



# Children's Museum of Houston

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## Pre/Post Classroom Activities

### Life Cycle of a Grasshopper

#### Rationale

*EcoStation* is an active, outdoor/indoor environmental exhibit where visitors engage in ecological studies and explore environmental issues by visiting a native plant garden, a woodland area, the bayou table, the pond and a research pavilion. Through these and several other exhibit areas, visitors can participate in diverse hands-on activities such as stream bed creation, insect collecting, tree rubbings, footprint identification, and more!

#### TEKS Objectives (Science)

K.7D, 1.7D: Observe and record stages in the life cycle of organisms in their natural environment.

K.1, 1.1: Demonstrate safe practices during classroom and field investigations.

K.2, 1.2: The student develops abilities necessary to do scientific inquiry in the field and the classroom.

#### Background

In this lesson plan, children will be able to observe, identify, and describe incomplete metamorphosis of grasshoppers. The development followed by most insects is called metamorphosis. There are two types: incomplete and complete. Incomplete metamorphosis takes place in three stages—egg, nymph, and adult. Nymphs hatched from the eggs look like miniature adults, except they lack wings and are sexually immature. As a nymph grows and matures, the exoskeleton is shed, or molted, several times. Insects that undergo incomplete metamorphosis include grasshoppers and dragonflies. The nymphs of dragonflies and certain other insects are aquatic and are called naiads.

#### Vocabulary

Incomplete metamorphosis

Egg

Adult

Nymph

Exoskeleton

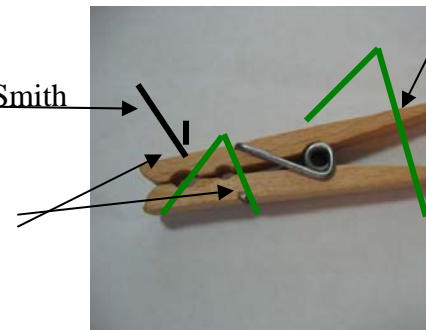
Immature stage

Naiads

#### Materials

- *The Life Cycle of a Grasshopper* by Lisa Trumbauer and Gail Sanders-Smith
- Green tempera paint
- Glue

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- Clothes pins
- Wiggly eyes
- Black pipe cleaners
- Green pipe cleaners (cut in half)

### **Procedure**

1. Read *The Life Cycle of a Grasshopper* by Lisa Trumbauer and Gail Sanders-Smith.
2. Discuss with students what they learned about the life cycle of a grasshopper and discuss what an incomplete metamorphosis is and the insects that go through it in their life cycles.
3. Discuss how the grasshopper grows into an adult, and create a model of a grasshopper.
4. Use green tempera paint to color the clothes pin; set to dry.
5. Glue wiggly eyes on the corners of clothes pin at the end that would actually clamp the clothing.
6. Near the eye area, when the pin is closed, there is a small circle, slide the black pipe cleaner through and bend upwards so you can twist it around a few times and fasten as the antenna.
7. Use glue to fill in the hole where the antenna is on both sides.
8. Take one of the green pipe cleaner halves and glue it right above the spring on one side.
9. Glue the other pipe cleaner half on the other side above the spring.
10. When glue is dry, bend the green pipe cleaners up and then down to make the legs as shown in the picture.
11. Take 2 more green halves and glue them in the other hole so that they are centered in the middle of the hole and bend downwards to be two more legs on each side.

### **Questions to ask**

1. What does a grasshopper look like when it hatches from eggs?
2. How does it change as it grows into an adult?
3. How are the life cycles of grasshoppers and other insects similar? Different?

### **Extensions**

Explore other insects with incomplete metamorphosis cycles such as cicadas, dragonflies and walking sticks.

By ordering butterfly and grasshopper eggs from an online dealer, students will be able to observe the life cycle of butterflies and grasshopper and keep a journal of their observations.

### **Resources**

- [The Life Cycle of a Grasshopper](#) by Lisa Trumbauer and Gail Sanders-Smith. Describes the physical characteristics, habits, and stages of development of grasshoppers.
- [This is Your Life: With Special Guest Dahlia the Dragonfly](#) by Heather Lynn Miller and Michael Chesworth. Find out about the different stages of a dragonfly's life, the various predators they face, and other amazing facts in a fun and hilarious picture book.
- [Walking Stick](#) by Monica Harris. Describes the physical characteristics, habitat, behavior, and life cycle of the insect called the walking stick.

- Cicada Sing-Song by Densey Clyne. Introduces the physical characteristics, life cycle, and behavior of this noisy little insect called a cicada.
- From Egg to Spider by Anita Ganeri. Describes the physical characteristics, habitat, behavior, and life cycle of the spider.
- Other Life Cycle Series, How Living Things Grow Series, and Bugs! Bugs! Bugs! Series Books

#### Websites

- BrainPop: [www.brainpop.com/science/ecologyandbehavior/metamorphosis/](http://www.brainpop.com/science/ecologyandbehavior/metamorphosis/). In this movie about metamorphosis, Tim and Moby explain which creatures go through different kinds of metamorphoses, plus the difference between complete and incomplete metamorphosis.
- Insect Zoo: Life Cycles [www.ent.iastate.edu/zoo/lessonplans/lifecycles.html](http://www.ent.iastate.edu/zoo/lessonplans/lifecycles.html). A detailed description for teaching about how mealworms undergo metamorphosis.
- Utah Education Network: Insect Metamorphosis [http://www.uen.org/utahlink/activities/view\\_activity.cgi?activity\\_id=2024](http://www.uen.org/utahlink/activities/view_activity.cgi?activity_id=2024). Gives an explanation of the difference between complete and incomplete metamorphosis.
- Insect Metamorphosis <http://www.amonline.net.au/insects/insects/metamorphosis.htm>. Provides teachers with in depth explanation of insect metamorphosis- complete and incomplete.
- The Cicada book <http://www.enchantedlearning.com/books/animals/cicada/>.