

# Life Cycle of the Monarch



Illinois Extension

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN

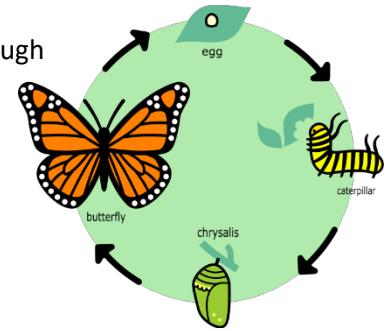
Grades: K-5

Expected Completion Timeframe: 30 minutes

## Objectives

Teach the life cycle of the Monarch Butterfly- how many stages, how many days in each stage

Monarch butterflies undergo complete metamorphosis in which they go through four stages during one life cycle. The four stages of the monarch butterfly life cycle are the egg, the larvae (caterpillar), the pupa (chrysalis), and the adult butterfly.



## Activity 1: Noodle Lifecycle

### Materials:

- Paper plates
- 4 different kinds of pasta (orzo, farfalle, medium shells, fusilli)
  - Orzo (egg)
  - Fusilli (caterpillar)
  - Medium shell (chrysalis)
- Farfalle (butterfly)
- Green paper leaves (4 each)
- Glue
- Scissors
- Green paper
- Black markers

1. Distribute the materials
  - a. 1 plate, 1 of each type of pasta, 3 green paper leaves, 1 paper flower, glue, marker
2. Have the students divide each paper plate into 4 equal parts, drawing an X. Label the chart 'Life Cycle of a Butterfly' on top.
3. Discuss each stage 1 at a time. After each stage, have students label the stage, glue the leaf or flower, and the pasta onto the plate.

- a. **EGG** (*ORZO pasta on a green leaf*) - The Monarch starts its life as a tiny, hard egg, only 1/8th of an inch long. Only one egg is laid at a time, and they are always on the underside of milkweed leaves. The female attaches the egg to the leaf with a glue-like substance. The egg hatches in about 3 to 5 days, and a tiny worm-like larva emerges.
- b. **LARVA** (*MEDIUM SHELLS pasta on a green leaf*) - The larva (caterpillar) hatches from its egg and then eats the egg as its first meal. For the rest of its life, it only eats the milkweed leaves (almost constantly) on which it lives. The caterpillar molts (loses its old skin) four times as it grows bigger. When the larva is about 2 inches long, it will stop eating the milkweed and find a good place (like a protected branch) on which to pupate.
- c. **PUPA** (*FUSILLI pasta on a green leaf*) - The caterpillar spins silk from its silk gland (spinneret) and attaches its hind end to a location with the silk and small hooks on its

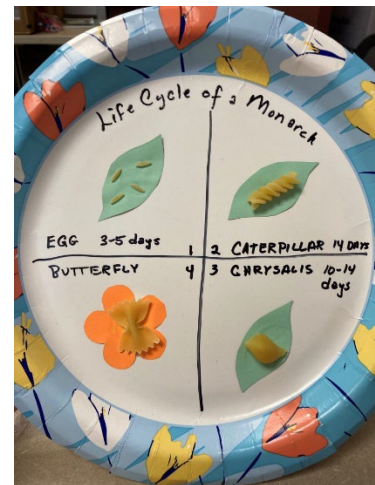


Photo by B.Haag

back end. It hangs head down (forming a 'J') and molts for the last time. The new skin dries and hardens, and forms a jade green chrysalis. Inside the chrysalis, the caterpillar turns into a butterfly as its entire body is completely reorganized. In about 10-12 days the chrysalis becomes transparent and you will see the colorful wings developed. A damp butterfly soon emerges.

- d. ADULT (FARFALLE pasta on a flower) - A beautiful adult emerges from the chrysalis. While the butterfly is stretching and drying its wings, it is an easy target for predators. The butterfly does not grow during the adult stage. It can only eat liquids through its proboscis. This adult will continue the cycle by reproducing.

## Activity 2: Lifecycle Bracelet

### Materials:

- Pipe cleaner (1 per student)
- Clear beads (1 per student)
- Black beads (1 per student)
- Yellow beads (3 per student)
- Green beads (3 per student)
- Butterfly bead (1 per student)



Photo by B.Haag

1. Bracelet= 1 pipe cleaner
2. Egg (first stage)= 1 clear bead
  - a. The Monarch starts its life as a tiny, hard egg, only 1/8th of an inch long. Only one egg is laid at a time, and they are always on the underside of milkweed leaves. The female attaches the egg to the leaf with a glue-like substance. The egg hatches in about 3 to 5 days, and a tiny worm-like larva emerges.
3. Caterpillar (larva)= 1 black bead & 3 yellow beads
  - a. The larva (caterpillar) hatches from its egg and then eats the egg as its first meal. For the rest of its life, it only eats the milkweed leaves (almost constantly) on which it lives. The caterpillar molts (loses its old skin) four times as it grows bigger. When the larva is about 2 inches long, it will stop eating the milkweed and find a good place (like a protected branch) on which to pupate
4. Chrysalis (pupa)= 3 green beads
  - a. The caterpillar spins silk from its silk gland (spinneret) and attaches its hind end to a location with the silk and small hooks on its back end. It hangs head down (forming a 'J') and molts for the last time. The new skin dries and hardens, and forms a jade green chrysalis. Inside the chrysalis, the caterpillar turns into a butterfly as its entire body is completely reorganized. In about 10-12 days the chrysalis becomes transparent and you will see the colorful wings developed. A damp butterfly soon emerges.
  - b. Butterfly (adult)= 1 butterfly bead
    - i. A beautiful adult emerges from the chrysalis. While the butterfly is stretching and drying its wings, it is an easy target for predators. The butterfly does not grow during the adult stage. It can only eat liquids through its proboscis. This adult will continue the cycle by reproducing

## Activity 3: Butterfly Life Cycle Actions

### Overview

Combine science and exercise in this activity! Students learn about the life cycle of a butterfly while performing certain physical tasks at each stage. Following along with their leader, students perform exercises and stretches, acting out the life cycle of a butterfly.

### **Objectives**

1. Students will perform a variety of exercises within the classroom space (Physical activity)
2. Students will act out the butterfly life cycle by listening and following simple directions.

Grades: K-5

Expected Completion Timeframe: 10 minutes

### **Materials**

- Visual of the butterfly life cycle
- List of movements to be done at each cycle

### **Before the Lesson**

- Briefly review the actions that will be used in the activity and safety rules: stay in their personal space and respect others' movements.
  - o Crunches
  - o Knee taps
  - o Mountain climbers
  - o Jumping jacks

### **During the Lesson**

1. Leader will review the stages of the butterfly life cycle: egg, caterpillar, pupa, butterfly
  - o 1<sup>st</sup> phase- egg= stage is 5-10 days long, eggs are laid under milkweed plant leaves
    - Leader will then demonstrate the action for that phase: crunches
    - Instruct students to stand with enough room between themselves and their peers and say the first phase and do the action. As a class, students perform 10 crunches.
  - o 2<sup>nd</sup> phase- Caterpillar= larva, molts 5-6 times, 3 weeks long
    - Leader will then demonstrate the action for that phase: Mountain climbers
    - Instruct students to stand with enough room between them and their peers and say the second phase and do the action. As a class, students perform 15 mountain climbers.
  - o 3<sup>rd</sup> phase- Pupa= chrysalis, 2-3 weeks long, caterpillar attaches head down on twig, forms hard outer shell
    - Leader will then demonstrate the action for that phase: knee taps
    - Instruct students to stand with enough room between them and their peers and say the second phase and do the action. As a class, students perform 15 knee taps.
  - Butterfly: adults live for only a short time, they will fly, mate and reproduce
    - Leader will then demonstrate the action going along with that phase: jumping jacks
    - Instruct students to stand with enough room between them and their peers and say the second phase and do the action. As a class, students perform 20 jumping jacks.

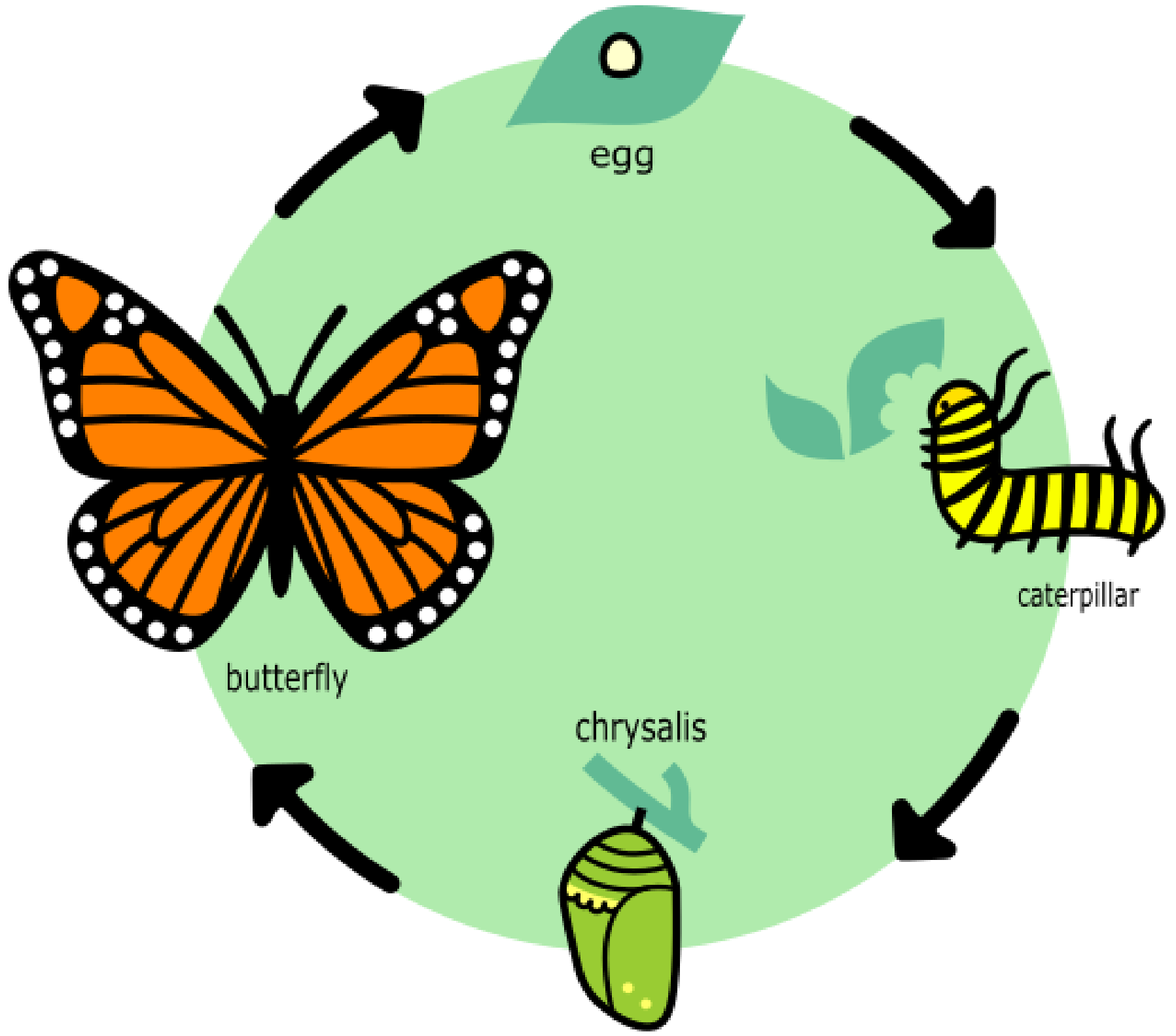
*CREDIT:* Adapted from Kids in Motion activity

### **Teacher Resources**

- [www.enchantedlearning.com/monarchbutterfly](http://www.enchantedlearning.com/monarchbutterfly)
- [www.flightofthebutterflies.com](http://www.flightofthebutterflies.com)
- <https://monarchjointventure.org/>
- *Lifecycles of Butterflies* by Judy Burris
- *Butterflies of Illinois* by Michael Jeffords, Susan Post, James R. Wiker

### **Evaluation**

1. Review the completed life cycle of the monarch ask the participants to “read” their noodle life cycle and bracelet.
2. Compare this life cycle to other animals.
3. **High Five a Friend**- everyone stands up, finds a buddy to high five. That’s the person they share a fact they learned from today’s lesson. They can repeat the High Five and fact sharing with several buddies.







1635181

Egg

John .A. Davidson, Univ. Md, College Pk, Bugwood.org





UGA1523087

# Pupa (chrysalis)

Daniel Herms, The Ohio State University, Bugwood.org



UGA2158070

# Larva (caterpillar)

David Cappaert, Bugwood.org



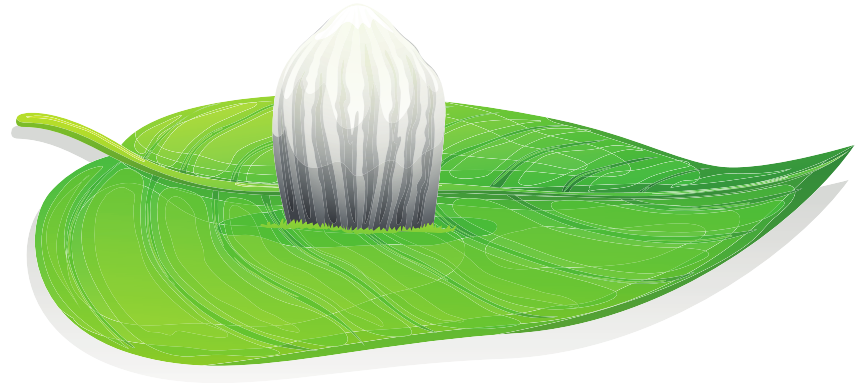


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# Adult (butterfly)

David Cappaert, Bugwood.org

# Egg

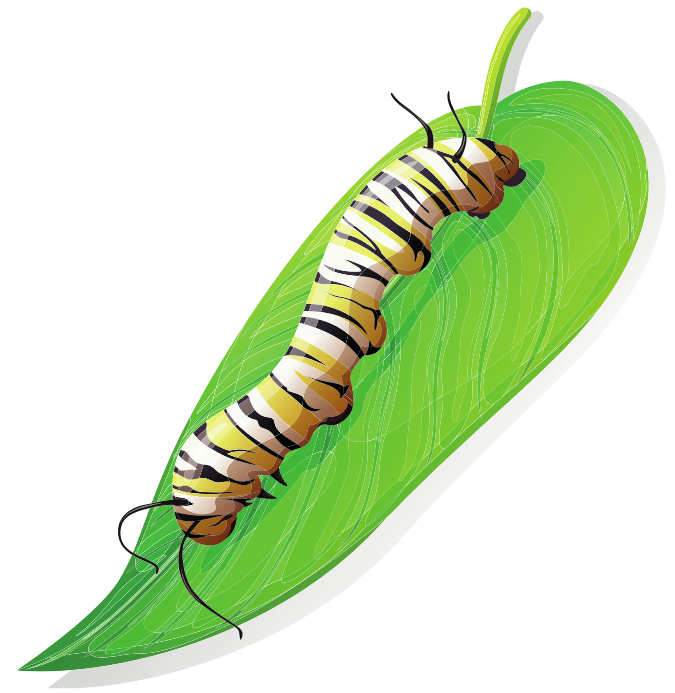


10

crunches

# Larva

(Caterpillar)

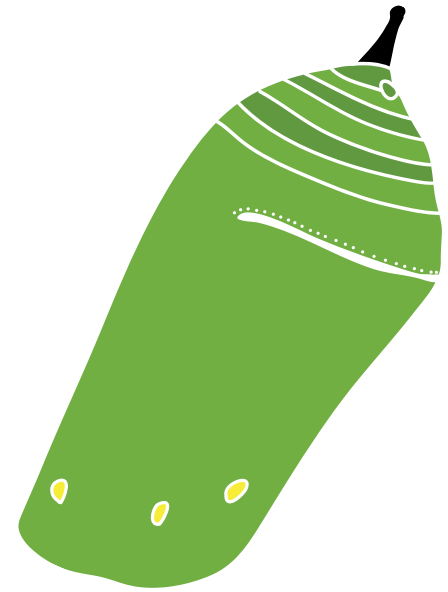


15

mountain  
climbers

# Pupa

(Chrysalis)



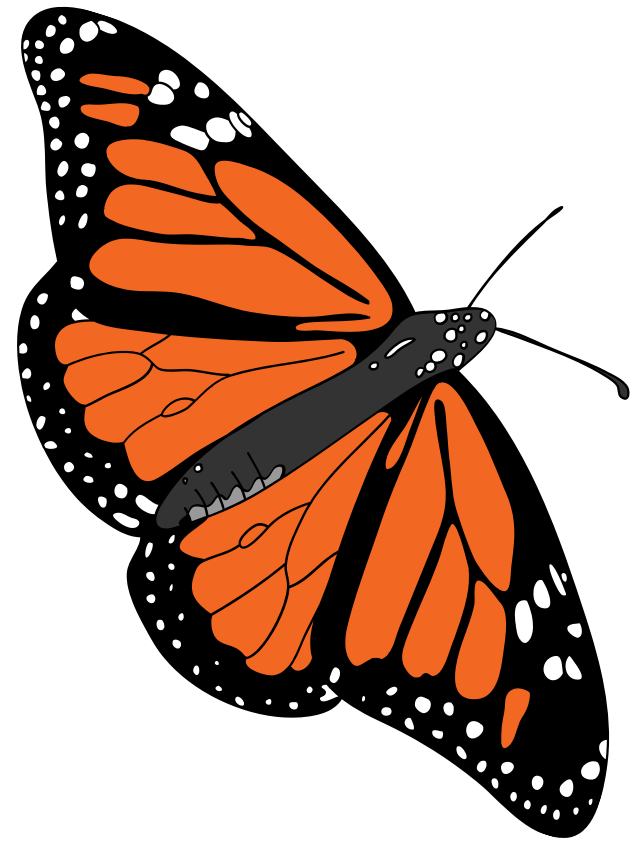
15

knee taps



# Adult

(Butterfly)



# 20

jumping  
jacks