Think Like A Scientist

I Live Where I Live Because...

NSTA eBooks+ Kids

TEACHER'S GUIDE

Overview

This teacher's guide is written to support teachers using the *I Live Where I Live Because...* e-book in their classrooms. It lays out learning goals for each chapter, shares likely student misconceptions and how to address them, and highlights where students explicitly practice science and use crosscutting concepts to support their learning. It also provides investigations that connect readings and interactives in the book with students' world.

Grade 3
Lexile® Measure: 720L

Teachers who follow the guide while addressing the specific needs of their classroom will be able to:

- engage students in grade-level appropriate, three-dimensional learning;
- use the e-book as a tool in class-wide, small group, or independent explorations of its content;
- facilitate investigations that utilize the e-book content and connect it with their own classroom and community; and
- assess students on the third grade content standards to which this e-book is aligned and additional Math and/or ELA Common Core standards suggested throughout the e-book.

Three-Dimensional Learning and the *I Live Where I Live Because...* E-book

The integration of the science and engineering practices, disciplinary core ideas, and crosscutting concepts of three-dimensional learning are at the heart of this e-book. You will notice throughout the document that certain words and phrases are highlighted in different colors: blue, green, and orange. These colors correspond to the practices (blue), crosscutting concepts (green), and disciplinary core ideas (orange).

This e-book does not use all of the grade-level elements for the practices and crosscutting concepts, but that does not mean that you should not be aware of the other practices and concepts your students need to know. For a full list of all the grade-level elements for the science and engineering practices and crosscutting concepts, refer to Appendix A.

Consider using this e-book in the classroom as a digital Big Book. This can help students with independent reading and language development, as well as model how children can participate in science.

This e-book examines a disciplinary core idea while using crosscutting concepts and practices to create a three-dimensional understanding of weather and, to a greater extent, climate.

Disciplinary Core Ideas (DCIs)

The disciplinary core idea addressed includes:

LS4.C: Adaptation **For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.**

Chapter 1

What Happened to the Moths?

This chapter is important in setting the stage for student-led scientific exploration. It will require the students to make predictions, ask questions, analyze data, and construct explanations. This may be a novel way of approaching a new concept for some students so encourage them to step out of their comfort zone.

The purpose of this chapter is to engage students in a problem where they analyze data to learn about the change in moth population, as some moths were unable to survive because of the change. The moths in question are the peppered moth and they serve as a common case study to discuss stability and change in populations and how change affects an organism's survival.

The word *population* is not introduced to the students until chapter two but is defined as all organisms of the same type living in the same area at a specific time. Using new vocabulary words in context can help familiarize students with the terms before they are officially defined.

By the end of this chapter, students will be able to:

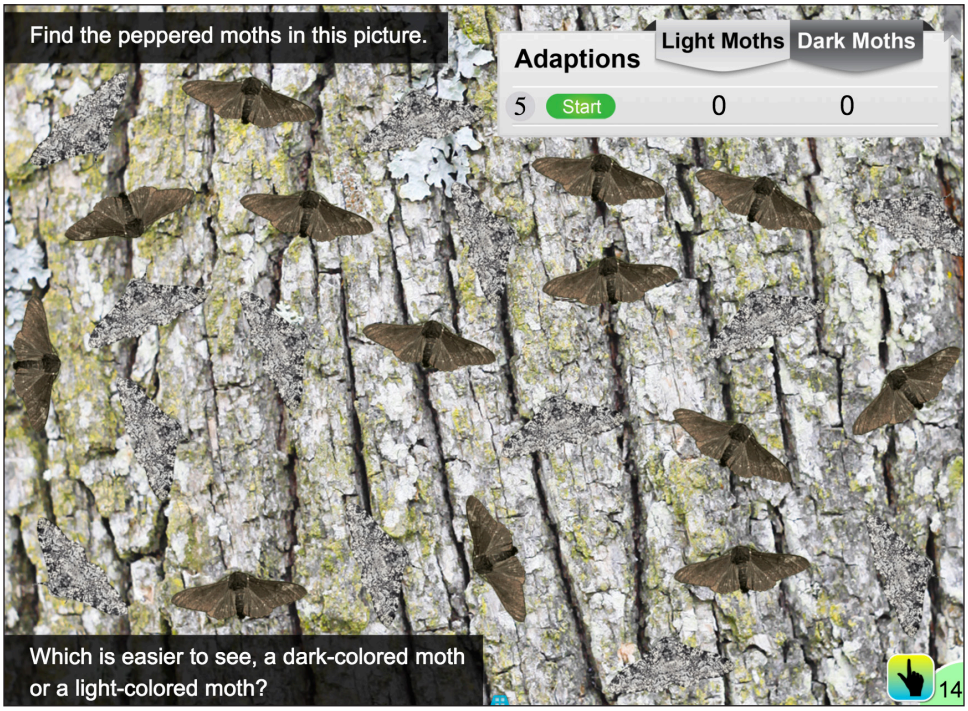
- create a bar graph from a set of population data, and
- develop a hypothesis using evidence to explain why the moth population changed.

Note: This e-book covers physical adaptations. It does not cover natural selection, behavioral adaptations, or chemical adaptations.

Differentiated Instruction

For ELL students or those at lower reading levels, use the audio read along tool. This tool will highlight words as the text on the page is read, helping the student to follow along, recognize, and pronounce different words.

Page 14

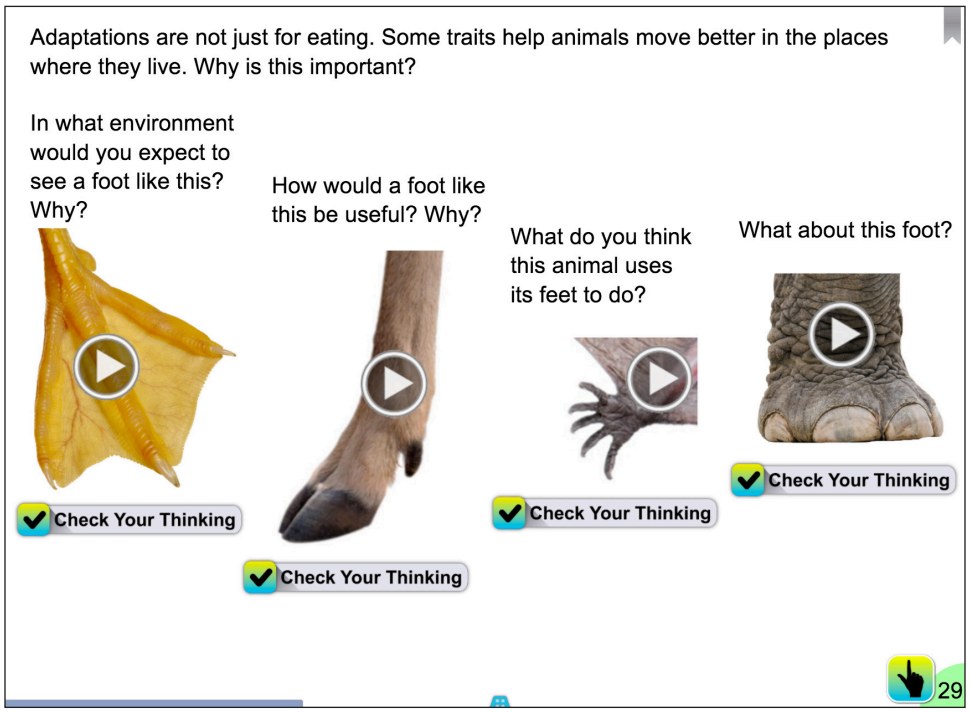


In this interactive students act as the bird that eats the moth. The term *predator* has not been introduced yet. Since the bark is light, hypothetically the students would capture a larger number of dark-colored moths as they stand out more. There are equal numbers of light and dark moths (13 each). Ask students to explain what happened when they tried this interactive and support their explanation with evidence.

Mathematics Connections

Collect the results from all of your students. Then have your students make a graph of the classroom data. Large data sets are more reliable than small data sets. For example, one student may have chosen to only "eat" light-colored moths. This data would not help that student understand the idea that dark-colored moths would be eaten more rapidly because they're easier to see. Taking a classroom set of data alleviates this issue.

Page 29

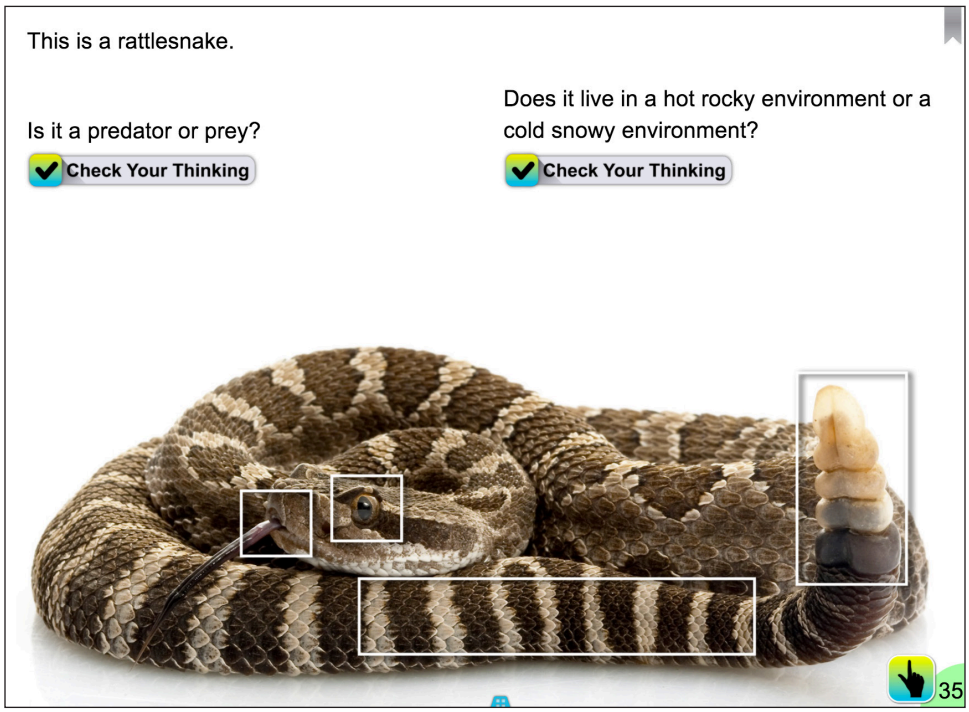


The next body structure examined is feet. On this page, students are asked to observe the different feet and use evidence to explain to what environment they would be best suited. Emphasize that these structures work well in certain environments, but if the organism was placed in a different environment they would not be as helpful. You can use flippers as an example. Seals and fish have flippers that help them swim fast in water, but when on land they are clumsy.

Thinking Beyond

With the exception of the bat, the feet shown on this page belong to plant eaters. What do you think the structure of a lion's paw is like? What is its function? See if students can make the connection between a lion as a meat eater and the need for claws in order to hunt for food. On the next page students will see a lion paw and learn about how they use them to hunt.

Page 35



This page brings together the two concepts that some adaptations help with finding food or avoiding being eaten (predator and prey) and that some adaptations help an organism survive particular environmental conditions (like hot or cold).

Thinking Beyond

This extension can be the basis of a classroom discussion or writing prompt that will allow you to assess your students' understanding of the concepts.

Students have recently explored three animals: the polar bear, the desert cottontail, and the rattlesnake. Explore other animals and plants. As students examine each organism, have them make a claim about how the animal moves, where it lives, and what it eats. Make sure they give evidence supporting their claims. You can frame this investigation with the driving question: Why do I live where I live?

Differentiated Instruction

Give students a graphic organizer and ask them words that fit predators, prey, or both. Have students write the words into the graphic organizer. This works well in small groups.