

# Science Tech Trek: Animal Defenses

## Teacher Post Trip Guide



### Post Trip Overview

After completing their Science Tech Trek, students will have the opportunity to reinforce and extend their understanding of animal defenses with post-field trip learning activities in the classroom. Teachers will guide their learners through a review of how hermit crabs defend themselves. Then, learners will get to explore a new animal defense and design their own animal using what they've learned.

### Supported Amplify Science Lessons

#### 1<sup>st</sup> Grade Amplify Unit: Animal and Plant Defenses

##### Lessons:

- 1.4 Surviving by Not Being Eaten
- 1.5 Explaining Sea Turtle Survival
- 2.2 Sharp Structures for Eating

### Supported NGSS Standards

**1-LS1-1:** Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

**K-2-ETS1-2:** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

Science and Engineering Processes	Disciplinary Core Ideas	Crosscutting Concepts
<b>Constructing Explanations and Designing Solutions</b> <ul style="list-style-type: none"> <li>• Use materials to design a device that solves a specific problem or a solution to a specific problem. (1-LS1-1)</li> </ul>	<b>LS1.A: Structure and Function</b> <ul style="list-style-type: none"> <li>• All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. (1-LS1-1)</li> </ul>	<b>Structure and Function</b> <ul style="list-style-type: none"> <li>• The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1)</li> </ul>

### Supported Common Core Standards

**CCSS.ELA-LITERACY.RI.1.6:** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

**CCSS.ELA-LITERACY.SL.1.2:** Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

STT Central Phenomenon Questions	Science Tech Trek Learning Objectives
<ul style="list-style-type: none"> <li>• How do aquatic animals stay safe and defend themselves?</li> <li>• Why is Shedd Aquarium the best home for Nickel the sea turtle?</li> </ul>	Students will be able to... <ul style="list-style-type: none"> <li>• Investigate animal body parts and behaviors used in defense</li> <li>• Observe animals, investigate scientific questions, and use tablets to document their explorations</li> </ul>

# Post-Trip Guide

## Logistics

Facilitated by classroom teacher at school

Time: 25-30 minutes

### Learning Objectives

Students will be able to...

- Investigate animal body parts and behaviors used in defense

### Materials

- Printed Science Tech Trek summaries (example on last page)
- Pencils
- Blank paper
- Crayons/colored pencils/markers
- Computer/projector/speakers
- Sea Curious video link:  
<https://www.youtube.com/watch?v=POb5GoC8Z-Y>

## Prep

- Print two copies of each Science Tech Trek summaries (one for each partner)
- Pull up Sea Curious video online

## Facilitation Outline

### Quick Outline

1. Reviewing learning objectives and Science Tech Trek concepts
2. Expanding students' thinking about animal defenses
3. Creative connection

### 1. Reviewing Learning Objectives and Science Tech Trek Concepts

12 minutes

- Review the learning objectives for students' exploration of animal defenses.
- Remind students of what they did during their Science Tech Trek:
  - Explored a red-footed tortoise or hermit crabs' defenses
  - Explored how animals use defenses to survive
  - Learned how aquarists care for Nickel, a sea turtle who was injured in an accident and can't defend herself as well
- Discuss how hermit crabs defend themselves and stay safe:
 

Guiding Questions:

  - What defenses do hermit crabs have to stay safe? (*shells and claws*)
  - Show me how a hermit crab might use its shell to stay safe. (*students might cover their head with their arms, tuck their head in, or squat into a compact position*)
  - Show me how a hermit crab might use its claws to stay safe. (*students might move their hands in a pinching motion*)
  - How do these defenses help the hermit crab to stay safe? (*these defenses can help the hermit crab to not be eaten or stepped on*)
- Make sure students have their Science Tech Trek summaries and a writing utensil.
- Have students record answers to question 1 on the front page of their summaries.
- Discuss camouflage as a defense:
 

Guiding Questions:

  - Is it easier to spot something that is the same color as its surroundings or something that is a very different color from its surroundings? (*something that is a very different color from its surroundings*)
  - When an animal blends in with its surroundings, this is called 'camouflage'. How does camouflage help an animal to stay safe? (*camouflage makes the animal much harder to see*)

- Look at your hermit crab's shell on your summary. What color is it? If you were drawing a beach habitat behind it, what colors should you use to make sure it blends in well?
- Have students draw a beach habitat around their hermit crab.
- Have students draw another animal into the beach habitat and record an answers for questions 4 and 5 on their summary.

## 2. Expanding Students' Thinking About Animal Defenses

7 minutes

- Ask students if they've ever played with slime before. Introduce another animal defense: slime.
- Watch the Sea Curious video to learn how animals defend themselves with slime.
- Facilitate a discussion about how some animals use slime to protect themselves. Use a combination of partner sharing and whole group response:

Guiding Questions:

- How do sea stars use slime to defend themselves? (*the slime protects them from germs, similar to humans' skin*)
- How did some of the other animals in the video use slime to protect themselves?

## 3. Creative Connection

6-11 minutes

- Brainstorm a list of different animal defenses that students have learned about (shells, claws, pointy teeth or spines, camouflage, slime, etc.)
- Have students invent and draw their own animal that has 2 or more of the defenses that they learned about.
- Share photos of your students' post-trip learning with #SheddLearning via Twitter, Instagram, or Facebook! Or email the photo with your school name to [learning@sheddaquarium.org](mailto:learning@sheddaquarium.org) and for Shedd to tweet from @SheddLearning.



Student A.



During your tech trek, you stamped a shell onto the back of a hermit crab.

1) How do shells keep hermit crabs safe?

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2) Color a picture of a beach around your hermit crab. Make sure your hermit crab blends into its beach surroundings. Sometimes hermit crab shells can blend into the sand, rocks, or other shells because they are the same color.

3) Draw another animal on the beach with your hermit crab, or in the ocean if you included water in your picture.

Shells can also help hermit crabs camouflage, or blend into their surroundings. Hermit crabs are found in the sand on beaches near the ocean.

4) How might blending in or matching its environment help an animal stay safe?

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5) Does this other animal have any body parts or behaviors that help it defend itself? (Fill in the blanks below)

The other animal I drew is \_\_\_\_\_

I think it defends itself by \_\_\_\_\_

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