Lesson 4.2
Investigating Human Needs
Lesson Overview

Students continue their exploration of monarch habitats and also learn about human needs and how these needs can impact the habitats of other living things. The teacher reads the second half of *Investigating Monarchs* about butterfly scientists in Mexico who use their findings from their investigation to encourage people to restore the habitats of monarch caterpillars and butterflies. Students brainstorm what humans need to live and then work with a partner to match images of these needs with their environmental sources. A class discussion helps students see the parallels between their own needs and those of other animals, supporting their understanding that plants are the source of many human needs. The purpose of this lesson is to help students understand the needs of humans as living things, to consider how humans get the things they need to live, and to reflect on the impact of human needs on the habitats of other living things.

**Design Problem:** Create a plan for a garden where monarch butterflies can live.

**Investigative Phenomenon:** Humans and monarchs are living things that have needs.

**Students learn:**

- What scientists learn about living things can help people make choices about what to do.
- Humans are animals that need to eat to live and grow.
- Humans rely on plants to get many of the things they need.
The teacher reads the second half of *Investigating Monarchs* about scientists investigating monarch habitats and the human impact on them.

## Instructional Guide

1. **Connect to prior learning.** Display the *Investigating Monarchs* big book.

   When we read the first part of *Investigating Monarchs*, we learned about the habitats where monarchs live at different times in their lives.

   Point to the Monarch Habitats chart.

   We recorded what we learned on this chart.

   Invite students to identify the different needs and habitats of monarchs at different stages of their lives.

2. **Introduce the Investigation Question.**

   Humans, or people, sometimes make decisions that change the habitats of plants or of animals, like monarchs. This can make it so that animals cannot live in a place anymore because they do not have the food, water, or safety they need to live and grow. It can also make it so that some plants cannot live in a place anymore because they do not have the light and water they need to live and grow.

   One example of this is when people turned the Field into the Garden and removed the milkweed plants that were growing there.

   We want to help the children in Mariposa Grove make the Garden into a place where monarch caterpillars can live again. Today, we are going to think about this question.

   Point to and read the Investigation Question aloud.
How can humans make sure that other living things can live and grow?

*Humans* is another word we use for people.

3. Set the purpose for reading and gesture to the What Scientists Do chart.

Today we will read the second part of *Investigating Monarchs*. Our purpose for reading today is to learn more about what scientists do. Let’s see if we can add any more ideas to our What Scientists Do chart.

What are some of the things that scientists do to help them answer their questions?


As we read, we will think about what the scientists in this book do to answer their questions about the monarchs and how they help other people make choices so the monarchs can live and grow.


Just like when we work as scientists, the scientists in the book did many different things to investigate monarchs. What are some of the things that the scientists did to investigate monarchs?

[Observed the butterflies. Counted the butterflies. Recorded their observations. Compared their observations.]

What did the scientists in the book learn from their investigation?

[There were not as many butterflies as there used to be.]

5. Point out that scientists look for patterns and order when they investigate the world.

Scientists noticed that the number of monarchs changed each year. There were fewer and fewer monarchs. Scientists were able to figure out that there was a problem with the monarchs. Noticing how things change is one of the ways that scientists figure things out about the world.

6. Continue reading, pausing at the end of page 15.

Why do monarch butterflies need trees in their habitat in Mexico?

[The trees keep them safe.]

How were humans changing this habitat?

[Some people cut down the trees that the butterflies needed so that they could build houses.]

Just like we have been sharing what we learn from our investigations with the children in Mariposa Grove, the scientists in the book communicated what they learned from their monarch investigation with the people in the community. What did the people do after the scientists communicated what they learned?

[Some people stopped cutting down trees. Some people planted new trees.]
How will planting new trees protect, or help keep safe, the monarch butterflies’ habitat?
[It will give the butterflies the safe place they need to live.]

7. Continue reading, pausing at the end of page 19.

What do monarch caterpillars need in their habitat?
[Milkweed plants. Milkweed leaves to eat.]

How were humans changing the caterpillars’ habitat in the United States?
[They were not growing as many milkweed plants.]

Reread the final line of text on page 19 and invite students to share their ideas.

What do you think people in the United States can do to make sure the caterpillars there get what they need, too?
[They can stop taking out milkweed plants. They can grow new milkweed plants.]

Why will growing new milkweed plants make this a habitat for monarch caterpillars?
[Growing new milkweed plants will give the caterpillars the food they need to live. Caterpillars eat milkweed leaves.]

8. Introduce the key concept.

We just read that some people were doing things that changed the monarchs’ habitats.

People made choices so both humans and other animals could get what they need. We can use the information that scientists learn from their investigations to help us make these types of choices.

Post the key concept on the wall and read it aloud.

9. Reflect on being scientists. Point to the science practices on the What Scientists Do chart and read them aloud. Encourage students to read along with you. Remind students they have been scientists as they work to help the children in Mariposa Grove.

Our purpose for reading today was to learn more about what scientists do to help people make choices so that monarch butterflies can live and grow. What things did the scientists in the book do to investigate the monarchs?
[Observed monarchs. Recorded data. Compared the number of monarchs living over time. Communicated what they found out.]
Teacher Support

Instructional Suggestion

Going Further: Acting Out and Discussing the Effect of Human Activities on Monarch Habitats

If time allows, have students act out how the number of trees in the forest changes the number of monarch butterflies that have a place to roost. Designate one third of your students to be trees in the forest and the rest to be monarch butterflies. Explain that each tree has two branches (students’ arms) and then have students spread out to make a forest. Next, explain that when you say, “Migrate,” the butterflies will move to a tree branch (a student’s arm) in the forest. Each butterfly should find an empty branch. Have each tree call out how many butterflies are in on branches. Now, explain that people have cut down some trees.

- Repeat the activity with a fewer number of students acting as trees. It should be difficult for each butterfly to find a branch. Have butterflies who can’t find a branch return to the rug.

- Repeat a third time with only one or two students acting as trees. Gather students together. Explain that students were acting out the habitat changes they read about in the book *Investigating Monarchs*. Discuss how monarch butterflies are affected when humans cut down some trees and how they are affected when humans cut down many trees. Highlight that fewer monarch butterflies means that there will be fewer monarch eggs and fewer caterpillars.

- You can further extend this activity with monarch caterpillar habitats. Designate different places in the classroom as fields (habitats) with milkweed and have students act as caterpillars. Gradually reduce the number of available habitats. You might explain that the community voted to turn one field into a garden and another field into a playground. Discuss how caterpillars are affected and highlight that fewer monarch caterpillars means that there will be fewer monarch butterflies. Use a similar procedure to model and discuss reducing the spring and summer habitat for monarch butterflies.
Reading: Investigating Monarchs

The teacher reads the second half of *Investigating Monarchs* about scientists investigating monarch habitats and the human impact on them.

Instructional Guide

1. **Connect to prior learning**. Display the *Investigating Monarchs* big book.

   Cuando leímos la primera parte de *Investigando las monarcas*, aprendimos acerca de los hábitats donde viven las monarcas en diferentes épocas de su vida.

   Point to the Monarch Habitats chart.

   Apuntamos lo que aprendimos en esta gráfica.

   Invite students to identify the different needs and habitats of monarchs at different stages of their lives.

2. **Introduce the Investigation Question**.

   Los humanos, o la gente, a veces toman decisiones que cambian los hábitats de plantas o de animales, como las monarcas. Esto puede hacer que los animales ya no puedan vivir en un lugar, porque no tienen la comida, el agua o la seguridad que necesitan para vivir y crecer. También puede hacer que algunas plantas ya no puedan vivir en un lugar, porque no tienen la luz y el agua que necesitan para vivir y crecer.

   Un ejemplo de esto es cuando la gente convirtió el campo en el jardín y quitó las plantas de algodóncillo que estaban creciendo allí.

   Queremos ayudar a los niños en Mariposa Grove a lograr que el jardín sea un lugar donde las orugas monarcas puedan vivir de nuevo. Hoy vamos a pensar en esta pregunta.

   Point to and read the Investigation Question aloud.
¿Cómo pueden asegurarse los humanos de que otros seres vivientes puedan vivir y crecer?

*Humanos* es otra palabra que usamos para la gente.

3. **Set the purpose for reading and gesture to the What Scientists Do chart.**

Hoy leeremos la segunda parte de *Investigando a las monarcas*. Nuestro propósito para leer hoy es aprender más acerca de lo que hacen los científicos. Veamos si podemos agregar más ideas a nuestra gráfica Lo que hacen los científicos y las científicas.

¿Cuáles son algunas de las cosas que hacen los científicos para ayudarles a responder sus preguntas?  

Mientras leemos, pensaremos en lo que hacen los científicos en este libro para responder sus preguntas sobre las monarcas y cómo ayudan a otras personas a tomar decisiones para que las monarcas puedan vivir y crecer.

4. **Begin reading, pausing at the end of page 12.**

Tal como cuando trabajamos como científicos y científicas, los científicos en el libro hicieron muchas cosas diferentes para investigar las monarcas. ¿Cuáles son algunas de las cosas que hicieron los científicos para investigar a las monarcas?  
[Observaron las mariposas. Contaron las mariposas. Apuntaron sus observaciones. Compararon sus observaciones].

¿Qué aprendieron los científicos en el libro de su investigación?  
[No había tantas mariposas como antes].

5. **Point out that scientists look for patterns and order when they investigate the world.**

Los científicos notaron que el número de monarcas cambiaba cada año. Había menos y menos monarcas. Los científicos averiguaron que había un problema con las monarcas. Notar cómo cambian las cosas es una de las maneras en las que los científicos averiguan sobre el mundo.

6. **Continue reading, pausing at the end of page 15.**

¿Por qué necesitan árboles las mariposas monarcas en su hábitat en México?  
[Los árboles las mantienen seguras].

¿Cómo estaban cambiando los humanos este hábitat?  
[Algunas personas derribaron los árboles que necesitaban las mariposas para poder construir casas].
Tal como nosotros hemos estado compartiendo lo que aprendemos de nuestras investigaciones con los niños en Mariposa Grove, los científicos en el libro comunicaron lo que aprendieron de su investigación de la monarca con la gente en la comunidad. ¿Qué hizo la gente después de que los científicos comunicaron lo que aprendieron? [Algunas personas dejaron de derribar árboles. Algunas personas plantaron árboles nuevos].

¿De qué manera plantar árboles nuevos protegerá, o ayudará a mantener seguro, el hábitat de las mariposas monarcas? [Les dará a las mariposas el lugar seguro que necesitan para vivir].

7. Continue reading, pausing at the end of page 19.

¿Qué necesitan las orugas monarcas en su hábitat? [Plantas de algodoncillo. Hojas de algodoncillo para comer].

¿De qué manera los humanos estaban cambiando el hábitat de las orugas en los Estados Unidos? [No estaban cultivando tantas plantas de algodoncillo].

Reread the final line of text on page 19 and invite students to share their ideas.

¿Qué piensan que las personas en los Estados Unidos pueden hacer para asegurarse de que las orugas allí también obtengan lo que necesitan? [Pueden dejar de arrancar las plantas de algodoncillo. Pueden cultivar plantas de algodoncillo nuevas].

¿Por qué cultivar plantas de algodoncillo nuevas hará que este sea un hábitat para las orugas monarcas? [Cultivar plantas de algodoncillo nuevas les dará a las orugas la comida que necesitan para vivir. Las orugas comen hojas del algodoncillo].

8. Introduce the key concept.

Acabamos de leer que algunas personas estaban haciendo cosas que cambiaron los hábitats de las monarcas. Los científicos le dijeron a la gente en México que las mariposas monarcas necesitan árboles para mantenerse seguras. Los científicos le dijeron a la gente en los Estados Unidos que las orugas monarcas necesitan plantas de algodoncillo para comer. Luego, la gente comenzó a hacer cosas para proteger los hábitats de las monarcas.

La gente tomó decisiones para que tanto los humanos como otros animales pudieran obtener lo que necesitan. Podemos usar la información que los científicos aprenden de sus investigaciones para ayudarnos a tomar este tipo de decisiones.

Post the key concept on the wall and read it aloud.

Lo que los científicos aprenden sobre los seres vivientes puede ayudar a la gente a tomar decisiones sobre qué hacer.
9. **Reflect on being scientists.** Point to the science practices on the What Scientists Do chart and read them aloud. Encourage students to read along with you. Remind students they have been scientists as they work to help the children in Mariposa Grove.

**Teacher Support**

**Instructional Suggestion**

**Going Further: Acting Out and Discussing the Effect of Human Activities on Monarch Habitats**

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