



LAND HERMIT CRAB

LESSON PLANS

BY VANESSA PIKE-RUSSELL

LESSON PLANS

**LESSON PLAN 1:
Introduction to
land hermit crabs**

**LESSON PLAN 2:
Lifecycle**

**LESSON PLAN 3:
Anatomy and stages of
development**

**LESSON PLAN 4:
Water and diet**

**LESSON PLAN 5:
Humidity and temperature**

**LESSON PLAN 6:
Land hermit crab poetry**

LESSON PLAN 1

Age 8+

Duration: 30 Minutes

**Key Learning Areas:
Language, Science**

Materials:

Butcher's paper and pens or whiteboard and markers, photos of hermit crabs and ideally a book on land hermit crabs and marine hermit crabs

Objectives:

To give an introductory lesson on hermit crabs which is based on students' prior knowledge and encourages students to be active in the learning process.

Content:

- Discussion - establish what children know about hermit crabs**
- Explanation - Establish the difference between Land and Marine Hermit Crabs.**
- "What is different and what is the same about them."**
- Brainstorm - "What are other animals that live in shells? " ie snails, molluscs etc**

DISCUSSION

"Today we will be learning about hermit crabs. What do you know about hermit crabs?"

**"Have you ever seen a hermit crab?
Do you know of anyone who keeps hermit crabs as pets?"**

Exposition - What is a land hermit crab?

Land Hermit Crabs are different to the other crabs in one BIG way. They carry a seashell on their abdomen (belly) as they didn't develop a tough outer shell like the other crabs. It is soft and vulnerable and needs protection. It looks much like the shape of a curled finger, which slips within the safety of a borrowed marine or land snail shell, much like we would slip our feet inside a pair of shoes.

That's why a hermit crab uses seashells and holds its abdomen inside the seashell held with its uropod (like a crab tail) and forth and fifth legs. The seashell holds water which helps keep their lungs moist so they can breathe through their gills. They are tropical land hermit crabs and cannot live long in low temperatures and low humidity.

The seashell also protects them from other animals. When they are scared they often tuck inside their shell and cover the hole with their claw in a tight fit!

The first set of legs is called a grasping claw. It is what the hermit crab uses to grasp its food and also to grasp onto objects.

QUESTION AND ANSWER TIME

Give students some time to ask questions or talk about their experiences or observations of hermit crabs. Take notes on the paper or whiteboard for later lessons and recall.

EXPLANATION

Difference between land and marine-based hermit crabs.

"There are two types of hermit crabs. Land hermit crabs, which live on land, and marine hermit crabs, which live in the sea and rock pools.

Land hermit crabs have evolved to breathe air through modified gills that act as lungs. That's why they need the protection of their seashell and the small amount of water found inside which helps them to breathe and protects them from other hermit crabs and predators when in the wild."

MARINE HERMIT CRAB

Photo credit: ProjectNoah.org



Marine hermit crabs are found at the waterline or in tide pools, land hermit crabs are usually found on dry land and further away from the waterline.

LAND HERMIT CRAB



BRAINSTORM

'We know that hermit crabs are not true crabs and borrow a shell to live in because its abdomen didn't develop a hard outer shell like other crabs. What other crabs can you name?'

Eg. fiddler crab, soldier crab, mud crab, spanner crab, etc

DISCUSSION

'Today we have been learning about hermit crabs. Who can tell me some things we learned today?'

[Add information to paper/whiteboard and have students take turns reading out some things they have learned]

NARRATION

- If there is time you could read "A House for a Hermit Crab", "Is this a House for a Hermit Crab", "Does everyone know where a hermit crab goes", "Hermit the Crab" or another hermit crab-related Children's book.**

LESSON PLAN 2

LIFECYCLE OF A LAND HERMIT CRAB

MATERIALS:

Butcher's Paper/Whiteboard notes from the last lesson; hermit crab care book such as the one by Stacy Griffith

OBJECTIVES:

To revisit previous lessons and learnings about land and marine hermit crabs.

To extend on that with more facts about where a hermit crab lives, what it eats and the lifecycle of a hermit crab.

CONTENT

Introduction - revisit the previous lesson

Discussion - where does a hermit crab live?

Exposition - lifecycle of a hermit crab

Story - "An Australian Land Hermit Crab Story"

Q&A time

SEQUENCE OF ACTIVITIES

INTRODUCTION

"What do you remember about hermit crabs? What were the two types of hermit crabs we talked about?"

[Show listed information on paper/whiteboard from the last lesson about land and marine hermit crabs]

DISCUSSION

"Who can tell me where a marine hermit crab lives?"

[In the ocean and in rockpools - show picture

"That's right. The marine hermit crab lives in water. They are often seen in rockpools and on the beach."

"Who can tell me where a land hermit crab lives?"

[On land/in trees/among the leaf litter or in sand . Show students a picture/photo of hermit crab in the wild among leaf litter/climbing trees/on sand]

EXPOSITION

"Today we will be learning more about hermit crabs, such as their lifecycle and body parts.

The life cycle of the land hermit crab is unique. In the wild, it starts with the release of eggs into an ocean tide pool, where the zoea go through a series of moults and developmental stages.

A baby hermit crab zoea will be a part of plankton until it grows and starts to resemble hermit crab form.

Once they have developed to maturity, hermit crabs leave their watery home, making the long journey to land to find a shell for the protection of the soft abdomen.

Once ashore, land hermit crabs go through a metamorphosis, developing modified gills that act as lungs to enable them to breathe air. Once on land, they live in a variety of environments including trees, mangroves and areas up

to 1-2 miles away from the shore.

In the wild some land hermit crabs can spend a long time away from a water source, some only returning to the sea when they are heavy with eggs which they will flick into the intertidal pools to start the cycle over again.

Land hermit crabs have been known to mate in captivity in the breeding season and there have been several land hermit crab owners who have moved the eggs into a special tank called a Kriesel.

In this special tank, the water is aerated and kept at a stable temperature. They are fed regularly and given seashells to move into.

If all goes well the babies develop into juvenile land hermit crabs with the ability to breathe air through modified gills that act as lungs.

Below you can see photos of a zoea and megalops stages of land hermit crabs.



Zoea



Megalops

Land hermit crabs are instinctive and will access moisture from dewdrops found on the leaves of plants. They are able to go without food for a time if necessary and store water in their shells for drinking later.

Hermit crabs are able to regenerate – or regrow – any lost or broken limbs during the moulting process.

Hermit Crabs moult because their hard exoskeleton does not grow with their body, and so they must shed it and infuse the new tissues with moisture, then harden these tissues to develop into an exoskeleton with the aid of ‘chitin’.

During moulting they need darkness and to be left alone to recover from a very difficult process.

It is important to provide diet and nutrition for your land hermit crabs so that they can recreate their exoskeleton and survive the moult.

During this time, you will need to keep your hermit crab in a comfortably warm and moist environment and offer substrate into which they may burrow within. Some hermit crabs like to dig down deep into the substrate and hide out while their new exoskeleton hardens and they will return to normal activity.

For the next 10 or so days their new skin hardens with the aid of 'chitin' which hermit crabs will obtain by eating their discarded exoskeleton. During this time of natural wonder, you will find your hermit crab is soft, vulnerable, and inactive.

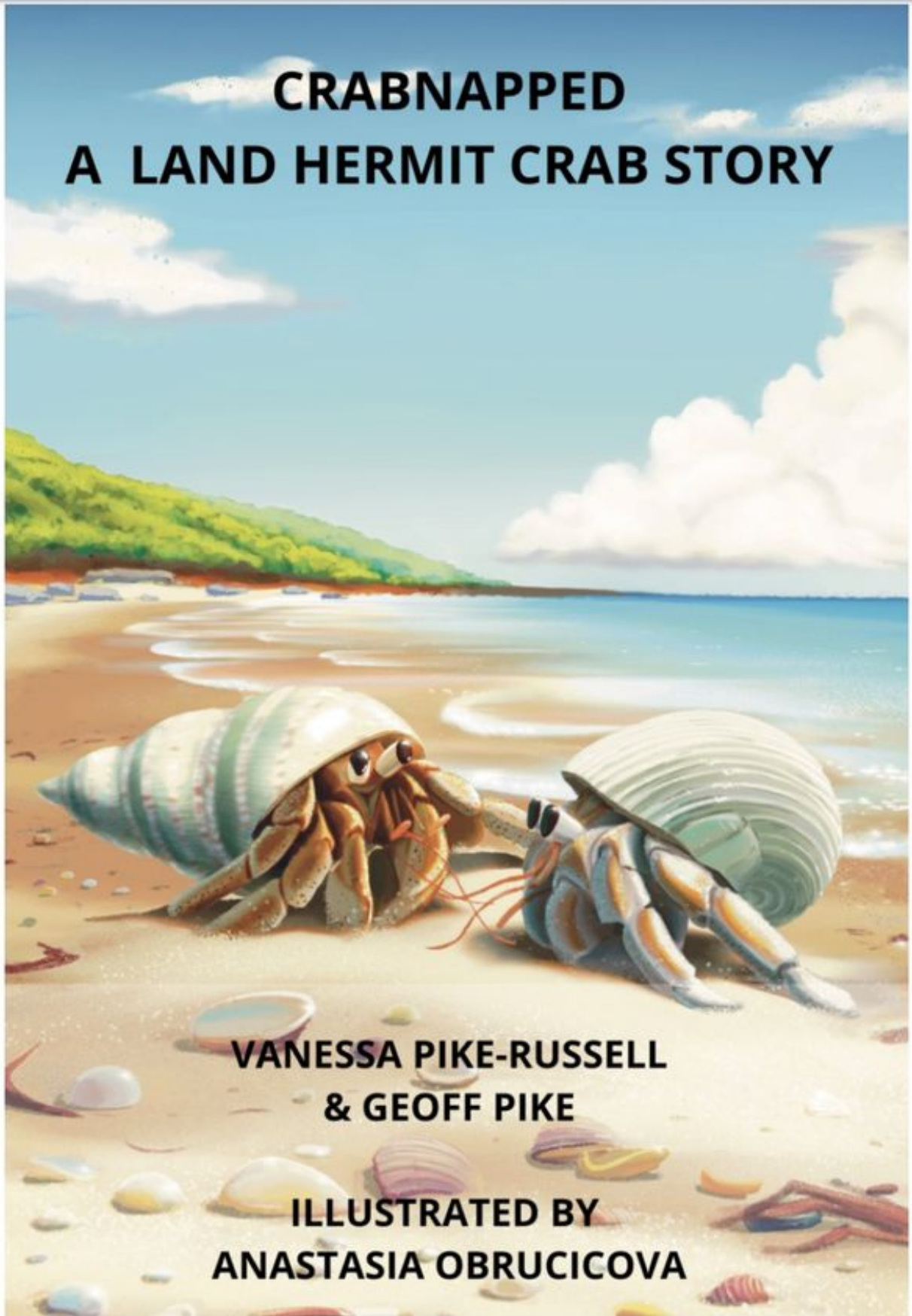
After moulting, your crab will need a bigger shell to

protect their newly moulted body. Your hermit crab may be a little crabby after a moult and you should offer a variety of shells for them to choose from. Hermit crabs love to size up new shells and will often change shells for hours on end until they find their favourites.

CRABNAPPED

A LAND HERMIT CRAB STORY

CRABNAPPED BY VANESSA PIKE-RUSSELL



**VANESSA PIKE-RUSSELL
& GEOFF PIKE**

**ILLUSTRATED BY
ANASTASIA OBRUCICOVA**

STORYTIME

Read the book "Crabnapped: An Australian Land Hermit Crab Story" by Vanessa Pike-Russell and Geoff Pike. Illustrated by Anastasia Obrucicova.

QUESTION AND ANSWER TIME:

Give students some time to ask questions or talk about the story and other things they have learned today.

CONCLUSION :

"We have learned many things about hermit crabs recently. We have learned that some hermit crabs live on land while others live in the sea.

We also learned the names of the body parts of a hermit crab.

We have looked at photos of hermit crabs and listened to the story 'An Australian Land Crab Story. In our next lesson, we will learn about correct care and nutrition.

LESSON 3

WATER

EXPOSITION

"When keeping Land hermit crabs as pets, they require both fresh and saline water ponds or pools to drink from.

Fresh water needs to be treated with a water conditioner such as Seachem Prime. They also need a marine-grade saltwater pond. Instant Ocean sea salt is a popular choice. Simply mix one and a half teaspoons with a cup of water.

Hermit crabs will drink from both and regulate the salinity of their shell water, which keeps their gills moist and helps to keep them alive.

Hermit crabs usually drink a lot of salt water before a moult. It helps them to shed their exoskeleton and they will usually dig down afterwards.

Land Hermit Crabs can drown if submerged in water for an extended time (fishermen say around an hour).

They have been observed bathing themselves in shallow pools to replace shell water and wash out any foods and wastes from their shells when in the wild.

Hermit Crabs urinate through their antennae, so any water spills during handling are shell water.

Hermit Crabs have an anus located on the end of their abdomen and have been observed to flick any wastes (droppings) out of their shells.

These faeces are often brown coloured and look like small sausage or ball shapes which consist mainly of sand and undigested foodstuffs.

It is important to replace the water daily and clean the water dish, drying it before returning it to the crabitat.

LESSON FOUR DIET

EXPOSITION

"Hermit crabs are omnivores - they eat a variety of food of both plant and animal origin. To keep your hermit crab healthy your crabs will need a balanced diet.

A hermit crab's diet should include animal protein (fish, crabs, meat), calcium supplements, protein supplements, and fresh foods such as fruit, nuts, seeds and grains.

It is encouraged to feed foods rich in lutein, zeaxanthin, anthocyanins and beta-carotene. Treats such as peanut butter, popcorn and honey are very popular.

With fresh fruit treats inside the tank, remember to clean out the food daily. The hermies get all messy and the tank will stink, especially if there is fresh seafood such as prawns. Remove foods as soon as they show signs of spoiling.

LESSON FIVE

HUMIDITY AND TEMPERATURE

EXPOSITION

"Hermit crabs are tropical creatures. To keep your hermit crabs healthy and happy their environment should be kept in optimum temperature and humidity levels.

If you are not able to keep the environment stable then your crabs will weaken and become stressed which will lead to death.

Hermit crabs are ectothermic creatures and must have a warmish and cooler side to their substrate. If your temperature falls below 24°C/75F on a frequent basis you need a reliable and safe method for heating your crabitat.

A thermostat will keep the crabitat at your desired temperature and keep your hermit crabs from being stressed due to change in temperature"

You can increase the humidity within your tank with the use of moss. Placing damp moss will raise your humidity, especially next to the heat pad. Make sure it is hermit safe.

LESSON 6 POETRY

HAIKU

A haiku style of poetry includes three lines and a number of syllables. A syllable is a single, unbroken sound of a spoken (or written) word.

Syllables usually contain a vowel and accompanying consonants. Sometimes syllables are referred to as the 'beats' of spoken language. For example, the seashell is broken into sea and shell.

**Line 1: five syllables
Line 2: seven syllables
Line 3: five syllables**

**Crab in seashell squats
Until hermit does not fit
House swaps are a must**

by John Anderson

The Sad, Then Happy, Hermit Crab

**I am a little hermit crab
As sad as I can be
I have a crooked walk, because my shell's
too big for me**

**Each time I crawl within my tank
My shell tilts left and right wish that I
could find a shell that is snug not tight
I tried to climb the driftwood tree**

**Away, away up high
I start to climb, so gracefully,
High up towards the sky
I wish I had a bigger shell
That fit me snug not tight
Then I'd climb and crawl away
All day and all night**

**My owner placed a new shell
Inside my habitat
It is the very perfect home
I am very glad of that
Now I can climb and I can walk
Without a sideward sway
I love my owner and my shell
This is a happy day.**

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