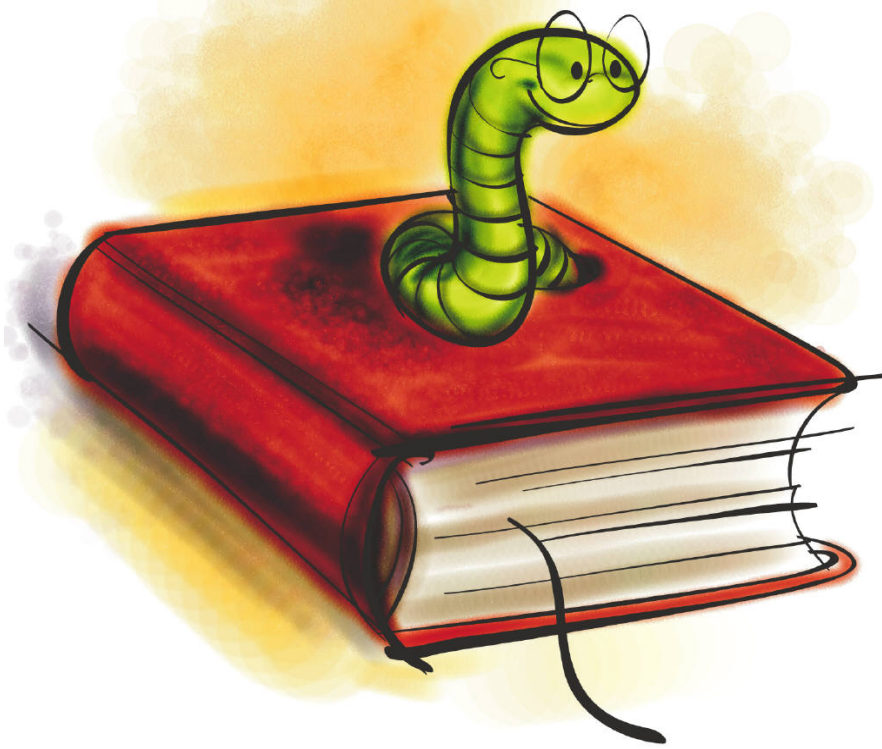


The ABC's of Entomology



UNIVERSITY OF
FLORIDA
IFAS EXTENSION

4-H Entomology School
Enrichment Project





MAIN IDEA: Insects have four basic types of mouthparts.

GRADE LEVEL: 3-6

SUBJECT: Language Arts, Science

SETTING: Classroom with tables or desks

TIME NEEDED: 45 minutes

ENTOMOLOGY SKILLS: Comparing the different types of insect mouthparts

LIFE SKILL: Making comparisons

SUNSHINE STATE STANDARDS:

LA.B.2.2.3

LA.B.2.2.5

SC.F.1.2.3

SC.G.1.2.2

MATERIALS NEEDED:

- Ten to fifteen preserved insects (You should have insects with all four types of mouthparts.)
- Magnifying glasses
- OPTIONAL: dissecting microscope

The following materials are for each team of four youth:

- 1 clean bowl
- 1-2 clean glasses or cups
- 1 clean plate
- 1 small sponge (should be new and clean) NOTE: Avoid sponges that have been treated with chemicals.
- 1 regular drinking straw
- 1 juice box with straw
- Punch, juice, or water
- Cereal (a sugar cereal such as fruit or apple rings works well)

VOCABULARY: piercing-sucking mouthpart, siphoning mouthpart, chewing mouthpart, sponging mouthpart, mandible, maxillae, labium, labrum

Mouthparts Mayhem

OBJECTIVES:

- Youth will understand the relationship of insect mouth structures to what the insects eat.
- The youth will be able to identify the four main types of mouthparts, how the insect uses the mouth parts to eat, and examples of insects that have each type of mouth part.

ACTIVITY INTRODUCTION:

Show the youth each of the insects. Ask youth to identify what each one eats. Explain that each insect has a different type of mouth that is specially adapted to the type of food the insect eats.

Have the youth examine each insect specimen with a magnifying glass, paying particular attention to what the mouth looks like. If you have access to dissecting microscopes, allow them to look at each insect under the microscope.

Explain that there are four types of mouthparts: chewing, (which is the most basic), sponging, siphoning (or sucking), and piercing-sucking. Have the youth organize the specimens according to the type of mouthparts they have.

LET'S DO:

Divide class up into groups of four youth to participate in "Mouthparts Mayhem" relay. Assign each group member to be one of the following insects: housefly, stink bug, butterfly, and grasshopper. You may want to make name tags with pictures of the insects to give to each child to help them remember who they are.

Hand out the following items:

- To the butterfly: the regular straw
- To the fly: the sponge
- To the bug: juice box straw
- To the grasshopper: nothing

Lay out on a table the following items for each group:

- 1 glass with about 1 cup of punch or water in front of the butterfly
- 1 bowl with about 1/4-1/3 cup of punch or water in front of the fly
- 1 juice box with its straw in front of the bug
- 1 plate with about 1/4 cup of cereal in front of the grasshopper

Explain the rules of the relay:

At the signal to start, each butterfly will place his or her straw in the cup of punch and suck up the liquid in the glass. After the butterfly is completely finished with the liquid in the glass (a few drops may remain) the fly may pick up his or her sponge and dip it into the bowl of liquid in front them, and then squeeze it out into his or her mouth. (NOTE: If you or the youth are uncomfortable with this, simply have the youth transfer the liquid to another bowl instead. Give youth 1 cup of liquid.) Only after the fly has completely

swallowed the punch can the bug pierce the box. After the contents of the box have been emptied by the bug, the grasshopper may start eating the cereal. The grasshopper **MAY NOT** use his or her hands at all, even to steady the plate.

The team whose grasshopper finishes his or her cereal first is the winner.

Notes:

Let's Reflect:

Ask the youth:

How hard/easy was it for you to "eat" your food?

Can you think of other insects that have the same type of mouthpart you did?

Tell youth that although most insects' mouthparts will fit into one of these four groups, many insects are highly adapted and will be somewhat different from the groups described. Explain that an insect's mouthpart will correspond to the type of food that it eats.

What kinds of food do you think chewing insects eat? Insects that siphon (suck)? Insects that sponge their food? Insects that eat by piercing their food?

Let's Apply:

What would happen if the only food available to a grasshopper was the blood of a vertebrate?

Would the grasshopper survive very long?

What if a butterfly had to eat other insects?

How would your lives be different if you had the same type of mouth parts as a butterfly? Or a fly? Or a true bug?



Extension

Give youth Activity Sheet 3.5 "*Mouthparts Mayhem*"



Mouthparts Mayhem

Imagine what would happen if you woke up one morning with the mouthparts of an insect! How would your life be different? What kinds of foods would you eat? Write a short story describing what your life would be like with the mouthparts of a butterfly, housefly, or true bug.