



Royal Butterfly Family Card Game



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www.conservationtales.com/monarchs

Teacher's Guide



Grade Level: Grades 3-12

Timeline: 30 min.

Materials:

- Printed sets of cards (1 per group)
- Teacher's answer key

Driving Question: *How can the stages of the butterfly life cycle be used by scientists to identify different species of butterflies?*

Objectives:

- I can match photos of the life stages of a butterfly to the correct butterfly species.
- I can describe the identification markers that are used by scientists.
- I can design ways to use the skills in this activity to study other species of animals.

NGSS Alignment

This activity addresses the following standards from the Next Generation Science Standards:

Disciplinary Core Ideas:
 LS1.B: Growth and development of organisms

Science & Engineering Practices:
 Developing and using models.

Cross-Cutting Concepts:
 Patterns



Background Information

Monarch butterflies are often recognized for their bright orange colors and the black lines on their wings. The caterpillars have yellow, black, and white stripes. When they eat the milkweed as a caterpillar, they become toxic to the predators who try to eat them.

Other butterfly species try to take advantage of the monarchs' defense system! This is called **mimicry**. There are two species of butterflies that mimic the monarch butterfly. These are the viceroy and the queen butterfly. All royal names to go along with the monarch butterfly!

Mimicry helps protect species by pretending to be another. The viceroy and the queen butterfly look like the monarch so that the predators cannot tell the difference. Since the predator knows that the monarch is not good to eat, they avoid the other species of butterflies that look it, so they do not get sick.

To help new researchers learn to identify different butterfly species, they look at the stages of the life cycle to help the scientist practice. This task is not always easy to do! Especially for the species that are closely related and mimic they can look remarkably similar in different phases of life.

In this lesson, students can practice the same skills with the same type of cards. This lesson guide provides downloadable templates, standards alignment, and tips for teachers to help them integrate this activity into their lesson plans.



Teacher's Guide (Cont'd)

Prior to Activity

If your students read *Conservation Tales: Monarch Butterflies* prior to doing this activity, they will have read about the phases of the life cycle and some species who mimic the monarch. Please refer to the images of the different species.

We also recommend you discuss the importance of observation prior to this activity. Students will be more successful with this task if they have practiced observing physical features of animals, including describing their observations.

Introducing the Activity

To introduce the lesson, begin by talking about monarchs and their life cycle. Then explain to students that some animal's mimic others to help protect themselves from predators. You can also talk about the visual differences between the three species. The background information on the previous page gives some information you can share with students. You may also choose to view our website with more information on these species. (conservationtales.com/monarchs)

Groups

Try working in groups of 2-3 students. The cards are large enough to see details, however students may need to spread them out on a table to look at the same time.

Card Matching Activity

Each set has 12 cards. There are cards for each phase of the life cycle. There are sets for each of three butterfly species: Monarch, Queen and Viceroy. Each of these cards has a number and a letter in small print near the copyright logo.

The task for students is to match 4 life phase cards together for each species. When they are finished, groups should be able to tell you which cards go to the different species. There is an optional "Royal Family Butterfly Record" that groups can fill out and turn in. You may also choose to go around to each group to check their work. The latter makes it easier for students to have a 2nd or 3rd try to get the correct matches.

Some of the photos/illustrations are easier to match than others. In some cases, the chrysalis looks similar in color but are different sizes. This accurately simulates the real challenges the butterfly researchers face – some eggs are so small it is hard to identify until a later phase in the life cycle.

As you circulate among the groups, you can guide their observations and discussion by asking if they notice any unique observations on the wings. You might also point out that the number of tentacles on the caterpillar.

Answer Key

When students have completed their matches, the following key will help you check their answers. If they have any incorrect matches, encourage them to discuss the features and look for more details.

Species	card number
Monarch	1A, 3B, 2C, 1D
Queen	3A, 2B, 1C, 3D
Viceroy	2A, 1B, 3C, 2D

- A- Butterflies
- B- Caterpillars
- C- Eggs
- D- Chrysalis

