

Submitted by: GENERATION CURES

TITLE: METAMORPHOSIS

SUBJECT: Science

GRADE: 3rd- 5th

RECOMMENDED TIME: 25-30 minutes

GENERATION CURES CONTENT: Zebrafish Webisode 5-Worlds Apart

LEARNING GOALS:

Students will learn that honeybees pass through three stages of life before reaching adulthood. This process is called metamorphosis, and the three stages are eggs, larvae, and pupae. These life cycles are mirrored in other metamorphic insects such as grasshoppers and butterflies.

RESOURCES/MATERIALS NEEDED:

- Computer / Internet / Projector
- Pen / Pencil / Paper
- Zebrafish Webisode 5-Worlds Apart (www.kids.generationcures.org)
- Dictionary: Define terms
 - Apiary- a place where bees are kept. Honeycombs and hives are collected in order to extract their honey.
 - Metamorphosis- literally means to “change forms.” It is the process through which insects transform from eggs to adults.
 - Larva- in insects, the life stage following emergence from an egg. Larvae are wingless and wormlike and often feed during this stage. The bee undergoes the most growth during the larval period. “Larvae” is the plural form of larva.
 - Pupa- the insect life stage between larva and adult. During the pupal stage, insects typically exhibit traits similar to those visible as adults (i.e. wings, legs, etc.).

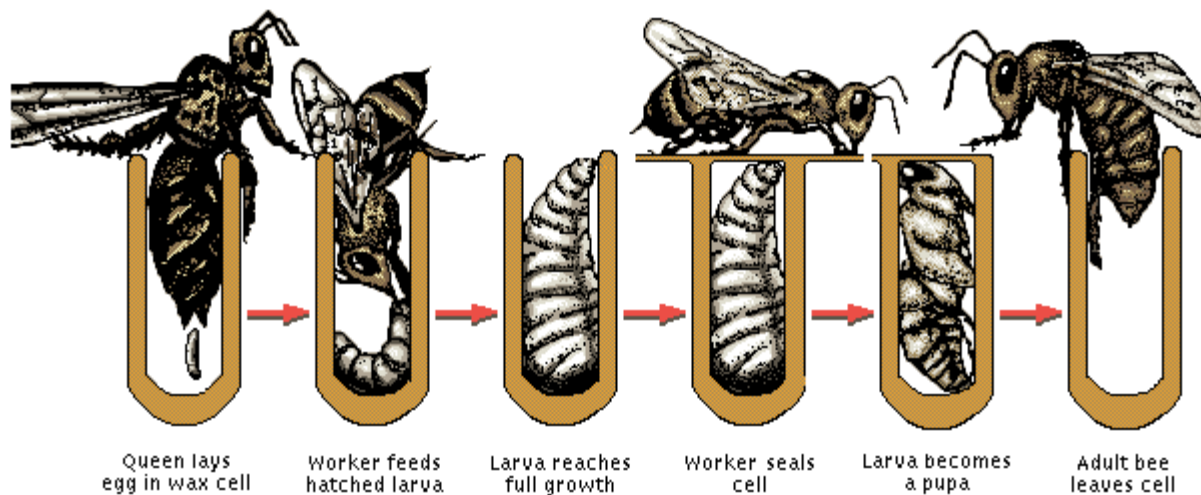
BACKGROUND:

Walt has been creating a fantastical world, Alterica, and all of his friends are in this virtual world. In Walt’s imagination, Tanya is a magical healer with a Caduceus staff. Plinko still has the hiccups. Of course, Vita is what she has always been singing about—a Queen Bee!

LESSON STEPS:

- Teach students about the meaning of the term “metamorphosis.” The word essentially means to “change form.” Humans change and grow larger as they age; insects actually pass through different forms from eggs to larvae to pupae before becoming adults.
- Make sure that students are familiar with the vocabulary terms larvae and pupae.
- Ask students to draw on a sheet of paper the forms of a bee during different stages of life—egg, larva, pupa, and adult. Make sure students draw distinguishing features during each stage.
 - Egg- laid by Queen Bee in cell
 - Larva- Still within the cell, larvae begin to look wormlike, or like maggots; larvae feed on “royal jelly” provided by Worker Bees.
 - Pupa- Beginning to obtain winglike structures and legs
 - Adulthood- Take on color and details

Example:



EXTENSIONS:

- Have students study metamorphosis in butterflies and grasshoppers. Students can also learn about different types of bees (e.g. Africanized)
- Encourage students to purchase a butterfly or tadpole habitat so that they can view metamorphosis as it takes place.