

BACKGROUND INFORMATION

MILKWEED PLANTS

Most types of milkweed plants have clusters of flowers, and their leaves and stems have a distinctive milky sap. Common milkweed (*Asclepias syriaca*) is found in the eastern half of the US, from Texas to Maine! It has wide oval leaves, pink bell-like flowers, and a thick circular stem. It grows between three and five feet tall in moist soil with plenty of sun.

Milkweed plants are the *only* plants monarch caterpillars will eat. Talk about a picky eater! Female monarch butterflies will only lay their eggs on milkweed plants. This ensures that when the eggs hatch, the caterpillars will already be crawling on a plant they can eat, ready for their first meal. While monarch caterpillars only eat the leaves of milkweed plants, the butterflies can eat nectar from many different flowers.





MONARCH BUTTERFLIES

Monarch butterflies hatch from eggs as caterpillars. They spend this stage eating and growing. When they are large enough they form a chrysalis. Within their chrysalis their body becomes like a liquid and reforms into an adult butterfly. After this metamorphosis, they break out of their chrysalis as monarch butterflies. The life cycle from an egg to an adult butterfly can take about 6-7 weeks.

The monarch egg is white and dome shaped, about the size of a pencil tip. Eggs are usually found on the underside of milkweed leaves or on the flower buds. Caterpillars hatch from these eggs in their first instar stage. Instar just means caterpillars in different growth stages!

Caterpillars eat milkweed plant leaves constantly for about two weeks. They will shed their skin four times and the new caterpillar that emerges is the next instar stage, eventually reaching the fifth instar. Read more about instars on the Budburst instar guide included in the kit.

A chrysalis forms from the fifth instar caterpillar. The caterpillar will find a safe place to form a silk pad and hang upside down. It sheds its skin one last time revealing a bright green chrysalis. One to two weeks later a butterfuly will emerge!

The butterfly will emerge from the chrysalis and spend several hours drying out and, once dry, it will fly away to find nectar! Eventually, it will mate and lay the next generation of eggs!







MONARCH BUTTERFLY MIGRATION

Monarch butterflies have one of the most wellknown migrations in the world. The butterflies migrate over 3000 miles, across three countries, and over several generations!

Eastern migrating monarchs spend their winters in the mountains



of central Mexico. It is warm enough for them to spend the winter without freezing, but cool enough for them to save their energy since there isn't much to eat. Also, the butterflies roost to protect themselves from snow and wind. A roost is a cluster of butterflies gathered together typically on a tree, shown in the photo on the left.

In early spring, butterflies leave their overwintering sites in Mexico and travel north to the southern United States where they will lay eggs on milkweeds. These eggs hatch, go

through their lifecycle, and adult butterflies will continue the journey north. The monarch butterflies we see in Chicago are likely the second or third generation of this journey. Monarchs will breed in the northern



migration areas, including Chicago, over the summer, requiring milkweed plants and nectar. Their caterpillars will turn into butterflies and begin the journey back to Mexico at the end of the summer.

In the fall, these monarchs travel back to the sites where their ancestors had spent the previous winter. They do this in a single trip without laying eggs. This means most butterflies travel over 1000 miles. These butterflies will also start traveling north in the spring, starting the migration over!

Anywhere along this important migration path is a great place to study monarchs!





WHY ARE WE STUDYING MONARCH EGG LAYING BEHAVIORS?

Monarch populations have been declining over the last 20 years. This decline is likely caused by a combination of many different factors including climate change, lack of habitat, pesticides, etc.

Some research has shown that female monarchs prefer to lay their eggs on non-flowering milkweed stems. We are working with community scientists like you to see if monarchs prefer to lay their eggs on flowering or non-flowering milkweed stems. This will help land managers understand how to care for milkweed patches in the future to support monarchs the very best that we can.

This important research can take place on plants in balcony pots, backyards, local parks and gardens, and nature preserves. Budburst needs your help to answer this question. By collecting data with Budburst, you are becoming Budburst community scientists. Community science involves a scientific research project in which members of the public work with professional scientists to discover or experiment on something in our world. Submitting observations on the Budburst app or website helps us better understand monarchs and answer our research question. The team at Budburst will analyze all the observations that come in and can report how we as a community can best provide healthy habitat for monarchs.