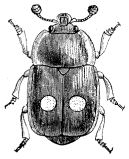
ENTOMOLOGY

STATE FAIR ENTRY: Yes

EXHIBIT BY: All * items must come to project judging.



Division	Project Book	Record Book
Beginner (grades 3-5)	BU-8440*	BU-8440*
Intermediate (grades 6-8)	BU-8441*	BU-8441*
Advanced (grades 9 – 12)	BU-8442*	BU-8442*

- All Divisions need 4-H763B (set of cards & labels) & 4-H764 the 1st year.
- NOTE: You MUST complete 3 activities in your project book each year.
- Available to purchase through the Extension Office: Bug Boxes - $20.00 & 3 vials and pins for boxes - $6.00 – 4-H 763A; ID401 - Resource Book - $35.00 or as free download – great resource for grades 6-12.

JUDGING TIME: Saturday, July 17 at approximately 10:30 a.m. Check in your project on Saturday, July 17 between 7:30 and 8:45 a.m.

PROJECT DESCRIPTION:
Members learn by exploring the world of insects. They discover where insects live, what they eat and how they grow. When a member enrolls in the project, he/she receives a kit containing the materials needed (except bug boxes) to complete the requirements. The project manual gives information on how to order, purchase or make additional supplies and equipment.

EXHIBIT:
General Instructions:

- **References:** 4-H764 – How to Study, Collect, Preserve and Identify Insects or How to Make an Awesome Insect Collection, ID-401, available online at (http://extension.entm.purdue.edu/401Book/) or through The Education Store.
- **Title:**
  - **Collection –** Insect Collection, Grade x (where x = your grade in school).
  - **Poster -** Choose one of the topics listed below, appropriate for your grade in school, and use that topic for your exhibit title**.**
- **Orders:** Use the orders listed on page 57 in ID-401 and the Table of Contents in 4-H-764.
- **Display**
  - Collect, mount (pins or vials) and identify the insects personally collected in the US only.
  - Display your best specimens in 18" x 24" box(es), oriented horizontally, with a label in the lower right hand corner (name, grade & county).
  - When multiple boxes are used: list the box order (i.e., "box 1 of 3 boxes", and include your name in each box.
  - ID 401 A-F cards (for grades 3-8) and ID 401-I cards (for grades 9-12) are to be placed inside the display box in an attractive manner.
- **Identification**
  - Collection display boxes are expected to contain the specified number of insects, families, and orders specified (see chart).
  - All insects must be in the adult stage and be properly mounted on insect pins or be contained in vials as directed.
  - **Pin Labels**: Each pin or vial must contain two labels:
    1. Top label is to include collection date, location, and collector name.
    2. Bottom label is to include common name and other optional identification data.
  - **Box Labels:** Box labels (computer generated or neatly printed) are used for orders and families as required (see chart below) and are to be placed flat against the bottom of the box. Insects must be properly grouped directly under the correct order and family box label. For example, all insects

belonging to a particular order must be placed under that order label. Orders to be used are listed in the reference book ID-401. If family level identification is required, the insects should be further grouped together under that family label.

- **Educational Box:** One additional box (educational), based on the specific theme (see chart below), is required for grades 9-12, in addition to the insect collection boxes. This box can be created in any manner chosen (without the mounting, pinning or identifying restrictions specified above).

Grade	Exhibit	Max. # of Collection Boxes
3	10 insects, identified and pinned on cards (ID401A).	**1**
4	20 insects, mounted (pins or vials). Identify all insects by common name and identify five (5) to order. Include card ID401B.	**1**
5	30 insects, mounted (pins or vials). Identify all insects by common name and identify 15 to order. Include card ID401C.	**1**
6	40 insects, exhibit a minimum of 6 orders, mounted (pins or vials). Identify all insects by common name and order. Include card ID 401D.	**2**
7	50 insects, exhibit a minimum of 8 orders, mounted (pins or vials). Identify all insects by common name and order. Identify ten (10) to family. Include card ID 401E.	**2**
8	60 insects, exhibit a minimum of 10 orders, mounted (pins or vials). Identify all insects by common name and order. Identify thirty (30) to family. Include card ID 401F.	**2**
9	70 insects, exhibit a minimum of 12 orders, mounted (pins or vials). Identify all insects by common name, order and family. One educational box, theme: insect behavior. Include card ID 401I.(1-3 collection boxes plus 1 educational box*). Place 401I in first collection box only.	**3 + 1***
10	80 insects, exhibit a minimum of 14 orders, mounted (pins or vials). Identify all insects by common name, order and family. One educational box, theme: insect pest management. Include card ID 401I.(1-3 collection boxes plus 1 educational box*). Place 401I in first collection box only.	**3 + 1***
11	90 insects, exhibit a minimum of 16 orders, mounted (pins or vials). Identify all insects by common name, order and family. One educational box, theme: insects in the environment. Include card ID 401I.(1-3 collection boxes plus 1 educational box*). Place 401I in first collection box only.	**3 + 1***
12	100 insects, exhibit a minimum of 18 orders, mounted (pins or vials). Identify all insects by common name, order and family. One educational box, theme: benefits of insects. Include card ID 401I.(1-3 collection boxes plus 1 educational box*). Place 401I in first collection box only.	**3 + 1***

* Educational box: The educational box (grades 9 - 12) is in addition to the insect display box(es). This box should be created in such a way as to teach something about the assigned theme to the general public. Max. # Collection boxes *

Poster Requirements:

1. Poster exhibits should have the standardized exhibit card in the lower right hand corner with the 4-H member's name, project and club. You should allow room on your poster for the exhibit card (Height - 3½" x Width – 4¼"). The exhibit card will be available at check-in time at the fair. NOTE: Add your name, club and the date poster was completed in the bottom right corner in permanent ink under the plastic, where the exhibitor card will cover.
2. Posters must be 22" x 28" and DISPLAYED HORIZONTALLY ■ and not vertically ▌.
3. POSTER MUST BE SELF-SUPPORTING (remain standing when leaned at a slight angle). Use heavy cardboard, foam board, or pegboard for stiffness. For sources of heavy cardboard, contact the Extension Office.
4. All posters must be covered with clear plastic.
5. All posters, notebooks, and display boards ***must*** include a reference list indicating where information was obtained, giving credit to the original author, to complete the 4-H member's exhibit. This reference list should/might include web site links, people and professionals interviewed, books, magazines, etc. It is recommended this reference list be attached to the back of a poster or display board, be the last page of a notebook, or included as part of the display visible to the public. A judge is not to discredit an exhibit for the manner in which references are listed.

Poster Option: Posters must be displayed horizontally, sized 22" x 28", mounted on a firm backing (foam-core board or other), and covered in clear plastic or other transparent material. Be sure to include a label with your name, grade, and county. Choose one of the topics listed below, appropriate for your grade in school, and **use that topic for your exhibit title,** so the judges know which activity you completed. You can also use a creative subtitle if you wish.

- Entomology 1 (grades 3-5) are:
  - "Big Mouth Bugs" - Show the four (4) different mouth types that you studied. Create a chart listing the four mouth types, an insect with this mouth type, food they eat, and where these insects might be found.
  - "Pit Stop" - Make two pit traps and use them to collect insects. Exhibit your completed record sheet. You can use the format given for your data collection, or make your own. Include some of the insects, or pictures of your trap and insects collected.
  - "Buz-z-zing Around" - Present three to five ways that insects communicate. Include an insect, or picture of each insect that communicates in each of the ways you are describing.
  - "FACETnating!" - Show how insects see (compound eyes) and explain how they see colors.
  - "Ants and Uncles" - Compare insects with their non-insect relatives by completing the chart in your book (copy or make your own). Include some of the insects and their non-insect relatives, or pictures of them, on your poster.
  - **Chirp, Chirp** -- Watch and listen to the crickets for five minutes, three times a day, for three days. Include day and night observations. Record what you see and hear.
- Entomology 2 (grades 6-8) are:
  - "**Collecting Insects** -- Use two of the insect collecting traps described in Activity 2 (Berlese Funnel, Indoor Insect Trap), Activity 3 (Modified Wilkinson Trap), Activity 4 (Fruit Bait), or Activity 5 (Light Attractor) to collect insects. Exhibit a picture of your traps and an Insect Collection Data Chart that gives the trap location (for example, in the basement or in the back yard), date collected, and insects collected.
  - **Spread Your Wings and Fly** -- Make and use a spreading board. Exhibit two pictures of your spreading board and three butterflies or moths that you prepared using your board.
  - **Insect Experiments** -- Complete one of the following activities: Activity 8 (Color My World), Activity 9 (Sowbug Investigations), or Activity 10 (Life's Stages). Exhibit your data sheet and answers to the "Talk It Over" questions. For activities 8 and 9 include your hypothesis and a conclusive statement about your hypothesis (indicate if it was proved or disproved).
  - **Invasive Species Investigations** -- Create an informational exhibit about one (Indiana) invasive insect. Include the information requested in the activity for this insect (first eight (8) questions on page 29).
  - **A Sticky Situation** --Make and use sticky traps for four weeks as described in Activity 13. Exhibit your data sheet and the answers to "Talk It Over" questions.
  - **Footprint Clues** -- Study the tracks of 3 different species of insect and one arthropod as described in Activity 14. Exhibit your data sheet and the answers to "Talk It Over" questions.
- Entomology 3 (grades 9-12) are:
  - **The Scientific Method** - Use the scientific method to complete one of the problems listed in Activity 3. Describe what you did to complete the five scientific method steps and include your data and drawings or pictures of your experiment.
  - **Transecting for Insects** - Compare three habitats using the scientific method to determine which one has the most terrestrial insect activity. Display your transect data sheet for each habitat and answer the "Talk It Over" questions.
  - **Please Drop In** -- Create your own hypothesis and collect insects in five pitfall traps to prove or disprove your hypothesis, as described in Activity 7. Display how you completed your experiment (including each step in the scientific method) and your data for each habitat.
  - **Aliens Among Us** -- Complete the "Natives vs Non-natives Survey Data Sheet" by checking two boxes (Native or non-native and damage or no damage) for five native and five non-native insects as shown in Activity 9. Answer the "Talk It Over" questions.
  - **IMP** -- Learning and Teaching - Make an informational flier and use it to teach younger 4-H members about five insect pests that might be found in a home or school in your county. Exhibit your flier, lesson plan, and photograph of you teaching. Answer the "Talk It Over" questions.

- **Meal from a Worm** -- Use the scientific method to study how mealworm larvae grow. Include your hypothesis, data charts, and conclusions. Answer the "Talk It Over" questions.

- Independent Study (grades 9-12) (One State Fair Entry):
  - **Advanced topic** - Learn all you can about a topic of your choice and present it on a poster or in an Entomology box. Include a short manuscript, pictures, graphs, and list the works cited to describe what you did and what you learned. Title your poster, "Advanced Entomology – Independent Study".
  - **Mentoring** – Exhibit a poster that shows how you mentored a younger 4-H member. Include your planning, the time you spent, the challenges and advantages of mentoring, and how the experience might be useful in your life. Photographs and other documentation are encouraged. Title your poster, "Advanced Entomology--Mentor".

STATE FAIR:
One collection and one poster are selected per level.