

***Dedicated
to Reducing
Pesticides***



**University of
Connecticut**
College of Agriculture
and Natural Resources
Cooperative Extension System

Unit 3 Lesson 1: What's the Buzz?

Focus Areas: Animal Lifestyles; Science

Focus Skills: critical thinking, observing

Objectives

- To recognize that insects develop in stages from egg to adult
- To understand that many insects are beneficial to humans

Essential Questions

- How do insects help us as well as harm us?
- Why are insects important to protect?

Essential Understandings

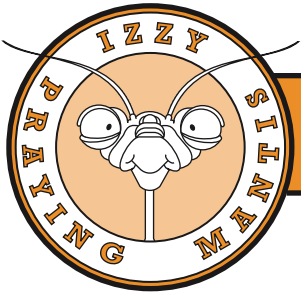
- Insects can be harmful by spreading diseases or feeding on plants or other insects. They can be helpful by providing food for humans and other creatures, pollinating flowers, and increasing biodiversity.
- Insects play an important role in their habitats and in the food chain.

Background

Metamorphosis refers to the way that insects develop, grow, and change form. Metamorphosis actually means “change.” There are two types of metamorphosis—incomplete and complete.

About 12% of all insects go through incomplete metamorphosis. Incomplete metamorphosis has 3 stages.

- **Egg** - A female insect lays eggs. These eggs are often covered by an egg case that protects the eggs and holds them together.
- **Nymph** - The eggs hatch into nymphs. Nymphs look like small



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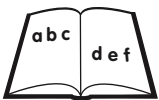
adults, but usually don't have wings. Insect nymphs eat the same food that the adult insect eats. Nymphs shed or molt their exoskeletons (outer casings made up of a hard substance called chitin) and replace them with larger ones several times as they grow. Most nymphs molt 4 to 8 times.

- **Adult** - The insects stop molting when they reach their adult size. By this time, they have also grown wings.

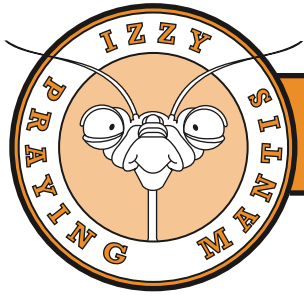
About 88% of all insects go through complete metamorphosis. Complete metamorphosis has 4 stages:

- **Egg** - A female insects lays eggs.
- **Larva** - Larvae hatch from the eggs. They do not look like adult insects. They usually have a worm-like shape. Caterpillars, maggots, and grubs are all just the larval stages of insects. Larvae shed their skin several times and they grow slightly larger.
- **Pupa** - Larvae make cocoons around themselves. Larvae don't eat while they're inside their cocoons. Their bodies develop into an adult shape with wings, legs, internal organs, etc. This change takes anywhere from 4 days to many months.
- **Adult** - Inside the cocoon, the larvae change into adults. After a period of time, the adult breaks out of the cocoon.

Vocabulary



adult	the full-grown insect that resembles the parent
egg	the first stage of metamorphosis
larva	a phase of development when insects do not look like the parents
metamorphosis	the cycle of life that most insects go through that begins with an egg, then becomes a larva, a pupa, and lastly an adult



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pupa the cocoon stage; the stage between larva and adult

Logistics

Time: 45 minutes

Group Size: 5 to 30 students

Space: a classroom



Materials

Izzy puppet *

bee puppet or poster

mosquito puppet or poster

Animal Babies and Adults Picture Card Set *

Insect Babies and Adults Picture Card Set *

Mosquito by Jill Bailey *

The Honey Makers by Gail Gibbons *

* single copy provided



Preparation



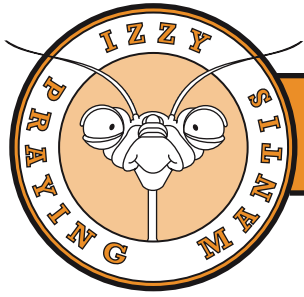
1. Obtain the Izzy puppet.
2. Obtain the animal and insect babies picture card sets.

Activity

Introduction



1. Display the Animal Babies and Adults Picture Card Set. Show a picture of the adult and a baby of the same animal.
Izzy asks the children:
 - “What things are the same? Different?”
 - “How did you know the baby was the same animal as the adult?”
2. Next, have some of the children hold the adult pictures. Distribute the baby pictures to the other half. One at a time, have the “babies” hunt for their “parents.”



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Ask: Why is it so easy to find your mother? (Babies look like adults.)

3. Distribute the Insect Babies and Adults Picture Card Set in which the offspring bear little or no resemblance to their parents. Repeat the game from above by having the “babies” look for their parents.

Ask: Why is it so hard to find your “parent”?

4. Explain that animals like mosquitoes and bees look very different from their parents when they are first born. They go through a series of changes, called metamorphosis. By the end, when they complete the cycle, they resemble their parents.
5. Imagine what it would be like to be raised by a bee or a mosquito.
6. How would your life be different from a human's?
7. First, let's find out what we know about each of these unique insects.
8. Read *Mosquito* by Jill Bailey.
Read *The Honey Makers* by Gail Gibbons.

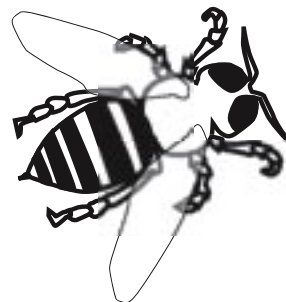
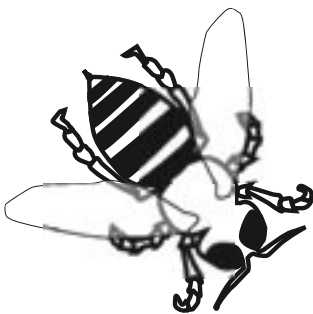
Involvement

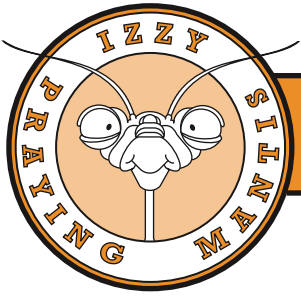
1. Display the picture of the mosquito and the honeybee.
2. Have the students brainstorm a list of facts about each insect.

They might include:

What would you look like if you were a bee?

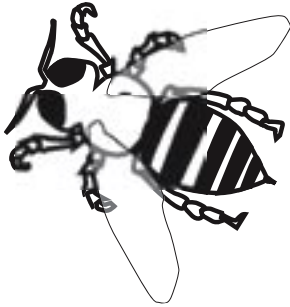
What would you do?





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Honeybees:



- make honey in hives
- have three body parts—head/thorax/abdomen
- have three pairs of legs
- have antennae
- have two pairs of wings
- gather nectar from flowers
- carry nectar to their hives
- put nectar in honeycombs
- work together
- live in a hive (for how long?)
- buzz when they fly
- gather pollen*
- sting when angry
- are out in the daytime
- eat nectar and honey

* (Elaborate: Without honeybees to move the pollen from flower to flower, there would be no new flowers, or few fruits and vegetables.)

3. Repeat the questions with the mosquito.

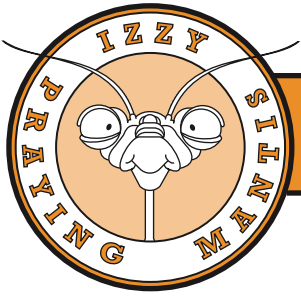
What would you look like if you were a mosquito?

What would you do?

Mosquitoes:

- have three body parts
- have three pairs of legs
- have one pair of wings
- have antennae (for smelling and hearing)
- live in damp, shady places like swamps
- eat nectar and suck blood (females only)
- live a short time (two to three weeks)



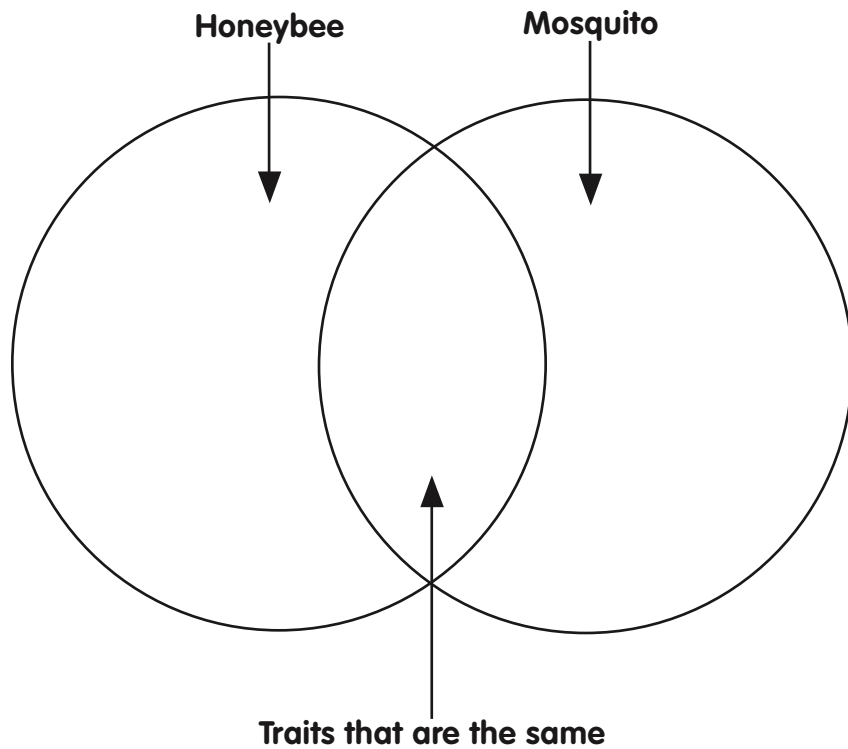


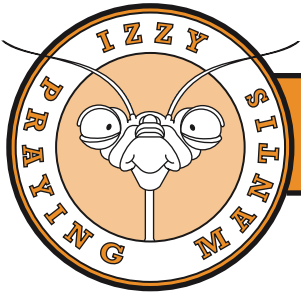
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- lay eggs in water
- change shape from an egg to an adult
- are food for frogs, toads, rats, mice, spiders, fish, water beetles, dragonflies, and birds
- cause disease

Follow Up

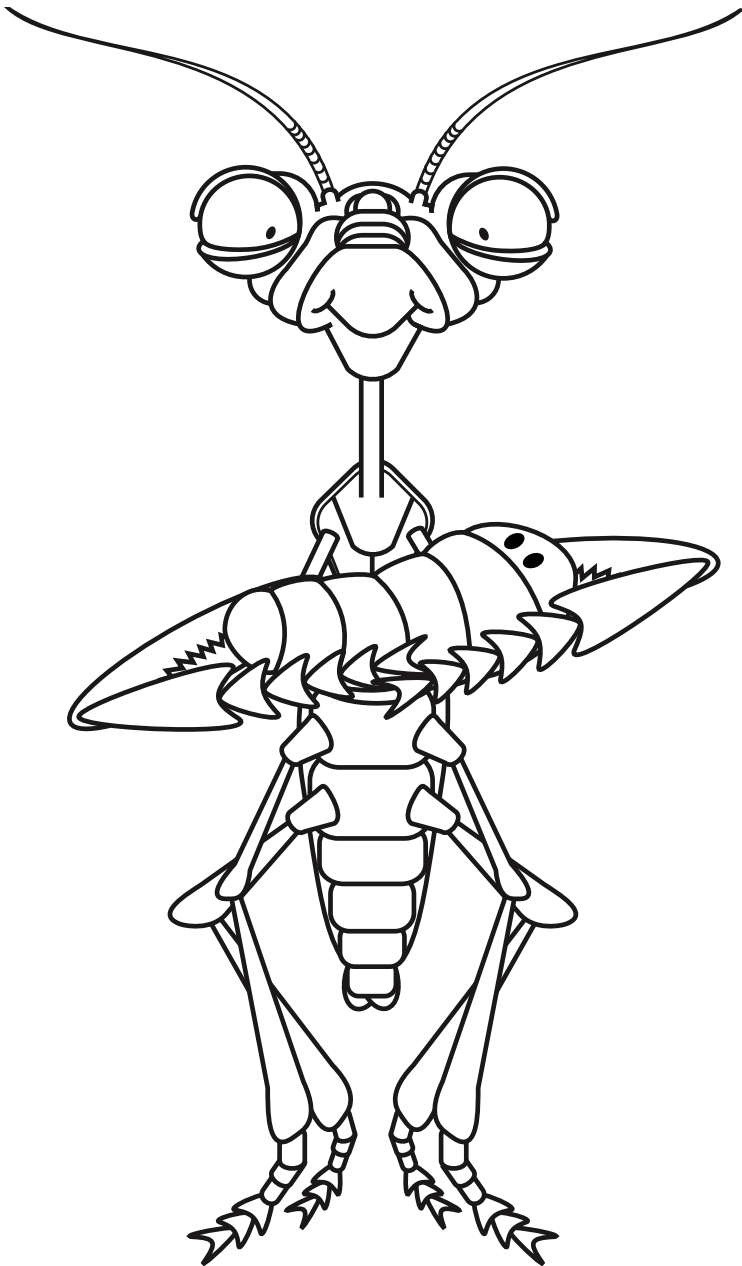
Have students construct a Venn diagram to show how the bee and the mosquito are alike and different.

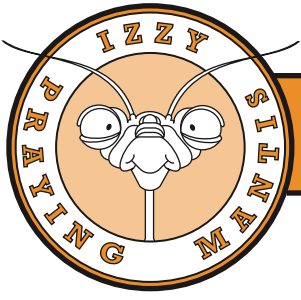




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Notes





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