

TEACHING ENTOMOLOGY TO YOUTH THROUGH A BUG'S LIFE SUMMER CAMP

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Abstract. The 4-H Bug-A-Boo Camp focused on entomology, providing each day camper with the materials needed to collect, preserve, identify, and pin specimens. Each camper developed an insect collection and identified each specimen according to order. Each day was selected as an insect "order" day (Monday - Coleoptera, Tuesday - Diptera, etc.) and tied into the day's activities. The curriculum included basic entomology, a game "All in Order", the "How do Insects Grow" activity, a behind the scenes tour of Epcot's The Land Insectory and planting a butterfly garden at a State Park. It's a Bug's Life Jeopardy game was a fun way to measure knowledge gain. This program allowed 21 campers to learn about the natural and man-made habitats that their collections were gathered in. An evaluation tool was designed and mailed out to each parent to evaluate their child's knowledge gain and to provide suggestions for improvements in the camp. 100% of respondents (7/7) indicated an increase in knowledge of entomology. 75% of respondents also stated that the children where continuing their interest after camp. The camp participants rated most of the activities as "cool or way cool" through the same evaluation tool that was sent to the parents.

Most children have a natural fascination with insects. And because insects are the most plentiful creatures on Earth, they provide abundant opportunities for learning about biology, ecology and the environment. A 4-H Bug-A-Boo camp was created as an educational day camp for children 8-12 years old to encourage youth to develop an appreciation for entomology. It offers an exciting array of activities to reveal the fantastic lives of insects. The camp also relates the insect to its natural habitat. This camp is in its third year, with each camp session offering new opportunities for the practical interaction of students and insects.

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Materials and Methods

Each camper is provided with an insect collecting "tool-kit". Each kit contains a collecting net, killing jar, hand lens, forceps, insect pins, pinning tray, pinning instructions and labels. Each camp day is labeled as a different insect order. Monday is Coleoptera day and the activities relate to beetles. Tuesday is Diptera day (flies and mosquitoes); Wednesday is Orthoptera and Odonata day (grasshoppers and dragonflies); Thursday is Hymenoptera day (bees, wasps and ants) and Friday is Lepidoptera day (butterflies, moths and skip-pers) (Table 1).

An introduction to Entomology is incorporated into the camp and adjusted to the existing knowledge level of the participants (Fig. 1). Emphasis is placed on insect lifecycles, identification to order, proper collection methods, preserving techniques and mounting procedures. Activities and crafts focus on insects or arthropods. Some of these are: "Amazing Arthropods", a build an arthropod snack; "All in Order", an activity where participants place a pictured insect into the correct order box; and "How do Insects Grow" has students putting together a metamorphosis mobile. Each day children visit different habitats and collect insects found in the different locations (Fig. 2).

Campers are instructed how to collect, pin, spread the wings of and mount their insect specimens. They keep their killing jars active by adding more ethyl acetate (finger nail polish remover) daily and inspect their collections for marauding ants. Each camper creates an insect collection and identifies each specimen according to its order.

The community project involves the campers in planting a native butterfly garden at the entrance to the Inlet State Park in Fort Pierce. This location is seen by all visitors as they stop to pay the entrance fee.

Results and Discussion

The 2003 Bug-A-Boo camp had 21 students. All 21 students (100%) created an insect collection, labeled each specimen and identified the insect to its order. An evaluation was developed and mailed out to the parents of each camper (13

Table 1 Order of the Day for 4-H Bug-a-Boo Camp.

COLEOPTERA	DIPTERA	ORTHOPTERA ODONATA	HYMENOPTERA	LEPIDOPTERA
Entomology	Kayaking	Hiking/Savannah	Insect tour of Animal Kingdom	Butterfly Garden - plant
All in Order Amazing Arthropods	Swimming	Collecting	Ants and Bees Activity Book	Swimming and Collecting on the beach
Metamorphosis	Collecting/river			Bug's Life Jeopardy game
Collecting/ornamental garden	Mosquito Activity Book	Origami Insects		Mounting and labeling
Craft a lady bug	Mounting	Mounting	Craft a bee	Certificates



Fig. 1. Basic Entomology.



Fig. 2. Collecting insects.

families). This tool was designed to evaluate their child's knowledge gain and elicit suggestions for improvements in the camp. Over 50% of the families responded. All seven respondents (100%) indicated an increase in their child's knowledge of entomology. Five of the seven respondents (75%) also stated that their children were continuing to collect and identify insects. All of the camp participants rated most of the activities as "cool or way cool".

This year it was determined from verbal discussions with campers and parents that the children would like to be instructed how to arrange an exhibit for the St. Lucie County Fair. New guidelines will be developed combining Florida 4-H materials and those developed by the University of Kansas 4-H (Sloderbeck and Adams, 2001). A night-time insect viewing session for the campers and their families was included this

year. Plans are also being developed for an advanced entomology camp and a camp for teachers. The advanced camp will match students with local scientists, allowing them to research and develop a science-based experiment. The camp for teachers will be patterned after the one at Penn State University which offers teachers information on teaching with insects.

Literature Cited

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