



## NYSDEC Environmental Education

### **Insects Galore!**

*A 30 to 45 minute program designed to introduce students to the diverse world of insects, both in our local environment and globally.*

***For Students in Grades K through 3***

**Goal:** Students will be introduced to the lifecycles and roles insects play in our environment. By the end of the program, students should be able to identify what makes an insect an insect and have a new found appreciation for this diverse group of animals. New York has a great diversity of insects, and students will be able to identify beneficial and harmful insects.

#### **NYS Elementary Science Core Curriculum**

##### **Standard 1:** *Scientific Inquiry*

*Key Idea 1:* The central purpose of scientific inquiry is to develop explanations of natural phenomena in a continuing, creative process.

##### **Standard 4:** *The Living Environment*

*Key Idea 3:* Individual organisms and species change over time.

*Key Idea 4:* The continuity of life is sustained through reproduction and development.

*Key Idea 6:* Plants and animals depend on each other and their physical environment.

### **Potential Classroom Visitors:**

Live: Madagascar Hissing Cockroaches

Props: Butterfly Mounts, Beetle Mounts, Insect Anatomy Props, Insect Costume, Metamorphosis illustrations and models

## **Key topics:**

- Not all bugs are insects.
- Insects have three different sections to their bodies, and certain body parts belong to certain sections of all insect bodies
- Insects go through a life cycle called metamorphosis.
- Insects are a form of life and often play vital roles in our environment and are needed for all species to survive.

## **Insect Introduction:**

Instruct students to sit in a semicircle facing the presenter. Begin the program by describing to the students what they will be learning about that day. Explain to the class how they will be learning about a very special group of bugs called insects. Different species of bugs will be listed and the students will have the opportunity to vote on if they believe the named bug is an insect or another type of bug.

## **What is an Insect?**

After the students have made their guesses, ask the students how you can tell if an animal is an insect or not. Inform the class that insects are bugs that have six legs and three separate body parts or segments. Each segment, head, thorax, and abdomen, will be analyzed and discussed through a large inflatable honey bee model which can be disassembled and reassembled by the students.

## **Be the Bug:**

Ask for three student volunteers. These volunteers will represent the different segments of an insect (head, thorax, and abdomen). The students remaining on the floor will help to assemble an insect from the volunteers as they did with the inflatable model. The students will assemble the volunteers into proper segment order and then be shown the different body parts of an insect (the instructor will have large props to represent each body part) and asked which section of the insect should each body part be connected to (antennae, mouth, eyes, legs, wings, spiracles, pincers, etc.). As each body part is identified and its proper location found, place that part on the appropriate segment (volunteer). The students will then learn the physical differences between insects and other “bugs” by discussing how you would have to change the insects in order to make such creatures as spiders and centipedes.

## **A Whole World of Insects**

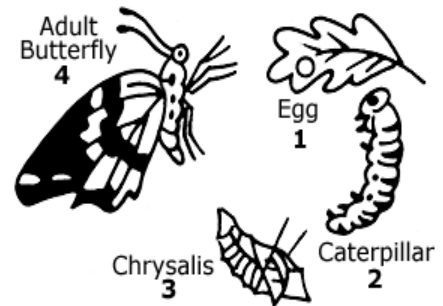
Show students taxidermy displays of a large array of insects from around the world in order to emphasize the diversity of these creatures. Show students a display of a scorpion and discuss why this animal does not fit into the definition of an insect.

## Butterfly or Moth?

Show students a butterfly taxidermy display with a variety of butterflies and moths. What are the differences between moths and butterflies? Choose two students to represent each unique animal. The butterfly will be wearing bright, colorful clothing while the moth wears camouflaged colors. Differences between antennae and resting wing position will be displayed through the student examples and props.

## The Story of Metamorphosis:

All insects also go through metamorphosis. In order to explain the process of metamorphosis, the students will take on the role of a familiar insect, specifically a butterfly. Tell the story of how an egg turns into a butterfly with the help of illustrations and movements. As the metamorphosis progresses, ask the students to imagine themselves in each stage of the life cycle. During each stage, instruct the students to participate in different types of movements to help illustrate the stage of the butterfly's development (students will curl into a ball as an egg, pretend to nibble on leaves as a young caterpillar, engorge themselves with leaves as an older caterpillar, spin a chrysalis and stiffen up in the pupa stage, and finally emerge from the chrysalis and fly around as a butterfly).



## Extension:

### Meet the Insects

Introduce students to some live insects, e.g. Madagascar Hissing Cockroaches. Show students how to handle and touch the animals before they are taken out of their holding chamber and reassure students that nothing which has been brought into the classroom can hurt them. Discuss and remind students why these animals are insects and what makes them special among the insect world. After a brief discussion on the history of the Madagascar Hissing Cockroach, give students the opportunity to touch the animals if they wish. (Do not force students to touch the insects if they do not want to, but encourage them to try.)

## **Provocative Questions:**

- ❖ What insects might live in your backyard?
  
- ❖ Can you think of any green insects? Black? How many different colored insects can you think of?
  
- ❖ What insects live in the trees?
  
- ❖ What insects live in the grass?
  
- ❖ Do any insects live underground, or under a rock?
  
- ❖ How many different places can an insect live?
  
- ❖ Where do insects go in the wintertime?
  
- ❖ Caterpillars are insects but have more than six legs, how can this be if all insects have six legs?
  
- ❖ Do insects do anything that can be good for people?
  
- ❖ Do insects do anything that can be bad for people?
  
- ❖ What is your favorite insect?
  
- ❖ How about your least favorite?