Facts to Know

Suggested group size: six to eight children per adult volunteer

Time frame: group meeting 30 to 60 minutes

Recommended ages: 5- to 7-year-olds (kindergarten through second grade)

Materials:
- One pair of silly sunglasses
- One antennae headband
- Wooden dowels, 36 inches (one per member)
- Old pillow cases (one per member)
- Wire coat hanger or 12-gauge wire (one per member)
- Large, widemouth, clear plastic jars with lids (one per member)
- Hand drill with very small bit (1/8 inch) for making air holes
- Scissors
- Duct tape
- Celery sticks, 3 inches (one per member)
- Peanut butter or spreadable cheese
- Raisins
- Red apple (one half per member)
- Grapes
- O-shaped cereal

Purpose

Youth recognize insects and are able to identify the body parts all insects have: head, thorax, abdomen, antennae, wings and six legs.

Environmental and Earth Sciences

Insect Investigations
Background Knowledge

Insects come in many shapes and sizes and in every color of the rainbow. From blue morpho butterflies and dung beetles to hissing cockroaches and giant walking sticks, insects are mysterious and marvelous. Scientists believe we could have more insect species (6 million to 10 million insect species worldwide) than the number of residents in New York City (8.2 million people). But just like people, a few key identifiers make an insect an insect and not a spider (which is an arachnid).

Every insect has three body parts and six legs (spiders have two body parts and eight). These six legs are attached to the thorax, one of the three body parts every insect has. The three body parts are: head, thorax (where the wings and legs are attached) and abdomen. Insects do not have bones inside their bodies. Instead, they have a hard covering called an exoskeleton.

Many insects can fly. Most insects have two pairs of wings. Some have one pair of wings, and a few types of insects do not have wings. Most insects also have two sets of eyes: simple and compound. The compound eyes are the biggest.

All insects have a pair of antennae on their head. These are used to feel, smell and, in some insects, hear. Most insects have tiny hairs on their bodies. The hairs are sensitive to movement, pressure, smell and sound.

Learning Activities

Do: Getting Started
Song “Three Body Parts” (10 minutes)

In this activity, members put new lyrics to a familiar tune to help them remember the names of an insect’s three body parts. The song is sung to the tune of “Three Blind Mice.”

Three body parts
Three body parts
Here’s where they are
Here’s where they are
The HEAD is connected to a THORAX
The THORAX is followed by the ABDOMEN
An insect always has all of these
Three body parts
Three body parts

(Going Buggy, 2012)

Do: Digging Deeper
Build a Bug (20 minutes)

Members now are familiar with the three body parts of an insect: head, thorax and abdomen. In this activity, members will learn about the other body parts belonging to insects, where they are located and what they do. This activity is best with 13-plus members in a group.

1. Ask members to sit in a large circle on the floor. From the center of the circle, explain that we will build a bug using people for all the parts of the insect.

2. Share the name of each body part as it is added and explain how each has a unique purpose. Ask for volunteers as you add body parts to your insect. The insect they build will become quite large and be rather goofy. Encourage the members to pay attention and work together as the insect grows.

3. Use the following insect body parts and motions as members build a giant bug.

   a. Head – The head is where the eyes and antennae are connected. Eyes help an insect see; antennae help an insect feel, smell and sometimes hear. The member acting as the head will wear a silly pair of sunglasses and an antennae headband.

   b. Thorax – The thorax is where the legs and wings are connected. The thorax must be strong and stable because it is the center of movement for the insect. The member acting as the thorax connects to the head by placing his or her hands on the shoulders of the head.

   c. Abdomen – The abdomen is where an insect digests food, breathes air and releases pheromones (smelly chemicals) to communicate.
Insects come in many shapes, sizes and colors. If you want to observe an insect for a short period of time, a looking jar and sweep net are a must-have. A sweep net is used to collect the insects in the outdoors, and the looking jar provides a safe, temporary home for your insect while you observe it.

1. A sweep net is a safe and fun way to collect lots of insects. To make a simple sweep net, members will need a 36-inch-long heavy wooden dowel, an old pillow case, duct tape and an old wire hanger (or some 12-gauge wire).

2. With the help of an adult, members will cut a small hole on the inside hemmed edge of the pillowcase near the edge and side seem. Members then unwind a wire coat hanger and slide one end of the wire in the first slit on the pillowcase, threading the wire all the way around the pillowcase and coming out the same slit.

3. Using duct tape, adults will help members secure the wire ends to the end of the wooden dowel. Zip ties are optional but will hold everything down tightly before or after taping the wire ends.

4. A sweep net is used by sweeping across the ground or over a bush in a back-and-forth sweeping motion. Sweep the net across a hedge or through tall grass to collect lots of insects in just a few passes. Insects collected are swept into the bottom of the net. Members can grab the net safely in a fist to close it near the neck. Gently turn insects out onto a white sheet to observe or place the net over a looking jar and gently slide the insects into the jar.

5. All insects need air to breathe. To make a looking jar ready for temporary insect visitors, members will need to make plenty of air holes. A large, clear plastic jar with a lid works best. Large peanut butter containers work well.

6. With the help of an adult, members will drill very small holes in the lid and around the bottom edge of a clear plastic jar. Members may wish to place one to two small leaves and a small twig in their looking jar for the insects to climb on or eat.

7. The larger the mouth of the jar, the easier putting an insect into it will be. After members have observed insects for a short time, place the jar on its side, remove the lid and wait a few minutes. Don’t dump the jar out; insects will leave on their own if members wait just a few minutes.

(Blobaum, 2005)
Reflect/Apply

Reflect: Bringing Closure

Bug Food (10 minutes)

1. Ants on a Log: Cut and wash celery sticks, fill with peanut butter or cheese and stick raisins on top.

2. Ladybug Apples: Wash and cut an apple in half, removing the core. Place the apple peel side up onto a plate. Dab small peanut butter (or cheese) blobs on the raisins and then stick the raisins to the apple. Slice a large grape in half and use one half of it to make the head. Dab a little peanut butter (or cheese) onto two O-shaped cereal and stick on the head.

Apply: Going Beyond

1. Visit a museum, school or college that has an insect collection.

2. Build a button bead bug. Have assorted pipe cleaners, buttons, beads and googly eyes available for use. Encourage members to use their imagination and creativity to create their button bug. Remind them of the three basic parts of a bug. Get creative by linking multiple buttons and molding the pipe cleaners into interesting shapes such as tails, antennae, legs or wings. Add googly eyes with glue and a mouth made from paper scraps.

3. Go on a field trip to search for and collect insects. Turn over stones and logs and dig into debris. Insects and other closely related creatures such as spiders, millipedes, centipedes and sow bugs often are found in or around such habitats. Collect around ponds, lakes, streams, damp areas, plant foliage, twigs and flowers. Check around porch lights at night or string a sheet over a clothesline and shine a light on it to attract flying insects. During the winter, check under wood piles, tree bark, rotten logs in the forest, clumps of grass, compost and the sunny exposure of buildings. Discuss characteristics of the insects found. Remember to watch out for stinging insects.

Resources


Acknowledgements

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Curriculum Consultant and Editor: Adrian Biewer, 4-H Youth Development Specialist, Extension Center for 4-H Youth Development

Author: Monique Snelgrove

For more information, see www.ndsu.edu/4h