



# Chaaw Salíi

# BEACH

Grade Levels K-1

## Haida Cultural Significance

Since time immemorial Haida people have survived using what nature provides. Southeast Alaska has a rich, extensive coastline, so Haida people gather numerous beach creatures that nourish them. They in turn respect the creatures of the tides and beaches that sustain them. During winter and early spring, when fresh foods weren't always available, they began the tradition of gathering food from the beaches. This unit is best suited for the spring because many schools conduct Sea Week/Month activities during April or May.

## Elder/Culture Bearer Role

Elders/Culture bearers enrich this unit through their knowledge of beach creatures and gathering and processing techniques. In addition they can help teach the Haida names of beach creatures and enrich the activities with personalized cultural and historical knowledge.

## Overview

### Lesson #1 Old Woman of the Tides

This Haida legend provides a cultural context for learning about inter-tidal sea life. Students listen to the legend, sequence events from the story and retell it to others.

### Lesson #2 Introduction to Inter-tidal Zones

Through use of an easy reference book and an interactive zonation game, students learn about the four major tidal zones and different forms of life found in these zones.

### Lesson #3 Snails in the Splash Zone

Students listen to a book about life in the splash zone and complete an art activity depicting snails living in this zone.

### Lesson #4 Barnacles in the Upper Inter-tidal Zone

Students learn about some of the creatures who live in this zone, play identification games to remember them, use a beach life poster to answer questions in English and Haida and make a beach creatures book.

### Lesson #5 Hermit Crabs in the Upper Inter-tidal Zone

Students learn about univalves and bivalves that live in this zone, memorize and recite a poem about shells and complete an activity giving a hermit crab a home.

A series of elementary level thematic units featuring Haida language, culture and history were developed in Ketchikan and Hydaburg, Alaska in 2004-6. The project was funded by the U.S. Department of Education, Haida Language Immersion Program - Boosting Academic Achievement grant #S356A030046, awarded to the Sealaska Heritage Institute.

Lessons and units were written by a team including Jordan Lachler, project director and linguist specializing in documenting and revitalizing Native American languages. Lachler heads up the local field office of the Sealaska Heritage Institute in Ketchikan. Cheryl Holter (T'áaw Kúns) grew up in Hydaburg, raised by her grandparents, Willis and Hazel Bell and has worked with the remaining fluent Haida Elders for years. She taught the Haida language to students since returning to Hydaburg in 1990. Linda Schrack (Skíl Jáadei) grew up in Ketchikan, spending a great deal of time with her grandparents, Robert and Nora Cogo. She worked for many years in the field of early childhood education, and is an accomplished Native artist and traditional Haida dance group leader. Julie Folta, a cultural curriculum specialist with years of experience developing and teaching thematic, child-centered curriculum in rural Alaska also contributed to lessons and Annie Calkins edited final drafts of the units.

All units are available online at:  
[www.sealaskaheritage.org](http://www.sealaskaheritage.org).



Sealaska Heritage Institute



## **Lesson #6 Sea Anemones in the Mid Inter-tidal Zone**

Students learn about some of the creatures who live in this zone and that life in a tide pool includes sea anemones. Students make anemones to add to a classroom bulletin board.

## **Lesson #7 Sea Urchins in the Mid Inter-tidal Zone**

Students build on previous knowledge about life in this zone. After listening to a book about sea urchins, students make simulated sea urchins and add them to the classroom bulletin board.

## **Lesson #8 Sea Stars in the Low Inter-tidal Zone**

Students learn about creatures that live in this zone by listening to a book and playing Beach Creature Bingo.

## **Lesson #9 Gumboots in the Low Inter-tidal Zone**

An Elder and/or Culture Bearer explains and/or demonstrates how gumboots are gathered traditionally and how they are cooked. Everyone may taste a gumboot.

## **Lesson #10 A Beach Trip**

During this field trip to a local beach at low tide, students investigate what they have been learning about in this unit.

## **Alaska State Standards**

### English/Language Arts

A1) Apply elements of effective writing and speaking including ideas, organization, vocabulary, sentence structure, and personal style.

A3) In speaking, demonstrate skills in volume, intonation, and clarity.

E1) Use information, both oral and written, and literature of many types and cultures to understand self and others.

### Mathematics

A1a) Understand and use numeration, including numbers, number systems, counting numbers, whole numbers, and fractions.

A3) Perform basic arithmetic functions, make reasoned estimates, select and use appropriate methods or tools for computation or estimation including mental arithmetic and paper and pencil.

### Science

A14a) Understand the interdependence between living things and their environments.

A14b) Understand that the living environment consists of individuals, populations, and communities.

A14c) Understand that a small change in a portion of an environment may affect the entire environment.

### Cultural Standards

A4) Practice traditional responsibilities to the surrounding environment.

C1) Perform subsistence activities in ways that are appropriate to local cultural traditions.

D1) Acquire in-depth cultural knowledge through active participation and meaningful interaction with Elders.

D3) Interact with Elders in a loving and respectful way that demonstrates an appreciation of their role as culture bearers and educators.

E2) Understand the ecology and geography of the bioregion they inhabit.



## Lesson #1 The Old Woman of the Tides

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### Objectives

Students:

- Listen respectfully and attentively to a legend
- Identify the beginning, middle and end of legend
- Retell a legend

### Time

50 minutes

### Materials

- Legend: *Old Woman of the Tides*
- Raven, shark, eagle, Old Woman of the Tides puppets
- Rock shaped like a knife
- Taped or written Haida/English version of the legend
- *Old Woman of the Tides* Illustration Book
- Drawing Paper
- Crayons, markers, or colored pencils
- Popsicle sticks

### Haida Vocabulary

<b>chaaw salii</b>	beach
<b>nang jáadaa k'ayáa(s)</b>	(the) old woman
<b>yáahl, yáalaay</b>	(the) raven
<b>k'aad, k'aadáay</b>	(the) shark
<b>ts'áak', ts'áak'aay</b>	(the) eagle
<b>stáw, stawáay</b>	(the) sea urchin
<b>sk'áangw, sk'áangwaay</b>	(the) stick
<b>ya'áats', yaats'áay</b>	(the) knife
<b>k'waa, k'wa'áay</b>	(the) rock

### Haida Phrases

<b>Chaaw salii aa hl k'áa.</b>	Walk to the beach.
<b>Nang jáadaa k'ayáa hl k'inggang.</b>	I see an old woman.
<b>Tl'áan uu yáalaay ijjang?</b>	Where is the raven?
<b>Gíisd uu k'aad k'inggang?</b>	Who sees a shark?
<b>Gúus uu ts'áak'aay táagang?</b>	What is the eagle eating?



**Dáa gw stáw k̄ing?**

Do you see a sea urchin?

**Sk'áangwaay hl gya'ánda.**

Use the stick.

**Yaats'áay k'igáng.**

The knife is sharp.

**Kwa'áay k̄ináang.**

The rock is heavy.

## Activity #1

### Listen to a legend

Invite an Elder or Culture Bearer to tell the class the Old Woman of the Tides legend. If you are unable to locate a guest speaker, use the CD included with this unit.

Students need to know that they must be very respectful listeners, that this is a traditional cultural value that applies today as well. Explain that after they are done listening to the legend they will need to tell what happened at the beginning, middle and end of the legend.

Using a white board or butcher paper make notes of the beginning, middle and end of the legend as the class listens.

After the telling ask children to tell you what happened at the beginning of the legend.

See if one or more students answer appropriately, and if they can provide some details. Ask the same question about the middle and the end.

As students give their ideas you might add to the list you made while the legend was told. As you collect more events, ask questions about more complex sequences in the story.

At the end of the discussion, go over the three parts – beginning, middle and end - with the class one more time. To visually clarify the three parts of the story, you might draw boxes around the text describing each section and ask students to tell you a label for each section- “beginning”, “middle” and “end”.

## Activity #2

### Illustrating *Old Woman of the Tides*

Prior to this activity make copies of the legend for students to illustrate. (See Resources)

Provide illustrations from the legend to the class. As a group, ask children to decide on the correct order for the illustrations- what happened first, next, last. Order the illustrations appropriately.

For students who have completed this type of activity previously, several illustrations could be used. For those who are experiencing this type of activity for the first time, use at least 3 illustrations. More may be added if students are able to use them accurately.

Following a successful group ordering of the illustrations, direct students to complete the activity independently, staple the pictures into a book and (if desired) write about each picture. You might want to pair students to read to each other, pointing to words as they read.

Tell them that they are then going to illustrate their own edition of the *Old Woman of the Tides* legend. Distribute crayons, markers or pencils and encourage creative illustrations of the story as each child sees it.

Use TPR instructions in Haida to guide the students through the activity.



- Yáahlg hl k'áalang níjang.** Draw a raven.  
**Ts'áak'g hl k'áalang níjang.** Draw an eagle.  
**Stáwg hl k'áalang níjang.** Draw a sea urchin.

Circulate, commenting on the colors, shapes and designs that children use, emphasizing artistic expression.

Upon completion, and after general comments about what students have produced, students take home their legends to read to their families.

### Activity #3

#### Retelling *Old Woman of the Tides Legend*

Students create raven, shark, eagle, and Old Woman of the Tides paper stick puppets. Use TPR instructions to guide the students through the activity.

- Yáalaay hl ts'aduhlaa.** Cut out the raven.  
**Ts'áak'aay hl ts'aduhlaa.** Cut out the eagle.  
**K'aadáay hl sk'ángwaayg ts'ahl tl'asgaddaa.** Glue the shark to the stick.  
**Nang jáadaa k'ayáas hl sk'ángwaayg ts'ahl tl'asgatdaa.** Glue the old woman to the stick.

After each child has colored, cut out a set of puppets and glued them to sticks, ask students to practice telling the story of the Old Woman of the Tides to themselves.

- Háwsan hl gyaahlánda.** Tell the story again.

After they have practiced by themselves they retell the legend to a partner and later, after additional practice, to another class, an older Reader Buddy, or parents. Encourage students to focus on the beginning, middle and end of the legend as emphasized in Activity #1.

### Assessment

As students retell the legend to a partner, note student identification of the beginning, middle and end of the legend.

### Optional Extension Activity

Ask individual students to read aloud the Old Woman of the Tides. Ask them simple comprehension questions at the end of the reading.



## Lesson #2

### Introduction to Inter-tidal Zones

#### Objectives

Students:

- Learn the names of common beach invertebrates in English and Haida
- Identify the zone on a rocky inter-tidal beach where each invertebrate is generally found

#### Time

60 - 75 minutes

#### Materials

- *Between the Tides*, by Mary Morris A Queen Charlotte Islands Reader, Pacific Educational Press, University of British Columbia, 1987, ISBN0-88865-044-2
- *What Lives in a Tide Pool?*, by Lily Richardson, National Geographic Society, 2003, ISBN-0-7922-4337-4
- Beach creature study prints
- Beach creature paper cutouts
- Game spinners

#### Haida Vocabulary

<b>táas, táajaay</b>	(the) sand
<b>k'yúu, k'yuwáay</b>	(the) clam
<b>yáanu, yáanuwaay</b>	(the) sea cucumber
<b>sgyáal, sgyáalaay</b>	(the) cockle
<b>skáy ts'ii</b>	(the) hermit crab

#### Haida Phrases

<b>Chaaw salii aa táas kwáan-gang.</b>	There's a lot of sand at the beach.
<b>K'yuwáay gadáang.</b>	The clam is white.
<b>Yáanuug Hl diyínggang.</b>	I'm looking for a sea cucumber.
<b>TI'áan uu sgyáal náagang?</b>	Where does a cockle live?
<b>Dáa gw skáy ts'ii kéengaa?</b>	Did you see a hermit crab?

#### Teacher Background Information

Inter-tidal zonation can be seen on rocky shores where animal and plant species live in zones or bands of life: the splash zone, the upper inter-tidal zone, the mid inter-tidal zone, the low inter-tidal zone. While zonation generally occurs in bands, the distinction between zones is not readily apparent on rocky beaches due to the presence of large rocky outcrops and tidal pools.

The zone in which an animal or plant lives depends on its ability to tolerate exposure to air, the sea, wave action and to survive predators. Those requiring only occasional moisture from wave surges or spray and who are more able to withstand exposure to air for long periods without drying out, live in the splash zone and at the upper reaches of the upper inter-tidal zone. This area is more sparsely populated and predators are fewer. Those less able to toler-





ate exposure to air and more able to withstand the effects of wave action are found at the mid to low inter-tidal zones, although the risk of attack by predators is greater.

Generally, invertebrates living in the splash zone and the upper inter-tidal zone have exoskeletons (shells) to keep them from drying out, being eaten or being crushed by the wave action. Those invertebrates on the lower inter-tidal zones often have soft bodies that absorb wave action, but this makes them more vulnerable to predation.

Invertebrates that live in the splash zone are few in number and variety and the animals are able to move freely about this zone. While the diversity of species of animals living in the upper inter-tidal zone is somewhat greater than that of the splash zone, these invertebrates are less mobile and tend to cluster in groups, often seeking shelter in rock crevices and nooks as well as under rocks.

- splash zone
  - almost always exposed to air
- upper inter-tidal zone
  - exposed to air for long periods twice a day
- mid inter-tidal zone
  - exposed to air briefly once or twice a day
- low inter-tidal zone
  - exposed to air a few hours per month

## Activity #1

### Reading *Between the Tides*

Before reading, show the class the cover of the book *Between the Tides*, by Mary Morris and tell them the title. Ask them to predict what the book might be about, and what they know about tides. Tell students to listen for names of beach creatures that the children in the story find. Read the book aloud to the class.

After reading, ask students to help you list the beach creatures that the children in the book found. On the board or piece of chart paper write a list of the beach creatures that students remember from the story. Ask students what creatures we might find at our beaches in Southeast Alaska. As they suggest what might be found, write the list, placing the creatures' names on a paper according to where they are found; splash zone, upper inter-tidal, mid inter-tidal or low inter-tidal zone.

Ask students to hypothesize why you divided the list as you did and record what they say. Ask for questions about life on the beach at different tides.

## Activity #2

### Explore plants and animals on a beach

Display cloth or paper beach creatures, and provide time for students to independently explore these items, feeling them and examining their details. Encourage students to name those they can and to share those names with other students. Then ask the children to look at photographs of the animals, labeled in Haida and English, and match the cloth/paper creatures with the photographs. Put the labels near the creatures so that individual students can practice placing names in the proper place.



### Activity #3 Zonation game

Reread the book from Activity #1, *Between the Tides*.

Show a beach mat or a paper beach scene you have made/found and relate it to the book you have just read. Talk about and point out the 4 inter-tidal zones - splash zone, high inter-tidal zone, mid inter-tidal zone and low inter-tidal zone. Discuss what the animals living in each zone might require in order to live where they do.

As a group, place the cloth or paper animals on the beach in their appropriate location, discussing as you do so what it is like to live in that region. After this group session encourage individual children to place the animals in the right zones, demonstrating what they have learned.

### Assessment

As students participate in the zonation game make note of student accuracy in placing creatures in the right inter-tidal zone. If students are having difficulty, review through additional participation in the game.





## Lesson 3

### Snails in the Splash Zone

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#### Objectives

Students:

- Learn the names and describe the beach creatures found in the Splash Zone – periwinkles (snails) and barnacles
- Identify and name beach creatures in Haida and English.

#### Time

45 minutes

#### Materials

- Picture of inter-tidal zones
- *The Inter-tidal Wilderness: A Photographic Journey through Pacific Coast Tide Pools*, California Press; Revised 2002, ISBN-0520217055
- Pictures of periwinkles and barnacles
- Grey, green and 9 x 12 construction paper, 1 per student
- Blue construction paper 4.5 x 12, 1 per student
- Snail shaped pasta
- Rubbing alcohol
- Brown or black food coloring
- Glue





## Haida Vocabulary

<b>gáwt'un, gáwt'unaay</b>	(the) acorn barnacle
<b>skats'gw, skats'gwáay</b>	(the) periwinkle

## Haida Phrases

<b>Gíisdluu gáwt'un dánh k'inggang?</b>	How many acorn barnacles do you see?
<b>Skats'gw gw dánh k'ing?</b>	Do you see any periwinkles?

## Activity #1

### Reading *The Inter-tidal Wilderness: A Photographic Journey Through Pacific Coast Tide Pools*

Prior to beginning the reading explain to students that their job is to look carefully so that they will be able to participate in a discussion about the creatures found in the inter-tidal zones.

Then open the book and as a group observe and discuss the photos in *The Inter-tidal Wilderness: A Photographic Journey Through Pacific Coast Tide Pools*. After looking carefully through the book ask children what they saw and could identify from pictures in the book. As they give answers record their observations.

<b>Gúus uu dánh kéengaa?</b>	What did you see?
<b>_____ uu Hl k'inggan.</b>	I saw _____.

## Activity #2

### Splash zone art

Prior to this activity place rubbing alcohol, black food coloring and snail shaped pasta in a plastic bag. Close the bag and shake so that the pasta is coated in brown or black food coloring. Place wet pasta on newspapers to dry.

Distribute black and gray construction paper to students. Following the steps below, students make a splash zone picture.

1. Tear the horizontal edge of the blue construction paper - this will look like the tide going in or out. Glue this piece to the green construction (forest background) paper.
2. Tear rock shapes out of grey construction paper and glue on to the upper section of the green construction paper – the splash zone.
3. Glue periwinkle pasta shapes on to the rock.



4. Label the periwinkles.
5. If there is time, ask students to write what they know about snails.
6. Glue their snail on to their writing.
7. Sign the picture.

### Assessment

As students are working on the art project, make note of where student are placing periwinkles. If they aren't in the splash zone, redirect the placement. Ask each student to tell you what they know about creatures who live in the Splash Zone.

### Optional Extension Activity

Complete beach creature name match activities included in the Teacher Resources.

## Lesson #4

### Barnacles in the Upper Inter-tidal Zone

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### Objectives

Students:

- Learn facts about the beach creatures found in the Upper Inter-tidal Zone – barnacles, hermit crabs, snails, and some limpets
- Follow multi step oral directions in order to complete a project
- Identify and name beach creatures in Haida and English

### Time

65 minutes

### Materials

- Upper Inter-tidal Zones Beach Creature posters
- Beach Creature Concentration cards
- Construction paper
- Scissors
- Stapler
- Pencils
- Glue
- Crayons
- Beach Creature Book



## Haida Vocabulary

<b>tl'ak'áaw, tl'ak'áawaay</b>	(the) gooseneck barnacle
<b>yáahl dajāangaa</b>	(the) limpet

## Haida Phrases

<b>Tl'ak'áawaay 'wáadluwaan hl k'wáyandaa.</b>	Count all of the gooseneck barnacles.
<b>Yáahl dajāangaa gw dāng k̄iyaayaa?</b>	Did you find any limpets?

## Activity #1 Study print fun

Using the beach creature poster as a display, introduce animals who live in the Upper Inter-tidal Zone. After the children are familiar with the animals and their names in English and Haida, play the following game. Use the following statements (or similar ones) to describe what you see on the poster:

- I see a beach creature that lives in a white shell.
- I see a creature that looks like a hat.
- I see a beach creature that ravens like to eat.
- I see a beach creature that lives in a brown shell.

The children then have to respond in Haida, naming the creature that you've described.

## Activity #2 Showing what we know using TPR

Give each student a beach creature poster. Have the students identify in Haida the animals on their poster. Then call out different TPR commands, based on the animals they have on their posters. For example:

<b>Gáwt'un, gyáa hlaa.</b>	Acorn Barnacle, stand up.
<b>Skáy ts'ii, án hl da dlajuuhldáa.</b>	Hermit crab, turn around.
<b>Yáahl dajāangaa, stláang hl k'ahdgáa.</b>	Limpet, clap your hands.

To reinforce learning, ask students to trade cards and then repeat the activity.

## Activity #3 Playing Go Fish

Divide students into small groups, and using the sea creature cards, explain how to play "Go Fish". Ask if any students know how to play this game. Either you or a student can demonstrate how to play the game. Have small groups play the game for a designated period of time, while you circulate, noting which students are able to name the creatures in English and/or Haida.

<b>Xáw ín hlaa!</b>	Go fish!
<b>_____ gw dāng da'aa?</b>	Do you have a _____?
<b>Áang.</b>	Yes.





## Activity #4

### Beach Creature book

Hand out a copy of the Beach Creature book to each student and give the following oral directions.

"You are going to make a book. Listen carefully to the five things you need to do."

First, cut along the cut lines on your paper.

Second, collate the pages.

Third, fold the pages in half.

Fourth, staple the pages together.

Fifth, read your books.

Ask student pairs to repeat the five directions to one another. Students then create their own books. Once the books are created, have the students practice reading them to each other.

Tell students to take the books home and read them to their families.

### Assessment

Assess students by having them independently read the Beach Creatures book included with this unit. Are students able to identify beach creatures in Haida and English?







## Lesson #5 Hermit Crabs in the Upper Inter-tidal Zone

### Objectives

Students:

- Learn and practice the names of common beach invertebrates in English and Haida
- Identify the areas on a rocky inter-tidal beach where each beach creature is generally found
- Learn and recite a poem

### Time

45 minutes

### Materials

- *Hermit Crab* by Beverly Randell, Petone, N.Z., Nelson Price Milburn, 1994, ISBN 1869555716
- *A House for Hermit Crab* by Eric Carle, Alladin, 2002, ISBN 0689848943
- *Is this a House for a Hermit Crab?* by Megan McDonald, Scholastic, 1993, ISBN 0531070417
- *Shells* by Claudia Kelsey and May Beth Parsons, Alaska Sea Grant Program, University of Alaska, 1980
- Univalve and bivalve shell collection
- Univalve and bivalve shell study prints
- Hermit crab activity page

### Haida Vocabulary

<b>gúlaa, gúлгаay</b>	(the) abalone
<b>gáal, galáay</b>	(the) blue mussel
<b>guhlgadáang, guhlgadangáay</b>	(the) operculum
<b>guuláangw, guuláangwaay</b>	(the) button
<b>k'ámaal, k'ámalaay</b>	(the) half of a bivalve shell
<b>skáy, skayáay</b>	(the) whorled univalve shell

### Haida Phrases

<b>Gúлгаay í'waan-gang.</b>	The abalone is big.
<b>Galáay hl diig isdáa.</b>	Give me the blue mussel.
<b>Áatl'an guhlgadáang kwáan-gang.</b>	There are a lot of operculum here.
<b>Giisdllu guuláangw d'áng da'aang?</b>	How many buttons do you have?
<b>Gatáadanaay inggw hl k'ámalaay isdáa.</b>	Put the bivalve shell on the table.
<b>Skayáay hl gwáalaay iisd isdáa.</b>	Take the univalve shells out of the bag.



## Teacher Background Information

Mollusks are one of the largest groups of marine animals. There are five groups of mollusks - squid or octopus, chitons, tusk shells, bivalves and univalves. The squid has no shell.

Bivalves are two-shelled mollusks. They have soft bodies with two shells that cover and protect them. Muscles hold their shells together. When these strong muscles relax, water enters the shell, bringing food and oxygen to the animal. Most bivalves live in the sand or mud and move by means of their foot. Clams, cockles and mussels are common bivalves found in Southeast. Haida people enrich their diets in the winter and early spring with these foods. Bivalves are cooked, dried, or smoked. Anyone who gathers beach foods needs to be aware of the dangers of Paralytic Shellfish Poisoning – PSP.

Univalves form the second largest group of mollusks. Univalves are gastropods or stomach foot. The main part of the body is the foot that allows the animal to move. Most gastropods have heads, feelers, eyes and internal organs similar to a clam. Most univalves have a single spiral shell but some can be cone shaped, like limpets. The shape of the spiral varies with each animal. Most univalves have a cover over the shell opening referred to as the operculum, which protects the animal when it is partially extended from the shell. Some common varieties of univalves are limpets, abalone, conchs, and whelks.

Haida people gather and eat abalone. The beautiful shells are made into buttons that adorn their regalia. One must know and remember that the dust from abalone shells is poisonous – button makers cut the button under water so they don't inhale the deadly fumes. Limpets and whelks have been used as survival foods. There are Haida clan stories passed down for generations that tell us how these beach foods helped villages survive during times of famine.

## Activity #1

### Reading about hermit crabs

Read aloud one of the recommended books on hermit crabs to the class and discuss types of shells in which hermit crabs make their homes. Record children's ideas about shells on a whiteboard or easel paper and post in the classroom to review throughout the unit, checking for correct factual information.

## Activity #2

### Univalves and bivalves

Use a classroom shell collection or the study prints in the Resources as the basis for a classroom discussion. Pass around different shells so that students can discover and learn to identify the different types of shells found along Southeast Alaska beaches.

Discuss similarities and differences in shells. Students may sort shells according to similarities. This might be an "open sort" where students create the groups and label them, or it might be a "closed sort" where students group shells according to attributes prescribed by you. For example, a "closed sort" might ask students to sort based on number of parts, size, shape, etc.





Students begin to understand that shells are classified as univalves and bivalves. They complete a “closed sort” of the shells, using the vocabulary “univalve” and “bivalve”.

Ask students, “What type of shell would make a good home for a hermit crab?” The discussion should lead students to understand that hermit crabs make their homes in univalve shells.

### Activity #3 Making homes for hermit crabs

Use the hermit crab activity page in the Resources. Explain that the picture is of a hermit crab with no shell. The hermit crab is looking for a home. Ask students to draw and color a home for their hermit crab. Students then cut out their crab with its shell and add it to a classroom bulletin board.

### Activity #4 Learning a shell poem

Gather children as a group to learn the following poem. Ask them to repeat it several times initially and repeat it over several days.

#### **FIVE LITTLE SEASHELLS**

Five little seashells lying on the shore,  
Swish! went the waves, and then there were four.  
Four little seashells cozy as could be!  
Swish! went the waves, and then there were three.  
Three little seashells all pearly new;  
Swish! went the waves, and then there were two.  
Two little seashells sleeping in the sun;  
Swish! went the waves, and then there was one.  
One little seashell left all alone  
Whispered “Shhhhh” as I took it home.

Perform the poem to another class, an Elder or ask students to recite the poem to their families.

### Assessment

As students complete Activity #3, note student understanding that univalves are a single spiral shell, and that bivalves have two parts to the shell.

### Extension Activity

Invite an Elder/Culture bearer to bring in regalia or artifacts decorated with shells for the students to observe. Button robes are a classic example, but many things may be decorated with shell. Abalone is inlaid into carvings. Bentwood boxes are often inlaid with rows of operculum shells. Shells are also attached to many objects as charms or rattles.

Explain to the students that buttons are often made from shell. In traditional Haida custom, buttons are a symbol of wealth, abalone buttons are especially prized. Have students sort out the abalone buttons from a mixed assortment.

If time and materials allow, have the students complete a small art project decorated with buttons.



## Lesson #6

### Sea Anemones in the Mid Inter-tidal Zone

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#### Objectives

Students:

- Learn and practice the names of common beach creatures found in the Mid Inter-tidal Zone
- Learn the name of sea anemone in English and Haida
- Identify the area on a rocky inter-tidal beach on which each beach creature is generally found

#### Time

60 minutes

#### Materials

- *Life in a Tide Pool* by Allan Fowler, Children's Press, 1996, ISBN 0-516-26083-9
- *What's in the Tide Pool?* by Anne Hunter, Houghton Mifflin Company, 2000, ISBN 0-618-01510-8
- Toilet paper or paper towel rolls
- Scissors
- Red, purple, green tissue paper
- Recycled newspapers
- Pipe cleaners
- Scissors
- Glue
- Large black or gray construction paper

#### Haida Vocabulary

**tl'at'áan, tl'at'anáay** (the) sea anemone

#### Haida Phrases

**Gíisd uu tl'at'áan k'inggang?** Who sees a sea anemone?

#### Teacher Background Information

Sea anemones look like flowers, but are predatory animals. These invertebrates don't have a skeleton. They live attached to firm objects in the ocean - the sea floor, rocks or coral. They slide around very slowly. Sea anemones live a long time.

Sea anemones have a symmetrical, column shaped body. At the top of the column is the mouth, surrounded by tentacles. The tentacles protect the anemone from prey with stinging capsules and help catch food; fish, mussels, worms and zooplankton. Sea anemones grow to various sizes. They are usually 1 - 4 inches long but some may grow up to 6 feet. They are various colors of green, red, and purple.

Teach the class the Haida word for sea anemone and have them practice saying the word as a group and individually.



## Activity #1

### Reading *Life in a Tide Pool*

Read *Life in a Tide Pool*. This is a wonderful introduction to beach animals found in tide pools of the Mid Inter-tidal zone. Discuss the book, making sure to introduce sea anemones. This is also a good opportunity for students to review what they already know about other sea creatures who live in inter-tidal zones.



## Activity #2

### Let's make sea anemones

Remind students that sea anemones come in many sizes and colors. Students create 1 or 2 anemones each, to add to the bulletin board displaying the hermit crabs previously made. Students will begin to see that they are creating a colorful classroom beach scene fully populated with a variety of animals.

Use paper towel tubes for this activity. Pass out one tube per student and ask the children to cut their tube in halves (they do not have to be even sizes).

Students stuff both halves with torn up pieces of recycled newspaper.

Glue around the outside of each tube and wrap tissue paper around the tubes.

Distribute 3 - 4 pipe cleaners to each student – these will serve as the sea anemone tentacles. Students place the pipe cleaners in the top of each sea anemone.

As students are making their anemones ask questions about the nature and environment of sea anemones. You might ask questions such as:

What part of the sea anemone are you working on?





Why is that part important to the life of the sea anemone?  
Is that the trunk or the tentacles?

After the anemones are dry, students made a rock out of torn black or gray construction paper. The rocks and anemones are attached to the class bulletin board. Label one or more of the anemones in Haida.

## Assessment

As students place their sea anemone on the classroom bulletin board, ask them to tell you at least one thing they know about sea anemones and ask students to name the animal in Haida.

## Lesson #7

### Sea urchins in the Mid Inter-tidal Zone

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#### Objectives

Students:

- Learn the names of common beach creatures in the Mid Inter-tidal Zone
- Learn that a sea urchin is an echinoderm
- Learn and/or practice the names of beach creatures in English and Haida
- Identify the area on a rocky inter-tidal beach on which each beach creature is generally found

#### Time

65 minutes

#### Materials

- *Sea Urchins* (Animals Without Bones Discovery Animals), Rourke Publishing 1996, ISBN 0866255702
- *Sea Urchins* (Ocean Life), by Adam R. Schaefer, Capstone Press 2006, ISBN 0736882227
- *Sea Urchins* (from the Tiny-Spiny Animals) by Lola M. Schaefer, Heinemann Library 2004, ISBN1403432457
- 2-3 inch Styrofoam balls
- Tooth picks
- Red, green and purple paint
- Paint brushes
- Recycled newspapers

#### Haida Vocabulary

**stáw, stawáay** (the) sea urchin  
**stliin, stliinaay** (the) spine



## Haida Phrases

- Ájii stawáay sgiidang.** This sea urchin is red.  
**Stawáay stliin k'igáng.** The sea urchin's spine is sharp.

## Activity #1 Reading a sea urchin book

As an introduction to sea urchins, read one of the recommended books and discuss with students using questions such as:

- Where do sea urchins live?
- What other animals live in that zone?
- What do sea urchins look like?
- Has anyone ever seen a sea urchin?

Explain to the class that sea urchins are echinoderms. They are shiny, hard-shelled animals living on the rocky sea floor or in tide pools on sandy rocky beaches at low tides. They are red, purple and green.

Adult sea urchins have five-sided radial symmetry. They have long spines that spread out from the body. The spines are used for protection, for moving, and for trapping drifting algae to eat. Among the spines are five paired rows of tiny tube feet with suckers that help with moving, capturing food, and holding onto the sea floor. Sea urchins eat kelp, decaying matter, algae, dead fish, sponges, mussels, and barnacles.

Introduce the Haida word for sea urchin, and ask students to repeat the name.

## Activity #2 An Elder visits to talk about sea urchins

Invite an Elder or Culture Bearer in to talk to the class about the traditional gathering techniques for sea urchins. Before she/he arrives ask the children what they would like to know about how Haida people gather sea urchins. Record their questions on the board or on a large piece of chart paper, to spur conversation when the visitor comes. In addition ask the visitor to talk with students about the nutritional values of sea urchins and how Haida people use sea urchins. If possible, ask the Elder to tell a personal story about gathering sea urchins. Following the Elder's visit each student tells one thing that he/she learned about sea urchins. Use these comments to make a thank you card to send to the Elder.

## Activity #3 Making sea urchins

Prior to class, cut Styrofoam balls in half and cover a large work area with newspaper since this painting activity can tend to be messy.

Tell students that they will make sea urchins to add to the bulletin board. Point to the board and ask them to tell about the creatures that are already on the board. Ask them how sea urchins are different from sea anemones in size, color, texture, function etc.

Model how to paint a Styrofoam ball using red, green or purple paint.



When painting is complete, insert toothpicks to simulate sea urchin spines. If you have discussed the symmetry of urchins, encourage students to place toothpicks in a symmetrical manner.

When their sea urchins are dry students add them to the classroom beach bulletin board. Label one (or more) of the urchins in Haida.

## Assessment

Prior to adding their sea urchin to the classroom bulletin board ask individual students to tell you or a friend the name for sea urchin in Haida and 1 or more things about sea urchins. Record individual student knowledge.

## Lesson #8

### Sea stars in the Low Inter-tidal Zone

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#### Objectives

Students:

- Learn the names of common beach creatures in the Low Inter-tidal Zone in English and Haida
- Understand that a sea star is an echinoderm
- Identify the area on a rocky inter-tidal beach where sea stars are generally found

#### Time

45 minutes

#### Materials

- *Stars of the Sea* (Rookie Read-About Science), by Allan Fowler, Children's Press 2000, ISBN 0516270575
- *Sea Stars* (Ocean Life), by Lola M. Schaefer, Capstone Press, 2006, ISBN 0736882219
- Red, green, orange construction paper
- Red, green, orange sand
- Scissors
- Sea star shapes
- File Folders or cardstock paper
- Marker or pencil

#### Haida Vocabulary

<b>sk'áam, sk'áamaay</b>	(the) sea star
<b>t'a, t'áay</b>	(the) gumboot
<b>k'yúu, k'yuwáay</b>	(the) clam
<b>sgyáal, sgyáalaay</b>	(the) cockle



## Haida Phrases

<b>Sk'áam stla k'ángii kwáan da'áang.</b>	A sea star has many arms (lit. fingers).
<b>Áajii t'áay ts'úujuugang.</b>	This gumboot is tiny.
<b>K'yúu t'aláng ts'asláng ts'an.</b>	Let's boil some clams.
<b>Gíisd uu sgyáal kíiyayaa?</b>	Who found some cockles?

## Activity #1

### Reading about sea stars

Read aloud one of the recommended books or any other book that has pertinent information about sea stars. Lead a classroom discussion about sea stars. Include the following:

- Sea stars are also called starfish.
- Sea stars are echinoderms (spiny-skinned animals).
- Most sea stars have five arms– or a multiple of five arms - that radiate from a central disk or body.
- On the bottom of each arm are hundreds of tiny tubes, called tube feet.
- Each tube is a sucker- that helps sea stars move around.
- Sea stars move very slowly.
- Sea stars don't have brains but do have nerve cells that send information to their bodies.
- At the tip of each arm sea stars have light sensors or eyes.
- If a sea star's arm is cut off it grows back.
- Sea stars are carnivores – meat eaters.
- Sea stars eat clams, cockles, mussels, oysters, barnacles, limpets, fish and other animals.
- Sea stars can be found in many colors. The most common colors are purple, green and orange.
- Sea star bodies are rough and feel like sand paper.

Ask if anyone has seen a sea star, or touched one. Let individual students tell about their experiences with sea stars. Remind the “audience” to listen with respect – one of the traditional Haida values.

If you have live or preserved sea stars allow the students to gently touch them. Explain that their rough skin protects them in place of a shell.

Teach the Haida word for sea star and ask students to repeat it. Ask students to recall other Haida words for beach creatures they have made for their bulletin board.

## Activity #2

### Making sea stars

Prior to class, make sea star templates using the patterns provided in the Resources. Patterns allow students to easily trace sea stars onto construction paper.



Model for the class how to trace and cut out a sea star shape. Direct students to do so.

When shapes are cut, put glue on the body and each arm. Sprinkle sand onto the body and arms, to give the stars a rough texture.

As they are finished, put the stars in a safe place to dry. The next day the stars can be added to the classroom beach bulletin board. At least one of the stars should be labeled in Haida.

### Activity #3 Beach Creature BINGO

Use the BINGO cards and game piece callers to play Beach BINGO (included in Resources). This will allow students to practice animal names in Haida and English. This is also a good way to assess student knowledge.

### Assessment

Prior to attaching sea stars to the classroom beach bulletin board, each student tells a partner something he/she knows about sea stars. Quiz students, noting their responses about the Haida name for sea stars and other beach creatures.







## Lesson #9

### Gumboots in the Low Inter-Tidal Zone

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#### Objectives

Students:

- Learn names of common beach creatures found in the Low-Inter-tidal Zone in English and Haida
- Learn that sea gumboots are a traditional Haida food
- Identify the area on a rocky inter-tidal beach where gumboots are generally found

#### Time

45 minutes

#### Materials

- Freshly gathered gumboots or
- Jarred gumboots donated from a classroom family
- Hot plate
- Cooking pot
- Bamboo or metal steaming rack
- Spoons
- Knife
- Napkins
- Crackers
- Smoked clams

#### Teacher Background Information

Chitons are mollusks. Gumboots are one of the largest chitons in Alaska. Haida people have eaten steamed gumboots for centuries. Haidas focus their attention when steaming gumboots. If they are overcooked, they are hard to chew – imagine chewing on a piece of tire. After steaming chitons you run a spoon or knife down the spine to remove the plates. Once the plates are removed run your finger down the spine to remove any remaining shell pieces.

Chitons curve their bodies to adapt to the shape of rocks. They hold on to rocks very tightly. It is impossible to pry them off with bare hands; you need a knife to dislodge them. Chiton crawl slowly on their muscular foot. They have eight overlapping plates on their backs and these eight plates are the chitons' shells. These plates allow chitons to roll themselves into balls – protecting themselves from prey.

Chitons are black, red, and brown in color. Some chitons have spots and stripes of many colors.

#### Activity #1

##### Elder Visit

Prior to the elder visit, gather some gumboots or collect some jarred gumboots for the Elder to use. Getting fresh gumboots allows the Elder or Tradition Bearer to demonstrate traditional cooking techniques for gumboots. Ask the Elder to talk to students about traditional gather-



ing times and the tools used. Ask him/her to tell a story about a time he/she remembers about gathering gumboots with a family.

Ask the Elder to cook and clean fresh gumboots. He/she will steam the gumboots in steaming basket inside a water filled pot. The Elder will explain to students that the gumboot curls up – not unlike when protecting themselves from their prey.

Once the gumboots have curled they are removed from the pot and the eight back plates are removed.

If there are enough gumboots to go around, students can scrape the back plates out with a spoon. If not, the Elder can demonstrate how to scrape the plates in front of the class. Have the students count the shells to make sure they are all removed.

Introduce the Haida word for gumboot and have the class practice repeating it.

## Activity #2 Eating mollusks

Students should understand that gumboots are a traditional Haida food. In addition they need to understand that Haida people believe everything has a spirit which means we must show respect for everything that nature provides.

Tell the class that each person is expected to try a small taste of the gumboots your guest has cooked. As a snack, pass out a taste of gumboot and baby smoked clams along with a cracker.

Explain there should not be any rude remarks because that would be disrespectful. As they taste the gumboots ask children to describe the taste and compare it to other sea creatures and/or fish they have eaten. Ask them comparative questions about taste, texture, size, etc.

After the snack ask the class to contribute to a thank you card for the visiting Elder/Tradition Bearer using Haida and English words.

## Assessment

Each student writes 2 sentences about the steps of cleaning and cooking gumboots that he/she learned from the Elder or Culture Bearer.





## Lesson #10 Beach Field Trip

### Objectives

Students:

- Find and investigate the inter-tidal zones where beach creatures are found
- Record observations inter-tidal findings

### Time

4 – 5 hours

### Materials

- *I Went to the Beach* mini-book in Haida and English
- Beach activity book
- Pencils
- Sandwich size ziplock bags

### Haida Vocabulary

<b>k'áats', k'áats'aay</b>	(the) dulse
<b>gíhliid</b>	for the tide to come in
<b>chaawéehl</b>	for the tide to go out

### Haida Phrases

<b>K'áats'aay jánggang.</b>	The dulse is long.
<b>Gíhliidang.</b>	The tide is coming in.
<b>Chaawéelgang.</b>	The tide is going out.

### Activity #1 Creature Search

Make arrangements to walk or take a bus to the beach for a half-day field experience. Invite and encourage an Elder or two to join the class on this outing. They will add a wealth of traditional knowledge as children investigate a local beach environment. This trip should, of course, be during a low tide. The lower the tide, the more students will see.

At the beach gather students in a central meeting place. Discuss the beach environment and any dangers to avoid. Have students take note of where the tide is. Point out areas like small points of land that become islands when the tide comes in. Have students watch for changes in the tide throughout the activity.

Share pictures of beach creatures you expect to see on this outing. Explain that the students' job is to check off each beach creature they find in the pocket book that you will give to them.



Have students point out the different beach zones and predict which creatures they will find in each area.

Divide students up into small beach explorer groups.

Prior to starting their beach exploration remind students to be respectful. Remind them that their goal is to leave the beach in the same condition as it was when they arrived. For example, if anyone turns over a rock to find creatures, they **MUST** put the rock back in the very same location.

Encourage students to use the Haida names and phrases with each other as they search for beach creatures.

After a designated period of time gather all students back in the central meeting area.

As time allows, talk about what was found, what was most interesting and what observations they made.

## Activity #2

### Recording beach creatures found

Upon returning to the classroom, students complete the beach trip activity book included in the Resources. Circulate around the room asking questions about their experiences at the beach and clarifying any misunderstandings about the creatures they saw/found.

Students share their books and what they learned about the creatures of the tides with each other in class and then with their families at home.

### Assessment

Check student beach activity books to assess individual student knowledge and understanding of beach life. Meet with each student and ask questions about the contents of his/her book. Check students' knowledge of Haida names for beach creatures.





