figure B). Place a piece of paper over the wing and gently move one side of the wing until it is flat against the board (Figure C). Pin the slip of paper onto the board, but do not put a pin through the wing

(Figure D). Repeat with the other wing. Move the wings until they look like the butterfly is flying! Let them dry for at least a week. You can then move them carefully to their permanent home.

Carefully handle your butterfly!

Insect Pinning Tips

Cut a groove down the middle of the board about $\frac{1}{2}$ " wide and $\frac{1}{2}$ " deep.

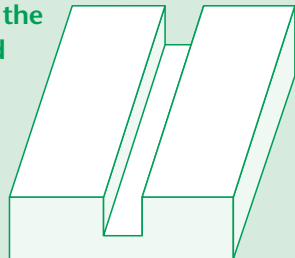


Figure A

Several small strips of paper should be cut ahead of time for placing over the wings.

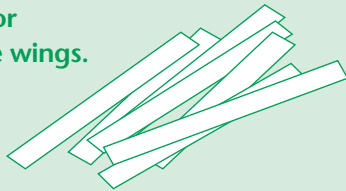


Figure B

Carefully move the wings until the butterfly looks like it is flying!

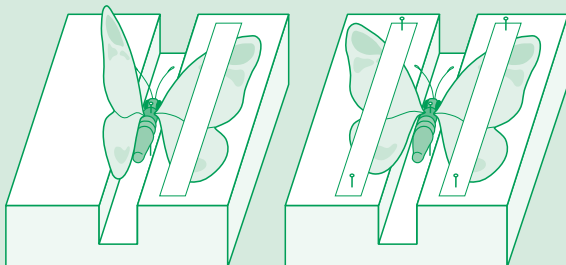


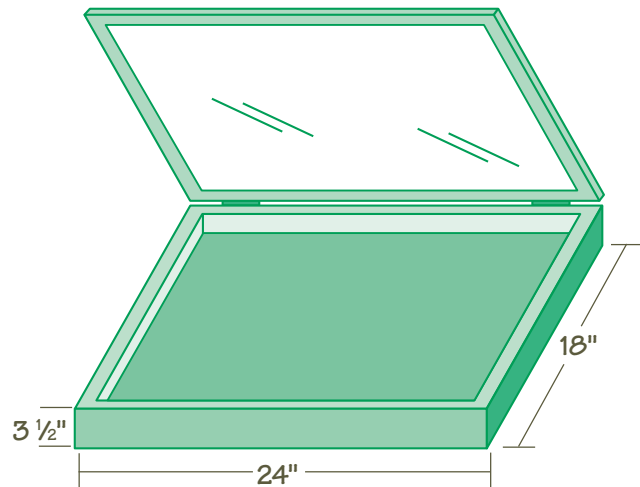
Figure C

Figure D

Let it dry for at least a week and then move it to your storage box.

Make your own display box.

This box is 24" x 18" x 3 $\frac{1}{2}$ " deep, and has a glass lid. Include a pinning cushion of soft cork or balsa wood. Moth balls or crystals can be put in the corner to stop other insects from destroying your collection.



Have fun with your entomology project!
Plan to create a wonderful exhibit so that you can share your learning with others!

Prepared by ISU faculty and Extension specialists: Marsha Morgan, 4-H youth specialist; Judy Levings, 4-H youth development specialist; Ken Holscher, associate professor of entomology, and Carol Ouverson, communication specialist. Illustrations and layout by Jane Lenahan, Creative Services, Instructional Technology Center.

File: Youth and 4-H

Storage and display: To store and display your project for a short time, use a cigar box or shoe box. Be sure to place a piece of cork or other soft material in the bottom for pinning your specimens. For long-term storage, use a tight-fitting box to avoid other insects "eating" your collection. See example of a display box to the right.

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