

GROWING WITH MONARCHS: LEARN, PLAY, EXPLORE

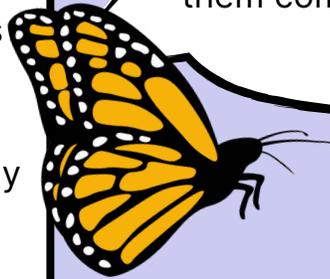
Background Materials and
Supplemental Activities
Life Cycle: Grown-up Guide



MONARCH
JOINT VENTURE

WELCOME!

The **Growing with Monarchs Grown-up Guide** is a companion resource designed to help you support learners as they complete their **Growing with Monarchs Activity Book**. This interactive workbook introduces you to the wonders of monarch butterflies and their habitats through fun, hands-on learning. With your guidance, learners will build skills in fine motor development, early literacy, observation, and nature exploration. After completing the activity book, they'll be a part of the Monarch Discovery Corps, ready to continue discovering and protecting these incredible insects!



Hi my name is Monny,
the monarch butterfly!
In the kid's activity book, I will help by
giving fun facts about my life as a
monarch and instructions to help
them complete the activities in the
book.

Included in this guide:

1. About the **Growing with Monarchs Activity Book for Kids: Why are Monarchs Important?**
2. Background Information and Biology of Monarchs
3. Tips and Tricks for Engaging with Kids Outdoors
4. Monarch Community Science Program
5. Supplemental Activities
 - a. Monarch Life Cycle Bracelet
 - b. Macaroni Monarchs
 - c. Monarch Life Cycle Wheel
 - d. Keeping a Nature Journal
 - e. Seed Balls
6. Book Lists (Butterfly and Nature Titles)



MONARCH
JOINT VENTURE

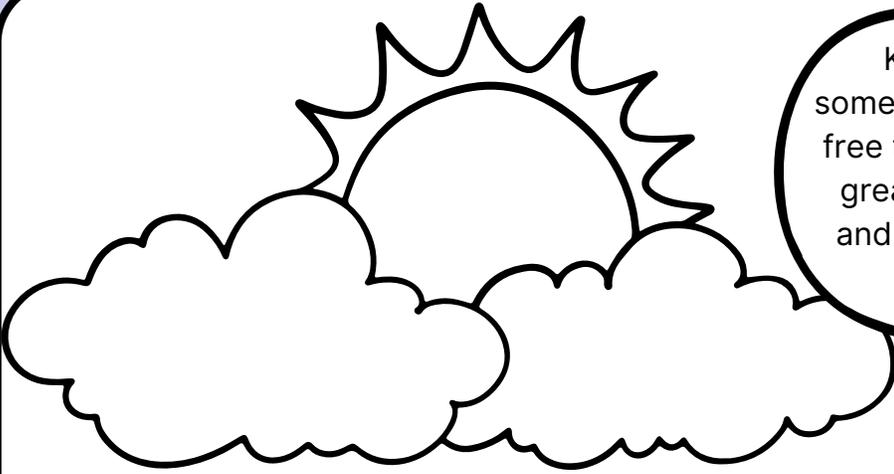
This activity book was created by the Monarch Joint Venture. For more information about monarchs and their habitat visit MonarchJointVenture.org

About the Growing with Monarchs Activity Book

The Growing with Monarchs Activity Book is focused on the understanding of the monarch butterfly life cycle. This activity book introduces self-guided activities that focus on skill building for learners. Monny, the monarch butterfly guide, can be found throughout the booklet with pointers and facts to help with learning. This is the first installment of a series that promotes the understanding of monarchs, other pollinators, and their habitats.

Why monarchs? While monarchs are intrinsically important, conserving monarchs matters for more than just their own protection. Creating habitat for monarchs is one of the most important actions we can take to help stabilize their decreasing population. The monarch butterfly, and insects in general, have experienced steep population declines throughout North America. From sprawling prairies to backyard gardens, habitat projects scattered across the landscape provide a network of crucial habitat for monarchs. Fortunately, the habitat that monarchs use provides benefits to other species, including humans!

Monarch butterflies provide a jumping off point to introduce children to insects and the outdoors! Using this workbook and providing tangible supplemental outdoor activities is a way for young children to be a part of monarch conservation!



Kids like coloring but sometimes adults do too! Feel free to color or doodle! It is a great way to relieve stress and relax your brain before getting started!



Monarch butterflies live all over the world and need beautiful flowers that provide their food, nectar, to survive. Monny, has a special life cycle she wants to share it with you!

Background on Monarch Lifecycle

All insects change as they grow; this process is called metamorphosis. There are two kinds of metamorphosis: incomplete (or simple) metamorphosis, and complete metamorphosis. An example of **incomplete metamorphosis** is found in grasshoppers or dragonflies. Typically this metamorphosis consists of 3 stages: egg, nymph, and adult. The nymph stage in incomplete metamorphosis looks like a mini adult. The wings develop externally, and there is no prolonged immobile (pupa) stage.

This is different for **complete metamorphosis**. Complete metamorphosis has 4 stages that each look very different from each other. Monarchs and other Lepidoptera (butterflies and moths) undergo complete metamorphosis, in which there are four distinct stages: **egg**, **larva** (caterpillar), **pupa** (chrysalis for butterflies, cocoon for moths), and **adult** (butterfly).

Monarchs develop from egg to adult in about a month. Most adult monarchs then live for an additional two to six weeks in the summer. The migrating generation of adult monarchs lives through the winter for about six to nine months.

If you are looking to learn even more, check out the Monarch NECTAR Hub. This online course collective offers several self-paced and live Zoom courses for all age learners.





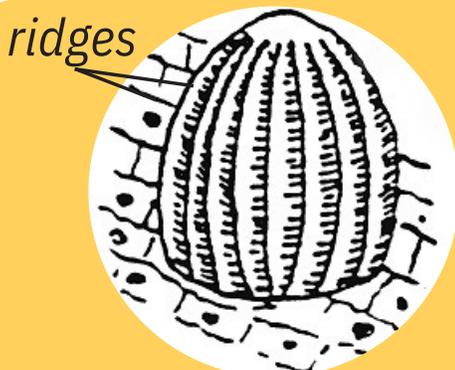
Life Cycle: Egg

The life of a monarch butterfly begins with an **egg**. Monarchs usually lay a single egg on a milkweed plant, often on the bottom of a leaf near the top of the plant, but they can be found anywhere, including the stem, the flowers, or seed pods. Monarch eggs hatch about 3-5 days after they are laid. Monarchs (and most other species) secrete a small amount of glue to attach the eggs directly to a suitable host plant. In the wild, female monarch butterflies can lay 300-500 eggs in their lifetime.

Each butterfly egg is surrounded by a hard outer shell called the chorion, which protects the developing larva. The shell is lined with a layer of wax, which helps keep the egg from drying out. An egg has tiny funnel-shaped openings at one end, called micropyles. The hard shell of the egg is formed prior to fertilization, so these holes provide an entrance for the sperm to penetrate the shell. The raised areas on an eggshell are called ridges. Butterfly eggs vary greatly in shape, but monarch eggs are easily distinguished by their creamy yellow coloring, longitudinal ridges, and tapered top.



*Guide to
Monarch
Instars*



A monarch egg.

*Scanning
electron
microscope
(SEM) image of a
monarch egg.*





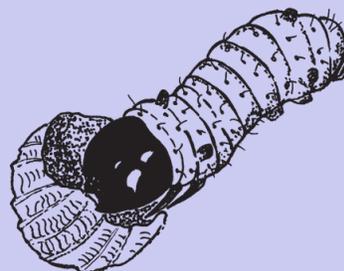
Life Cycle: Caterpillar or Larva

The word **larva** refers to the growth stage of all insects with complete metamorphosis. **Caterpillar** refers only to a butterfly or moth in this stage. Either word is correct, but most scientists say larva, or plural larvae. It is during this stage that butterflies and moths do most of their growing, which requires a lot of food. These insect “eating machines” take few breaks, even for resting. Monarchs and many other larvae begin life by eating their eggshell and then move on to eating their host plant.

When the caterpillar becomes too large for its larval cuticle (skin), it **molts**, or sheds its skin. The shed skin is often eaten before the caterpillar goes back to eating its host plant. The intervals between molts are called instars. Monarchs go through five instars.

The entire larval stage in monarchs lasts from ten to fourteen days under normal summer temperatures. It takes longer if temperatures are lower, which slows the monarch’s metabolism. Just before they pupate (form their chrysalis), monarch larvae crawl to a safe space and spin a silk mat from which they hang upside down in a “J” shape. The silk comes from the spinneret on the bottom of the head. After shedding its skin for the last time, the caterpillar pokes a stem-like appendage into the silk pad to hang. This stem extends from its rear end and is called the cremaster.

First instar larva just after hatching. Seen eating its eggshell.



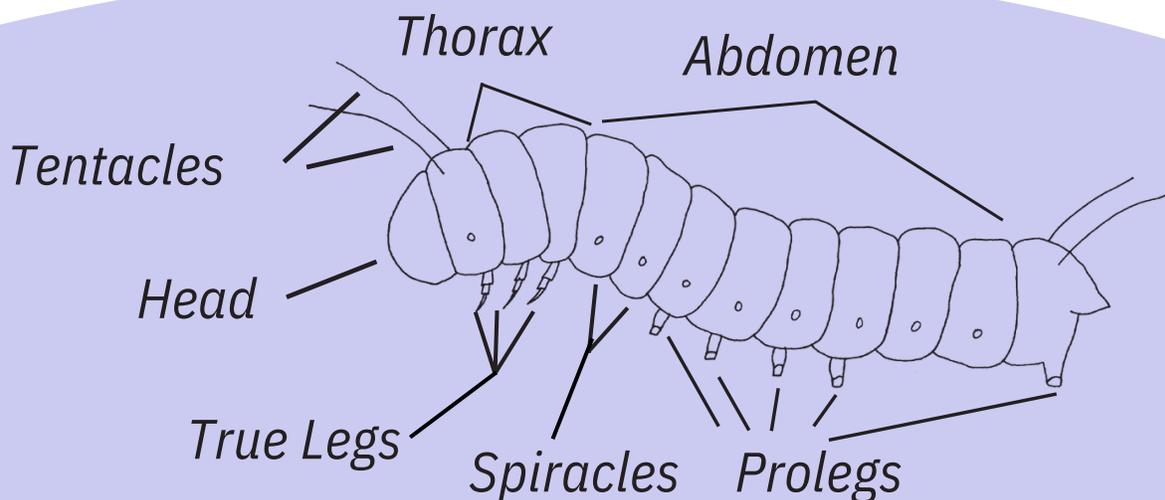


Life Cycle: Caterpillar or Larva

All insect larvae have three distinct body parts: **head**, thorax, and abdomen. The head of a monarch larva has a pair of short, almost invisible antennae (not to be confused with the fleshy black **tentacles**), mouthparts (mandibles), and six pairs of simple eyes, called ocelli. Even with all these eyes, the caterpillars have poor vision. The antennae help to guide the weak-eyed caterpillar, and the maxillary palps (sensory organs), help direct food into its jaws.

Each of the three segments of the thorax has a pair of jointed, or **true legs**, while some of the abdominal segments have false legs, or **prolegs**. Monarch caterpillars, like most butterfly or moth larvae, have five pairs of prolegs. The prolegs have tiny hooks on them that hold the larva onto its silk mat or leaf. The fleshy tentacles at the front and rear ends of monarch larvae are not antennae, but they do function as sensory organs.

Like other insects, monarchs breathe through holes in the sides of their thorax and abdomen called spiracles. The **spiracles** are connected to a network of long air tubes called tracheae, which carry oxygen throughout the body.





Life Cycle: Chrysalis or Pupa

The butterfly pupa is also called a **chrysalis**. While it is fine to refer to the previous stage as either larva or caterpillar, it is not correct to call a butterfly pupa a cocoon. A cocoon is a silken covering made by moths to protect the pupa inside. While pupae can exhibit sudden movements if they are disturbed, they are much less mobile than larvae or adults and rely more heavily on camouflage to avoid predation. For most of the pupa stage, a monarch chrysalis is jade-green in color. Just before the monarchs emerge, or eclose, their black, orange, and white wing patterns are visible through the transparent pupal casing or skin. The scale pigmentation only develops at the very end of the 10 to 14-day pupa stage.

While the process of complete metamorphosis looks like four very distinct stages, continuous changes do occur within the larva before pupation. The wings and other adult organs develop from tiny clusters of cells already present in the larva, and by the time the larva pupates, the major changes to the adult form have already begun. These changes are controlled by hormones secreted by glands in the monarch's head and thorax. Several environmental stimuli affect the production of these hormones in monarchs, including seasonal changes in daylength, sun angle, temperature, and the age of milkweed that the larvae eat.

Prior to forming the chrysalis the caterpillar will enter a prepupal "J" stage. When ready, it will shed its skin on last time and the chrysalis will be underneath.



After the caterpillar molts, the chrysalis will appear wrinkled before it hardens and becomes the iconic jade green pupa of the monarch.



Life Cycle: Butterfly or Adult

When monarchs emerge from the **pupa**, or eclose, they immediately hang their crumpled, moist wings downward to expand and dry. It usually takes several hours until adults are ready to fly. When a butterfly first ecloses, its abdomen is plump and full of fluid. It pumps this fluid out of its abdomen into its wings, to help them expand to their full size.

Male and female monarchs can be distinguished in a number of ways. Males have a black spot on a vein on each hind wing that is not present on the female. Females often look darker than males and have wider veins on their wings. While no growth occurs in adults, monarchs still need nourishment to maintain their body and fuel flight. Nectar from flowers, which is about 20% sugar, provides most of their adult nourishment. Adult monarchs are not picky eaters and visit many different nectar flowers.

Monarchs possess warning or aposematic coloration. Many poisonous or distasteful organisms are brightly colored, usually with some combination of red, orange, yellow, and white. Predators learn to associate these colors with animals that they should avoid eating.





Life Cycle: Butterfly or Adult

The primary job of the adult **butterfly** is to reproduce by mating and laying the eggs that will become the next generation. Monarchs can begin mating when they are several days old. When they mate, the pair can remain joined for up to 16 hours. Females begin laying eggs immediately after their first mating, and both sexes can mate several times during their lives. Summer generation adults live for two to six weeks. Each year there are 4-5 generations, with the final generation being the fall migratory generation.

Female monarchs must lay their eggs on milkweed plants. Monarch caterpillars are milkweed specialists, meaning that the caterpillars will only eat milkweed. This makes milkweed the only host plant for monarchs. Various species of milkweed are host plants for the larvae of monarchs and other milkweed butterflies including queens and soldiers. When larvae ingest milkweed, they also ingest the plant's toxins, called cardiac glycosides. They sequester these compounds in their exoskeletons, making the larvae, pupae, and adults toxic to many potential predators. There are over 100 species of native milkweed, in the genus *Asclepias*, throughout North America.



Monarch and
Milkweed
Misconceptions





Life Cycle: Habitats

Intrinsically linked to a butterfly's life cycle is the habitat in which they live! A good habitat requires food, water, shelter, and space. For a monarch this often takes form in a variety of nectar flowers, milkweed, trees and shrubs, and shallow water sources. A pollinator garden is a simple way to contribute to monarch conservation and is a wonderful teaching tool. A garden can increase access to nature and learning opportunities. It provides opportunities to explore different behaviors of a myriad of pollinators. With a pair of binoculars, a good field guide, a variety of flowers in bloom, and a sunny, calm day, you can sit outside and, with practice, identify many different butterfly species.

To get the most out of your garden, be sure to include both larval host plants and nectar plants. The host plants will encourage butterflies to linger and explore possible sites to lay eggs. It will also increase your chances of observing both mating and egg laying, as well as the complete butterfly life cycle from egg to adult. Finally, a variety of plants is good for many pollinators, supporting diverse and thriving ecosystems.

Other animals will benefit from these spaces as well. Flowering plants produce a lot of seeds which will be enjoyed by songbirds in the fall and winter.

A pollinator garden can be any size, from a window box to a raised bed, a container garden to a portion of your landscaped lawn, or a wild untended area.



Pollination and Pollinators

Pollination occurs when a grain of pollen moves from the anther or male part of the flower to the stigma or the female part of the flower. Flowering plants require pollination in order to reproduce and grow. Not only is pollination a vital part our ecosystem, it is also critical to food production!

Animal pollinators can include bees, butterflies, birds, bats, beetles, wasps, flies, moths, and small mammals. These animals are visiting flowers drinking nectar or feeding on pollen. When eating and travelling, they transport the pollen grains from flower to flower. Other forms of pollination can include self-pollination, wind pollination, and water pollination.

We need pollinators because they help make many of the foods we eat, like apples, berries, and pumpkins! Not only that, but they can account for up to 1 out of every 3 bites of food we eat. In fact, pollinators provide this service to over 180,000 different plant species!

Pollinators also need our help. Their populations are in decline, primarily due to loss of habitat and food resources. They also are susceptible to pollution and pesticide use, disease, and changes in climate. It is crucial that we take steps to help add habitat, reduce our pesticide use, and make efforts to reduce our carbon footprint to support both the pollinators and the plant species that rely on them!

Tips for Outdoor Teaching

Why Outdoors?

The benefits of teaching and learning outdoors is well documented, and the body of research is still growing. Organizations like the Children & Nature Network and the North American Association for Environmental Education have extensive and easily searchable research libraries, but here are some starting points for the benefits of outdoor instruction:

Academic Outcomes (summarized from Children & Nature Network paper):

- Learning outdoors and in natural environments can boost performance in reading, writing, math, science, and social studies and improve creativity, critical thinking, and problem solving.
- Just spending time outdoors can increase students' focus and attention and reduce symptoms of ADHD. Even just seeing nature from inside can help.
- The opportunities to regularly explore and discover outdoors can increase enthusiasm and engagement in learning.
- Behavior has also been shown to improve with nature-based learning, leading to more impulse control and less disruptive behavior.

Health and Wellness Outcomes:

- Outdoor learning can help to improve relational skills between students and reduce anger and aggression.
- Outdoor play opportunities increase physical activity and reduce the risk of obesity.
- Children (and adults!) are better able to cope with stress when exposed to green spaces.
- Spending time in bright, natural light (sunlight) can reduce nearsightedness and increases vitamin D levels.

Taking kids outside to learn—whether it's your own children or a classroom of students—can feel unfamiliar at first. Managing learning outdoors is much different than managing it indoors, and the first few outings may feel a little chaotic, especially if outdoor learning is new. However, the more time kids spend outside, the more it becomes a natural part of their routine. It will still be exciting, but with practice, it becomes less overwhelming. Like any new experience, outdoor learning takes time and practice to feel comfortable. Here are some helpful tips to make your time outdoors more successful and enjoyable.

Learn more here: <https://www.childrenandnature.org/schools/learning-outside/>

Tips for Outdoor Teaching

Before Heading Outside:

- Establish a routine for outdoor learning to help kids know what to expect.
- Set clear expectations and communicate them beforehand to create a smooth experience.
- Scout the area in advance, even if it's familiar—outdoor spaces can change with the seasons.
- If possible, enlist help from volunteers, parents, or other staff members.
- Check to see if your school has a protocol for being outside with your students and make sure your school admin and leadership know your plans.

Once You're Outside:

- Establish clear boundaries so kids know where they can and can't go.
- Use a consistent recall signal, like a code word or sound, and teach kids how to respond (e.g., circle up or line up).
- When speaking to the group, position yourself with the sun in your eyes—not theirs—to minimize distractions.
- Keep kids engaged on longer walks by planning stops, rotating line leaders, or incorporating scavenger hunts.
- Protect your voice by projecting from your diaphragm rather than yelling from your throat.

Additional tips and tricks:

- It is more than okay to not know everything! This is a good opportunity to model curiosity. Take pictures if you can and look things up when you get back. There is no need to provide all the answers – and it is more fun for the kids if they can figure them out on their own.
- Related to the above – take advantage of teachable moments! Someone may observe something that has nothing to do with your topic for the day. Dismissing it can discourage their drive to be curious but taking a minute or two to observe it as a group won't diminish the lesson you are trying to teach.
- A bag or backpack with outdoor teaching supplies can be a handy tool. Include a first aid kit, extra pencils and tools, containers to collect specimens, hand sanitizer or wet wipes, extra outdoor gear like mittens and hats and scarves, and a water bottle.
- Some sort of mat for sitting or kneeling on can help younger students find focus and help keep clothes clean if that's a concern.
- Kids may feel nervous about outdoor learning too! Talk with them beforehand about what to expect. Listen to their concerns and reassure them by addressing any fears you can.

Which Monarch Community Science Program is Right for You?

Community science is a great way to get involved with monarch conservation. It is an even better way to get kids involved in science and research. Several community science programs focus on different aspects of monarch biology, including migration, population dispersal, parasitism, and overwintering. ***Handling of monarchs not allowed in CA without permit*



Community Science Opportunities



Milkweed



Eggs, larvae, and pupae



Adults

What interests you?	What time can you spend?	Where are you?	When can you participate?	What would you like to do?	Check out this program!*
	30 min +		At least once during fall migration	Safely handle and tag wild or reared adult monarchs**	 Education • Conservation • Research 
	30 min +		At least once annually	Sample scales from wild or reared adult monarchs**	 PROJECT MONARCH HEALTH
	30 min to 1 hour		Weekly when monarchs are breeding	Identify milkweed <u>and</u> immature monarchs	Monarch Larva Monitoring Project 
	15 min +		At least one in spring, summer, or fall	Identify milkweed or any monarch stage	 Journey North Tracking migrations and seasons 
	15 min +		At least one in spring, summer, or fall	Identify and count milkweed or any monarch stage	 WESTERN MONARCH MILKWEED MAPPER

Which Monarch Community Science Program is Right for You?



Monarch Watch:

Provides information on timing and pace of the migration and origins of monarchs and success in reaching Mexico. Coded tags are placed on the hind wings of wild or reared monarchs in the eastern U.S. Tagging kits, available online, include instructions with data sheet. **Training:** Online. **Data submission:** Online or mail. monarchwatch.org This is a program from the University of Kansas.



Southwest Monarch Study:

Tracks migrating and breeding patterns of monarchs in AZ, CA, NV, NM, UT, and western CO by tagging monarchs during fall migration and winter. Order small, lightweight stickers with unique identifying numbers and place them carefully on wings of wild or reared monarchs. **Training:** In person or online. **Data submission:** Email or mobile iOS app (iPhone, iPad, etc.). swmonarchs.org/request-tags.php



Project Monarch Health:

Tracks the spread of *Ophryocystis elektroscirrha* (OE), a monarch butterfly parasite. Request a free sampling kit from the program, follow instructions to submit the samples, and receive a copy of the results. **Training:** Online. **Data submission:** Mail paper datasheets. monarchparasites.org This is a program from the University of Georgia.

Monarch Larva
Monitoring
Project



Monarch Larva Monitoring Project:

Studies factors affecting monarchs during the breeding season to learn how populations vary in time and space. Inspect milkweed plants for monarch eggs and larvae up to weekly. Conduct other activities, such as rainfall tracking, as time and interest allow. **Training:** Online and in person. **Data submission:** Enter paper datasheets online. mlmp.org This is a joint program from the University of Wisconsin Madison- Arboretum and the Monarch Joint Venture.



Journey North:

Tracks migration and life cycle events of monarchs across North America. In spring, report sightings of first arrival, first egg and larva, and first milkweed emergence. During summer, report monarch egg, larva, and milkweed presence. Beginning mid-August, report fall monarch migration and location of fall roosts.

Training: Online. **Data submission:** Online. journeynorth.org This is a program of the University of Wisconsin-Madison Arboretum.



WESTERN MONARCH
MILKWEED MAPPER

Western Monarch Milkweed Mapper:

Tracks the distribution and phenology of monarchs and milkweeds in the western US. Upload photos of monarchs and milkweeds. **Training:** Online. **Data submission:** Online or mobile app. monarchmilkweedmapper.org This is a partnership among The Xerces Society, Idaho Dept. of Fish and Game, Washington Dept. of Fish and Wildlife, National Fish and Wildlife Foundation, and US Fish and Wildlife Service.

Monarch Life Cycle Bracelet

From Neal Smith National Wildlife Refuge

Materials:

- Pipe Cleaners (8-12 inches long)
- Beads
 - Egg: Cream-colored faceted rounds (or barrel)
 - Head: Black barrel
 - Body: White and yellow barrel
 - Chrysalis: Green spaghetti or tube (three green barrels also work)
 - Monarch: Orange butterfly
- Scissors



Instructions

1. Have children start by selecting a pipe cleaner. Any color may be used.
2. **Egg:** Place one egg bead on the pipe cleaner several inches from end. It doesn't matter which side of the pipe cleaner you start from, just use the same side for all the beads. Tell the children that the egg will hatch in 3-5 days. The egg is laid on a leaf by the mother butterfly. It is very small and hidden to keep it safe from being eaten by another animal.
2. **Caterpillar:** Ask the children what our egg hatches into. A caterpillar! The caterpillar has sixteen legs (six true legs) and two antennae on its head, which it uses to smell and touch things. We'll start with his head by adding one black bead. What color is our caterpillar's body? Yellow and white! This color helps warn predators not to eat the caterpillar! Add one white and one yellow bead for the body. The order does not matter. Now that our caterpillar is complete, ask the children what it should eat to grow bigger. Milkweed! Tell the children that monarch caterpillars must eat milkweed for about two weeks.
3. **Chrysalis:** When a caterpillar is done eating and growing, it attaches itself to a leaf or branch and sheds its caterpillar skin, forming the chrysalis. Inside the chrysalis, its body is changing and it is getting ready to become an adult, the last stage of its life cycle. Add the green bead to represent the chrysalis. Ask the children what our caterpillar is doing in the chrysalis. Preparing to become a butterfly!
4. **Butterfly:** After eight to fifteen days, our caterpillar has undergone metamorphosis—it has changed into a butterfly! When it is ready, the butterfly breaks out of its chrysalis, waits for its wings to harden, and flies away. Add an orange butterfly bead.
5. Finally, size the bracelet to the child's wrist. Twist two or three times to close, and trim excess. Bend pointy ends away from skin. Ask them to show off their bracelet and share the monarch life cycle with someone they know.

Macaroni Monarchs

This life cycle assembly project helps students create and illustrate their understanding of monarch life cycle.

Materials:

- 1 paper plate per student
- 1 lb each rotini, ancini de pepe (cous cous or other tiny round pasta), large shell, and bowtie pasta
- green, red, and yellow food coloring
- 2 bottles rubbing alcohol or white/cider vinegar
- green markers
- green construction paper
- 1 each per student- black and white pipe cleaners, cut into 1 inch pieces (slightly longer than the rotini pasta)
- glue



Prep Work:

1. At least one day prior to the project, soak the bowtie pasta in red/yellow food coloring mixed with vinegar or rubbing alcohol to make it orange. Do the same for the shell pasta with green food coloring and vinegar or rubbing alcohol. Green shell = pupa, orange bowtie = adult, small round noodle = egg, rotini wrapped in black and white pipe cleaners = caterpillar
2. Soak several hours until pasta is desired shade. Drain, and spread to dry on a surface covered in wax paper, or towels you don't care about getting stained. Remember to protect the surface underneath because food coloring can stain!

Instructions:

1. On a paper plate, draw a milkweed plant and label it.
2. Cut out a ~2-inch leaf from green construction paper, glue it onto the plant.
3. Life Cycle Pieces: Give each student one of each type of pasta and pipe cleaners. Discuss which stage of the monarch life cycle each represents.
4. Egg Stage: Glue the "egg" pasta onto the milkweed leaf and label it.
5. Larva Stage: Use pipe cleaners to make the larva pasta look realistic. Glue it onto the plant where a caterpillar might be found, label it, and draw an arrow from the egg to the larva.
6. Pupa Stage: Glue the pupa pasta onto a spot where a chrysalis might be (off the plant if desired). Label it and draw an arrow from the larva to the pupa. Discuss why larvae leave milkweed to pupate.
7. Adult Stage: Glue the adult butterfly somewhere on the plate, label it, and draw an arrow from the pupa to the adult.

Monarch Life Cycle Wheel

The **Growing with Monarchs Activity Book for Kids** focuses on the life cycle of the monarch butterfly. This activity will help children see the life cycle in order and practice using ordinal language in association with the sequence of the butterfly life cycle. English language key terms include: first, next, and finally. Science vocabulary includes: egg, caterpillar (or larva), chrysalis (or pupa), and butterfly (or adult). Note that if you are using another type of insect, the general science terms used for all insects are egg, larva, pupa, and adult.

Materials:

- Cardstock paper (8.5" x 11")
- One copy per student of both wheel patterns on cardstock
- One copy per student of either of the small life cycle drawings on cardstock
- Scissors
- Glue
- Brass fasteners (one per wheel)
- Crayons, markers, or colored pencils
- Optional: Book *Monarch Come Play With Me* by Ba Rea

Instructions:

1. **Print one of each of the following pages per student.** Ask students: How do living things change as they grow up? Do all animals come from babies like humans? What does a baby butterfly look like?
2. Review the life cycle using page 4 in the student workbook. Be sure to emphasize the language that is associated with life cycle events. First we observe the egg...Next, the caterpillar emerges from the egg...Then the caterpillar turns into a chrysalis...Finally, the adult butterfly emerges.
3. Students can color then cut images of the life cycle and words out along the dotted lines, or draw their own.
4. Glue down the images onto the associated sections of the wheel and let dry.
5. Have an adult cut a slit in center of the cover titled "The Monarch Life Cycle" and the center of the circle showing the life cycle. The adult can help place the center brass fastener through both sheets so that the cover freely moves around the circle.
6. Have students describe each phase to a partner using the key vocabulary.

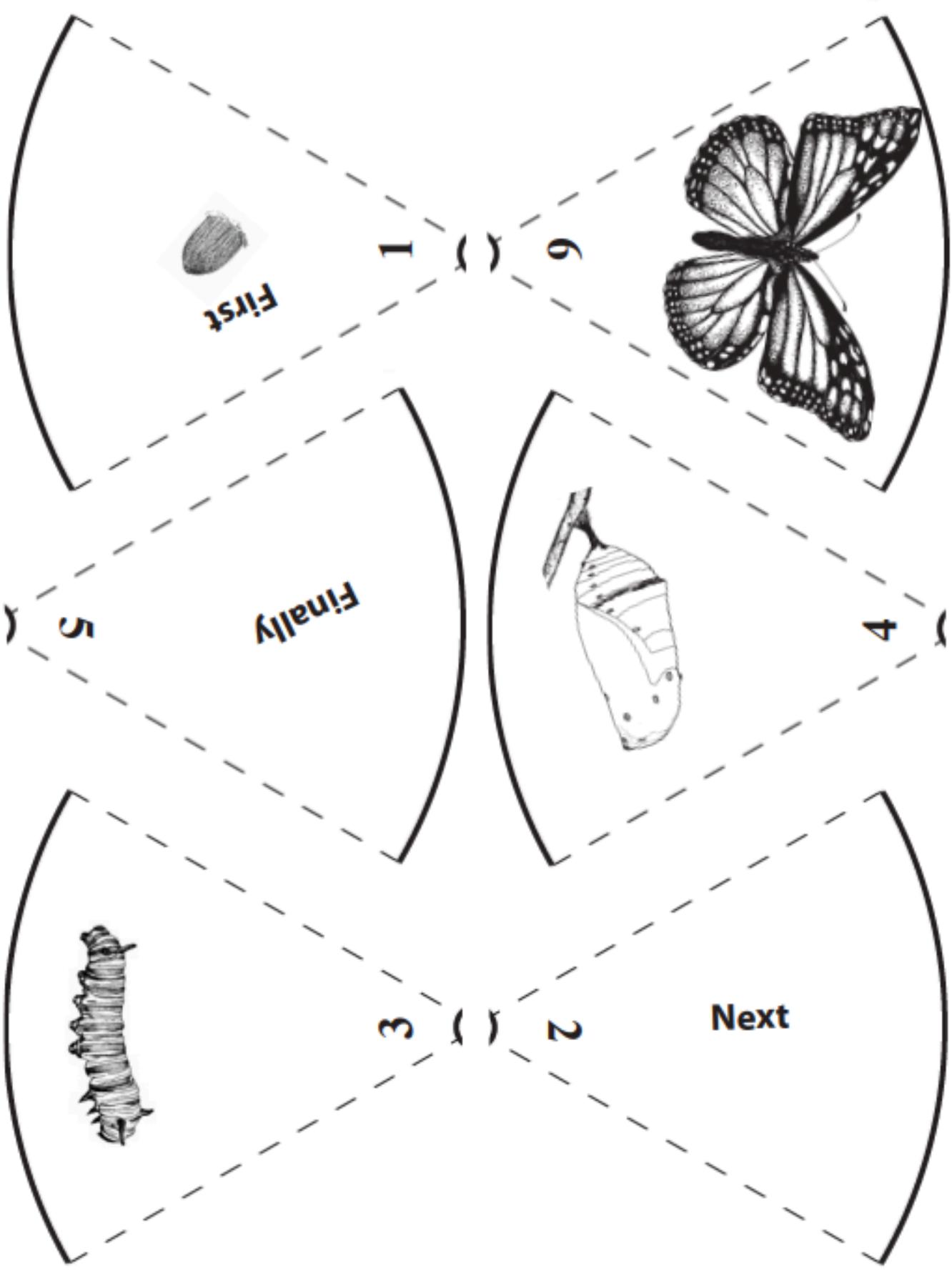
Additional Activities

1. Read *Monarch Come Play With Me* by Ba Rea. Discuss connections to animal and plant life cycles and human life cycles.
2. Life Cycle Gestures Game: Find body positions to represent each life stage of the butterfly or insect. Do these in sequence 1-2 times. Select movements by drawing pictures of the life cycle out of a hat or a large dice with pictures taped onto it. Students hold position until the next life stage is called.

The Monarch Life Cycle

by _____

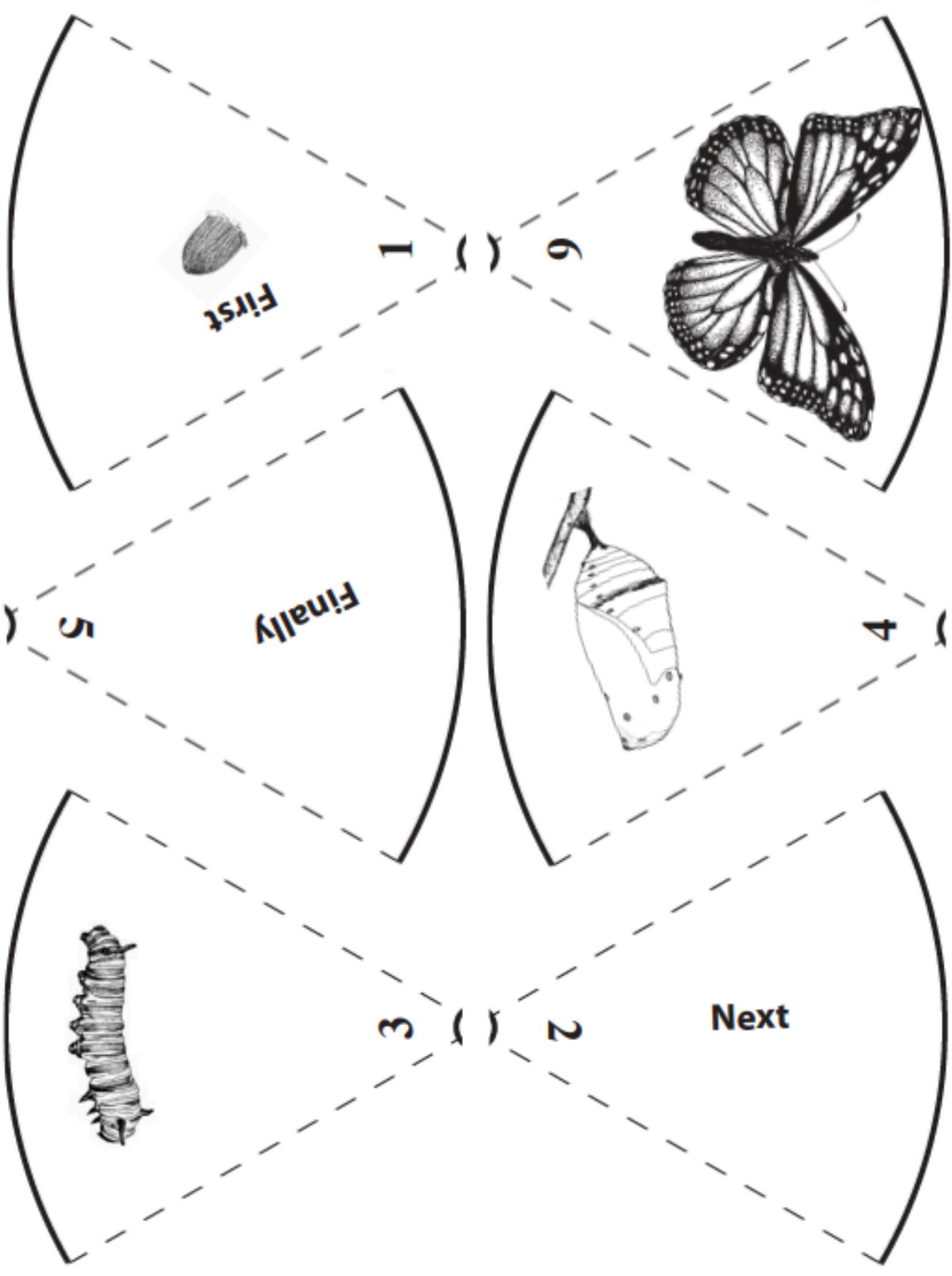




First

Finally

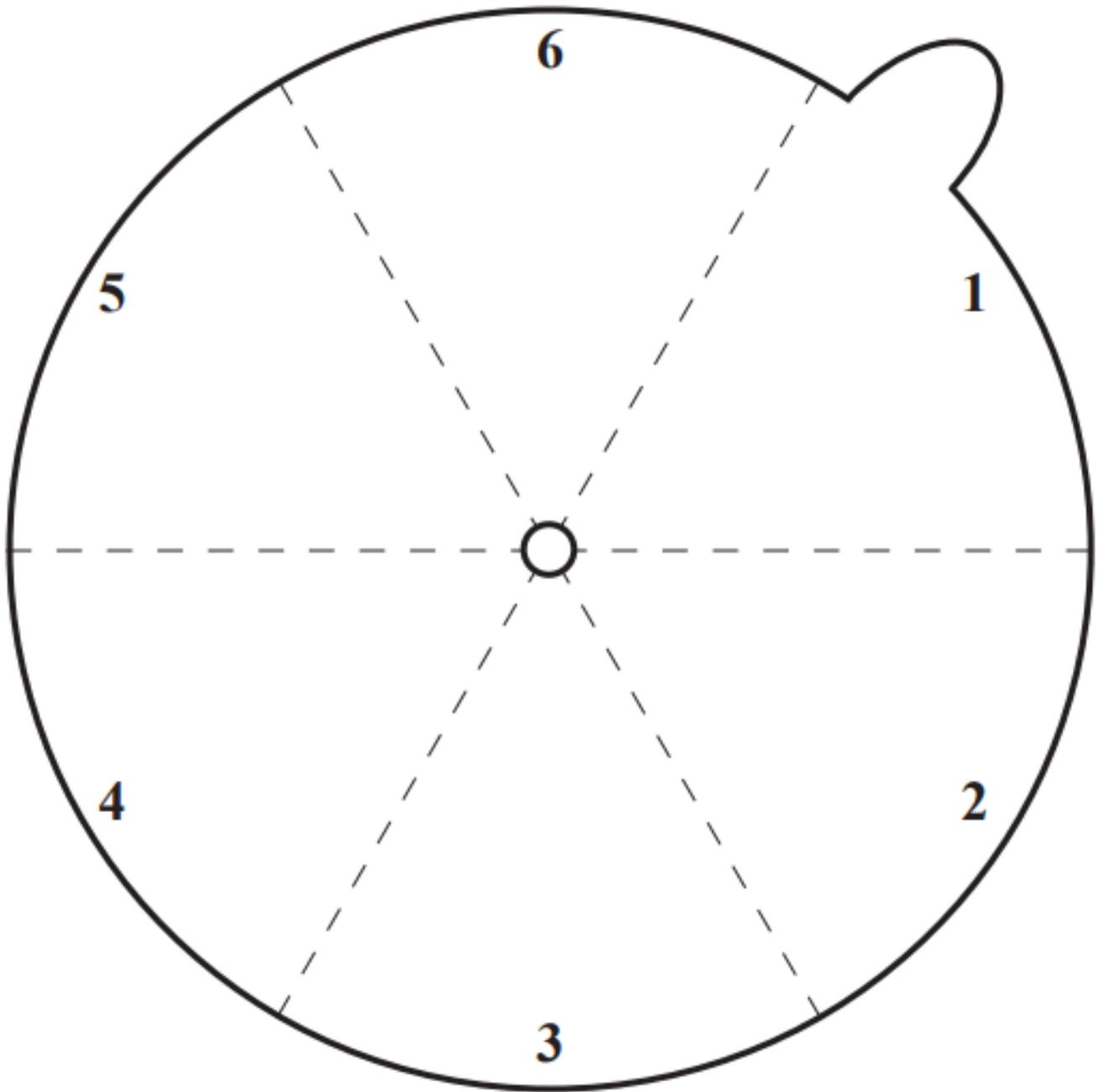
Next



First

Finally

Next



Keeping a Nature Journal

In this activity, kids will learn to keep a nature journal. They will make detailed observations and illustrations. They can also write or dictate sentences to accompany the illustrations.

Objective:

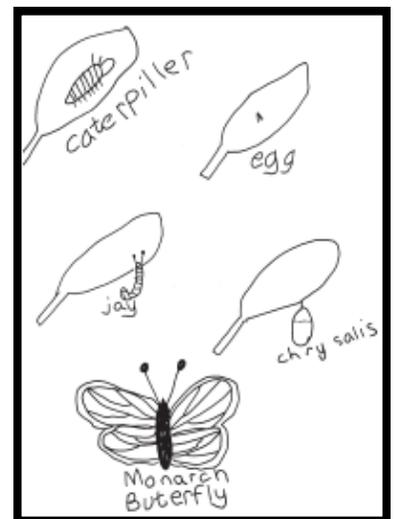
Kids will create a nature journal to record their outdoor observations of monarchs, pollinators, and their habitat. Through detailed drawings and written descriptions, they will practice making careful observations and documenting what they see in nature. This activity encourages curiosity, strengthens observation skills, and helps kids connect with the environment around them.

Materials:

- Student journals
- Pencils, colored pencils, and other drawing supplies
- Monarch life stages with the appropriate food source and containers

Procedure :

1. Provide each child with a journal and encourage them to observe and document what they see outside, focusing on monarchs, pollinators, plants, and other signs of nature. Have them create detailed drawings of their observations, paying close attention to colors, patterns, and movement.
2. If desired and if they are able, students can add sentences to explain their pictures. As a group, discuss what they observed and write sentences on the board for younger students to copy. Those who are able can write their own descriptions.
3. This journal will serve as a record of their discoveries, helping them notice patterns, track changes over time, and develop the skills of a scientist—careful observation and accurate record-keeping.



Seed Balls

Seed balls are a fun activity to make for your native garden that support pollinators, improve water and habitat quality, and attract predators of plant pests!

Seed balls are small, compostable balls made of clay, soil, and seeds. They protect seeds until they are ready to grow. Over time, exposure to sun, air, and weather helps break down the clay, allowing the seeds to go through natural processes like stratification (a cold period that helps them sprout) and scarification (softening or cracking of the seed coat). Once conditions are right, the seeds will begin to grow. Get ready—this activity can get a little messy! it might be best to make the seed balls outside.

Materials:

- Powdered Clay (you can find this at craft/art supply stores)
- Variety of native seeds from your area: milkweeds and native wildflowers if possible
- Compost/dirt
- Water



Instructions:

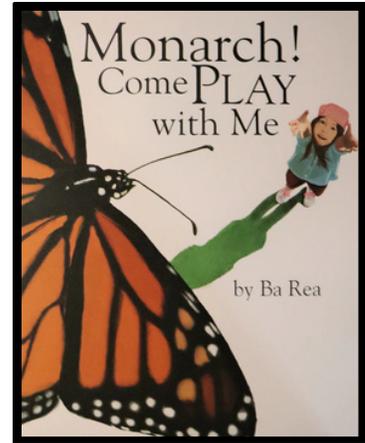
1. In a bowl or bucket, mix clay, dirt, and seeds well.
(4 parts clay, 1 part dirt, 1 part seeds)
2. Slowly add water, a teaspoon at a time, and mix until a moist but not wet mud forms and can be pressed together. If you add too much water, add more clay to get the proper consistency.
3. Throw your seed ball into a sunny area OR plant it in a garden!



Butterfly Book List

Butterfly Books

- *Becoming Butterflies* by Anee Rockwell
- **Milkweed Visitors* by Mary Holland
- *Butterfly House* by Eve Bunting
- *Waiting for Wings* by Lois Ehlert
- **Monarch Butterflies* by Ann Hobbie
- **Butterfly Birthday* by Lori Stralow Harris
- *The Butterfly Counting Book* by Jerry Pallotta
- *Wings of Magic* by Sandy McCartney Ehlers
- *The Perfect Place* by Stephanie Turcotte Edenhalm (Western Monarchs)
- *Starting Life: Butterfly* by Claire Llewellyn and Simon Mendez
- *Ghost Wings* by Barbara Joose
- *Senorita Mariposa* by Mister G
- *Maria the Monarch* by Homero Aridjis
- *Gotta Go! Gotta Go!* by Sam Swope
- *An Extraordinary Life - The story of a Monarch Butterfly* by Laurence Pringle
- *From Caterpillar to Butterfly* by Deborah Heiligman (painted lady)
- *Where Did the Butterfly get its Name?* by Melvin and Gilda Berger (butterflies & moths)
- *Monarch Butterfly* by Gail Gibbons
- **Monarch Come play with Me and Monarca Ven! Juego Conmigo!* by Ba Rea



Nature Books

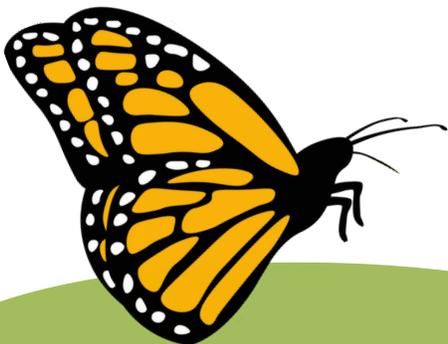
- *The Rabbit and the Moon* by Doug Wood (Native American tale)
- *On Beyond Bugs! All About Insects (Cat in the Hat)* by Tish Rabe
- **The Garden Next Door* by Collin Pine
- *Some Bugs* by Angela DiTerlizzi (board book)
- *A Quiet Place* by Doug Wood



*available on the MJV store



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Thank you for letting me learn,
play, and explore with you!
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Venture website and the
Monarch NECTAR Hub for
more resources!

This activity book was created by the Monarch Joint Venture.
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