Manhattan Monarch

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Manhattan Monarch
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Submitted in partial fulfillment of the requirements of the degree of Early Childhood Special Education and Early Childhood General Education
Master of Science in Education
Bank Street College of Education
2013
Abstract

*Manhattan Monarch*
An Original Children’s Book
By Melinda Chan

*Manhattan Monarch* is an original children’s book. It is the story of a Monarch butterfly floating high above the cityscape who invites the reader on an adventure through Manhattan. Colorful photographs of Monarchs capture the butterfly’s migration journey all the way from Manhattan to Mexico. Interesting scientific information intrigues and encourages the reader to learn more about Monarchs.

The creation of this story was inspired by my study abroad trip to Costa Rica and shaped by my childhood interest in the natural world. *Manhattan Monarch*, was made with a series of equally important goals in mind. The first goal, was to share my student’s experience of butterflies in an urban environment, an experience currently not reflected in children’s literature about butterflies. The second, was to set the foundation for expansive educational learning about the natural world. The third objective, was to foster an appreciation for outdoor spaces and encourage their usage as a resource for exploration and quality play experiences.

*Manhattan Monarch*, serves as an entry point into a butterfly exploration study. It is intended for early childhood students ages four years and up. The collection of resources and lesson plans can support teachers in planning and implementing a classroom butterfly unit.
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The Beginning of the Manhattan Monarch…

As a child, growing up in New York City, I was always fascinated with the natural world. I loved exploring with my friends in Riverside Park. I carried around a pair of binoculars. I would look though them at the treetops and zero in on something new each day; a blue jay raiding a nest of eggs, a scrimmage between grey squirrels, a sparrow singing. On the grassy field and on low leafy branches we would search for caterpillars. Our magnifying glasses served as the key to a micro-community. We would follow ants a great distance and marvel at their apparent celebration when my fallen ice cream sprinkles would cross their path.

Some days I would go outside and feel there wasn’t anything new to see. It was then that my mom would whisper, “If you are very quiet and look very carefully you will see new discoveries all around you. In fact, sometimes when you are very still, they will even come to you.” Standing still under the shade of a Ginko tree just outside the playground I heard birds rustling above. It was then that a little white butterfly floated down from the sky and onto my hand for a fraction of a second. She was right they can come to you!

Years later as a graduate student, I traveled to Costa Rica with a group of Bank Street Graduate Students and Alumni to study abroad. As we explored El Bosque Eterno de Los Ninos, (The Children’s Eternal Rainforest) I believe I saw every shade of green in the range of human vision. Matapalo, the upside down vines grew almost everywhere with wild intention. The diversity of creatures was magnificent. There were insects of every color, pink flying katydids, Egyptian blue bull ants, heart shaped moths with red wings speckled with cyan, and butterflies with see through wings- discoveries everywhere. I felt like a child again, free to explore and learn about the nature that surrounded me. As our journey
continued, I was occupied with a question; how could I bring my experiences into my practice as an early childhood educator?

One day our group visited an insect museum with butterflies from all over the globe. As I walked through one peaceful enclosure of butterflies who inhabit Costa Rica, I spotted an orange, black, and white dotted butterfly. “It couldn’t be, a Monarch, not here in Costa Rica” I thought to myself. When I inquired, our guide informed me, “Yes it is in fact a mariposa Monarca, a Monarch butterfly. They live here too” she said with a smile. “However, they don’t migrate great distances like Monarchs in North America, although they do travel to different altitudes.” “That’s it!” I thought, the connection to bring my experiences into the classroom. I decided to study butterflies and write a children’s book about Monarch butterflies.

Upon returning to New York, I enthusiastically began observing, researching, and photographing Monarch butterflies. In the summer, I spotted their vibrant orange tones which seemed to light up, electric against the grey buildings. I photographed the Monarch in many different parks in New York. In late summer, I walked down Broadway, a flurry of orange butterflies floated through the streets. One sprightly Monarch did upside-down turns and flips like a paper airplane darting through the air. I followed it down to the park where the Hudson meets the shore of Riverside. Down by the river, the foliage was alive with Monarchs. This butterfly became the image of the Manhattan Monarch for my book.

New York City is unique and filled with character. One experiences New York through the senses. As you walk through Manhattan’s streets you will hear the sound of different voices, dialects, and languages. You will see a diversity of people, moving vehicles, skyscrapers, and a colorful montage of stores. The neighborhood restaurants and food stands inundate you with a world of scents. Public parks and natural spaces within
Manhattan are open for people to enjoy. In the spring and summer seasons, the park is green with beautiful blooming gardens which attract different kinds of insects and birds. People participate in all kinds of outdoor activities. In the fall, the air is cool and the foliage turns orange, red, yellow, and brown. In the winter, white snow comes to cover the park. Sometimes when the snow is particularly packed, the Parks and Recreation department offers sleds to borrow and serves hot cocoa so everyone can enjoy the snow and zip down the hills! The parks in New York City give us an opportunity to experience nature and inspire curiosity.

*Manhattan Monarch,* highlights a migration journey that our New York is a part of. It is the story of an orange, black, and white butterfly, a dreamlike hope that soars high above the cityscape. The enchanting butterfly offers the reader an opportunity to come on an amazing journey through photographs and learn about the lives and adventures of Monarchs!
Rationale for *Manhattan Monarch*

My original non-fiction children’s book, *Manhattan Monarch* intrigues the reader to want to know more about Monarchs who live in New York City through captivating photographic images, a playful and imaginative story line, and interesting scientific facts. *Manhattan Monarch*, was created with a series of equally important goals in mind. The first goal, was to share my student’s experience of butterflies in an urban environment, an experience currently not reflected in children’s literature about butterflies. The second was to foster an expansive educational experience. The third objective, was to promote use of outdoor spaces and importantly, endangered opportunities for play in nature. Lastly, to support Early Childhood Educators in implementing a butterfly study in their classroom, I assembled a list of online and in print teaching and learning resources. I also designed lesson plans about butterflies which align with Common Core Standards.

A butterfly study fits into the Scope and Sequence for Science in Early Childhood for kindergarten, first grade, and second grade. For kindergarten, Scope and Sequence for Science, requires students to learn about the needs of organisms, how living things grow and change, and how living things are influenced by the seasons. Educators can teach about complete metamorphosis and migration. In the following year, students must compare and contrast the physical characteristics of animals and how their characteristics aid survival. To meet this requirement, a discussion of the parts of butterflies and their functions can be studied as well as the defense mechanisms they use to survive. In second grade, there is a focus on learning about plants. An exploration of insect pollinators can help students understand why butterflies are important to plants and therefore to themselves.

As an Early Childhood Educator, a butterfly study is one of my favorite topics to teach. When I begin a butterfly unit, I introduce students to butterflies in a way they can
connect to. To activate prior knowledge, I ask children to share what they know about butterflies. In the spring we engage in nature exploration. The students search for artifacts of nature that are of interest to them like seed-pods, bark, leaves, and flowers. They observe butterflies, insects, and animals in the park. They are supported in connecting artifacts and observations. For instance they may collect leaves and notice a leaf with holes in it, perhaps the mark of a caterpillar. The students playfully explore the park. They are invited to share their discoveries as they gradually deepen their knowledge about butterflies. Through hands-on activities our class explores how butterflies help us through pollination and helping flowers make new flowers. In addition, we invite nature into the classroom by raising caterpillars and observing complete metamorphosis.

Every time I teach children about butterflies, I try to teach something new and different. I search for developmentally appropriate literature to support my students in learning about this topic. In my annotated bibliography, I researched twelve books about butterflies and Monarch butterflies (many of which I happened to have used in the past as read alouds). I’ve read literature to my students about classes who had butterflies like ours such as *Becoming Butterflies*, and about the butterfly life cycle, like *Starting Life Butterfly* by Llewellyn, books about schools located near vast outdoor spaces like *From Caterpillar to Butterfly* by Heiligman, and some with stunning photographs of butterflies such as Howard’s *Butterflies*. These were well loved and appreciated by children. However, I could not find any books that portrayed my student’s experience of butterflies in New York City, which would forge a genuine connection with them. Current literature did not feature the story of butterflies in urban environments.

I recognized that there was a need for a book that reflected my student’s experiences of butterflies in New York City. *Manhattan Monarch*, was designed with this need in mind.
Educator Emily Style emphasized that, educative literature can “enable the student to look through window frames in order to see the realities of others and into mirrors to see his/her own reality reflected” (Style, 1996, pp. 35). The intended audience for this book is young children from a diversity of backgrounds and environments (urban, rural, and suburban). In my research, I could not find any books for young children about butterflies in New York City. Books about Monarchs for young children did not mention New York as one of the places Monarchs travel through. In addition, the photographs and illustrations in these books featured pictures of butterflies in vast open rural spaces, or private backyard gardens, they did not show Monarchs in urban environments. Popular non-fiction books for young children about Manhattan tended to be about landmarks, transportation, and/or common cityscapes. 

Manhattan Monarch, takes place in the parks of Manhattan. It uniquely features other fauna which Monarchs are likely to encounter. My hope for Manhattan Monarch, is that readers from New York City will see their own experiences of butterflies reflected. I hope that readers from other regions, who may be unfamiliar with urban spaces, get a glimpse from another perspective about how, where, and when many children in Manhattan encounter butterflies.

Manhattan Monarch is a non-fiction book sprinkled with story elements of anthropomorphism, however, these elements do not interfere with the text’s informative purpose. In Manhattan Monarch, all photographs are of real Monarch butterflies and parks in New York City. In some pictures, Monarchs were digitally inserted into cityscape photos so that the audience could find the butterfly. As Giorgis and Glazer note, quality non-fiction literature, “follows a pattern that makes the content understandable to young readers” (Giorgis & Glazer, 2009, pp.37). Manhattan Monarch follows the Monarch in the park and explores what the butterfly encounters, the complete metamorphosis of a butterfly is
explained sequentially. The migration of the Monarch occurs in logical fashion. In addition, key concepts and new vocabulary are introduced in a context and then highlighted in a bright orange color to capture the reader’s attention.

This non-fiction book is developmentally appropriate for children ages 4 and up. The language, clearly labeled photographs, selected facts, simple plot, and engaging Monarch character are ideal for young children. In the beginning of the book, the audience is introduced to the Monarch butterfly in a way that creates an instant connection between text and audience. Young children in Piaget’s preoperational stage, experience egocentrism (Siegler, et al., 2006). To cater to their tendency to interpret the world from their perspective, the butterfly comes to them. The panorama of New York City with a Monarch in the distance engages the reader. “What’s that?” it questions. As the Monarch gets closer and flies to the audience the text reaffirms, “It’s an orange, black, and white butterfly known as a Monarch. It’s coming to you!” Other non-fiction butterfly story books do engage the reader but do not do so in a way that makes the butterfly appear as if it were equally interested in meeting the reader.

*Manhattan Monarch* stands out from the reviewed butterfly books in that it caters to the 4 to 6 year-old's enthusiasm for guessing games (Wood, 2007). In *Manhattan Monarch*, some pictures offer a visual game of hide and seek where children have to spot the orange butterfly in the picture. Children from the ages of 5 to 7 are also experiencing cognitive shifts in reasoning. Their understanding of cause and effect is becoming increasingly sophisticated. Discussing migration with students in response to seasonal changes can help support this understanding. Closer to the ages of 6 and 7 children begin to organize the information they are learning in a more logical fashion. These slightly older students may be more intrinsically interested in the picture of various butterflies in Manhattan which are
clearly labeled because they seek to identify and categorize. Younger students may be
drawn to the same picture because they have seen these butterflies before and relate the
picture to the self. Virtually all 5, 6, and 7 year olds love to share what they know with peers
and teachers. *Manhattan Monarch* is an engaging book that will inspire sharing
opportunities.

*Manhattan Monarch* was created with the goal of providing an expansive
educational experience. Philosopher and psychologist John Dewey, speaks of quality
learning as occurring on an educational continuum, one which opens the door for further
educative experiences. A valuable learning experience, he noted, is well planned and
purposefully engages the student in a way that makes sense to them. The book *Manhattan
Monarch* is intended as an interactive read aloud. It acts as a springboard for discussion and
invites children to share their knowledge of butterflies and background experiences. By
validating students comments, each member of the classroom community will feel
respected. The students contribute valuable information. Teaching young children about
the natural sciences and phenomena like complete metamorphosis and migration, provides
a foundation upon which to build more complex understanding in the future. Interesting
facts presented in this text such as, “Butterflies can see UV light,” offers an opportunity for
later return. The concept that butterflies can see colors humans can’t see can be understood
by young children because of simple sentences structure, but not fully comprehended until
returned to at a later time. However, the wondering and imaginative imagery has been laid.
Children and adults alike strive to imagine “a rainbow filled with new colors never before
seen.”

*Manhattan Monarch* was also made to support children’s endangered right to play
and explore the outdoors. *Manhattan Monarch* intends to foster a connection between
children and the natural spaces in the city available for all to enjoy. The Monarch butterfly soars through open park spaces and invites classes to search for Monarchs in parks in their school community and parks near them. In our climate of endangered interactive play opportunities, students have to know that there is a space for them to explore the wonders of the natural world. Having outdoor experiences lets children become acquainted with the environment and develop a caring attitude towards it. "Children's direct social and individual experiences in nature in early to middle childhood… help shape their environmental identity and guide their environmental actions" (Blackburg, 2011).

*Manhattan Monarch* fosters this caring attitude by letting children connect with a Monarch to build an empathetic relationship.

Being in the outdoors also supports children’s learning. "The outdoors has something more to offer than just physical benefits. Cognitive and social/emotional development are impacted, too. Outside, children are more likely to invent games. As they do, they’re able to express themselves and learn about the world in their own way" (Pica, 2008). Play is vital to children’s development. Opportunities to play outside are becoming minute in a growing world of technology and tougher academic standards. We must strive to give our students access to the outdoors because it offers countless benefits. In the NAEYC position statement on developmentally appropriate play practices, it is recommended that, “Teachers organize the daily and weekly schedule to provide children with extended blocks of time in which to engage in sustained play, investigation, exploration, and interaction (NAEYC, 2013, pp.3).” When these blocks of time are spent in the park, children’s play can be enriched with discoveries which happen as students play in a natural environment. In addition, an appreciation for physical activity in the park can promote healthy attitudes about exercise.
The capacity for learning through play is infinite. Children exercise creativity, imagination, explore various roles in society, and develop skills like negotiation, self-regulation and categorization when they play. Most importantly, play helps children actively construct meaning from their world. *The American Academy of Pediatrics*, supports play as critical because it “contributes to the cognitive, physical, social, and emotional well being of children and youth” (Ginsburg, 2007, pp.182). We can learn about children’s unique structuring, their interpretation of experiences and ultimately how they understand their world through observation of children’s play. The Developmental-Interaction Approach appreciates play as a valuable means of learning (Nager & Shapiro, 2000). Franklin notes, “play is not only a matter of expression but a prime means for consolidating, extending and creating knowledge” (Franklin, 2000, pp. 46). Children enthusiastically develop affection for studying science through play.

For schools with limited access to outdoor spaces, field trips may be organized. Teachers can also find ways to bring the outdoors into the classroom. They can set up an area of the classroom with potted plants. Teachers may be able to ask students and parents to bring in small natural artifacts which can be displayed in the classroom.

The fourth and final goal for creating *Manhattan Monarch* was to provide a collection of resources for teachers. As an educator, I thought about the elements I needed to create successful lessons and learning experiences and assembled them. All lessons are aligned with Common Core Standards and divided by discipline. An annotated bibliography with read aloud suggestions is provided. There is also a list of online websites about butterflies for further learning and online videos which aid in the explanation of various aspects of the butterfly life cycle as well as Monarch migration across North America.
References


Lesson Objective: Why are butterflies important?

1. Introduction to butterfly study
2. Connection to self through discussion questions:
   a. How do you help your family?
   b. What do you do to help other people in our school community like friends and teachers?
3. We help each other out just like butterflies help flowers on fruit and vegetable plants.
4. Define vocabulary:
   a. **Pollinators** - Many butterflies are pollinators, that means they carry pollen from one flower to another to help make new flowers.
5. Many fruit and vegetable plants produce flowers that butterflies pollinate.

Flowering Tomato Plant  Ripe Tomatoes

Prep:
- Buy squash, tomato, and red beans.
- Find the flowering plant of these vegetables or pictures of them which can be printed out or displayed on a Smart Board.
- Set up vegetables so that children can explore them.

Procedure:
1. Present children with the following vegetables: squash, tomato, and red beans.
2. Ask children questions about their experiences with these vegetables, such as, do you eat any of these vegetables? Do you cook with any of these vegetables?
3. Present students with the actual plants these vegetables come from or pictures of them. (Ideally, the plants will have flowers on them). If there aren’t flowering plants, pictures of these plants flowering should be included.

4. Repeat and discuss how butterflies help plants. Then ask children to discuss how this is beneficial to people.
   *Scaffold the connection between the role butterflies play in helping the flowering vegetables grow and how people eat and grow these vegetables.

5. Look at pictures of flowers in nearby parks that butterflies pollinate.
NYSED Common Core Standards for Mathematics

Kindergarten – Operations and Algebraic Thinking (1, 3, 4) and Measurement and Data (3)
1st Grade – Operations and Algebraic Thinking (1, 3, 5, 6) and Number and Operations in Base Ten (1)
2nd Grade – Operations and Algebraic Thinking (1, 2)

Lesson Objective: What is a Pattern and Where Can We Find Patterns in Nature?

1. Introduce students to the concept of patterning using manipulatives of the same shape.
2. Lay pattern out in front of children using manipulatives create 2 variable pattern.

3. Ask children to extend pattern and create their own.
4. Show children 3 variable pattern and ask children to extend and then create their own.

*Determine the group’s familiarity with patterning before proceeding with the rest of the lesson.

5. Connection to self through discussion and exploration
   a. Where do you see patterns in the classroom?
   b. Where have you seen patterns outside the classroom?

6. We can also find patterns in nature.

7. Define vocabulary
   a. **Pattern**- A design that repeats
   b. **Predator**- An animal that eats another animal
   c. **Warning Coloration**- A pattern of colors or bright colors that protects animals from predators. Warning coloration sends a message to predators which says, “stay away and don’t eat me I am poisonous!”

Prep:
- Familiar manipulatives of the same size but different colors.
- “Pony beads” in white, yellow, and black (and other colors if you plan to do other animal patterns like the coral snake this way)
- Thick black pipe cleaners
- Pictures of animals with warning coloration patterns.
- Painting supplies for post patterning activity.
- *Monarch Magic* by Rosenblatt

**Procedure:**

8. Explain to students that the Monarch caterpillar has a pattern on it’s body. Some insects and animals have patterns on them that send a message to predators, animals who want to eat it, “don't eat me I am poisonous.”

9. Read the section on Milkweeds in *Monarch Magic* by Rosenblatt to learn about Monarch caterpillar toxicity.

10. The pattern on the Monarch which protects it from predators is called warning coloration. It warns predators to stay away.

11. Demonstrate a basic Monarch caterpillar pattern by stringing “pony beads” white, yellow and black in a 3 variable pattern on a thick black pipe cleaner.
   a. Children can count the number of beads to figure out the total.
   b. They can then record how many are white, how many are yellow, and how many are black. They can note how the sum of these three quantities is equivalent to the total number of beads.

   ![Pattern Example](image)

   Total Beads = 10
   White = 4  Yellow = 3  Black = 3

   c. Older children can write equations for their pattern and use smaller beads to yield higher totals.

   ![Pattern Example](image)

   Total Beads = 15
   White = 5  Yellow = 5  Black = 5
   Equation  \( 5 + 5 + 5 = 15 \)

12. Ask children to create their own Monarch caterpillar using the same materials. When finished the end of the pipe cleaner can be knotted to look like a caterpillar head. Children can use their caterpillars as toys in the dramatic play area.

13. Children can then look at pictures of other animals with warning coloration patterns such as coral snakes and lionfish.
14. Children can paint these animals and their patterns or invent their own animal with pattern warning coloration.
Lesson Objective: Where do butterflies live?

1. Monarch butterflies can be found in parks, forests, and prairies.
2. Milkweed plants, are important to the Monarch’s survival.
   a. Monarchs lay their eggs only on Milkweed plants.
   b. Milkweed plants are eaten by Monarch caterpillars, which gives the caterpillars toxicity and protects it from animals who want to eat it.
   c. Monarch caterpillars form chrysalises on Milkweed plants.
3. Define vocabulary
   a. **Host plant**- The only plant a butterfly of a particular kind will lay its eggs on.
   b. **Habitat**- The place an animal lives.
   c. **Seed pod**- A seed pod is where the Milkweed stores its seeds. When the pod opens in Autumn, fluffy white seeds go flying. The seeds land and grow.

Prep:

Part 1 Background
- Watercolor paint set up
- Large paper suitable for acrylic paint (acrylic paint paper tends to be thicker than watercolor paper).
- Thick brushes

Part 2 Milkweed Plant
- Dark green markers
- Cotton balls
- Glue and glue brushes
- 2 inch squares of brown tissue paper

Part 3 Butterfly
- Large orange feathers 4 for each butterfly (wings)
- Black and white paint
- Q-tips
- Black model magic log rolled approximately 3 inches long and ½ inch wide, dry (body)
- Thin pipe cleaners 2 for each butterfly (antenna)

Procedure:

1. Read *Starting Life Butterfly* by Llewellyn’s ask children about where the Monarch is and discuss the Milkweed plant.
2. We are going to make a collage of a Monarch butterfly habitat.
3. Ask children what plant is essential to include in the collage and why.
   - Part 1 Background:
   4. Explain that we will be making a layered collage and will start with the background first in watercolor paint.
   5. Demonstrate making green hills with watercolor then let children make their own backgrounds, remind them that Monarchs are found in parks in New York and that their background can also be a park where they have seen a Monarch.
   6. Encourage children to have their backgrounds cover the entire paper.
   7. Let pictures dry completely
   - Part 2 Milkweed Plant:
   8. Explain that a Milkweed is the Monarch's host plant, the only plant a Monarch will lay her eggs on and review stages of butterfly development which take place on the Milkweed.
   9. Talk about how the Milkweed spreads it seeds.
   10. Show children how they can use the dark green marker to draw a Milkweed plant with leaves over their watercolor painting to make it look like the Milkweed is close to the viewer.
   11. Make seed pods by laying the cotton ball on top of the tissue paper square and crumpling it (the white cotton should peak out of the tissue paper). Then glue the pods to the Milkweed plant base.
   - Part 3 Butterflies:
   12. Children can create butterflies to live on their Milkweed plants.
   13. Discuss how many wings butterflies have, the veins on the wing, and the white dots outlining the wings.
   14. Lay out 4 orange feather wings and let children paint black veins.
   15. After the veins dry, students can dip q-tips in white paint to add dots on wings.
   16. Once dry, the pointed end of the feathers can be pushed into the model magic log to look like wings.
Extensions and Open-Ended Art Activities

- Tray painting with Monarch butterfly colors orange, white, and black.
- Learning about butterfly symmetry: paint on one half of a piece of paper, fold in half and then unfold to reveal a symmetrical design.
- Collage with simple shapes, pose the question, "How can we use these shapes to make butterflies? If necessary guide children by going over body parts and asking children what shape they might use for each.
- Hand print art, use hand prints and fingers to paint butterflies.
**Objective:** How do Monarch’s migrate and where do they go in the winter?

1. Define vocabulary
   a. **Migration** - The movement of a group of animals from one place to another based on changes. The Monarch migrates in response to changing seasons.

**Prep:**
- Soft Classical Music
- (Optional) Video clip of Monarchs in Overwintering site with sound of butterfly wings flapping from Monarch Watch [http://www.youtube.com/watch?v=x0m_rK_WpjQ](http://www.youtube.com/watch?v=x0m_rK_WpjQ)
- *Migration of a Butterfly* by Kant or another book describing the Migration and where Monarchs go.
- Large colorful scarves.
- Open space.

**Procedure:**
1. Read book to children. While reading ask them to close their eyes and imagine they are the Monarch butterfly. How would they move? What things might they see from way up high?
2. Explain that the class will be pretending they are Monarchs migrating.
3. Optional: Play video clip of butterflies in overwintering site, let children focus on the sound of the butterfly wings.
4. Inform children that we will read *Migration of a Butterfly* again. After each line, the music will come on and they will be invited to act out the line. When the music stops they should freeze in place and wait to hear the next line.
5. Pass out scarves which can be wings or part of a costume.
6. Read the first line, play music and let children act it out.
7. The story will end with all the butterflies in the Mexican fir tree forest cluster in a tree as snow begins to fall.
*Feel free to add in your own lines for children to act out.

Extension

- Take photographs of children acting as butterflies. Cut out each student butterfly. On a large outlined map of North America, show students how they migrated to Mexico by using their photograph and moving it across the map. Let children use their photographs to reenact the migration. When children are done recreating, glue photographs to map at various stages in Monarch’s migration.
Fieldtrip – The Natural History Butterfly Conservatory

NYSED Common Core Standards for English Language Arts and Literacy
Speaking and Listening Standards K-5 (SL)

Kindergarten – Presentation of Knowledge and Ideas (5, 6)
1st Grade – Presentation of Knowledge and Ideas (5, 6)
2nd Grade – Presentation of Knowledge and Ideas (5, 6)

Lesson Objective: How are various kinds of butterflies the same and how are they different?

1. Introduction to fieldtrip.
2. We have been studying Monarch butterflies. Today we are going to look at different kinds of butterflies and find out how are they different and how are they the same.
3. Define vocabulary:
   a. Observe- Scientists learn through observing or looking and watching.
4. With the students, generate a list of ways the class can observe butterflies in the Butterfly Conservatory.
5. Develop predictions about the ways butterflies could be the same and different.

Prep:

The Natural History Museum Located: Central Park West at 79th Street, New York, NY 10024
Hours: Open daily from 10am to 5:45pm Phone: 212-769-5100
The Butterfly Conservatory is open seasonally. Museum staff are friendly and helpful!
*Prior to visiting fill out an online School Group Reservation Form 5 weeks in advance of trip:
http://www.amnh.org/plan-your-visit/plan-a-school-group-or-camp-group-visit/school-group
Central Reservations Phone: 212-769-5200
The Natural History also provides an Educator’s Guide to the Butterfly Conservatory, resource articles, and support for planning field trips: http://www.amnh.org/exhibitions/current-exhibitions/the-butterfly-conservatory/for-educators-the-butterfly-conservatory

- Have each student bring 1. butterfly journal 2. Colored pencils in small Ziplock baggie. 3. #2 pencil for sketching
- Students can make their own science butterfly journals or use small notepads, for daily observations of the caterpillars in the classroom and for writing or sketching during outdoor exploration times. These journals can go home with children on the weekend so that they
have an opportunity to share their learning with family members and add new entries.

**Procedure**

1. Briefly review investigative question, how to observe, and ways butterflies might be the same or different.
2. Discuss how to act in the Butterfly Conservatory, how to keep butterflies safe, and how to handle a butterfly if it lands on you.
3. Let children openly explore the Butterfly Conservatory.
4. After 10-15 minutes, hand out butterfly journals and #2 pencils for students to sketch or jot notes.
5. Take photographs of butterflies to use for future discussion of the investigative question.
6. Upon returning to the classroom, let children share their responses to the investigative question, comments, new learning, and questions.
References for Images in Lesson Plans

Image: Coral Snake

Image: Clown Fish

Image: Lion Fish

Image: Tomato Plant Flowering

Image: Ripe Tomatoes
Online Resources for Learning about Monarchs
and Other Butterflies for Early Childhood

The Children’s Butterfly Site
http://www.kidsbutterfly.org/photos/geographic

This website offers colorful photographs of butterflies arranged by geographic region. This shows the diversity of species of butterflies and moths found in America. They use pictures and charts to compare and learn the differences between moths and butterflies. The butterfly life cycle is described in five different languages. There are also butterfly coloring pages which teach students about metamorphosis.

Journey North
http://www.learner.org/jnorth/KidsJourneyNorth.html

Journey North is a kid friendly website. It features videos about Monarch migration, the butterfly life cycle, and the people who live in Mexico around the preserve where Monarch’s spend their winter. There is a photo gallery of Monarchs in the Mexican Sanctuary. The pictures of thousands of butterflies are sure to inspire curiosity and wonder in the natural world. Journey North also features information about other creatures who migrate.

Journey North Sightings Map
http://www.learner.org/jnorth/maps/Gallery.html

Students can actively participate in scientific research about Monarch butterflies. Journey North has set up an impressive site which compiles Monarch sighting data from “citizen scientist” (everyday people who report their monarch sightings). Participants are from Canada, The United States, and Mexico. The result is a map which shows the progression of Monarch migration, by date. Colored dots correlate with specific time frames. This is a great way to weave science and math together by teaching students about data collection and visual data representation.
Journey North Symbolic Butterfly Project
http://www.learner.org/jnorth/tm/symbolic/how_participate.html

One of the most valuable links on the Journey North webpage is information on the Symbolic Butterfly project. This is a powerful opportunity for children and teachers across North America to connect. Class participants sign up for the project and create butterflies to send to a class in another region. In return they receive butterflies from another class. Classes can work together and share information while learning about other people in North America.

Kid World Citizen Arts
http://kidworldcitizen.org/2012/10/31/monarch-butterfly-art-for-kids/

In nature many insects have symmetrical features. This site offers a new twist on a butterfly making craft. This art project could follow a lesson about butterfly wings, the purpose of the black veins, and how symmetrical wings influence flight.

Monarch Butterfly Fund
http://www.monarchbutterflyfund.org/node/68

The Monarch Butterfly Fund was assembled to help conserve land for Monarchs. The organization plants thousands of milkweed seedlings each year to support Monarch habitat. Although the language of this website is geared towards older students, the concept of conservation and pictures of replanting milkweed lets young students see the effort being put forth to save butterfly habitat. Monarch Butterfly Fund also posts seasonal newsletters. Reading sections of these letters to young students lets them see how communities come together to discuss and create change.

Monarch Butterfly USA (in association with Monarch Magic)
http://www.monarchbutterflyusa.com/MBUSA.htm
Monarch Butterfly USA is connected to the book *Monarch Magic*, this colorful site features close up photographs, and read-aloud pieces ideal for Early Childhood. Under the exploration tab, “Hello World” there is a great introduction to the egg stage of Monarch development. Children can pretend they are in an egg and hatch as they are guided by the “Hello World” story. Another story titled “Bertha” about a butterfly rescued from a storm can help children develop a sense of empathy and responsibility for helping butterflies.

Monarch Lab from the University of Minnesota

The University of Minnesota provides lesson plans for classrooms which are raising Monarchs. There are collections of plans for student K-2, however some material may need to be modified for K. One lesson of particular interest that is appropriate for a math curriculum is figuring out how much a Monarch caterpillar eats in one day. Students trace the milkweed leaves on large graph paper and then place the leaves in the caterpillar’s container for a day. The next morning they trace the leaves again, counting the number of squares left. Solving this problem can support student’s understanding of the milkweed which is essential to Monarchs. They can discuss what happens when milkweed habitat is lost. This website includes lesson plans for students of all ages, up to high school.

Monarch Watch
http://www.monarchwatch.org/

Monarch Watch is an organization dedicated to research that supports preservation and conservation of butterfly grounds, and their wintering sites. Monarch Watch sells tagging kits. The kits are part of a project which allows participants to track the migration of Monarchs. Teachers can send away for the kit. Tags are small stickers which have an identification number and Monarch Watch contact information. Taggers gently catch Monarchs, attach the light tags (which do not effect the butterfly’s flight) to their wing. The butterfly is then released. When it reaches it’s overwintering location, participants in that region report the tag number found to Monarch Watch. The data is then shared so that taggers can see where their Monarchs traveled. Even children can participate in tagging
with teacher assistance. Tagging Monarchs could be a fascinating and engaging hands-on project for students, that gets them actively involved with Monarch research and excited about gathering data.

**Online Video Clips about Monarchs and Butterflies for Early Childhood**

**Discovery Channel**


This clip from the discovery channel talks about some of the birds who eat Monarchs (such as Oriels). It discusses the importance of Monarchs clustering together to stay warm. Monarchs who fall on the forest floor may freeze to death. The images of Monarch groves are quite magical.

**Monarch Watch Mexico Overwintering Site**

http://www.youtube.com/watch?v=x0m_rK_WpjQ

This video released by Monarch Watch shows the thousands and hundred thousands of Monarch butterflies that swarm to the grove in Mexico. Only the sound of the butterfly wings are heard throughout the entire video. I found this video inspirational.

**Time for Kids**


Time Magazine Kids offers an article on Monarch butterflies which relays basic information and threats to Monarch migration. The video clips are a highlight. Videos such as “Mighty Monarchs: Migration” feature a scientist who shares with kids why butterflies migrate to Mexico when the seasons change, and interestingly, why they can survive in cold but not freezing places.
Monarch Life Cycle Time Lapse
http://www.youtube.com/watch?v=7AUeM8MbaIk

This time lapse video shows the entire Monarch life cycle in a few minutes. It begins with a butterfly laying an egg on a Milkweed plant. Classical music accompanies the images. In the video, students can really see the intricate details of the Monarch at each stage of development.

Butterfly Drinking Nectar
http://www.youtube.com/watch?v=qgeWRrbHi2E

This video clip shows a butterfly eating. It highlights what a proboscis is and how it works. Students can watch the small proboscis unroll and drink like a straw from the yellow flower.

Part 1 http://www.youtube.com/watch?v=lWjNZvW0AkE

This short online film clip is about Monarch migration from Missouri to Mexico. A fifth grade class is studying Monarchs. They catch butterflies and tag them using Monarch Watch tags to see if their tags show up weeks later in Mexico. This video can be paused and discussed since it seems to be designed for a fifth grade audience. However, Early Childhood aged children will probably enjoy seeing older students studying the same subject as they. Pure enthusiasm for learning about butterflies radiates from the 5th grade students.

Part 2 http://www.youtube.com/watch?v=oPKISz2ktuo&NR=1&feature=endscreen

The second installment shows young children getting ready for the migrating Monarch’s arrival. The video then returns to the fifth grade students. It follows the Monarchs to a classroom in Mexico where they talk about the similarities between schools in Missouri and Mexico. The video discusses Journey North’s Symbolic butterflies. Symbolic butterflies, are
hand drawn or collaged butterflies designed by students which are exchanged with students from a school in another region. The schools sending and exchanging of butterflies symbolically represents the Monarch’s journey. The video creates a feeling of unity and connection in studying Monarchs. It ends with cool clips of the Monarchs flying into the Mexican fir tree forests.
Books about Monarchs and Other Butterflies for Early Childhood

Monarch Butterflies Up Close by Carmen Bredeson

*Monarch Butterflies Up Close*, is a book which discusses each stage of Monarch development. Interesting “zoom-ins” on each page shows parts of butterflies as seen under a microscope. The close-ups help the reader understand how butterflies are capable of such feats as clinging onto tree branches.

The Butterfly Alphabet Book by Brian Cassie and Jerry Pallotta

This book alphabetically introduces various species of butterflies. Each page has fun facts about the butterfly it describes. Children will learn about the largest butterfly in the world, the Queen Alexandra Birdwing, with an actual size picture and the smallest butterfly, the Western Pygmy Blue.

Waiting for Wings by Lois Ehlert

Waiting for wings is a playful lift the flaps story, which follows the life cycle of various kinds of butterflies. The text has a rhythmic, rhyming quality to it. It is simply worded with no more than a single sentence on each page. Vibrant collage style illustrations invoke a sense of wonder. Butterflies and flowers are composed of small cutout shapes which, when put together make a beautiful garden. This book is a perfect inspiration for butterfly shape art. At the end of the story there is additional information about butterflies, different kinds of butterflies, their parts, kinds of flowers that butterflies feed on, and advice for growing a butterfly garden.

From Caterpillar to Butterfly by Deborah Heiligman

One day the teacher has a surprise, she comes to class with a caterpillar in a jar. The excited children carefully observe the caterpillar and it's changes. Students watch as the Painted Lady caterpillar grows each day, sheds, and turns into a chrysalis. When the chrysalis
becomes a butterfly, they release it outside their window. The children in the classroom show enthusiasm while learning about Monarchs which then inspires the reader’s enthusiasm.

_Butterflies_ by Victoria Howard

This non-fiction book answers a few simple questions: What are butterflies? How do they look? and What do they do? Featuring photographs of various butterflies on each page, Howard shows each fact. Howard explains, that butterflies are pollinators. When feeding on nectar pollen sticks to their legs and comes off on other flowers.

_The Migration of a Butterfly_ by Tanya Kant

This book begins with an introduction to the parts of the butterfly. It dives right into migration and discusses some of the reasons Monarchs migrate. Picture captions reveal greater detail about the Monarch migration. Illustrations are colorful tear paper collage on a bold blue background. This non-fiction book also discusses the butterfly life cycle and how long Monarchs can live.

_Starting Life Butterfly_ by Claire Llewellyn

_Starting Life Butterfly_, is organized chronologically starting with the egg phase. In each stage there is growth, denoted with bright tabs. The book provides a timeline of the Monarch’s development. It features additional facts in small print and eye catching detailed illustrations. Mendez’s visuals feature Monarch habitat and insects that Monarch’s encounter such as the Assassin bug and Tachinid fly, which feed on Monarch caterpillars.

_Monarch! Come Play With Me_ by Ba Rea

This is a story about a little girl who invites a Monarch caterpillar to play with her. The caterpillar answers, “what is play?” and so begins their story together. The girls observes and makes connections between her own growth and the caterpillars. Once metamorphosis
takes place she happily watches the Monarch fly free. The book is illustrated with watercolor paintings and close-ups of the girl and the butterfly.

*Becoming Butterflies* by Anne Rockwell

When Miss Dana brings a box and a plant to the classroom, the children are curious about what's inside. Soon they learn that butterflies don’t have baby butterflies, they lay eggs. Thus their exploration of the butterfly life cycle begins. Collage and soft watercolor illustrations engage the viewer and feature children studying butterflies. The children watch closely as the caterpillars turn into chrysalises. Once they become butterflies the class releases them. Miss Dana tells the children that the butterflies “can only live where the weather is warm” and that they migrate to Mexico (however, this statement isn’t entirely true because butterflies can survive cold, just not freezing temperatures). The class writes a letter to a school in Chincua, Mexico and later in the year gets back a photograph of butterflies gathered on a tree in Mexico. This book offers a great way to introduce Journey South and Monarch Watch's Symbolic Migration and Butterfly Tracking project into the curriculum. It can also be used as the introduction to a social studies exploration of Mexican culture.

*Monarch Magic* by Lynn Rosenblatt

Rosenblatt’s Monarch Magic, is a great classroom resource for teachers. Much like it's website, the book offers ideas for in-class activities, butterfly garden projects, and images that help students identify Monarchs and the mimicking Viceroy butterfly. Quality dramatic play experiences are essential to learning. Children can create some of the butterfly crafts noted in this book (such as butterfly puppets) and then have them available during choice time. In addition, this book features information about the ever important Milkweed plant. Excerpts from this book could be read to the class to inspire scientific discussion about why protecting Milkweed plants also protects butterflies.
**Fly Monarch Fly** by Nancy Wallace

This book follows a family of rabbits and their visit to Butterfly Place, a learning museum. The story follows the sequential stages of the butterfly life cycle. The story begins with the exploration of Monarch eggs in the garden, observation of Monarch caterpillars, chrysalis or pupa, and finally the butterfly. Crisp recycled paper collage cut outs illustrate the story. Throughout the book the children participate in activities that are designed to teach them about the butterfly life cycle and anatomy. For example, the children get play with party blowers to help them understand how the proboscis unrolls to reach nectar in a flower. These kinds of activities are adaptable for the classroom. The story uses relatable learning experiences. At the end of the book are butterfly craft projects and a resource list. This book would be great to read to a class prior to a museum visit as it helps children generate questions about butterflies as well as anticipate the kinds of things they might see.

**Monarch Butterflies** by Laura Waxman

This early reader book begins with a monarch flying over a butterfly bush. The Monarch and it’s characteristics are introduced to the reader. Monarch migration in response to seasonal change is explained in simplified terms. In the spring time, the butterflies begin to lay eggs on milkweed plants. Then the reader is taken through the butterfly life cycle.
Manhattan Monarch
by Melinda Chan

An Original Children's Book
Writing and Photographs by Melinda Chan,
with the exception of referenced digital images.

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Manhattan Monarch
by Melinda Chan
For every child's innate sense of curiosity about the natural world and their right to experience the outdoors.

For my Mom, Dad, and amazing family who taught me about the magic and wonder of nature.

A Special Thank You...

To my Independent Studies mentor Marian Howard, Scientist Bill Calvert, All of My Inspirational Teachers at Bank Street, and Fellow Monarch Photographers.
The sun rises and warms the streets of New York. Light shines through the tall skyscrapers. It is late August. The first day of fall will come soon. The city sounds fill the air. You can hear people talking and laughing as they stroll down the sidewalk. Taxi horns honk. Buses roll by, they stop and open their doors with a *swish*!
What's that in the sky!?

It's flying to you!

It's an orange, black, and white butterfly known as a **Monarch**.
Let's follow it!
The Monarch butterfly is flying toward the green of Central Park, a place in the center of the city for all to enjoy nature. There are secret gardens, playgrounds, lakes, rowboats, and lawns for picnics and playing ball.
In the park, the Monarch butterfly glides over Belvedere Castle and the Delacorte Theater where actors perform shows by Shakespeare.
Turtles sunbathing on a log poke their heads out of their shell to see the Monarch soaring above.
A family of Malard ducks talk, "quack, quack, quack" about the Monarch who playfully dips and dives in flight.
A pair of swans swim by. They sail through the pond as the Monarch swoops. They notice that the Monarch shares their colors.
The Monarch flies, she sees flowers and lands delicately on them. Her antenna pick up the scent of nectar. Surprisingly, it is her feet that do the tasting. They tell her that the flower tastes sweet, so she unrolls her long straw like proboscis to sip the nectar.
In the park there are all different kinds of insects. Butterflies are insects too.
They feast on a rainbow buffet of flowers.
The Monarch is sunset orange, lined with royal black, and dotted with paper white. What's magical about Monarch butterflies is that they see colors and patterns invisible to people. They can see ultra violet light from the sun. Just imagine... a world of rainbows filled with new colors.
There are many butterflies in New York City that are pollinators. They help make new plants by carrying powdery pollen from one flower to another.

Can you tell which one is our Manhattan Monarch?
Monarchs go through complete metamorphosis. They change throughout their life. Each stage of the Monarch's life looks completely different.
1. Egg
2. Caterpillar
3. Chrysalis
4. Butterfly
Monarchs begin life as an egg on the leaf of a **Milkweed plant**. A Milkweed plant is the only kind of plant a Monarch mother will lay an egg on. The egg shell is hard to protect the caterpillar inside. When it hatches, the very tiny caterpillar eats its way out.
The **caterpillar** is hungry! It eats the leaves of the Milkweed. There is a special **toxin** inside the leaves of the Milkweed. The toxin doesn't harm the caterpillar, but it makes the caterpillar taste bad. As the caterpillar munches on Milkweed, it grows bigger and bigger. Yellow, white, and black stripes appear! The Monarch's pattern is a warning sign that tells animals, like birds, who may want to eat it, "look out I'm toxic!"
After 10-14 days the caterpillar stops eating. It hangs upside down and forms a green **chrysalis** with dots of gold. It remains in the chrysalis stage while it's body changes. Then...
The Monarch butterfly emerges!
Autumn is coming to New York. The fluffy seeds of the Milkweed plant will soon be blowing through the air. The leaves on the trees will begin to change colors. Flowers will wilt. When winter comes with snow and ice it will be too cold for the Monarch to fly.
She must leave New York and migrate to Mexico. All winter she will stay in the fir tree forests of Mexico gathered with many other Monarch butterflies. To get to Mexico will be quite an adventure! She will need to fly hundreds of miles and travel through many states.
Here is what her migration journey will look like...
The Monarch flutters to Riverside park. After drinking her fill of nectar she is ready to begin her journey to Mexico. She gets ready for take off... 1, 2, 3, FLY!
The soccer players in the field look so small from way up high.
Up, up, up, over the tall buildings, the garden, the trees, up, up, up, reflected in the river.
Past the bridge and over the Hudson river she flies. Soon she has reached New Jersey.
After five days she arrives in Virginia. She gathers with other Monarchs on purple Daisies.
In the calm of night she *roosts*, resting as the sounds of chirping crickets and croaking frogs fill the air.
At dawn's first light she is off again. She travels for many days riding on the wind and sometimes fluttering her wings, soaring over North Carolina, Tennessee, and Mississippi.
By early October she crosses over Louisiana and then Texas where she arrives to a lovely royal purple Butterfly Bush.
As the Monarch enters Mexico, a gentle rain begins to fall. She hurries under the leaves of a violet bush with other Monarchs, to protect their delicate wings from the rain. Monarchs fold their wings as the drops fall, "plink, plink, plink."
As the rain stops, she can sense the finish line, the Mexican fir tree forest, is near. The Monarchs flutter their wings and dance with joy. As the sunsets, brushes of orange and red float through the sky.
The very next afternoon the Monarchs arrive at the Mexican fir tree forest.
We have followed our Manhattan Monarch all the way to Mexico. What an amazing journey!
The gathering is magnificent. A wave of butterflies cover the fir trees. They flap their wings open, close, open, close. Thousands upon thousands of butterflies cluster together to stay safe and warm.
On a green evergreen branch the Manhattan Monarch settles. She will rest for the winter... to awaken in the spring!
Author's Note

In the spring, the Manhattan Monarch will awaken. She will begin the journey back north. She will find a mate and lay eggs on the only plant she can, the Milkweed plant. She can lay 400 to 500 eggs. The eggs will hatch into caterpillars. The caterpillars will eat the leaves of the Milkweed. They will form chrysalises and emerge as Monarch butterflies. These butterflies will be the first generation. The second and third generations will head north as well.

The fourth generation is special. They are the super generation. These Monarchs will live the longest and fly the farthest. The super generation will make the migration all the way to Mexico (just like our Manhattan Monarch). The Monarchs that return to Mexico next year will be the Manhattan Monarch's great-great grand children!
Monarch Anatomy

- Antenna
- Head
- Compound Eye
- Proboscis
- Thorax
- Legs
- Forewing
- Wing Veins
- Hindwing
- Abdomen
Butterfly - The butterfly is the final stage in the Monarch life cycle. A butterfly is an insect. It has a head, thorax, and abdomen. It has two antenna, four wings, and a proboscis, which it uses to drink nectar.

Caterpillar - A caterpillar is a butterfly larva. It is the second stage in the butterfly life cycle. It has a worm like body with sixteen legs. The first three pairs of legs are called true legs. True legs help the caterpillar hold leaves to eat. The next five pairs of legs are called prolegs. They have small hooks which help the caterpillar move and cling to plants. The Monarch caterpillar has a special pattern of white, yellow, and black. This pattern warns animals who may want to eat it that it is toxic and will taste bad.

Chrysalis - The chrysalis is the third stage in the butterfly life cycle. The Monarch's chrysalis is greenish in color with golden dots, it becomes clear as the butterfly gets ready to emerge. The chrysalis protects the Monarch while it's body changes from a caterpillar to a butterfly.

Complete Metamorphosis - In complete metamorphosis, Monarchs go through changes to become adult butterflies. Each stage of development looks completely different. The larva caterpillar stage for example, looks nothing like the butterfly stage. There are four stages of development: 1. Egg 2. Catpillar (larva) 3. Chrysalis (pupa) 4. Butterfly (adult).
| **Monarch Butterfly** - The Monarch is a butterfly which can be identified by its unique orange, white, and black symmetrical wing design. It completes a migration every year. |
| **Insect** - An insect has 6 legs and its body has three parts  1. head 2. thorax 3. abdomen. |
| **Nectar** - Nectar is the sweet liquid inside flowers. Butterflies drink nectar. Nectar is their food which gives them energy to fly and migrate. |
| **Pollen** - The powdery substance found inside a flower is called pollen. It is usually yellow in color. Pollen is different from nectar. When butterflies land on a flower to drink nectar, pollen from the flower sticks to their bodies. When they land on another flower the pollen falls off and new pollen sticks to them. This helps the flower make seeds. |
| **Pollinators** - Pollinators are insects or animals which help plants make new plants by carrying powdery pollen from one flower to another. Many butterflies like the Monarch, are pollinators. |
Egg - Monarch butterflies only lay their eggs on Milkweed plants. An egg is the first stage in the Monarch life cycle. A Monarch butterfly's egg is igloo shaped and about half the size of a grain of rice.

Migration - Migration is the movement of animals from one area to another. The Monarch butterfly migrates in response to seasonal changes. Monarchs living west of the Colorado Rocky Mountains migrate to California while Monarchs living east of the Rocky Mountains (like the Manhattan Monarch) go to Mexico.

Milkweed - Milkweed is named for the milky juices that flow through the plant. The Milkweed is essential to Monarchs because it is the only plant a Monarch mother will lay her eggs on. Monarch caterpillars need to eat Milkweed for protection. When Monarch caterpillars eat the leaves of a Milkweed, it makes them toxic to animals, like birds who want to eat them. There are different kinds of Milkweed plants with flowers that can be red, yellow, purple, or white. In New York, Milkweed plants open their seed pods in Autumn. When this happens, fluffy white seeds are carried by the wind.
Polythemus Moth - Moths and butterflies look similar but they have many different characteristics. Butterflies are diurnal (active in the day), while moths tend to be nocturnal (active at night). Another distinction is that moths have feather like antenna, while butterflies have club shaped antenna. Moths usually land with their wings closed while butterflies land with their wings open. Many moths are pollinators like butterflies.

Proboscis - A proboscis is a long straw like tongue that unrolls to allow the Monarch to drink nectar.

Roost - A place where Monarchs rest in groups is called a roost. Monarchs are active in the day. When Monarchs rest they don’t sleep the way people do. They don’t have eyelids so they can’t close their eyes. When Monarchs rest at night they are inactive.

Toxin - A substance which is poisonous and can be harmful is a toxin. Monarch caterpillars eat the leaves of the Milkweed which are toxic to other animals who want to eat it, but not to the caterpillar.

Ultraviolet Light - Light from the sun which is invisible to humans but visible to butterflies.