mystery science

Anchor Layer Teacher Guide

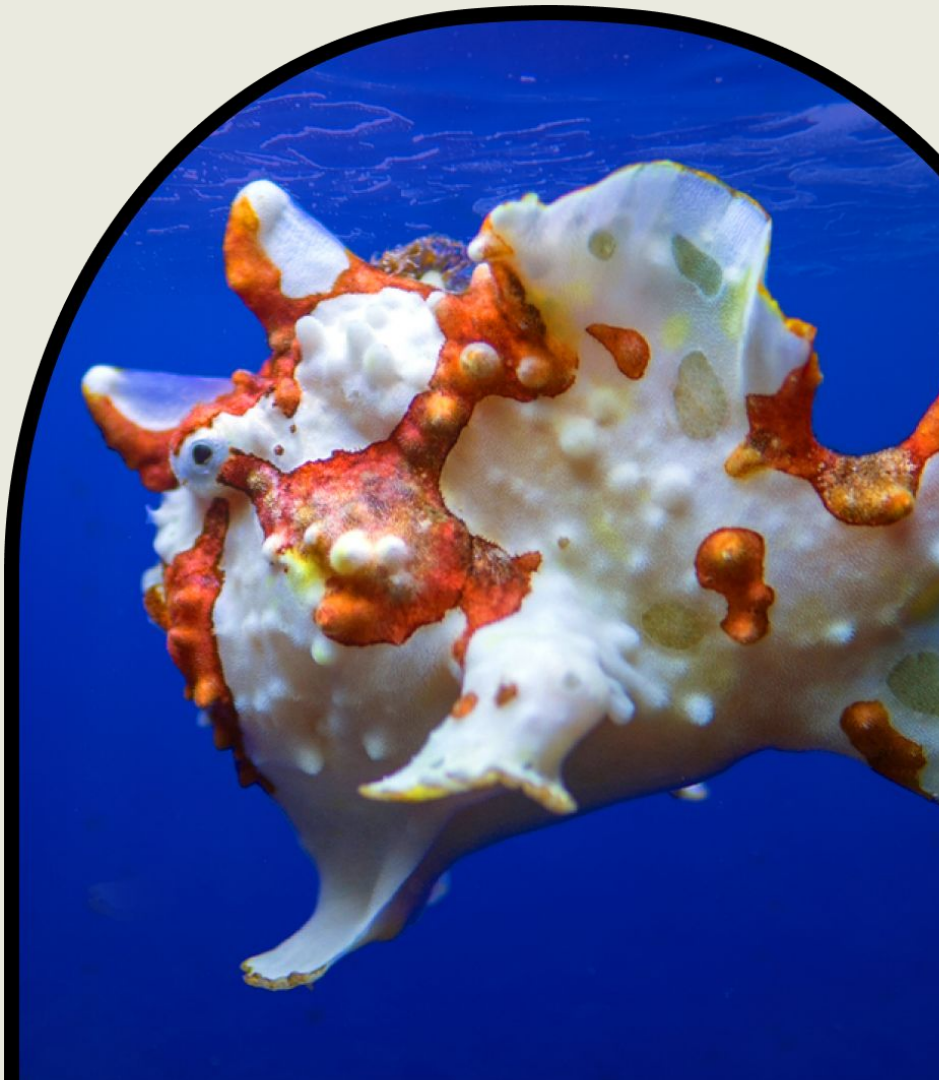
A curriculum companion for Anchor Layer users

Grade 4

Animal & Plant Adaptations

Unit Web Link • Pacing Guide • Other Units

Note: The Anchor Layer for this unit is currently in development.

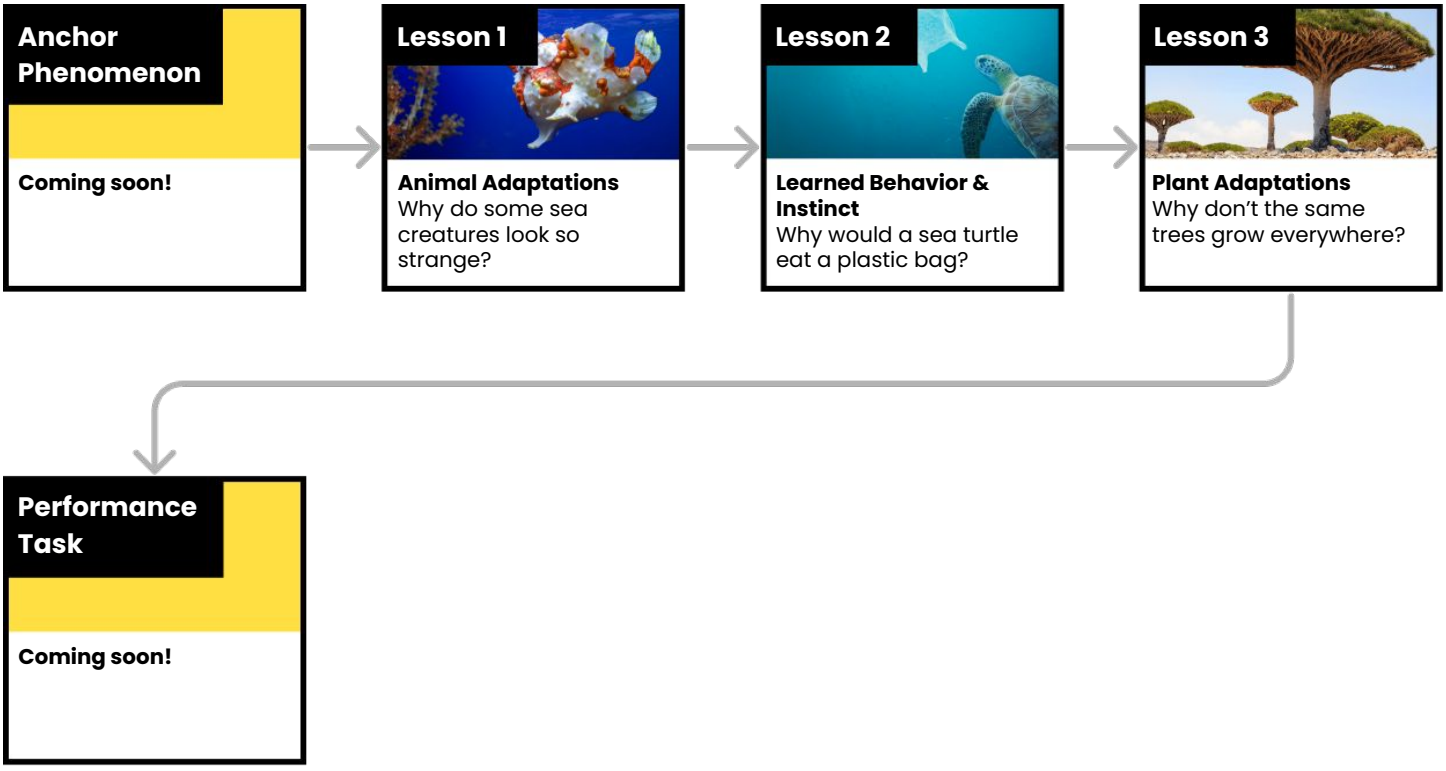


Last Updated 5/31/2024

Unit Summary

In this unit, students explore the adaptations of animals and plants. Students investigate how the external and internal structures of an organism work together as an interconnected system that aid in their growth and survival. They also use models to explore how a combination of instincts and memories influence animal behavior.

Performance Expectations	Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
• 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. • 4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.	• Engaging in Argument from Evidence • Developing and Using Models • Constructing Explanations and Designing Solutions	• LS1.A: Structure and Function • LS1.D: Information Processing	• Systems and System Models



Lesson 1: Why do some sea creatures look so strange?
Animal Adaptations

Exploration
10 mins

Hands-On Activity
35 mins

Wrap-Up
10 mins

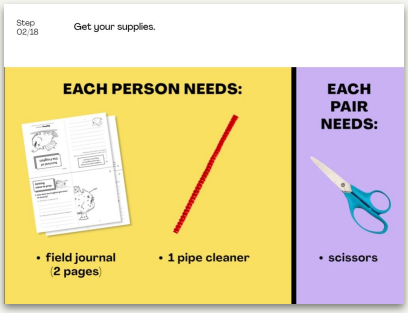
Overview

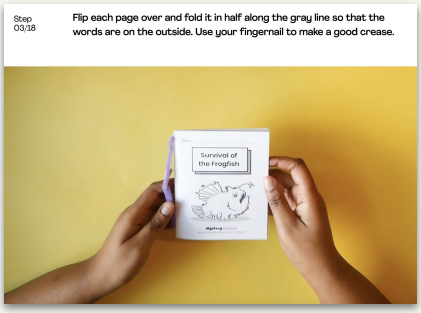
In this lesson, students make observations of an underwater animal, a frogfish, in order to collect evidence that its external structures serve specific functions.

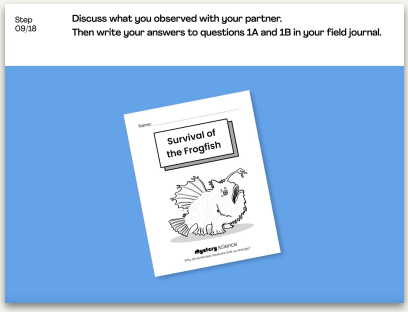
In the activity, Frogfish Finder , students use their observations to construct an argument that the frogfish's external and internal structures work together as part of a system to support their growth and survival.

Activity Notes

We suggest students work in pairs. Homeschool students can work on their own.







Lesson 2: Why would a sea turtle eat a plastic bag?
Learned Behavior & Instinct

Exploration
10 mins

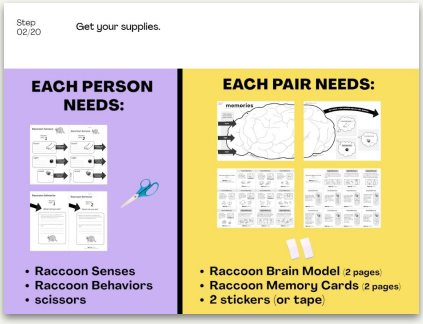
Hands-On Activity
40 mins

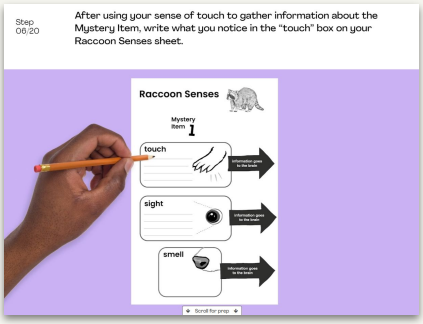
Wrap-Up
10 mins

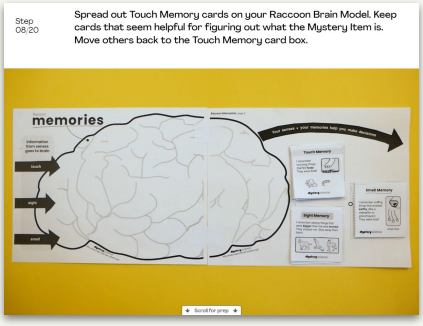
Overview

In this lesson, students explore how animals receive information through their senses and process that information in their brain, using instincts and memories to guide their behaviors.

In the activity, Raccoon Reactions, students use models to understand how an animal's senses, brain, and memories all work together as a system to influence their behavior and support their survival.







Activity Notes

We suggest students work in pairs.

Divide the paper bags into two equal piles. We suggest labeling each bag in the first pile "1" and each bag in the second pile "2". These will correspond to "Mystery Item 1" and "Mystery Item 2" in the activity.

Place one cotton ball into each bag in the first pile. You'll distribute one of these bags to each pair of students in [Step 5](#slide-id-17606) of the activity.

Place one small square of aluminum foil into each of the other bags. Try to avoid squeezing the foil into a ball because that will make it difficult for students to feel the texture. You'll distribute one of these bags to each pair of students in [Step 15](#slide-id-17613) of the activity.

Ensure that each pair of students has enough space to lay out their Raccoon Brain models and the Memory Cards. Two student desks side-by-side should be sufficient.

Lesson 3: Why would a sea turtle eat a plastic bag?
Animal Instincts & Memories

Exploration
10 mins

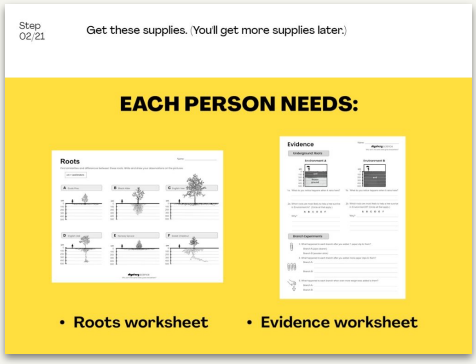
Hands-On Activity
40 mins

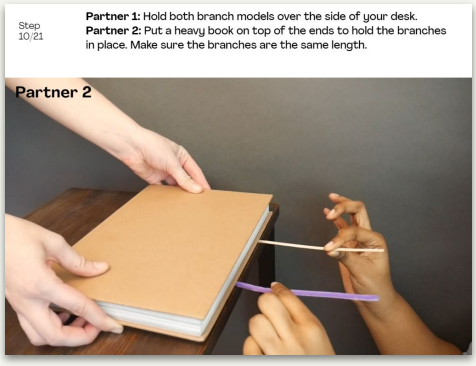
Wrap-Up
20 mins

Overview

In this lesson, students make observations of external and internal parts of trees in order to collect evidence that these structures work together as a system to help plants survive in a particular environment.

In the activity, Tree Detective, students use models of roots and branches to explore their functions and then construct an argument about how these structures must work together in order to support the survival of trees in the unique environment of the frozen taiga.





Activity Notes

We suggest students work in pairs.

This activity involves pairs of students working together to create codes and then separating from one another to communicate those codes over a distance. Ideally student pairs will stand across the room from one another, but you may need to modify depending on your classroom.

You can choose to provide whatever materials you'd like for students to use for their codes. We suggest at least some paper and crayons. But you can include flashlights, musical instruments, or anything you'd like to encourage student creativity in their visual and sound code creation.