



Mapping Butterflies

By Tom J. McConnell



Monarchs and all other butterflies are fascinating examples of a type of life cycle that includes the miraculous process of metamorphosis. Even better, butterflies live all around us, and we can see each stage of their life cycles... if we pay attention and look for them!

Grade Levels – 2-10

Timeline: 1 month to multiple years

Driving Question: What phases of a butterfly's life cycle can see around my home or community?

Objectives:

- I can record observations of life cycles in a journal or online database.
- I can access a database of observations and data.
- I can notice patterns in data.
- I can create a map comparing habitats of different kinds of butterflies.

NGSS Alignment

DCIs:

LS1B: Growth & Development of Organisms

LS4D: Biodiversity & Humans

SEPs:

Developing & using models

Planning & carrying out investigations

Analyzing & interpreting data

CCs:

Patterns

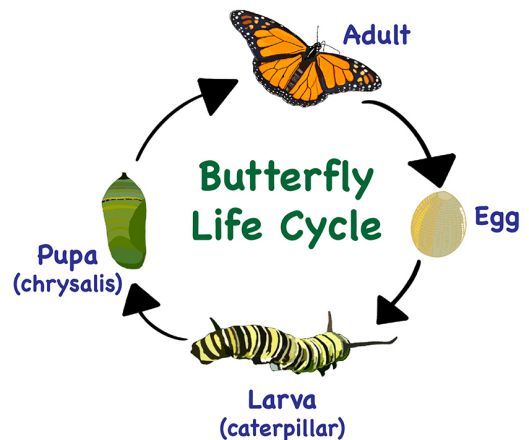
Stability & Change

In this activity, you will record observations when you see signs of the butterflies' life cycle. This can be done in a journal book, or you can use online tools called iNaturalist and Seek, just like other scientists. If you want to use iNaturalist or Seek, a pair of apps that are safe and useful, you may need a parent to help set up an account and use their cell phone or computer. You can also ask a parent to buy you a journal or science note book and help you take, save and print photos to put in it.

Background:

All living things have a "life cycle," a repeatable pattern of stages they go through in their lives. You have a life cycle, too! You were born as an infant, grow to be a teenager, then an adult, and eventually may have children of your own.

Butterflies have a life cycle with four stages – Egg, Larva (caterpillar), Pupa (chrysalis), and Adult.



Keeping a Butterfly Journal

Scientists often keep a journal or notebook to record observations. You can do the same thing! Ask your parents to get you a journal, or a spiral notebook can work. You can draw a design on the cover if you like. Then on the pages of your notebook you can record some observations. The diagram below gives a suggestion for how to organize each observation, but you can make your own design.

When you find a butterfly, a caterpillar, a chrysalis or butterfly eggs, take a photo! You can print the photo, cut it out and tape it into the journal entry. When you take the photo, take notes about what you found, where you found it, and when you found it. You can also write what species of butterfly you think you found! (You can use the Seek app to help with this!)

Butterfly Observations

Today's Date:

Where I observed:

Describe the spot where I found this:

Today I saw....

Photo or drawing:

I think this is from (what species?):

Keeping Records on iNaturalist

Downloading iNaturalist

The first step is to download iNaturalist. This app is FREE, and they will not send you information you do not ask for. Have an adult help to access the site and set up your account. They can check for security concerns.

iNaturalist also has a safe and free smart phone app called “Seek.” This lets you take a photo of any living thing, and it helps you identify it! This app can help with your journal.

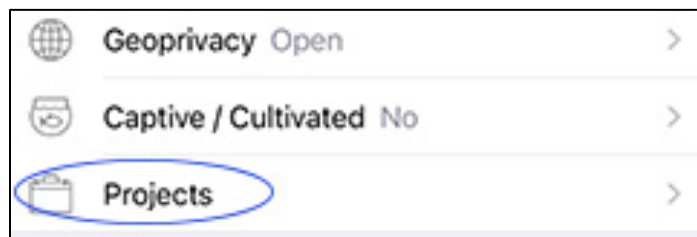
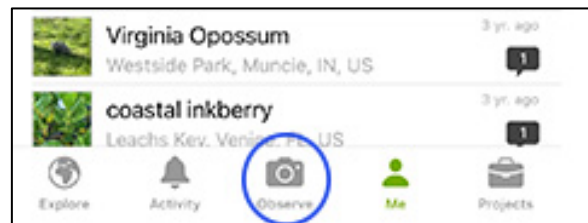


iNaturalist is available from your app store for both Mac and Android smartphones and tablets. You can also use a computer to view the site at <https://inaturalist.org>.

When you have downloaded the site or reach the web page, create your own account. Once you have an account you can UPLOAD your own photos to build a set of “observations.” This set can become a type of journal showing your observations. The difference is that these observations can be shared with scientists and other “citizen scientists.” Take some photos when you find butterflies in ANY stage of the life cycle, then follow these steps!

Posting Observations in iNaturalist

When you have photos to record as observations, you need to upload those files to your iNaturalist account. If you are using the smartphone app, click the “Observe” button at the bottom of the window. Select either your camera or the photo library, and select the photo you want to upload.



Once you enter the image, you will have places to record your notes about where you saw it. The app will suggest a species name, and you can add other details. At the bottom of that screen, you will see a choice for “Project.” If your post is a butterfly, you can select

[“Conservation Tales: Butterfly Life Cycles”](#) as the project name. This will add you as a member of our project! You can also set “geoprivacy” to “obscured” if you don’t want to share your location. To see more about the project, the linked project name above!

If you use the web version of iNaturalist on your computer, the process is similar, but to start, you click the “Upload” button in the top tool bar.



Tips and Suggestions for iNaturalist

The best pictures to post on iNaturalist are very clear, as close as possible, and do not include other animals. It is hard for the app to identify an animal if the picture is too small, too dark or blurry.

If you have a hard time figuring out what you have observed, try the Seek app! https://www.inaturalist.org/pages/seek_app
This app is designed for beginners, and is EASY to use! It is produced by iNaturalist, so you will not be spammed, and the app is secure and safe for kids! If you see any living thing and want to know what it is, open the app, and take a picture!



As you find what you think are butterfly life stages, remember that caterpillars may also be moths!! Moth caterpillars are usually hairy or have tufts on them. Some adult moths also look like Butterflies. Instead of a chrysalis, a moth will spin a silk cocoon that contains the pupa. It can be hard to spot the differences!

The [“Conservation Tales: Butterfly Life Cycles”](#) Project in iNaturalist will automatically include butterflies, but it will not accept moths!

And if you’d like to learn more about the life cycles of butterflies, check out the Conservation Tales activity, The Royal Butterfly Card Game! This activity is a downloadable file you can print to make a card game to help you learn to tell the difference between all four life stages of the Monarch butterfly and two other species that mimic the monarch!

<https://www.conservationtales.com/butterflycardgame.html>

You can also learn more about butterflies by reading [Conservation Tales: Monarch Butterflies!](#)