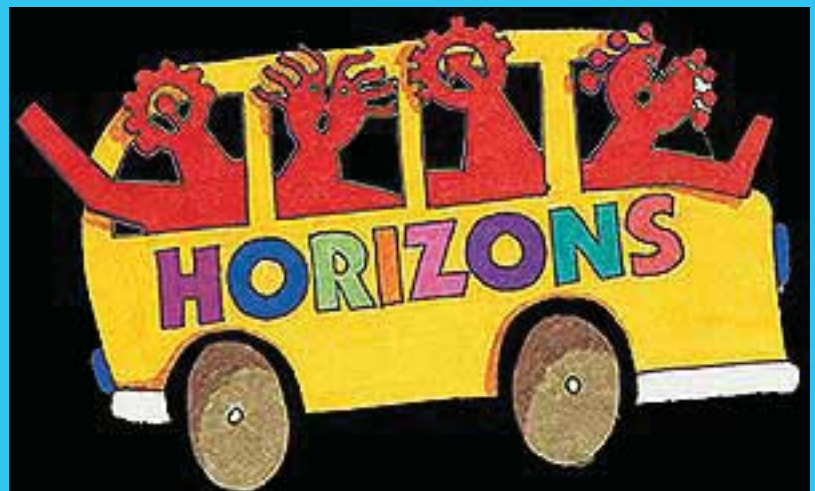


2010-2011
Educator's Resource Guide

Horizons School Matinee Series

Butterfly: The Story of a Life Cycle
Friday, October 15, 2010
10:00 a.m.



Young Auditorium

Horizons School Matinee Series

Dear Teachers,

Thank you for choosing to attend a Horizons School Matinee Series performance at Young Auditorium. We strive to provide programs that enhance your curriculum and allow you to explore arts integration in the classroom with your students. To help meet that goal, we offer a resource guide for each performance. This resource guide has been designed to help you prepare your students with before activities that help them engage in the performance and after activities that encourage them to evaluate the performance and make relevant personal and academic connections. Within the guide you will find a variety of activities that can be used to enhance the core subject areas as well as the creative arts. Wisconsin Model Academic Standards are listed at the end of the guide to help you link the activities to your lesson plans. The materials in this guide reflect the grade range recommended by the performing arts group. As teachers, you know best what the needs and abilities of your students are; therefore, please select and/or adapt any of the material to best meet the needs of your particular group of students.

It is also part of our mission to provide teachers with support in their efforts to integrate arts in their curriculum and bring teaching artists into the classroom to work directly with students. Please visit our website www.uww.edu/youngauditorium for more information about Reaching New Horizons: Arts Integration in the Classroom, our new professional development series for teachers, and the Horizons Outreach Program.

As you prepare for your visit to Young Auditorium, please do not hesitate to contact our staff. We are happy to assist you in making your trip a positive and memorable experience for your students.

Thank you for your support!
Young Auditorium



Young Auditorium

UNIVERSITY OF WISCONSIN-WHITEWATER

Credits

Editor:
Shannon Dozoryst,
Education and Outreach
Coordinator

Butterfly: The Story of a
Life Cycle study guide
provided by Hudson
Vagabond Puppets
www.hvpuppets.org

Butterfly lessons and
activities compiled by
Michael Damp and Lindsey
Juszczak in Reading 460/
ElemMid 422 under the
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UW-Whitewater, Spring
2010

Horizons Educator's
Resource Guide content
prepared by Shannon
Dozoryst

Teachers have permission to
reproduce any and all parts of this
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ABOUT YOUNG AUDITORIUM AT UW-WHITEWATER

The Young Auditorium is located on the University of Wisconsin-Whitewater campus and serves both the campus and public communities. The auditorium presents the highest quality arts and entertainment programming in a wide variety of disciplines for diverse audiences. There is something for everyone each season at Young Auditorium, including touring Broadway shows; classical, jazz, rock, pop, and folk music; family entertainment; school matinee performances; world-class ballet and opera; comedy; and lectures - all under the big, blue roof.

The ground breaking for the auditorium in June 1991 was made possible through the Irvin L. Young Foundation. The Foundation, along with the auditorium, honors an individual whose name has long been associated with philanthropy and humanitarianism throughout the state of Wisconsin and around the world. From humble beginnings, without the advantages of a high school or college education, Mr. Irvin Young used his time, talents and strong entrepreneurial spirit to establish a variety of successful businesses. Inspired by a business trip to Africa and the commitments he formed there, Mr. Young established the Irvin L. Young Foundation in 1949. Mrs. Fern Young continued her husband's benevolence until her death in January 2002. Thousands of people, both at home and abroad, have been positively affected by their kindness. It is our goal that, by bearing Mr. Young's name, we continue in his path of serving Wisconsin residents for years to come.

HORIZONS SCHOOL MATINEE SERIES

The mission of the Horizons program is to support the curriculum of schools by providing culturally diverse programs and outreach opportunities for K-12 students. This will be accomplished through 1) providing performances and hands-on, interactive outreach opportunities that cultivate an appreciation for the performing arts among young people that will last throughout their lives and 2) supporting teachers through professional development opportunities in the arts. It is our vision that someday every K-12 student in the auditorium's service region will attend a Horizon's performance and/or participate in an outreach event each year.

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Butterfly: The Story of a Life Cycle

Study Guide

This study guide is designed for students coming to see the Hudson Vagabond Puppets' production of *Butterfly: The Story of a Life Cycle*. You will be coming to the theater to take a look at the insect world as if you were looking through a magnifying glass. This production will follow the transformation of a caterpillar, which hatches from its egg under the leaf of a milkweed plant, forms a chrysalis and emerges as a beautiful monarch butterfly. As winter approaches, this butterfly makes the long journey to Mexico to hibernate, wakes in the spring and lays her eggs to start the whole cycle over again.

This study guide is divided into six sections containing material that will help you learn about monarchs and puppetry, making your theater experience more complete.

- I. Science- life cycle and characteristics of the monarch butterfly
- II. Puppetry- description of how we designed and operate the main characters
- III. Conservation- ideas on how you can help the monarch butterfly survive its long journey
- IV. Activities- projects you can do at home or in the classroom
- V. Vocabulary List
- VI. References- websites and books used to create this study guide and our production



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The Monarch Butterfly

Kingdom: Animalia (animals)
Phylum: Anthropoda (animals with jointed legs)
Class: Insecta (insects)
Order: Lepidoptera (butterflies and moths)
Family: Nymphalidae (butterflies with dwarfed front legs)
Subfamily: Danaidae (milkweed butterflies)
Genus & Species: Danaus: Plexippus (monarch butterflies)

Life Cycle

Egg

A monarch takes one month to mature from an egg to an adult butterfly. An egg is about 3 millimeters long, spherical, ridged and white. The female lays about 400 eggs on separate milkweed leaves in the spring and summer. It takes about a week for each egg to hatch.



Caterpillar

A newborn caterpillar is 2 millimeters long. First it eats the egg shell, then it eats the milkweed leaf that housed the egg, and then it keeps eating milkweed plant until it is 1/2 centimeter long and weighs 2700 times more than when it was hatched. It eats so much that its skin becomes too tight, so it sheds its skin for more room. Then it eats some more until its skin gets tight again and it repeats the process. This is called **molting**.

Eating the poisonous milkweed plant causes the caterpillar (and subsequently the butterfly) to be poisonous, which provides protection from predators. Its bright yellow and black stripes warn its predators that the caterpillar might be a dangerous meal. A caterpillar has 3 pairs of thoracic legs and 5 pairs of large **prolegs**, which are used to grip. It has 2 pairs of **filaments**, sensory tentacles, one on the head and one on the abdomen.

After about two weeks, the caterpillar becomes restless and leaves the milkweed plant in search of a safe transformation place. Once it finds a twig or leaf, it uses its **spinneret**, a special gland in its mouth, to weave a small silk button. It attaches its tail end to the lump and hangs upside down in the shape of a “J”.



Pupal Stage



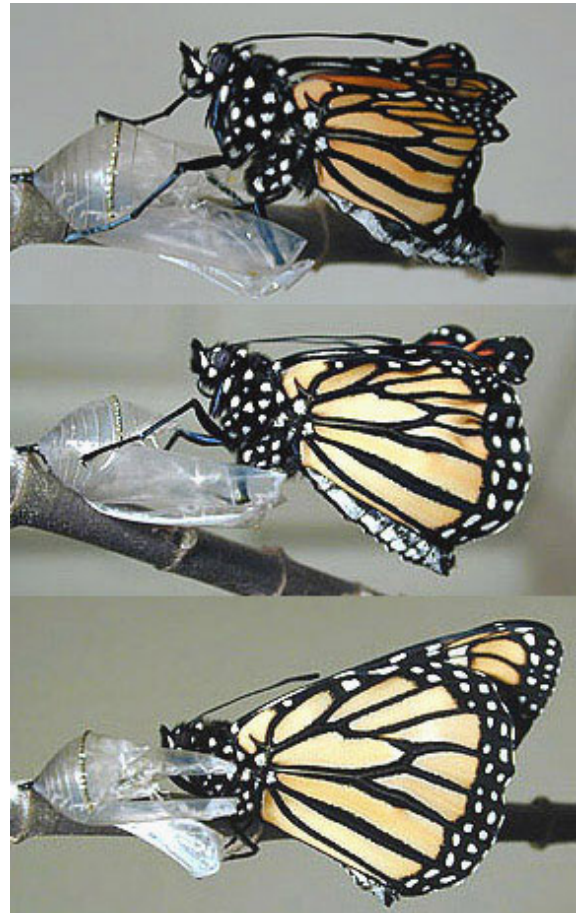
The caterpillar wriggles for 5 hours to molt one last time until it looks like a giant, green droplet. This “droplet”, called a **chrysalis**, is about 3 or 4 cm long and slowly changes shape and color as the outer layer hardens into an emerald case with golden dots. Inside the chrysalis, the caterpillar’s body parts completely break down into a liquid and are reformed into the organs and wings of the butterfly. This change is called **metamorphosis** and takes about two weeks. The case becomes transparent and you can see the butterfly inside.

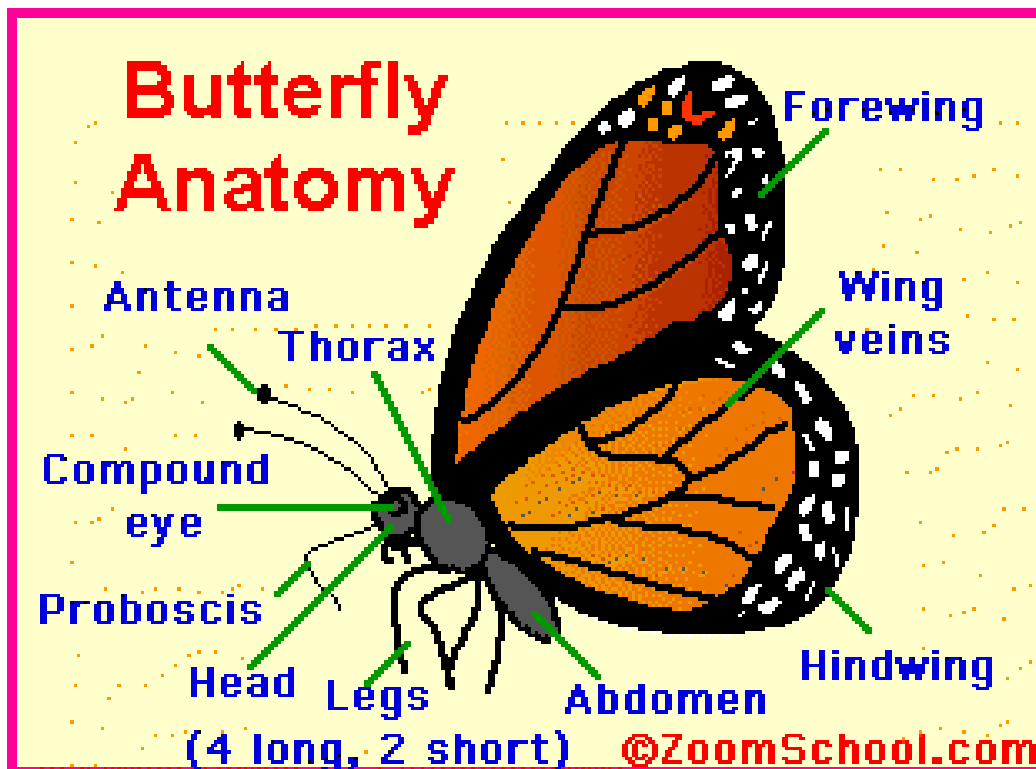
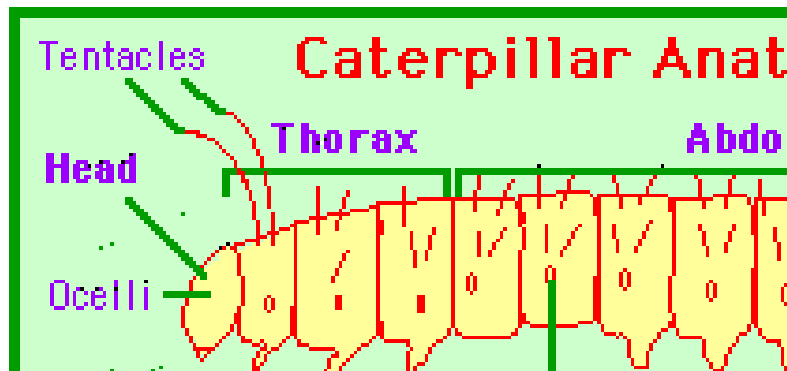
Adult

Once the butterfly breaks through, it clings to the casing of the chrysalis while fluids from the body are pumped into the veins of the wings expanding them. After a few hours, the wings are dry and the butterfly flies away. Adult monarchs have 2 pairs of bright orange-reddish wings that feature black veins and white spots along the edges. Their wingspan is about 4 inches and they weigh less than ½ an ounce. It takes five monarchs to equal the weight of one penny.

Males are slightly bigger than females and have scent glands called **stigmata**. You can see them as a spot of dark scales in the center of its hind wings. The females have broader black vein lines compared to the males.

The butterfly obtains energy for flying by sipping nectar from flowers, such as milkweed, red clover, thistle and golden rod. It does this by uncoiling its **proboscis**, a long, flexible tongue that is used like a straw to sip the nectar.





Migration

Most monarchs have a life span of 4 to 5 weeks, but a special generation born in late summer survives for 7 or 8 months. This generation makes the **migration**, the long journey south from Canada and the northern US all the way to Mexico, Cuba or southern California in search of warmer weather to survive the winter.

Their migration is guided by the sun's orbit. They have an internal, biological compass that functions according to the movement of the sun. Butterflies are most active from the morning until about 1pm, flying an average of 50 to 80 miles per day. During their journey, they are at great risk to predators and bad weather.

After about two months of traveling, they reach their destination at the end of October or beginning of November. From mid-November to mid-February they hibernate in giant clumps and then come down from the slopes to mate. It is their offspring that begin the trip back north.



Reproduction

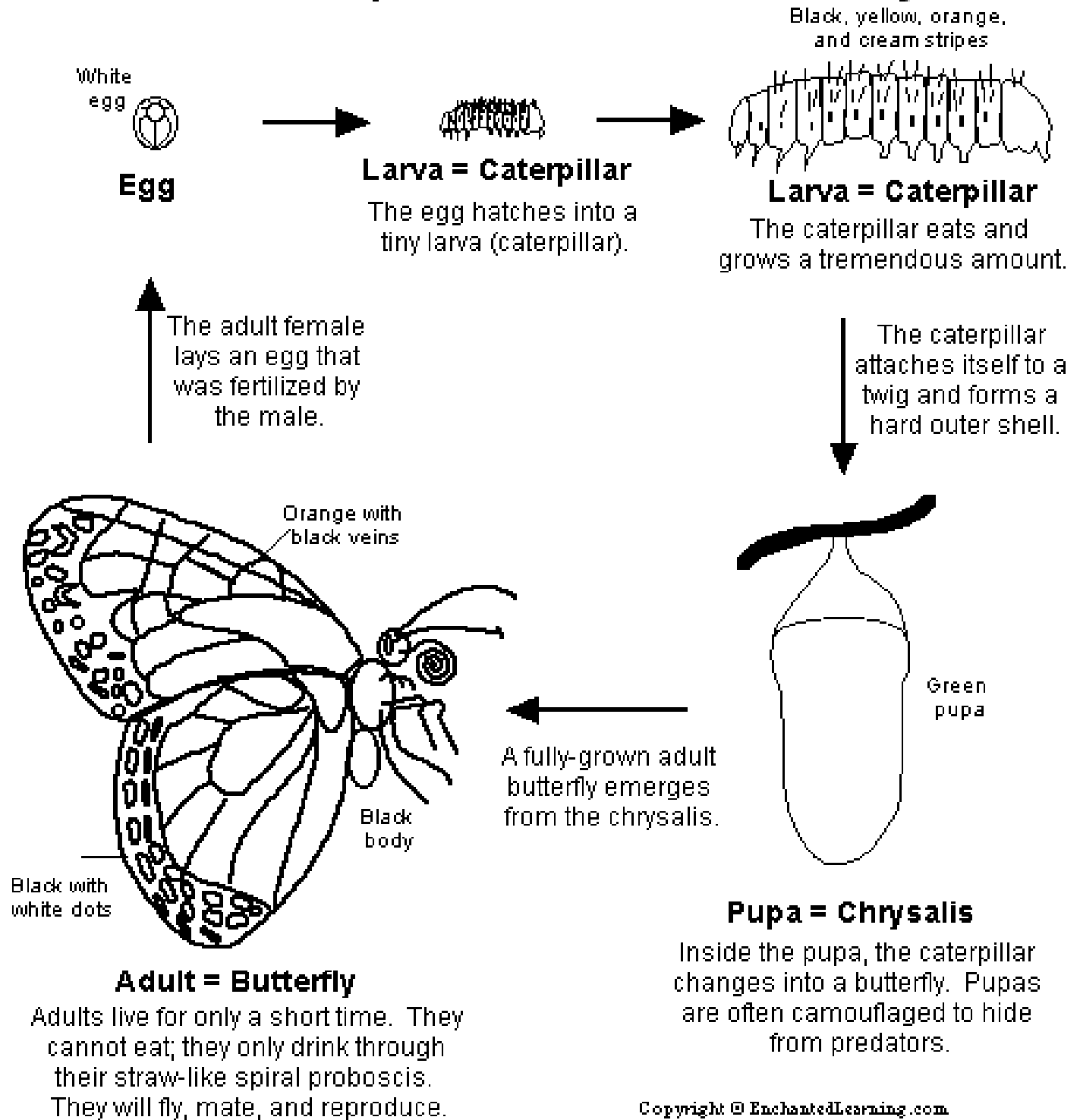


The courtship is fairly simple and takes place in two stages. During the aerial phase, the male pursues nudges and eventually takes down the female. In the ground phase, the male transfers its **spermatophore** to the female. For the over-winter population, the spermatophore contains sperm plus fat and other nutrients. This provides the female with energy to find the nearest milkweed plants to lay her eggs.

Photo credit: William Zittrich
Monarch Butterfly Photo Gallery
www.geocities.com/wyllz/id/77.htm

Butterfly Life Cycle

Metamorphosis of a Monarch Butterfly



Puppets

Butterfly

The butterfly is operated by two people, one behind the other. The front puppeteer carries and operates the head and body with a flag pole holder. There is a pole that extends up into the head, which allows the puppeteer to turn the head from side to side. A bicycle brake lever operates the eyes. Bellows push air into the proboscis, which is made from a party favor blower. The back puppeteer has bamboo poles that manipulate the wings. The wings are made of a thin, wire frame, covered with painted fabric.



Caterpillar

The caterpillar is built like a giant slinky. There are steel rings covered with a sleeve of white fabric. The white fabric is layered with bands of yellow and black fabric. The puppeteer's hand slides inside the mouth in order to open and close it. There is a hole inside the mouth which allows the puppeteer's hand to draw in the pieces of the leaf.



Giant Milkweed Leaf, the Flowers, and the Oak Leaf

These are all made from heating and bending plastic pipes, which are then covered with fabric and painted.

Scenery

Two scrolling drapes dominate the stage. Each roll contains 70 feet of fabric (about the length of a Mac truck). There are two spools, one above the other. During the show, the puppeteers pull the fabric from top spool onto the one below. This creates the illusion that the caterpillar is climbing upward.

Shadow Show

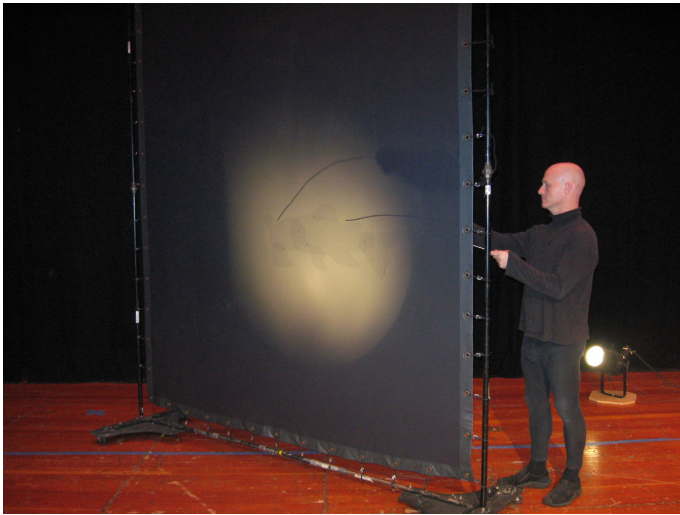
Elements of a shadow show:

Screen- a translucent material stretched over a frame

Light- a directed light source like a flashlight or theater light

Puppets- cut-outs made of dark material (such as cardboard, leather, wood, metal) or colored, translucent material (such as plastic)

The first generation of shadow shows came into being in the 1st century BC in China, India and Indonesia. We will be using a shadow screen to track the journey of the butterfly to Mexico. There will also be a light source and a screen and our puppets will be made of colored, translucent (semi-see-through) plastic, which will create colored shadows on the screen.



Conservation

Monarchs are in danger. Humans have had a negative impact on the preservation of their habitat for two main reasons:

- 1- **There has been logging in the fir trees in the central Mexico highlands, where the monarchs have their overwintering sites.**
- 2- **Milkweed is being cut away all over the US for commercial development.**

1- The top priority in the world of butterfly conservation is to protect the forest ecosystem in Mexico. The monarch's survival is dependent on the protection of high-altitude oyamel fir forests. As the population grows, the trees are cut down for agriculture, sold for lumber, or used by local residents for fuel and home building.

2- Milkweed and the monarch have a **symbiotic** relationship, which means that they are dependent on each other for survival.

Milkweed provides for the monarch:

- 1- **Nectar**, a milky sap, for the butterflies to eat
- 2- Place for the butterflies to lay their eggs
- 3- Food for the monarch caterpillar
- 4- Protection for the monarch caterpillars and butterflies from predators. When the monarchs eat the toxic milkweed plant, they become poisonous to those that eat them.

The monarch assists the milkweed in **pollination**. As the butterfly sips nectar, its feet get dipped in pollen. When the butterfly goes to the next plant to eat, it drops off the pollen from the first plant onto the second. This pollen fertilizes the milkweed seed and allows the plant to reproduce.

How can you help the monarchs?

1- Plant native milkweed and encourage others to do the same.

Create monarch **waystations**, places that provide resources necessary for the monarch's survival. You can do this in home gardens, at schools, businesses, zoos, nature centers, along roadsides and other unused plots of land. Butterfly Encounters www.butterflyencounters.com and Monarch Watch www.monarchwatch.com contain information on which milkweed plant would be best in your area and sell seeds.

2- Help protect small natural areas that support milkweed patches or overwintering sites.

Write letters encouraging people to preserve the monarchs' sanctuaries, and plant milkweed and other plants for the butterflies. The Monarch Butterfly Sanctuary Foundation <http://www.learner.org/jnorth/sm/aboutmbsf.html> is dedicated to protecting the Mexican overwintering grounds for the monarchs. Friends of the Monarchs www.pgmonarchs.org works to protect and preserve the area in and around Pacific Grove, California and throughout the world.

3- Help to educate the public on the importance of protecting monarchs and their habitat.

Start locally! Mount a campaign in school or community groups to get the word out about the monarch butterfly. Ideas on raising awareness can be found in Lynn Rosenblatt's book Monarch Magic! or in the activity section, including forming an M & M Action Club and declaring a Monarch Awareness Week in your area.

4- Report sightings or tag monarchs.

There are many unanswered questions about the fall migration of the monarchs east of the Rocky Mountains. In order for scientists to track the butterflies to learn about their patterns, they depend on the efforts of volunteer taggers to obtain sufficient data to answer these questions. Specific instructions on this activity can be found at Monarch Watch www.monarchwatch.org. Go to Friends of the Monarchs www.pacificgrove.com/butterflies, Journey North www.journenorth.com and the Monarch Monitoring Project www.concord.org/~dick/mon.html to report sightings of butterflies.

5- Donate to or volunteer for organizations that specialize in the protection of monarchs.

Hold bake sales or hold a performance to raise money and donate the proceeds to your favorite organization.

Vocabulary List

Chrysalis- the case in which a caterpillar changes into a butterfly

Conservation- the careful protection of something

Filament- a thread-like object, including the sensory tentacles of a caterpillar

Metamorphosis- a change of physical form, structure or substance by supernatural means

Migration- a long journey, usually every year, from one region or climate to another for feeding or breeding

Molting- shedding of skin

Pollination-the transfer of pollen (tiny seeds) from one plant to another

Proboscis- a long, flexible tongue that is used for sipping nectar

Proleg- fleshy leg of a caterpillar used for gripping

Spinneret- a special gland in the caterpillar's mouth which creates the attachment for the caterpillar to hang upside down to create its chrysalis

Spermatophore- a mixture of sperm plus fat and other nutrients

Stigmata- scent glands found on the hind wings of male monarch butterflies

Symbiotic- a relationship in which two organisms (plants or animals) depend on each other for survival

Tagging- the act of marking an animal in order to keep track of its migratory patterns

Waystation- a place that habitually provides resources for migrating animals

Activities

Create a Performance

Below are the lyrics to the theme song by Bernie Garzia from *Butterfly: The Story of a Life Cycle*. Appoint a director of the production. Have each student (or pair of students) create a movement gesture about the life cycle of the butterfly. The director will determine which movements go with which words. The class can either memorize the lines or have one person read them aloud as the rest of the class performs the movement.

Round...round...and round it goes
For as long as I can recall
Round like a rubber ball
Like summer into fall

Round...round...and round it goes
Like a circle with no end
From here...to here...and then
It all begins again

And it happens over and over
But it's special...every one
From life...to life...to life...to life...
And a new one's just begun!

Round...round...and round it goes
Like hello and good-bye
The sun up in the sky
Watch and you'll see why
I sing to the life
Of our butterfly
Of our butterfly
Of our butterfly
Our butterfly!

Create Poetry

Choose one of the following forms of poetry and create an ode to a caterpillar or a butterfly.

- 1- **Haiku** is a Japanese form of poetry which is usually about nature. The 17-syllable verse is formed by three lines. The first line consists of 5 syllables, the second has 7, and the third has 5.
- 2- **Limerick** has a highly controlled rhyming pattern. Lines 1, 2 and 5 rhyme; lines 3 and 4 rhyme.
- 3- **Couplet** contains a pair of lines of poetry that are usually rhymed.
- 4- **Diamante** is made of descriptive words that form the shape of a diamond. The first line is one word, the second line is two words, the third is three, the fourth is four, the fifth is three, the sixth is two, and the seventh is one. If you center all of the lines, the poem looks like a diamond.

Create a Shadow Show

The simplest shadow can be made by casting hand shadows against a white wall. By holding small objects, the shadows can become more complex (like pencils that could act as legs for a flamingo).

To create a show, place a stretched sheet in front of a doorway. Place a light about two feet behind the screen with the audience on the opposite side in a dark room. Create and tell a story of the transformation of the caterpillar into the chrysalis and then into a butterfly. Cut out the figures using paper or cardboard. You can create your own colored plastic shadow puppets by:

- 1- Take a gallon size plastic milk jug.
- 2- Trace the outline of your figure on the jug.
- 3- Cut out the figure.
- 4- Color in your figure using colored sharpies
- 5- Tape a popsicle stick to use as a handle.

Use your imagination to make the story come to life. For example, add a milkweed plant set or a bird searching for food.

References

Monarch Butterflies

Bronx Zoo Butterfly Garden

<http://www.bronxzoo.com/plan-your-trip/exhibits/butterfly-garden.aspx>

The Bronx Zoo has a butterfly garden, which includes monarchs. There is information on how to organize a class field trip.

Butterfly Encounters

<http://www.butterflyencounters.com/>

Butterfly Encounters contains information on milkweed and is a resource for obtaining seeds.

Enchanted Learning

<http://www.enchantedlearning.com/subjects/butterfly/species/Monarch.shtml>

This site contains an easy to understand description of the life cycle plus handouts for students including “Life Cycle Label Me”, “Read and Answer Worksheet” and more.

Friends of the Monarchs

www.pgmonarchs.org

Friend of the Monarchs works to protect and preserve the Monarch Butterfly and its habitat by increasing public awareness and community involvement in restoration and preservation of their habitats in and around Pacific Grove and throughout the world.

Journey North

<http://www.learner.org/jnorth/>

Journey North engages students in a global study of wildlife migration and seasonal change. K-12 students share their own field observations with classmates across North America. They track the coming of spring through the migration patterns of monarch butterflies and other birds and mammals; the budding of plants; changing sunlight; and other natural events. Find migration maps, pictures, standards-based lesson plans, activities and information to help students make local observations and fit them into a global context.

Kids Zone

www.kidszone.ws/animals/monarch_butterfly.htm

Kids Zone contains information and activities for kids. The life cycle handouts in this study guide are from this site.

Monarch Butterfly Photo Gallery

<http://www.geocities.com/wyllz/id177.htm>

Most of the photos in this study guide were taken from this website by William Zittrich (wyllz@yahoo.com).

Monarch Butterfly Sanctuary Foundation

<http://www.learner.org/jnorth/sm/aboutmbsf.html>

This organization protects the monarch's wintering habitats in Mexico. This site also contains materials for teachers, an in-depth resource for teaching tools, classroom lessons and student materials.

Monarch Butterfly USA

<http://www.monarchbutterflyusa.com/Cycle.htm>

This website gives an in-depth view of the life cycle with pictures at every stage. It even includes a video of the butterfly emerging from the chrysalis and a map of migration routes.

Monarch Magic

<http://www.monarchmagic.com/>

Monarch Magic sells Monarch Life Cycle Kits, books and videos for the classroom.

Monarch Monitoring Project

www.concord.org/~dick/mon.html

Based at the Cape May Bird Observatory in New Jersey, this group monitors migrant monarch populations along the east coast.

Monarch Lab

<http://www.monarchlab.org/default.aspx>

Here you can learn about the University of Minnesota *Monarch Lab*, the *Monarchs in the Classroom* program, plus find lots of information about the Monarch Butterfly. *Monarchs in the Classroom* is a program of University of Minnesota Extension and Department of Fisheries, Wildlife and Conservation Biology.

Monarch Picture Story

http://www.kidzone.ws/animals/monarch_butterfly.htm

This site features crafts and jigsaw puzzles of the monarch butterfly.

Monarch Watch

<http://www.monarchwatch.org/>

A cooperative network of students, teachers, volunteers and researchers dedicated to the study of the Monarch Butterfly. This site sells a Monarch Waystation Seed Kit with complete instructions on how to create a garden that will both attract and help monarchs on their migration. It also sells Monarch Tagging Kits (recommended for 2nd Graders and older), which contain instructions and materials to tag butterflies.

National Wildlife Refuge System

<http://www.fs.fed.us/monarchbutterfly/conservation/index.shtml>

This site is a resource for activities for teachers and students, identified by grade level from pre-k through 12th grade. It also contains in-depth information about the continental conservation of the monarch. monarch_butterfly@fws.gov

Raising Monarch Butterflies

<http://www.nicertutor.com/sketches/monarch/monarch.html>

Here you can find information on observing monarch butterflies in their native habitat.

World Wildlife Foundation

<http://www.worldwildlife.org/species/finder/monarchbutterflies/item3004.html>

World Wildlife Fund, in collaboration with the Mexican Fund for the Conservation of Nature, has designed an innovative conservation strategy to protect and restore the monarch butterflies wintering habitat in Mexico.

Xerces Society

http://www.xerces.org/Monarch_Butterfly_Conservation/index.htm

This society works to protect monarch groves in California and to educate the public about these important habitats. They specialize in reporting on monarch sightings and tagging monarchs so that they can be tracked.

Books

The Monarch Butterfly

Biology and Conservation

Karen S. Oberhauser (Editor); Michelle J. Solensky (Editor)

Cloth, 2004 ISBN: 0-8014-4188-9

Book can be bought at http://www.cornellpress.cornell.edu/cup_detail.taf?ti_id=4081

The knowledge of citizen scientists, biologists, and naturalists informs this book's coverage of every aspect of the monarch butterfly's life cycle (breeding, migration, and overwintering) from the perspective of every established monarch population (western North American, eastern North American, and Australian). The unique combination of basic research, background information, and conservation applications makes this book a valuable resource for ecologists, entomologists, naturalists, and teachers.

Monarch Magic!

Butterfly Activities & Nature Discoveries

Lynn M. Rosenblatt

Williamson Books, 1998 ISBN: 1-885593-23-6

For children ages 4-12, this book is written by an elementary school teacher in easy-to-follow text and filled with more than 100 full-color photos. It is divided into two sections: The Monarchs Adventure and A Butterfly Activity Bonanza.

An Extraordinary Life

The Story of a Monarch Butterfly

Laurence Pringle with paintings by Bob Marshall

Scholastic, 2001. ISBN: 0-439-28866-5

This is a biography of Danaus, a caterpillar who transforms into a monarch butterfly and migrates to Mexico. Grounded in scientific facts, this story is both an educational and interesting account of the life of a monarch.

The Monarch Butterfly: Frequently Asked Questions

Why do caterpillars turn into butterflies?

Caterpillars are the eating and growing stage for the butterfly, but they cannot mate and reproduce. The adult butterfly is both the mating and egg-laying stage of this beautiful insect. Also, adult butterflies can disperse by flight, sometimes traveling long distances, to colonize new areas. The Monarch butterfly is an example of an insect that migrates a long distance to escape our freezing winters by flying to Mexico or coastal California each year.

How do caterpillars “know” when it is time to turn into a chrysalis?

Caterpillars have a chemical made in their brain called juvenile hormone. This chemical is dispersed in their bodies. Whenever a caterpillar sheds its skin and the juvenile hormone level is high, it moves into the next caterpillar stage. When the juvenile hormone level is low, the caterpillar finds a site to make a chrysalis (or cocoon if its a moth) so that it can prepare for metamorphosis.

Do butterflies have brains and hearts?

Yes, butterflies and all other insects have both a brain and a heart. The center of a butterfly’s nervous system (brain) is located in the insect’s throat, not its head. The butterfly has a long chambered heart that runs the length of its body on the upper side. It pumps hemolymph (it lacks the red color of blood) from the rear of the insect forward to bathe its internal organs. It has other functions similar to our blood.

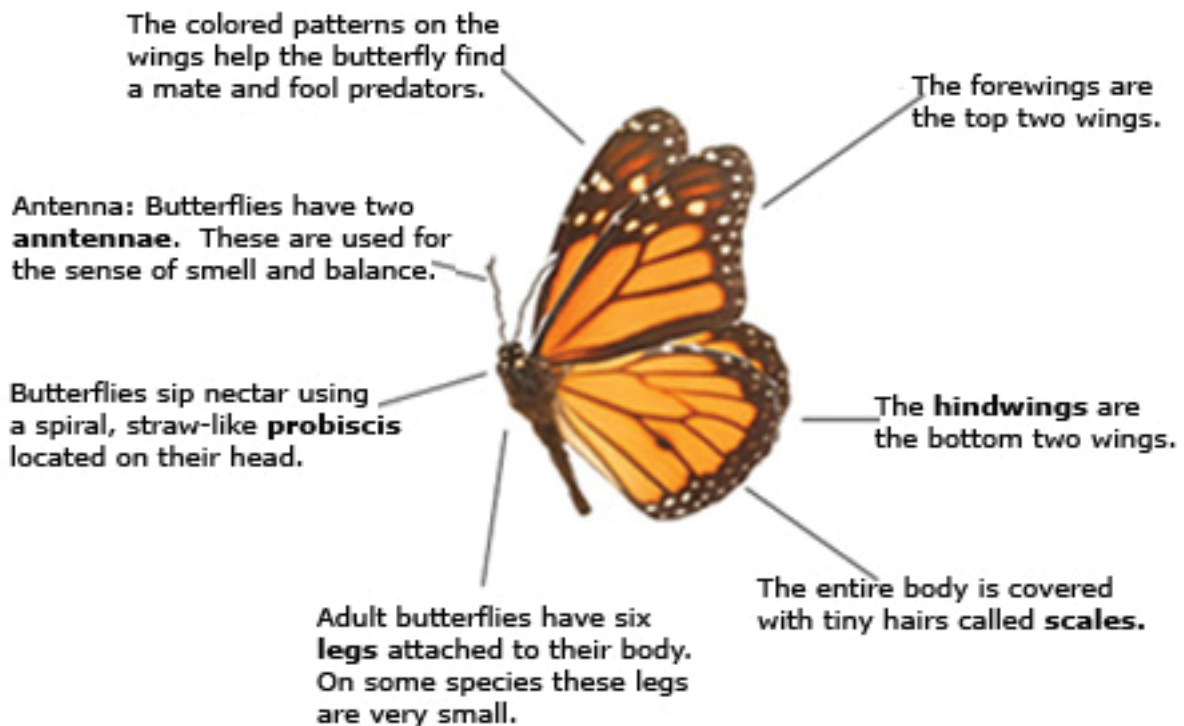


image from: www.simplybutterflies.com

How much do butterflies weigh?

Weights range from 0.3 grams for a large swallowtail to 0.04 grams for a small butterfly called the elf. It is possible that the world's largest butterfly, the female Queen Victoria Birdwing, might weigh 2 or 3 grams and one of the world's smallest butterflies, the Pygmy Blue, might weigh only a few thousandths of a gram.

How long do butterflies live?

Different butterfly species have different adult potential life spans. By marking butterflies then recapturing or sighting them later, scientists gain information on how long butterflies can live. An average butterfly species has an adult life span of 2 weeks or less. For example, one butterfly studied in Costa Rica had a life expectancy of about 2-10 days. No adult butterfly can live more than one year. The Mourning Cloak adult and some related tortoiseshells and anglewings that hatch in early summer may live almost a year. It lives over winters as an adult and then waits to court, mate and lay eggs the following spring or early summer. Monarchs and Swallowtails may live about a month in the summer, but the Monarchs that migrate to Mexico or the California coast may live 6-12 months. Some long-lived tropical butterflies live up to 6 months as adults. The long-life champion is a tiny yucca moth that feeds on banana yucca. Dr. Jerry Powell of the University of California at Berkeley has found this moth's caterpillar may be able to wait up until 30 years to form a pupa and emerge as an adult.

<http://www.kidsbutterfly.org>

Extension Activity

Visit the Milwaukee Public Museum's Puelicher Butterfly Wing

Go to - <http://www.mpm.edu/exhibitions/permanent/puelicher/> for more information



Plant Your Own Butterfly Garden

Want Monarch Butterflies near your school or home? Then plant a butterfly garden and bring butterflies to your area.

Tips:

1. Butterflies need direct sunlight. Butterflies are cold blooded, so they use the sun to warm up their bodies. Pick a sunny location for your garden, and place a few flat stones around so the butterflies can rest while warming up.
2. Butterflies need water just like we do. But instead of drinking from a faucet, they slurp up moisture from the soil. Butterflies prefer to land on moist dirt or sand on the sides of puddles, rather than directly in the water itself. Keep a mud puddle damp in your garden, or fill a bucket with sand and enough water to make the sand moist.
3. Do not use pesticides in your garden! Pesticides can harm butterflies, birds and other insects in your garden.
4. Butterflies are generally attracted to purple, orange, yellow or red flowers, but they are also attracted to areas with host plants on which they can lay eggs (the host plant for Monarch Butterflies is Milkweed).
5. Butterflies need shelter from weather, such as wind and rain, and a place to rest at night. Planting your garden near shrubs and trees will give them the shelter they need.
6. For maximum enjoyment, try to plant a variety of species (see list attached list) with different blooming times, colors and heights. This will create a garden that is not only interesting to look at, but will attract many kinds of butterflies for a longer period of time. Also, when picking out plants, make sure they are hardy and can make it through Wisconsin's cold winters. Here in Wisconsin, our climate ranges from zones 3a – 5b in vegetation hardiness.

When planning your garden, don't forget to plan an observation spot so you can enjoy the results of all of your hard work! Butterfly gardens will also attract other nectar-feeding birds and insects for you to watch. These include hummingbirds, bumblebees, and moths.

<http://dnr.wi.gov>

Butterfly Poetry

By - Michael Damp

Grade Level - 1-2

Students will practice rhyming and vocabulary while writing about butterflies.

Materials:

- Butterfly Cycle by Suzy Gazlay (see handout on next page)
- computer lab
- blank paper
- colored pencils, crayons or markers

Lesson:

1. Read the poem Butterfly Cycle, by Suzy Gazlay aloud to students. Ask the students what it means when words rhyme and have them pick out examples of rhymes in the poem Butterfly Cycle. Ask if they notice any pattern to the rhyming words.
2. Tell the students they will be creating their own poems about butterflies. Take the students to the computer lab. Show students the website: <http://www.poetry4kids.com/rhymes>. The students can use this rhyming dictionary to help them along. Make sure they select the option "Most common words first."
3. On a blank sheet, have the students brainstorm their own ideas of what they think about butterflies, what butterflies do, what they eat, etc. Have them pick an idea or two as the topic for their poem.
4. Give the students time to work, helping them think of rhyming words or other ideas as needed.
5. Once the students have written their poems, have them illustrate by drawing images next to their poem, or having them write each stanza on a separate page and illustrating each page.
6. Give the students the opportunity to share their poem with the class.
7. Collect the poems and make a class poetry book of butterfly poems.

Butterfly Cycle

by Suzy Gazlay

Hatch, hatch little egg,
I'm so very small.
Teeny tiny caterpillar,
You can't see me at all.

Crawl, caterpillar, crawl,
Munching on a leaf.
Crawling, munching, crawling, munching,
Eat and eat and eat.

Form, form chrysalis,
I'm a different shape;
Hanging by a silken thread
Until I can escape.

Rest, rest, chrysalis
While I change inside;
Now at last my time has come
To be a butterfly.

Stretch, stretch, pretty wings,
It's a special day;
Soon they will be strong enough
For me to fly away.

Fly, fly, butterfly,
Fly from flower to tree;
Find a place to lay my eggs
So they can grow like me.

Reflecting on the Performance

Write a friendly letter - As a way to reflect on the play, ask your students to write the Young Auditorium staff a letter. Our staff would love to hear what your students think about the Horizons productions they experience. For your convenience there is a letter template on the next page that is ready for you to reproduce for your students. This activity will provide your students with the opportunity to practice their writing skills by writing a critical evaluation of the Horizons performance for an authentic audience.

Write a Review - Create an idea map on the board by asking students to brainstorm everything they remember from the performance. The first part of this activity should be objective; remind students that they will be able to express their opinions when they write the review. Prompt students with the following questions: Was there music involved? If so, was it instrumental or what kinds of songs did they sing? In what different ways did the actors use their voices? What costumes did the actors wear? Did the actors wear masks? How did the different characters move? What did the set on the stage look like? What else can you remember?

- Instruct students to write a review that includes the following components:

- 1) A rating, out of five stars
- 2) One paragraph that objectively describes what you saw and heard at the performance
- 3) For each star in your rating, explain one thing you liked about the performance (e.g. a four star rating equals four things you liked about the show)
- 4) For each star under five, explain one thing you didn't like about the performance (e.g. a three star rating equal two things you didn't like about the show)
- 5) Use at least two of the new vocabulary words from this study guide in your review
- 6) Use the stages of the writing process to produce your review: pre-writing, draft, review, revise, edit
- 7) Publish your work by sending it to Young Auditorium! (Use the address on the letter template on the next page.) We would love to hear from you, and our education coordinator will write back!

Create a Theatre Journal - Download and reproduce the four *Theatre Journal* pages available on the Young Auditorium web site. www.uww.edu/youngauditorium Copy the pages back-to-back and fold them down the middle into a booklet. There are a variety of writing and drawing activities to stimulate your students' imaginations before and after the play.



Young Auditorium
Horizons School Matinee Series
930 W. Main Street
Whitewater, WI 53190

Dear Horizons:

My name is _____

I attend _____ School in _____ (city or town).

I just saw _____ (name of show).

I liked the performance because

My favorite part was when

One question that I have is

Signed

Wisconsin Model Academic Standards

The activities that appear in the Butterfly: The Story of a Life Cycle study guide have been aligned with the new common core standards for your convenience. Please refer to the information below.

Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects K-5

Reading Standards for Literature K-5 (align with Vocabulary List p.12)

Kindergarteners - Craft and Structure

4. With prompting and support, ask and answer questions about unknown words in a text.

Grade One Students - Craft and Structure

4. Ask and answer questions to help determine or clarify the meaning of words and phrases in a text.

Grade Two Students - Craft and Structure

4. Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.

Grade Three Students - Craft and Structure

4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.

Grade Four Students - Craft and Structure

4. Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.

Reading Standards for Informational Text K-5 (align with reading *The Monarch Butterfly: Life Cycle* p.2, *Migration* p.5, *Reproduction* p.6, *Life Cycle* p.7; *Conservation* p.10; *How can you help the monarchs?* p.11)

Kindergarteners - Key Ideas and Details

2. With prompting and support, identify the main topic and retell key details of a text.

Grade One Students - Key Ideas and Details

2. Identify the main topic and retell key details of a text.

Grade Two Students - Key Ideas and Details

2. Identify the main topic of a multiparagraph text as well as the focus of specific paragraphs within the text.

Grade Three Students - Key Ideas and Details

2. Determine the main idea of a text; recount the key details and explain how they support the main idea.

Grade Four Students - Key Ideas and Details

2. Determine the main idea of a text and explain how it is supported by key details; summarize the text.

Writing Standards K-5 (align with Activities: *Create Poetry* p.13; *The Monarch Butterfly: Life Cycle* p.2, *Migration* p.5, *Reproduction* p.6, *Life Cycle* p.7; *Conservation* p.10; *How can you help the monarchs?* p.11; *Reflecting on the Performance* p.24)

Kindergarteners - Text Types and Purposes

1. Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell

a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book (e.g., My favorite book is . . .).

Kindergarteners - Research to Build and Present Knowledge

7. Participate in shared research and writing projects.

8. With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

Grade One Students - Text Types and Purposes

1. Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure.

Grade One Students - Research to Build and Present Knowledge

8. With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

Grade Two Students - Text Types and Purposes

1. Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section.

Grade Two Students - Research to Build and Present Knowledge

8. Recall information from experiences or gather information from provided sources to answer a question.

Grade Three Students - Text Types and Purposes

1. Write opinion pieces on topics or texts, supporting a point of view with reasons.

a. Introduce the topic or text they are writing about, state an opinion, and create an organizational structure that lists reasons.

b. Provide reasons that support the opinion.

c. Use linking words and phrases (e.g., because, therefore, since, for example) to connect opinion and reasons.

d. Provide a concluding statement or section.

3. Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.

a. Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally.

b. Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations.

c. Use temporal words and phrases to signal event order.

d. Provide a sense of closure.

Grade Four Students - Text Types and Purposes

1. Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

a. Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer's purpose.

b. Provide reasons that are supported by facts and details.

c. Link opinion and reasons using words and phrases (e.g., for instance, in order to, in addition).

d. Provide a concluding statement or section related to the opinion presented.

Grade Four Students - Research to Build and Present Knowledge

7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.

Science (align with The Monarch Butterfly: Life Cycle p.2, Migration p.5, Reproduction p.6, Life Cycle p.7; Conservation p.10; How can you help the monarchs? p.11)

A.4.3 When investigating a science-related problem, decide what data can be collected to determine the most useful explanations

A.4.5 When studying a science-related problem, decide what changes over time are occurring or have occurred

B.4.1 Use encyclopedias, source books, texts, computers, teachers, parents, other adults, journals, popular press, and various other sources, to help answer science-related questions and plan investigations

C.4.1 Use the vocabulary of the unifying themes to ask questions about objects, organisms, and events being studied

C.4.2 Use the science content being learned to ask questions, plan investigations, make observations, make predictions, and offer explanations

C.4.6 Communicate the results of their investigations in ways their audiences will understand by using charts, graphs, drawings, written descriptions, and various other means, to display their answers

C.4.8 Ask additional questions that might help focus or further an investigation

F.4.1 Discover* how each organism meets its basic needs for water, nutrients, protection, and energy* in order to survive

F.4.3 Illustrate* the different ways that organisms grow through life stages and survive to produce new members of their type

Theatre Education (align with Activities: Puppets p.8-9; Create a Performance p.13; Create a Shadow Show p.14; viewing the play “Butterfly: The Story of a Life Cycle at Young Auditorium)

Play Reading and Analysis

A.4.1 Attend a live theatrical performance and discuss the experience.

Performance

B.4.1 Pretend to be someone else, creating a character based on scripted material or through improvisation, using props, costume pieces, and ideas

B.4.2 Create a human or animal character through physical movement with sounds and/or speech, using facial expressions

Analysis of Process

D4.1 Explain strengths and weakness of their own work and that of others.

D.4.4 Share their comments constructively and supportively within the group.

Theatre Vocabulary A-Z

Act: 1. To perform a role on stage; 2. One of the main divisions of a play or opera, i.e. Act I, Act II

Actor: Someone who performs a role on stage

Applause: To show approval by clapping the hands

Apron: The part of the stage that extends in front of the main curtain

Audience: Spectators that listen to or watch a performance

Backstage: The part of the stage and theater that is out of sight to the audience

Balcony: A platform inside of a building extending out over part of the main floor, as in a theatre

Blackout: A fast shutdown of lights to darkness

Bow: To bend the head, body or knee in acknowledgement

Box Office: Refers to the ticket office where people can buy tickets for a show

Cast: The group of actors or performers in a show

Catwalk: A walkway above the stage used to gain access to equipment

Choreographer: A person who arranges dances or other movements

Company: The cast, crew, and other staff associated with a show

Costumes: Clothes worn by the actors on stage

Crew: People that perform the technical tasks for a show

Cue: The signal for an actor or crew member to do an action

Curtain Call: At the end of a performance, the acknowledgement of applause by actors taking bows

Dialogue: The spoke text of a play, conversations between characters

Director: Person who guides the making of a show

Downstage: The part of the stage nearest to the audience

Dress Rehearsals: A full rehearsal in costume, to practice the show as it will be on show night

Dressing Rooms: Room in which actors change into their costumes and apply make-up

Equity: Short for American Actor's Equity Association, the trade union of actors, directors, designers and stage managers (www.actorsequity.org)

Follow Spot: A hand operated lighting instrument that emits a high intensity beam of light used to follow an actor on stage

Front of House: Areas of the theatre in front of the proscenium arch, includes lobby areas open to the general public

Gel: Thin, transparent sheet of colored plastic used to color stage lights

Ghost Light: A light on a pole that is left on stage when nobody is there so the last person out and the first person in won't fall off the end of the stage in the dark

Green Room: Room close to the stage for the actors to meet and relax

House: 1. The audience inside the theatre; 2. The seating area inside the theatre

Intermission: A brief break between acts of a performance, usually ten to twenty minutes long

Load In/ Load Out: Process of moving a production in or out of the theatre

Matinee: A performance held in the daytime, especially in the afternoon

Musical: A play whose action and dialogue is interspersed with singing and dancing

Orchestra Pit: Sunken area immediately in front of the stage, intended to accommodate an orchestra

Props: Something other than scenery or costumes that is used in a performance, short for "properties"

Proscenium: The frame separating the stage from the audience

Rehearsal: A practice session in preparation for a public performance

Script: The text of a musical or play

Set: The complete stage setting for a scene or act

Sound Check: A thorough test of the sound system before a performance

Stage: the part of the theatre on which performances take place

Stage Manager: A person who is in charge of the stage and the related details of a performance

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Stage Right/ Stage Left: The left and right of the stage from the point of view of the actor on stage looking at the audience ●

Theatre: A building or area for dramatic performances ●

Understudy: Someone who studies another actor's part in order to be his or her substitute in an emergency ●

Upstage: The part of the stage furthest from the audience ●

Usher: A person who guides audience members to their seats ●

Wardrobe: The general name for the costume department ●

Wings: The out of view area to the left and right sides of the stage ●

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A Lesson in Theatre Etiquette

A fun way to review theatre etiquette with your students is to have them compare appropriate dress and behavior for the theatre with other activities such as attending a concert, going to a movie, swimming at the beach, going to a sports game, or going to the mall with family or friends. Divide the class into groups and assign each group a different activity. Have the groups list the appropriate dress and behavior for their activity and why. The groups can then briefly role play their activity and present their ideas to the rest of the class. After all groups have presented, discuss how we behave differently for a live theater performance than we do for other activities (such as watching TV or a movie).

Print copies and review the "Courtesy Counts" sheet in this guide with your students.

Courtesy Counts

Please share this information with your students . . . most children are unfamiliar with proper theatre behavior. Make sure you share these courtesies as a part of their experience, and be sure to select shows appropriate for their age & attention span. Have them use the restroom before the performance begins.

Produce positive energy...Watching a live theatre performance is very different from watching a movie or television show. A live presentation has not been pre-recorded with the mistakes edited out. The audience's behavior and reactions can either add or detract from a performance. Each audience member affects those around him/her as well as the performers. Concentrate on helping the performers by producing only positive energy!

Find your seat...An usher will show you where to sit. Walk slowly and talk quietly as you are seated.

Keep it clean...Gum, food, and beverages are not allowed in the theatre!

Quiet on the set . . . Young Auditorium is known for its excellent acoustics, so if you make a noise others will hear you (including the performers)! Please no talking, humming, unwrapping cough drops, candy, or foot tapping during the performance. Exceptions to this rule include shows that ask for audience participation. Applause and laughter are appreciated and appropriate.

Unplug . . . Turn off pagers, cell phones, cameras, and watch alarms during performances. Better yet, leave them at home or school!

Only use your memory as a recording device . . . Flash photography and video recording is not allowed during performances because the bursts of light are dangerous to the performers on stage and distracting to other patrons. Please keep recording equipment at home or school or conceal it in a jacket pocket or purse.

Respect personal space . . . Please keep feet on the floor, not on the seat or balcony rail in front of you. Shifting in your seat, wearing hats, or wandering in the aisles is extremely distracting to those around you; please stay in your seat until intermission or the final curtain.

FOR YOUR INFORMATION

(teachers & chaperones)

PLACE: All Horizons School Matinee Series performances will be held in Young Auditorium, on the UW-W campus. Musical Encounters concerts are held in the Light Recital Hall in the Greenhill Center of the Arts. You will be escorted from the auditorium to the recital hall if you are attending a concert.

TIME: The doors of the auditorium will be opened 30 minutes prior to curtain time. Please arrange your schedule so the buses will arrive with time for seating and a bathroom stop. Late arrivals will not be seated until there is an appropriate pause in the production.

BUSES: The east side of Lot 1 is reserved for buses that are staying for the duration of the Horizon's performance. Buses that are not staying will pull into Lot 2 and line up along the curb to drop off and pick up students. Please make sure that your bus driver receives the Bus Driver's Memo available on our website.

WHEELCHAIR: All entrances are wheelchair accessible. If you have upper level seats, use the elevator. Main floor seats are on the same level as the lobby. Please inform us at least 4 weeks in advance if you need wheelchair seating or any other special accommodations.

RESTROOM: Main floor men's and women's restrooms are located on each side of the auditorium. On the upper level, the women's restroom is on the south side and the men's restroom is on the north side of the building. Please try to limit your restroom visits to before or after the show.

SEATING: An auditorium escort has been assigned to your school. The escort will direct you to your seats. All seats are reserved; thus each group must adhere to the seating assignment and may use only the number of seats reserved. Please plan to have chaperones seated with the students under their supervision. Chaperones - please do not bring infants/babies to the school matinee performance.

After all the students and respective chaperones have been seated, please settle in and remain seated during the entire show. No one should leave the hall until after the final curtain, except in the case of emergency. Leaving during the performance is exceedingly distracting for both the performers and members of the audience. If students must leave during the performance for any reason, re-entry into the auditorium will be allowed only when there is an appropriate pause in the program.

CAMERAS/ RECORDERS AND CELL PHONES: The use of cameras or recorders during any performance is strictly forbidden. Please do not bring them to the program. Cell phones must be turned off for the duration of the program. We encourage you to ask your students not to bring cell phones with them to the theatre.

FOOD, drinks, and chewing gum are not permitted in the auditorium.

EMERGENCY: Please contact the nearest usher in case of emergency.

LOST ARTICLES: Report lost articles to the house manager, or call 262-472-4444.

EXITING: Please disperse in an orderly manner. Teachers and chaperones have the responsibility of keeping their group together. Ushers are not assigned to oversee your exit from the building.

BUS PICK-UP: Your bus pick-up will be the same place as the drop-off.

LUNCH: Local fast food establishments and restaurants, as well as UW-W campus dining (262-472-1161) are happy to accommodate your group for lunch. Please make advanced arrangements to promote efficient service.

LUNCH SPACE: Schools may request a place to eat their bag lunches. Young Auditorium can accommodate a very limited number of people eating lunch picnic-style seated on the floor. This must be scheduled in advance. You will receive an admission slip in the mail confirming lunch space, which you must bring along with your lunches.

We thank you, in advance, for cooperating in implementing these procedures, giving all audience members the opportunity to sit back, relax, and enjoy the show.

Thank you for coming – we appreciate having you as a part of the Horizons program!

SPECIAL NOTE: Please print the Bus Driver Memo/ Map from our website and give it to your driver on the day of the show!

Policies

Please note the following policies are in place to ensure enjoyment for all!

The house opens at least one-half hour before the curtain.

A seat must be purchased for everyone attending an event, including teachers, chaperones, and bus drivers.

Timing is everything . . . so don't be late! Performances begin at 10:00 a.m. and 12:30 p.m. so plan to arrive at the theater 30 minutes early.

Patrons arriving late are seated only when there is a suitable pause in the performance.

UW-Whitewater/ Young Auditorium
930 W. Main Street
Whitewater, WI 53190
262-472-4444 (main office)
262-472-4400 (fax)
www.uww.edu/youngauditorium

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John F. Kennedy Center Partners in Education Program

The Young Auditorium and School District of Janesville are members of the Partners in Education program of the John F. Kennedy Center for the Performing Arts, Washington D.C. Selected because of their demonstrated commitment to the improvement of education in and through the arts, the Partnership Team participates in collaborative efforts to make the arts integral to education. For more information, please visit <http://www.kennedy-center.org/education/partners/>.



NATIONAL
ENDOWMENT
FOR THE ARTS

A great nation
deserves great art.



The Dorothy Remp Elmer
Children's Arts Outreach Endowment