



Pasta Butterfly

ALABAMA OUTDOOR CLASSROOM ACTIVITY

Grade Levels

K-2

Overview

Students will 1) listen to a story about the life cycle of the butterfly, 2) act out the life cycle stages, 3) look for the life cycle stages in your outdoor classroom, and 4) create the life cycle stages on paper plates using pasta and markers/crayons.

Subject Areas

Science, Art, Math

Duration

Prep: 15 minutes

Activity: 45 minutes

Learning Objectives

Students will be able to identify the four stages of the butterfly life cycle.

Alabama Course of Study Objective Correlations for Science

Kindergarten: 1, 6, 7 & 9

First: 1, 2 & 4

Second: 1, 5 & 6

Materials

- Children's Book about the life stages of a butterfly (*see p2 for suggestions*)
- Butterfly & Caterpillar Field Guides (*see p2 for suggestions*)
- Pasta (orzo, rotini, shell, and bowtie)
- Ziploc bags for the pasta
- Markers/crayons
- Paper plates
- Glue
- Construction paper (optional)
- Magnifying glasses, or loupes, for each student

Adapted from the Interact unit "In My Backyard."

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Background Info

Butterflies and moths undergo complete metamorphosis through their four different life stages:

Egg - A butterfly starts its life as an egg.

Larva - The larva (caterpillar) hatches from an egg and eats leaves or flowers almost constantly. The caterpillar molts (loses its old skin) many times as it grows.

Pupa - The caterpillar then turns into a pupa (chrysalis); this is a resting stage.

Adult - A beautiful, flying adult butterfly emerges from the pupa. There is no growth during this stage. This adult will continue the cycle and reproduce.

For more details about the butterfly's life cycle, see page 3. Through literature and hands-on experiences, students will learn to identify these four stages of growth of a butterfly. For more identification information about butterflies in Alabama including photos of each butterfly, its larva, chrysalis, or egg, visit www.npwrc.usgs.gov/resource/distr/lepid/bflyusa/al/toc.htm or www.whatsthisecaterpillar.co.uk/america/ or <http://bugguide.net>.

Preparation

Put several pieces of each type of pasta in a ziploc bag for each of your students. Have markers or crayons and enough paper plates for each child to have one.

Procedure

1. Read a children's book about the life cycle of the butterfly (see Literature Connection list on page 2 or choose one of your favorites).
2. After reading the book, review the life cycle stages of the butterfly. For example: What is the first stage of the butterfly? (egg) What comes out of the egg? (a caterpillar) How does a caterpillar change into a butterfly? (goes through changes during the pupa stage)
3. Ask students where they could find the stages of the butterfly. Examples: Where do butterflies lay their eggs? (on leaves, on the underside of leaves) Where do we find caterpillars? (on plants, eating leaves).
4. Have students stand up and tell them they will act out the four stages of a butterfly: (1) Everyone becomes a butterfly egg by squatting down as small as possible. (2) Now everyone becomes caterpillars as students crawl around "munching"—you may need to remind them to munch. (3) Now everyone becomes a pupa as they lie down in a fetal position with their arms and legs tucked in tight—they can wiggle but not move. (4) Now the students begin to "emerge" from their pupa by getting into stooped positions, and then they stand up slowly stretching their arms as high as they can as they "open their wings" and slowly move them up and down to "fly" around the room.
5. Tell students they will now become butterfly scientists – *lepidopterists* - and will go out into the outdoor classroom to look for the different stages of the butterfly. See page 2 for "Helpful Hints." You will keep a count of how many times you find eggs, caterpillars, pupas, and butterflies. Give each student a magnifying glass, or loupe, and go out to the outdoor classroom area. Give students 5 or so minutes to observe. Gather students together and talk about the different stages they saw. Discuss where they saw the different stages.



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Outdoor Classroom Connection

Students will observe outdoor classroom areas for different stages of the butterfly life cycle.

Literature Connections:

- ⇒ *The Hungry Caterpillar* by Eric Carle (ISBN: 10-039925045X)
- ⇒ *Are you a Butterfly* by Judy Allen (ISBN: 10-0753456087)
- ⇒ *Where Butterflies Grow* by Joanne Ryder (ISBN: 10-0140558586)
- ⇒ *From Caterpillar to Butterfly* by Deborah Heiligman (ISBN: 10-0064451291)
- ⇒ *Caterpillar Spring Butterfly Summer* by Susan Hood (ISBN: 10-079440149X)

Butterfly Field Guides

- ⇒ *Stokes Butterfly Book: Complete Guide to Butterfly Gardening, Identification, and Behavior* by Donald & Lillian Stokes (ISBN:10-0316817805)
- ⇒ *The Life Cycles of Butterflies: From Egg to Maturity, a Visual Guide to 23 Common Garden Butterflies* by Judy Burris (ISBN:10-1580176178)
- ⇒ *Peterson Field Guide to Eastern Butterflies* by Paul A Opler (ISBN: 10-0395904536)
- ⇒ *Peterson First Guide to Caterpillars of North America* by Amy Bartlett Wright and Roger Tory Peterson (ISBN: 10-0395911842)
- ⇒ <http://bugguide.net>

Helpful Hints for Spotting Butterflies:

Eggs

Eggs can most often be found on the under-side of the host plant in your butterfly garden. For monarchs, eggs can be found on the under-side of the milkweed leaves. Again, sometimes you can find eggs on the top side of the leaves but the monarch normally lays eggs underneath the leaves unless the butterfly is disturbed or feels rushed for one reason or another. If the eggs fall off the leaf, it is very difficult to re-attach, so be careful not to touch the eggs.

Caterpillars

Again, look around the host plants in your butterfly garden for signs of the caterpillars. For monarchs, look for milkweed plants with little dark green pellets on them—those are caterpillar droppings and they usually give away a location if the caterpillar hasn't moved on to a different milkweed plant. Caterpillars normally like to stay shaded from the sun and will usually be on the under-side of a leaf, along the stem-line of the milkweed plant itself or within the tiny gathering of leaves at the top of the milkweed plant. On rare occasions, you may find one here or there exposed out in the open. But generally they like to be shaded since direct sunlight, for long periods of time, can kill them.

Some good host plants to find eggs and caterpillars include:

Butterflies

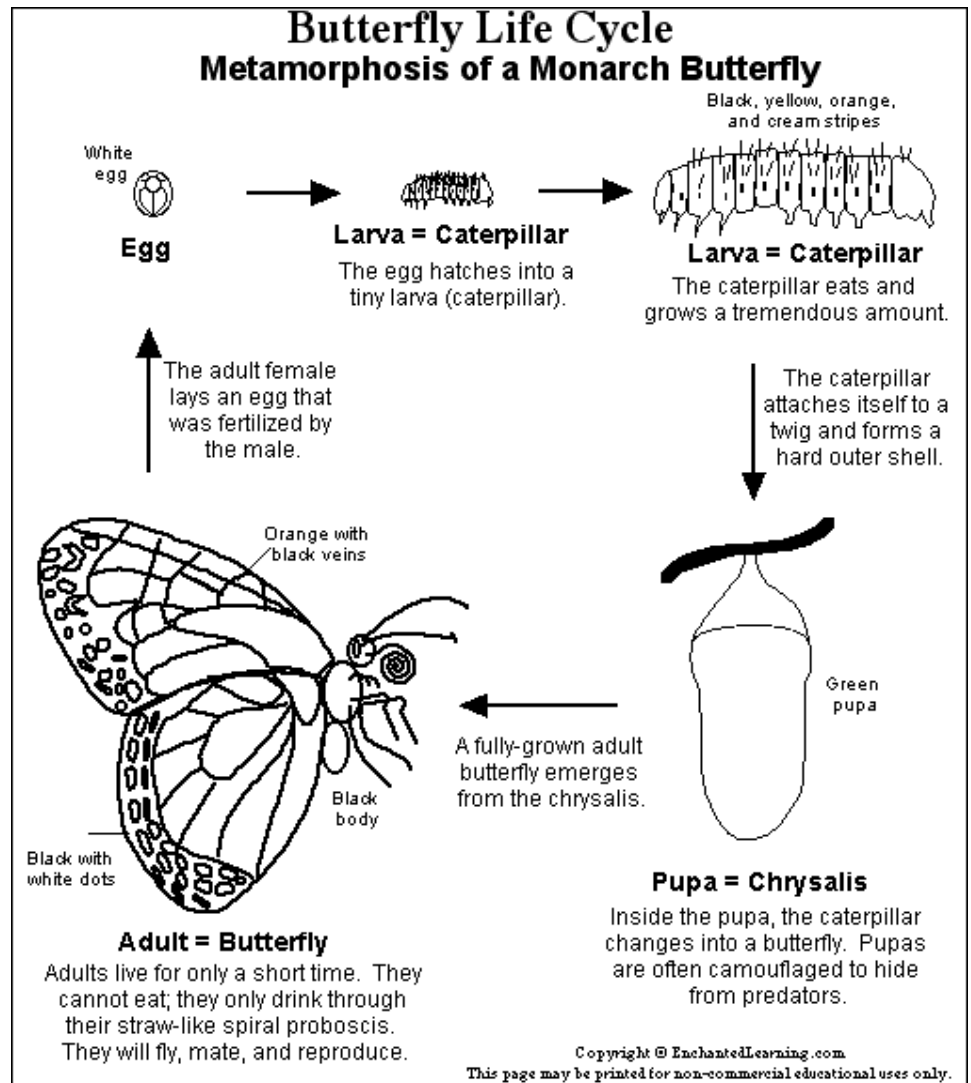
Host Plant	Butterfly Species
Milkweed	Monarch Butterfly
Thistle, Daisy	Painted Lady
Paw-Paw	Zebra Swallowtail
Parsley, Dill, Fennel	Black Swallowtail
Alph alpha, Clover	Clouded Sulphur
Willows, Poplars	Viceroy

The adult butterflies are most often seen drinking nectar from flowers in the butterfly garden.

Some good nectar plants to find butterflies include:

Nectar Plant	Butterfly Species
Butterfly weed	Monarch Butterfly
Zinnia	Painted Lady
Blueberry, Blackberry	Zebra Swallowtail
Red Clover, Thistle	Black Swallowtail
Butterfly bush	Clouded Sulphur
Golden Rod, Aster	Viceroy

Supplemental Information about the Butterfly Life Cycle



SUPPLEMENTAL INFORMATION

Female butterflies lay many eggs during their short life to insure that even a small number of these eggs will survive. Eggs are usually laid on the under surface of a leaf of the host plant (butterflies and moths use specific host plants for their eggs and larva). For example, the Monarch butterfly lays its eggs on the bottom of the milkweed plant. There is a yolk inside each egg that nourishes the developing larva. When it is time to hatch, the larva (caterpillar) gnaws open the egg shell with its jaws. Afterwards, many species will only eat the leaves of their host plant for nourishment. The caterpillar is then in the larval stage for two-four weeks, eating almost constantly and molting four or five times as they grow very rapidly. When larval growth is done, the larva stops eating and attaches itself to a sheltered spot such as on a twig or leaf. It then splits open, loses its exoskeleton, and is encased in a chrysalis (pupa) as it undergoes metamorphosis. It does not eat during this stage. After a few days (or many months for some), an adult butterfly emerges full-grown from the chrysalis. The primary purpose of the adult stage is to mate and reproduce.



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Procedure continued...

6. Take students back to the classroom and create a bar graph of your observations of the life cycle stages (one bar graph for kindergarten class and individual bar graphs for second grade). Tell students that they will now create their own butterfly life cycles using pasta to represent the different stages. First give each student a paper plate. For kindergarten and possibly first grade you may want to draw the sections. (see Figure 1) Have students copy the name of each stage into one section. The paper plate allows the children to place the stages in a cyclical form and not linear. (see Figure 2) Students decorate each section before gluing the pasta on the plate.

Figure 1

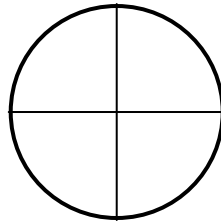
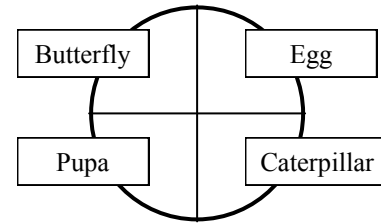


Figure 2



Assessment

Students should be able to choose the appropriately shaped pasta for each life cycle stage and create the appropriate habitat picture:

Life cycle	Pasta	Habitat (or similar)
Egg	orzo	underside of leaf
Caterpillar	rotini	munching leaves
Pupa	shell	hanging from something—leaves, tree branch, etc.
Butterfly	bowtie	flying through the air or drinking from a flower

Extensions

- ▶ Some students may choose to use construction paper to help illustrate the habitat of each life cycle stage.
- ▶ Have students create a journal of their observations in the outdoor classroom site.
- ▶ Students could draw &/or write about their observations.

Notes

The Alabama Outdoor Classroom Program is a partnership between:



Alabama Cooperative Extension System



Alabama Wildlife Federation

www.alabamawildlife.org/classrooms/



Alabama Department of Conservation & Natural Resources