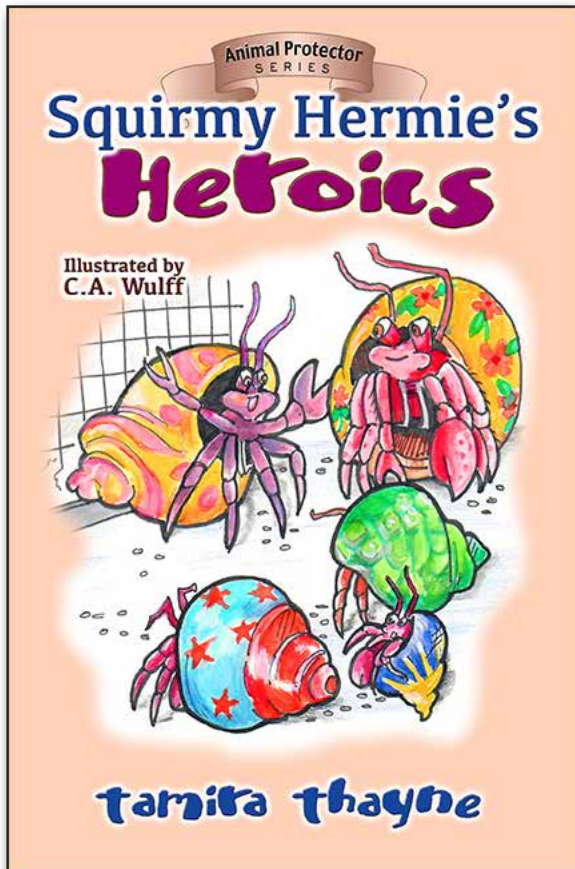


A Lesson on Land Hermit Crabs to accompany the book
Squirmy Hermie's HEROICS



You can buy *Squirmy Hermie's Heroics* in paperback and kindle—soon to come in audiobook, too. Find all links on our website at www.whochainsyou.com

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Lesson Title:

Learn the Basic Needs of a Land Hermit Crab and How We as a Society Can Meet Those Needs

Created by Tamira Thayne

Grade Level(s): 3, 4, 5

Objective: The student will be able to cite facts about land hermit crabs and their geographic origins, develop a list of items they need to thrive, describe their lives in the wild, and discuss the differences between life in the wild and in captivity.

Standards Addressed: Virginia English/Reading Standards of Learning, Science, World Geography. Can be applied in any classroom to comparable standards.

Time Needed: 1-3 Hours, depending on the activities chosen, and if the full story is read to the class and the shell game is played. The lesson can also be split into two days, where the book is read on day one, and the game is played on day two.

Reading:

4.4 The student will expand vocabulary when reading.

e) Develop and use general and specialized vocabulary through speaking, listening, reading, and writing.

4.5 The student will read and demonstrate comprehension of fictional texts, literary nonfiction texts, and poetry.

b) Identify the theme(s).

c) Summarize events in the plot.

Writing

4.7 The student will write in a variety of forms to include narrative, descriptive, opinion, and expository.

a) Engage in writing as a process.

f) Organize writing to convey a central idea.

- h) Write related paragraphs on the same topic.
- k) Use transition words and prepositional phrases for sentence variety.
- l) Utilize elements of style, including word choice and sentence variation.

Science: Living Systems and Processes

4.2 The student will investigate and understand that plants and animals have structures that distinguish them from one another and play vital roles in their ability to survive. Key ideas include

- b) plants and animals have different structures and processes for obtaining energy; and
- c) plants and animals have different structures and processes for creating offspring.

4.3 The student will investigate and understand that organisms, including humans, interact with one another and with the nonliving components in the ecosystem. Key ideas include

- a) interrelationships exist in populations, communities, and ecosystems;
- c) changes in an organism's niche and habitat may occur at various stages in its life cycle.

World Geography:

- WG.1 The student will use maps, globes, satellite images, photographs, or diagrams to
- c) develop and refine mental maps of world regions.

Character Concepts Taught: Creating a caring community, providing students with opportunities for moral action, engaging families and community members as partners

Materials Needed:

- Musical shells game (pdf printouts and instructions provided, following.)

- Music source that can be turned off and on. (phone, computer, tablet, stereo, etc.)
- Sample hermit crab shells, at least one unpainted and one painted for students to pass around
- World map
- Hermit crab story (*Squirmy Hermie's Heroics*)
- Sheet with critical thinking questions stems, four questions and students will choose two
- Pencils for students to write answers to questions and finish the story

Preparations: Ensure you have enough materials for the whole class by ascertaining numbers in advance. You'll need copies of the question sheet, one for each student, and enough paper "shells" for each student. Before the students arrive, put a copy of the question sheet under one paper "shell" on each desk.

Lesson Procedure:

Opening Activity or Activating Strategy: For the next 50 minutes, pretend you're a land hermit crab. Some of you are comparatively large, about five inches in diameter, while some of you are small, around only an inch or so. The rest are in-between these two sizes. You all live in shell homes, for without that shell you cannot survive. **For the sake of today's lesson, I'd like you to pretend with me that the shell you see on your desk is your home.**

Look at your home, and let's take some guesses where land hermit crabs live in the wild. Anyone?

Yes, warm places! Let's look at the world map, and call out a couple of places where they might live. There are three different kinds of land hermit crabs that are well-known: Caribbean hermit crab, Australian land hermit crab, and the Ecuadorian hermit crab. Let's find those areas on the map.

Who wants to try?

[Hold up images of painted shells A-E for the students to see.]

Ok, Students, look at the shell on your desk, then look at these pretty painted shells. If you're a hermit crab, which shell would you prefer to live in? (Pause for answers.)

Great answers, everyone. Let's see if your answers stay the same after we learn a little more about hermit crabs and what they need to be happy and healthy.

Body: So what exactly is a land hermit crab? Land hermit crabs are crustaceans who carry a scavenged shell to protect their lower body. According to Wikipedia, "Land hermit crabs spend most of their life on land as terrestrial species in tropical areas, though they require access to both freshwater and saltwater to keep their gills damp or wet to survive and to reproduce."

Land hermit crabs are often sold at beaches in America by stores along boardwalks and some pet stores to families who don't understand their needs. Today we'll explore the needs of these creatures and decide if taking them from their native habitats is really a good idea.

Some facts about hermit crabs:

- Does anyone know what the word hermit means? (Pause.) The word "hermit" means living alone, by oneself. But even though they're called hermit crabs, these crabs actually live in large groups, and don't like to be alone.

- In the wild, hermit crabs are scavengers. Can anyone tell me what that word means? (Pause.) A scavenger scours the area in search of food they might like. They forage and eat many different things, including fruits, plants, and animal remains.

- Hermit crabs have modified gills. Does anyone know what gills are used for? Yes, they are kinda like lungs, and help them breathe. In order for hermit crabs to breathe properly, they need a warm, moist environment, such as one finds in the tropical areas where they are native.

- In the wild, hermit crabs live near the shoreline, and have access to both saltwater and freshwater. They have access to many kinds of the foods they like, as well as trees and plants to

climb and explore.

- As hermit crabs grow, they molt. Does anyone know what that means? (Pause.) Molt means they shed their exoskeleton and grow a new one as they get bigger. In order to do this, they burrow in the sand and stay down there in relative safety until they've finished. This could take weeks or even longer.

- After crabs molt, they need to find a bigger shell to fit their larger body. Often, in the wild, crabs will form a chain, waiting for the next biggest shell. It's been documented that a crab will stand by a shell that's a little bit too big for him/her, and wait for someone to come along and choose it. Then s/he will jump into that crab's shell, and all the crabs waiting in line will jump into a slightly bigger shell too!

- Most importantly, in the wild the crabs have freedom to live with others of their kind and have a life that is right for them.

- And finally, in their native habitats, crabs live for many years, even as many as 30-40!

Now let's look at what can happen when they are taken into captivity in order to be sold to humans:

- The crabs are forced from their shells into a painted shell. These painted shells are toxic for the crabs. Who can tell me what toxic means? (Pause.) Yes, poisonous.

- Most families are not informed when buying hermit crabs of their needs, and so they don't provide the best habitat for them. For example:

- They are rarely provided with the depth of sand necessary to molt.

- If they cannot find a bigger shell and cannot molt, they will not live very long.

- Most terrariums are too small and don't have the required warmth and moisture levels, which are needed by the hermit crabs in order to breathe.

Now we're going to read a fictional story about some captured hermit crabs. At the end, you will write 1-3 paragraphs about what we've learned about crabs from our lesson and the story,

and if you think it's a good idea to remove them from their native habitats.

Read: Read *Squirmy Hermie's Heroics*, then allow 5-10 minutes for writing. [Note, if the lesson is split into two days, the teacher might want to read the book the first day, then do the rest of the lesson the next day.]

Play: Now that we're done writing, let's move a little while we play a game called "Musical Shells." Remember we talked about the way that hermit crabs change shells when they grow? This game will illustrate that for us. Look at your hermit crab shell on your desk. (Move to game sheet, following, and read from there. Come back after to closure, below.)

Closure or Wrap-up: Let's now find out what we learned and what we think about hermit crabs and whether they live better lives in the wild or in captivity. I've passed out a sheet with four questions. Answer two of them with at least three sentences each.

Questions:

Go back to pretending you're a crab. What are the advantages and disadvantages of living in the wild?

Go back to pretending you're a crab. What are the advantages and disadvantages of living in captivity?

What is the point or "big idea" of painting the shells of hermit crabs?

What do you think we should do with regards to hermit crabs? Explain your reasoning.

Extension Exercise: There are projects that can be done to create rope toys for hermit crab rescues, that would best be done in small groups as they take a little more time than a 50-minute class can provide. This would make a great humanitarian project for a class, and they could be sent to hermit crab rescues.

Websites to consult for more information on adopting crabs or education: hermitcrabowners.com, plightofthehermies.org.

the Land Hermit crab "MUSICAL SHELLS GAME" FOR ELEMENTARY STUDENTS



the Land Hermit crab “MUSICAL SHELLS GAME” instruction sheet

Designed to accompany an Educational Lesson Entitled: Learn the Basic Needs of a Hermit Crab and How We as a Society Can Meet Those Needs

Before students come to class, instructor puts one shell image per student on each desk. Mix numbers up if possible. If there are more than 25 students, repeat images, continuing the number sequence as needed.

Instructor (to students): “Pretend you’re a hermit crab. Some of you are comparatively large, about 5 inches in diameter, while some of you are small, less than an inch or so. The rest of you are in-between these two sizes. You all live in shell homes, for without that shell you cannot survive. For the sake of today’s lesson, I’d like you to pretend with me that the shell you see on your desk is your home.”

Instructor then holds up painted shell images A-E: “Ok, Students, look at the shell on your desk, then look at these pretty painted shells. If you’re a hermit crab, which shell would you prefer to live in?” (Pause for answers.)

Instructor continues. “Great answers, everyone. Let’s see if your answers stay the same after we learn a little more about hermit crabs and what they need to be happy and healthy.”

Instructor then teaches the lesson on hermit crabs that goes with this game. (See previous pages, modifying for age group as necessary.)

Instructor (to students): “Now it’s time for our game. Has anyone ever played musical chairs?” (Hands raise.)

“Our game is very much like that, only we’ll call it ‘musical shells.’ We learned that hermit crabs trade shells when they grow too big for their old shells. So we’ll have everyone line up by number, with the number 1 being the biggest crab, and so

on, down to number 25.” (Or your last number of students.)

Students line up by number.

Teacher puts the letter A painted crab sign on a chair at the front of the room.

Instructor: “Now, I’m going to play music on my computer (or phone, stereo, etc.) while you all walk in a circle around the room. I’ll turn my back, and when I turn off the music, whoever is closest to the chair with the crab sign will be captured and sent to the United States to sell in stores along the beach.”

The music stops, and the first “crab” is “captured.” The instructor takes that student’s shell number out of commission, and the student sits along the side with his/her A painted crab sign instead.

Instructor: “Our first crab friend has gone to the land of painted shells, and his/her number is now unavailable. What did we say that crabs do when they get bigger? That’s right, they move up to the next shell! So now, whatever number you have, you will move to the shell above yours.” (Number one is “re-born” as a little crab, and so goes to the end to start over.)

“But! Now we have a twist. Since number (X) is out of the game, when the next crab in line moves up, the number right in front of her/him is gone. What does this mean? (Pause.) That’s right! S/he has to take the next bigger shell, and now s/he is in a shell that’s too big! Many crabs would not move up to a larger shell, but let’s say s/he does for the sake of the game, but s/he’s not happy with her/his shell size. There are no extra shells,

so there is not much that can be done about it.” Once everyone gets situated and lined up by number again, the instructor puts the letter B painted crab sign on the chair in the front of the room.

Repeat the steps of playing music and capturing the next crab who goes to “painted shell land,” off to the side of the room.

Remaining students once again grow too big for their shells, and so move up a number.

Instructor: “Uh oh. Remember when we lost our first crab, and the crab below that one had to move into a shell that was too big? Guess what! Now THAT crab just fits in his/her shell. And s/he doesn’t want to move up now. So what do we do?” (Pause for answers.)

“That’s right! We have one empty, big shell, so the crab below the one who doesn’t want to move has no choice but to move into a shell that is too big or stay in a small shell, which doesn’t allow any of the others to move up either!”

Repeat the steps through C, D, & E painted shells, each time removing the number and pointing out crabs who have to move into shells that are too big or stay in ones that are too small. [By this point, the game will have stalled due to lack of shells for moving...which is part of the lesson.]

Instructor: “So, do you think that removing the crabs and shells from the crabs’ natural habitat is a good idea for the ecosystem and the crabs? Why or why not? What do you think might be a good solution to the problem?”

“Last question: Where do you think the people who paint the shells find the shells they paint?”

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