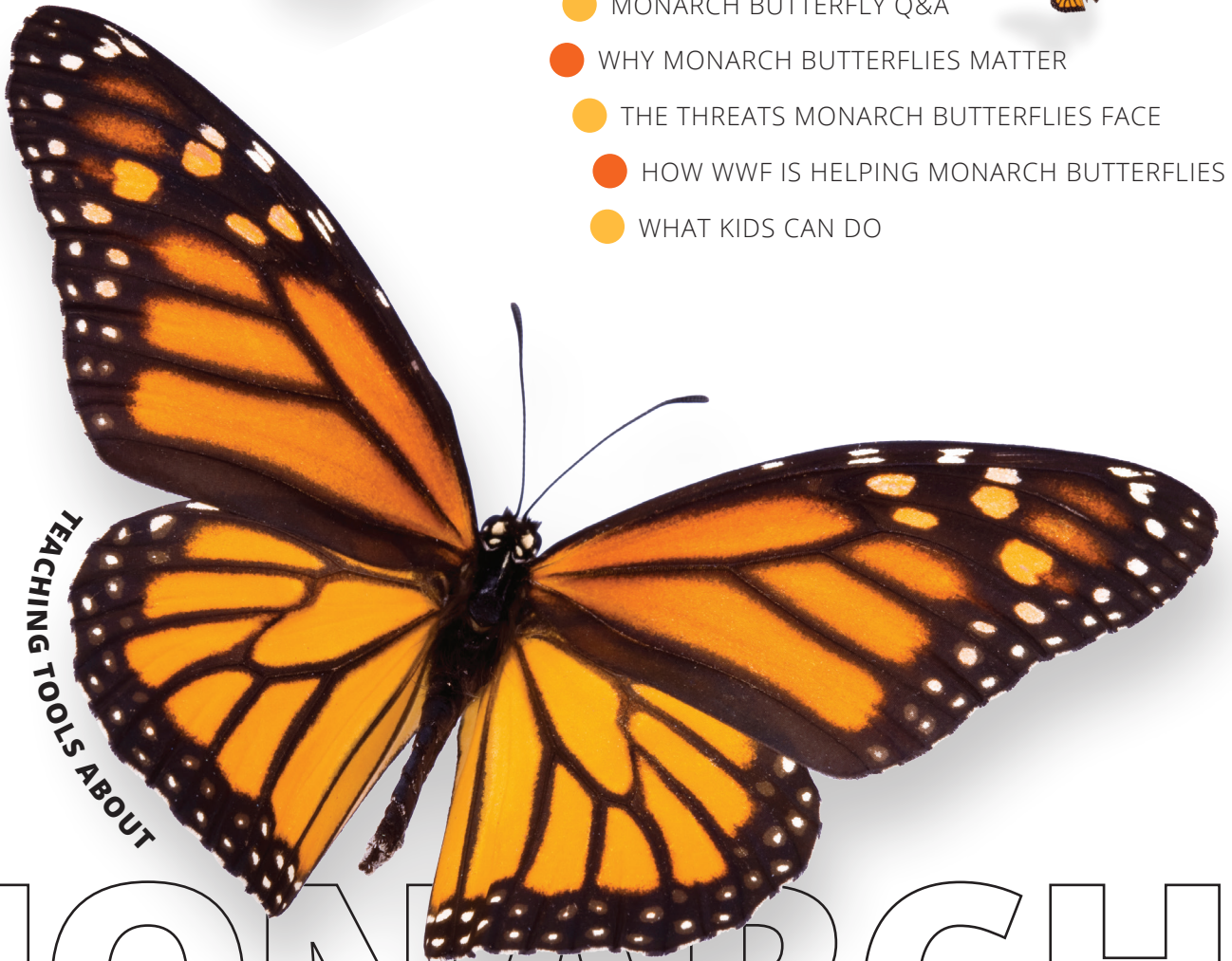




- MONARCH BUTTERFLY FUN FACTS
- MONARCH BUTTERFLY Q&A
- WHY MONARCH BUTTERFLIES MATTER
- THE THREATS MONARCH BUTTERFLIES FACE
- HOW WWF IS HELPING MONARCH BUTTERFLIES
- WHAT KIDS CAN DO



TEACHING TOOLS ABOUT

MONARCH BUTTERFLIES



WILD CLASSROOM



WILD CLASSROOM

WWF's Wild Classroom connects educators and parents with the tools and resources they need to help kids explore and understand the world around them. Visit wildclassroom.org to choose from a growing library of animal- and nature-related teacher's guides, fact sheets, and activity plans that you can use to enhance your science, writing, art, and other lessons.

Together we can inspire the next generation to build a future where people and nature thrive!

MONARCH BUTTERFLIES

● Monarch Butterfly Fun Facts

- The name "monarch" was given to the butterflies by European colonists in the United States and Canada in honor of King William III, Prince of Orange and King of England.
- Monarch butterflies migrate between 1,200 and 2,800 miles or more in autumn from the United States and Canada to central Mexican forests where they hibernate. They can travel between 50 and 100 miles a day, and it can take up to two months to complete their journey.
- Monarchs know when it's time to migrate south for the winter based on signals from the environment indicating the seasons are changing. When it's time, the butterflies will lift up on air currents high into the sky and embark on their journey. A glider pilot observed a monarch 11,000 feet in the air (almost two miles up), the highest on record.
- Migrating monarch butterflies are guided by the sun's orbit as they travel through North America. Even on cloudy days, they're able to stay on track thanks to an internal biological compass that functions based on the movement of the sun.
- The scientific name for monarch butterfly is *Danaus plexippus*, which in Greek means "sleepy transformation," a reference to the butterfly's ability to hibernate and metamorphize.
- Millions of monarch butterflies share a single acre of forest at their hibernation site in the Monarch Butterfly Biosphere Reserve in Mexico.
- A group of monarch butterflies is called a flutter.
- A monarch flaps its wings five to 12 times per second, approximately 720 times per minute.
- Male monarchs are slightly bigger than females and have black dots along the veins of their wings.
- Milkweed is the only plant that monarchs will lay their eggs on, because it is the only source of food for the emerging baby caterpillars.



- Monarchs are pollinators and play a huge role in the health of our food system by fertilizing flowering plants. Without them, many fruits and vegetables that people and animals rely upon would decrease in quantity and quality.
- The bright orange and black colors of the monarch warn predators that they are inedible, due to their diet of toxic milkweed. Few animals can eat monarchs without getting sick. Other nontoxic butterfly species, such as the viceroy butterfly, take advantage of the monarch's defenses and have evolved to look exactly like them to fool predators into thinking they, too, are toxic and inedible. This phenomenon of nature is called mimicry.
- The monarch butterfly has been named the official state insect or butterfly in Alabama, Idaho, Illinois, Minnesota, Texas, Vermont, and West Virginia.

● Monarch Butterfly Q&A

What is a monarch butterfly's extinction risk?

The species is not in danger of disappearing; however, their migratory phenomenon is categorized as near threatened in the International Union for Conservation of Nature Red List, a tool used to measure biodiversity loss and species that are most at risk of extinction.

How many monarchs are in the wild?

Counting monarchs can be extremely difficult, due to the large number that exist. Scientists try to survey populations by measuring the area of forest they hibernate in during the winter. Since this too can be difficult, scientists focus primarily on watching trends in the population that could indicate threats to their survival.

Where do monarchs live?

Monarchs can be found in different places throughout North, Central, and South America because they keep migrating throughout their entire life cycle. A large population that migrates from southern Canada and the northern United States travels through the US and parts of Mexico, as the butterflies head to their hibernation sites in the mountains in central Mexico.



Why do monarchs migrate?

Monarchs travel from southern Canada and the northern United States to escape the harsh winters. They navigate across the US, and two months later they arrive at the mountain forests in Mexico, where they find perfect climate conditions for hibernation.

From the beginning of November until March, they spend most of their time resting, to recuperate from the long journey. As the climate starts to warm up in February and March, they move around the forest to drink water and return to their trees. When spring arrives, they mate and begin the return journey north to the US.

Once they are back in the US, they will lay their eggs on milkweed and die, and the new generation will continue flying north. This generation and the ones to follow will have a regular life cycle, surviving roughly four to five weeks. These generations will also mature, lay eggs, die, and continue traveling north, until they reach the northern US and southern Canada. The butterflies emerging in that area will be a little different; they are larger in size, will live seven to eight months, and will be the generation to start the migration south again, arriving in Mexico to hibernate. That's why they are sometimes called the "super generation."

What is a monarch butterfly's weight?

Less than an ounce.

How big is a monarch butterfly?

An average adult monarch butterfly's wingspan is approximately four inches.

What do monarch butterflies have to do with food?

Monarch butterflies, along with bees, birds, and bats, are pollinators. Pollinators are responsible for carrying pollen from one flowering plant to another, fertilizing the plant and supporting its capacity to produce seeds and fruit. A large percentage of the world's food supply comes from pollinated plants. If we lost pollinators, we'd also lose a vast amount of food we need to live.





What is a monarch butterfly's life-span?

Monarch butterflies go through four stages during one life cycle: egg, larva (caterpillar), pupa (chrysalis), and, last, adult butterfly. In one year, there are four to five generations of butterflies.

On average, the first three generations of adult monarch butterflies only live about four to five weeks as they gradually make the journey north. The fourth or fifth generation is the generation that will migrate south to warmer climates to avoid a cold winter and will live for seven to eight months until it's time to start the whole process over again.

How do young monarchs grow and develop?

Each stage of a monarch's life cycle features an impressive transformation. The duration of each stage can vary depending on the climate of the areas in which the butterflies live. It begins with a female monarch laying about 400 tiny eggs on the undersides of milkweed leaves. After three or four days, caterpillars (larvae) emerge from the eggs and begin feeding on the milkweed leaves for about nine to 14 days. Due to rapid growth during this period, the caterpillars shed their skin about five times. At the end of this larval stage, the caterpillars will weigh 3,000 times what they did as a tiny egg. During its final molting, the caterpillar transforms itself into a chrysalis, a sack inside which it develops for eight to 13 days, before finally emerging as a monarch butterfly. Adult butterflies develop sex organs within three days and begin to reproduce just five days later.



A monarch butterfly on a roost tree in Michoacán, Mexico.



● Why Monarch Butterflies Matter

They help produce our food.

Butterflies, bees, and other insects are important pollinators of crops and wild plants in North America. As these insects land on plants to drink the nectar and gather energy, pollen from the plant sticks to their legs and bodies. This can occur unintentionally, as in the case of butterflies, or intentionally, as is the case with female bees that purposely collect pollen for their young. When the insect travels to the next plant, the pollen is also transported and fertilizes the plant, helping it reproduce. Bees and butterflies are both considered important pollinators, as they produce many flowering plants and help a lot with the growing of fruits and vegetables. A significant amount of all food produced worldwide is made possible by pollinators.

Conserving monarch habitat benefits all of us.

The Monarch Butterfly Biosphere Reserve in Mexico, the winter home of monarchs, is the only place on Earth where monarchs congregate by the millions. This is a spectacular natural phenomenon that provides visitors and nature lovers with a unique experience while providing income to the region's local communities through tourism. These ecosystems are critical to the survival of many other flora and fauna that also call these forests home. The forests provide and distribute clean water to surrounding towns, and also prevent erosion. In addition, forests help slow climate change by absorbing carbon dioxide from the air. In North America, the prairies and grasslands that monarchs call home during the rest of the year are also home to a variety of other species, such as songbirds. These habitats have an abundance of wildflowers that support other pollinators, including native bees. Like forests, the grasses and flowers found in these environments have complex root systems that help filter water, reduce runoff, and control erosion, all of which benefits people.

Monarchs are an inspiration.

What makes the migration of monarchs so remarkable is that the butterflies that travel to Mexico to hibernate have never actually been there before. Several generations of butterflies have passed since the generation that completed that journey the year before. This 2,800-mile migration is one of the most impressive migration patterns observed in nature. Around the world, people view the butterfly as a symbol of endurance, change, hope, and life.



● The Threats Monarch Butterflies Face

The same threats that monarch butterflies face—including the expansion of agriculture, illegal logging, and climate change—also put other important species across North America, from bumblebees to bison, at risk.

Loss of forest habitat

The Mexican forests at the Monarch Butterfly Biosphere Reserve provide monarchs with their much-needed winter home, offering shelter from the cold. Unfortunately, unsustainable use of forests, conversion to agriculture, and illegal logging have been diminishing the region's forested area. The cutting of the trees modifies climate conditions, humidity, and other factors that butterflies need.

Loss of food resources

Milkweed in the midwestern areas of the United States has drastically disappeared in the past several decades due to agriculture, development, and chemical use. Herbicides are used to protect crops, but they also damage milkweed plants. Monarch caterpillars depend on milkweed to feed and grow before becoming butterflies. Milkweed grows among corn and soy fields in the United States and Canada, making the plant vulnerable to changes from agriculture. In one year alone, 2.5 million acres of grasslands across the Great Plains were lost to agriculture. In some states it is estimated that 90% of all milkweed has disappeared due to herbicide use, agricultural expansion, and urbanization.

Climate change

Shifting weather conditions caused by climate change are affecting the monarch butterfly's migration pattern, as well as its winter and summer homes. Colder, wetter winters threaten a monarch's ability to survive, and hotter, drier summers could push them farther and farther north looking for suitable habitat. Monarchs cannot fly if their body temperature is less than 86 degrees. They will sit in the sun or "shiver" their wings to warm up. In addition, abnormal rainfall throughout their northern breeding areas impacts the growth of milkweed, affecting the food supply for caterpillars and ultimately the survival rate of monarchs.





● **How WWF Is Improving Our Food Practices and Helping Monarchs**

WWF is working hard to conserve monarch butterflies and their miracle of migration by protecting the areas they depend on. By more sustainably managing forests and grasslands, as well as promoting better food habits, we can realize benefits for both people and nature.

Conserving forest habitat

WWF has increased its work in the monarch butterfly region considerably since 1998, when it supported the Mexican government with scientific information to create the Monarch Butterfly Biosphere Reserve in 2000. Within the reserve, WWF supports proper forest management and sustainable projects such as mushroom production units and tree nurseries that provide alternative income to local communities. WWF also helped create the Monarch Butterfly Conservation Fund—jointly managed by WWF and the Mexican Nature Conservation Fund—which assists communities that protect their forests. The fund provides uniforms and training for tour guides, and radio equipment to volunteers who patrol the forest and report any illegal logging or forest fires to authorities. These measures have been very successful in engaging local communities and reducing illegal logging and forest degradation to the lowest levels since 2000.

Maintaining healthy grasslands

WWF works with public agencies, local tribes, and ranchers to care for the grasslands and conserve biodiversity in the Northern Great Plains. WWF aims to ensure that all public land management plans protect grasslands that serve as vital habitat for monarchs, songbirds, bison, black-footed ferrets, and many other species. We also help ranchers and farmers understand the benefits of protecting the natural grassland vegetation. More diverse vegetation between fields and alongside streams supports monarchs and other pollinators while helping the land absorb heat-trapping greenhouse gases (keeping them out of our atmosphere), store water, and keep soil, fertilizers, and other compounds from polluting nearby waterways.

Promoting good food habits

WWF is striving to help people understand how they can contribute to a more sustainable future for food that doesn't impact species and their habitats. Animal products containing meat or dairy tend to require more resources and have a greater impact on the environment than fruits and vegetables. By eating a balanced diet and following nutritional guidelines, you're helping conserve the environment affected by agriculture. WWF also urges people not to waste food (making sure food goes into our bodies, not in the trash bin). Wasting food means you're wasting everything it took to make that food, including land and water. Making educated decisions and conscious efforts when shopping and eating could benefit monarchs as well as other wildlife and wild places.



● What Kids Can Do

Plant milkweed

Help replenish the monarch's migration route by planting milkweed native to your area in your garden at home or school. Check the [WWF website](#) or ask your local nursery or extension agency about the right type of milkweed to plant in your region (planting milkweed that isn't native can actually harm monarchs.) You can also include flowering plants that require pollination and are popular sources of nectar for monarchs in your garden. By creating a garden for pollinators, you will provide a critical area for monarchs to lay their eggs and feed during their long migratory journeys.

Avoid using pesticides

Although herbicides and insecticides are not intended to harm pollinators like monarch butterflies, they can have a harmful effect as these species travel between plants. Encourage friends and family to avoid using pesticides whenever possible to help save the monarch and many other harmless insects that visit plants to feed and that help pollinate.

Visit monarch sanctuaries

Tourism to the Monarch Butterfly Biosphere Reserve in Mexico provides income opportunities for local communities while protecting important habitat for these butterflies. The butterfly sanctuaries are open to tourists the last week of November, once butterflies are almost fully settled in the trees, through March. If you visit, remember not to bother the butterflies resting in the trees (they're sleeping!). Try to avoid making excessive noise and harming the forest plants. If you see someone bothering the butterflies or disrupting the sanctuary, report it to a guide or someone in authority.

Reduce your food waste

The increasing human demand for food has caused much of the land that monarch butterflies rely on for habitat to be lost to agriculture. We can help by not wasting food and making sure food is consumed or used efficiently. At meals, try to take only as much food as you realistically think you'll eat. If you do end up with leftovers, save it for another time or repurpose it, rather than throw it away. Foods like fruits and vegetables that are often thrown away can be frozen and used in smoothies, sauces, or soups. You can also encourage your school or home to compost food waste and use it for a garden.



Spread the word

Kids can talk to their parents and friends about what they have learned about monarchs and food, and ask them to do the things on this list, too! The more knowledgeable people are about what they can do to make a difference, the more likely they are to take a stand and protect monarch butterflies!

Start a fundraiser to help monarchs and nature

By creating a fundraiser with WWF, you're inspiring your students to protect the wildlife and wild places they've been studying. It's a great opportunity to teach the importance of philanthropy and the difference we can make when we work together. Get started at worldwildlife.org/pages/fundraise-for-wwf.



Monarch butterflies hang from roost trees in Michoacán, Mexico.



● More Monarch Teaching Tools

Monarch fill-in-the-blank word puzzle

At the end of this guide, you'll find a word puzzle (with an answer key) based on the educational content covered in this guide.

Monarch learning activities

Within the Monarch Butterfly Toolkit, you'll find six fun, engaging activities designed to help students learn about monarchs and their habitats:

How Much Water Is in Your Lunch?

Students will comprehend the amount of resources, namely water, required to produce various food items by comparing data and creating a pictograph.

Don't Treat Soil Like Dirt!

Students will perform science projects that require them to observe and record conditions of soil samples in order to understand its importance to healthy life.

Origami Butterfly Planters

After learning about monarchs' reliance on milkweed, students will participate in providing for monarchs along their journey by creating their very own planter.

Flutters and Flowers

In this pollinator-themed twist on freeze tag, students will learn the importance of pollinators such as butterflies, bees, and bats for food availability around the world.

The Great Monarch Migration

Students will familiarize themselves with geography and map creation by plotting the remarkable journey of monarchs.

Eating Our Planet

Students will compose a creative letter to a future pen pal describing Earth's environmental health as a result of the impacts of food.

Monarch posters

Create an inviting learning space with these free, [downloadable posters](#) of monarchs (along with fun facts).

WWF Together app

For more fun, interactive tools and information about monarch butterflies and other wildlife, download the [WWF Together app](#).



WILD CLASSROOM

MONARCH BUTTERFLIES



Name: _____ Date: _____

MONARCH BUTTERFLY WORD PUZZLE

Complete the puzzle with words related to monarch butterflies. Use your monarch fact sheets to help you.

1. ____ is the only plant that monarchs will lay their eggs on.
2. Millions of monarchs share a single acre of ____ during hibernation.
3. A monarch flaps its ____ five to 12 times per second.
4. Monarchs migrate when the environment indicates the ____ are changing.
5. Monarchs help produce many ____ and vegetables that we eat.
6. The monarchs' diet is ____ to other animals.
7. Monarchs travel south to escape the cold and to ____.
8. Monarchs are guided by the sun's ____ as they travel.
9. A group of monarchs is called a ____.
10. Their scientific name refers to their ability to hibernate and ____.
11. Monarchs travel south to escape the harsh cold of ____.
12. It can take up to two months for monarchs to reach ____.
13. Monarchs ____ between 1,200 and 2,800 miles or more.
14. Monarchs play a huge role in the health of our ____.
15. Along with bees, birds, and bats, monarchs are ____.
16. Viceroy butterflies fool predators through ____, looking just like monarchs.
17. During their life cycle, after the egg stage, they emerge as a ____.
18. The ____ generation of monarchs is the biggest and travels the farthest.

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WILD CLASSROOM

MONARCH BUTTERFLIES



MONARCH BUTTERFLY WORD PUZZLE | ANSWER KEY

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M I L K W E E D

F O R E S T

W I N G S

S E A S O N S

F R U I T S

T O X I C

H I B E R N A T E

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M E T A M O R P H I Z E

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