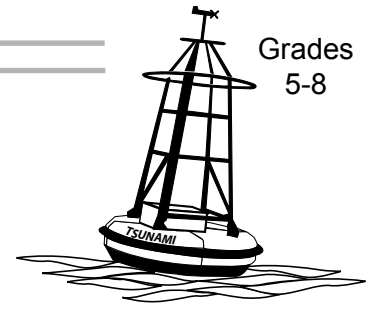


# Land and Water Features

---

Grades  
5-8



## Overview:

Students learn basic terms for land and water features of the Aleutian Arc in *Unangam Tunuu*, the native language of the Aleutian chain, or in *Sugt'stun*, the language of the *Alutiit*.

---

**NOTE:** If necessary, it may be appropriate to include the activity, "Tater Topography," from the lesson, "Finding Fairweather Fault" to build skills with topography.

---

## Targeted Alaska Grade Level Expectations:

### *Science*

- [5-8] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.
- [8] SD2.1 The student demonstrates an understanding of the forces that shape Earth by interpreting topographical maps to identify features (i.e., rivers, lakes, mountains, valleys, island, and tundra).

## Targeted Alaska Cultural Standards:

- A5 Culturally knowledgeable students are well grounded in the cultural heritage and traditions of their community. Students who meet this cultural standard are able to reflect through their own actions the critical role that the local heritage language plays in fostering a sense of who they are and how they understand the world around them.
- E2 Culturally knowledgeable students demonstrate an awareness and appreciation of the relationships and processes of interaction of all elements in the world around them. Students who meet this cultural standard are able to understand the ecology and geography of the bioregion they inhabit.

## Objectives:

The student will:

- say terms related to land and water features and Earth's forces in a Native language; and
- identify land features on a topographic map.

## Materials:

- Sticky note flags (for pairs or groups)
- Topographic maps (for pairs or groups)
- Scissors
- Cardstock
- Computers with Internet access
- Headphones (optional)
- MULTIMEDIA FILE: "Aleutian Arc: Land and Sea" at the ATEP website at [www.aktsunami.org/multimedia](http://www.aktsunami.org/multimedia)
- STUDENT WORKSHEET: "Land and Water Features"
- STUDENT WORKSHEET: "Land and Water Pictures"
- STUDENT WORKSHEET: "Land and Water Memory Cards" (*Unangam Tunuu*-Western Dialect, *Unangam Tunuu*-Eastern Dialect, or *Sugt'stun*)

## Whole Picture:

Geologists examine Earth's features to understand the geologic history of a place and to get a sense of possible future events. Topographic maps are one way of recording the Earth's surface. Understanding contour lines and intervals is key to interpreting the features of the land on a topographic map. All points on the same contour line have equal elevation. As lines get closer together, the slope increases.

The list below includes terms that are used to describe land and water features, events, and forces that change the surface of Earth. These are the terms used in the multimedia file. Where terms vary among dialects of *Unangam Tunuu*, both the Western and Eastern words are listed.

English	Unangam Tunuu	Sugt'stun
land	tanaġ	nuna
mountain	kiiġuusiiġ	ing'iq or inggriq
volcano	kiiġuusim anġidachaluġii – Western dialect “mountain with a place for emitting breath, smoke” kiiġuusim anġiġii – Eastern dialect “mountain with breath”	puyulek
hill	qayaġ - Western dialect aygiġ - Eastern dialect	penguq
trail	akaluġ	aprutruaq
cliff	ayanaġ - Western dialect amtiġ - Eastern dialect	penaq
rock	quġanaġ - Western dialect nuġiġ - Eastern dialect	yaamaq
cave	aduġ	legta
island	tanġiġ	qik'rtaq
ocean	alaġuġ	imaq
lake	haniġ - Western dialect aniġ - Eastern dialect	nanwaq
river	chiġanaġ (or creek)	kuik
bay	udaġ - Western dialect aalġuudaġ - Eastern dialect	kangiyaq
water	taangaġ	taangaq
current	anuġ	carwaq
wave	hilmaġ - Western dialect ilmaġ - Eastern dialect	qangyuk
earthquake	adgilaġ	arulauq
tsunami	alaġulġuġ “big sea”	qangyut angsinarqut “the waves are big” <i>or</i> tung'iruaq “false/fake high tide”

## Activity Preparation:

1. Copy student worksheets onto cardstock.
2. The table below identifies each community's quadrangle and map section at the 1:63 360 scale. Maps may be ordered from the Map Office at the Geophysical Institute. (Phone: 907-474-6960 or Email: maps@gi.alaska.edu)

<b>Community</b>	<b>Quadrangle</b>	<b>1:63 360 Scale</b>
<b>Adak</b>	Adak	C-2
<b>Akhiok</b>	Trinity Islands	D-1
<b>Akutan</b>	Unimak	A-6
<b>Atka</b>	Atka	N/A
<b>Chignik Bay</b>	Chignik	B-2
<b>Chignik Lagoon</b>	Chignik	B-2
<b>Chignik Lake</b>	Chignik	B-3
<b>Chiniak</b>	Kodiak	C-1
<b>Cold Bay</b>	Cold Bay	A-3
<b>Danger Bay</b>	Afognak	A-2
<b>False Pass</b>	False Pass	D-5
<b>Karluk</b>	Karluk	C-2
<b>King Cove</b>	Cold Bay	A-1
<b>Kodiak</b>	Kodiak	D-2
<b>Larsen Bay</b>	Kodiak	C-6
<b>Nelson Lagoon</b>	Port Moller	D-4
<b>Nikolski</b>	Samalga Island	N/A
<b>Old Harbor</b>	Kodiak	A-4
<b>Ouzinkie</b>	Kodiak	D-2
<b>Perryville</b>	Stepovak Bay	D-4
<b>Port Lions</b>	Kodiak	D-3
<b>Sand Point</b>	Port Moller	B-2

## Activity Procedure:

1. Explain it is helpful to know the words for land and water features that may be affected by Earth's forces, like tsunamis and earthquakes. Students will learn some Native language terms for land features and forces related to tsunamis.
2. Direct students to access the MULTIMEDIA FILE: "Aleutian Arc: Land and Sea" from the ATEP website at [www.aktsunami.org/multimedia](http://www.aktsunami.org/multimedia). Students should select the local language for study. Students should repeat the pronunciation of each word. Distribute STUDENT WORKSHEET: "Land and Water Features." Instruct students to fill out Part 1 of the worksheet.
3. Distribute headphones for each student to access the game individually. Students may repeat the tutorial and game for more practice.
4. Explain the students will examine land and water features of the local area using topographic maps. Distribute maps to pairs or small groups. Guide students through a basic analysis of the map. Make a list on the board of features they notice. Distribute sticky note flags to pairs or groups. Ask students to use applicable words from the list of vocabulary to label features on the map in the local native language.
5. Distribute the STUDENT WORKSHEETS: "Land and Water Pictures" and "Land and Water Memory Cards" with scissors. Students pair up and randomly place one set of cards face down. Students take turns trying to make matches between a graphic and the corresponding word. The student with the most matches wins.
6. Students take home memory cards for practice and to share with their families.

## Extension Ideas:

- Go on a field trip to photograph and identify features found in the local area.
- Interview an Elder to record place names associated with local landforms.

## Answers:

Use the table listed in *Whole Picture* to correct student work.

## Lesson Information Sources:

*Alaska standards for culturally-responsive schools.* Alaska Native Knowledge Network. (1998). [Fairbanks, Alaska]: Alaska Native Knowledge Network.

*Sharing words: land & sea.* The Alutiiq Museum and Archaeological Repository. Retrieved 5 February 2007. <http://www.alutiiqmuseum.com/files/awotw.htm>.

Bergsland, K. (1994). *Aleut dictionary = Unangam tunudgusii: an unabridged lexicon of the Aleutian, Pribilof, and Commander Islands Aleut language.* Fairbanks, Alaska: Alaska Native Language Center, University of Alaska Fairbanks.

Counciller, A. G. L., Leer, J., and Alokli, N. (2006). *Kodiak Alutiiq conversational phrasebook: with audio CD.* Kodiak, Alaska: Alutiiq Museum & Archaeological Repository.

Hollembaek, R. and McKeown, M. (2007, June 21). [email].

Leer, J. (1978). *A conversational dictionary of Kodiak Alutiiq.* Fairbanks: Alaska Native Language Center, University of Alaska Fairbanks.

McKeown, M. (2007, December 31) [personal communication].

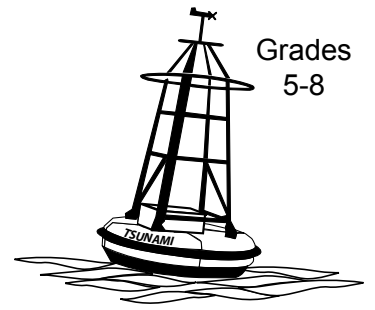
Swetzof, S. (2008, May 28) [personal communication].



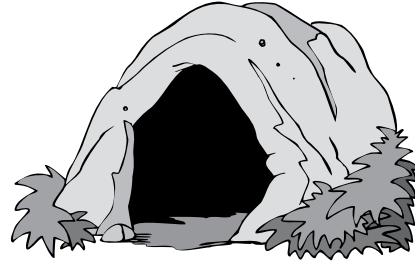
# Land and Water

## Student Worksheet (page 1 of 2)

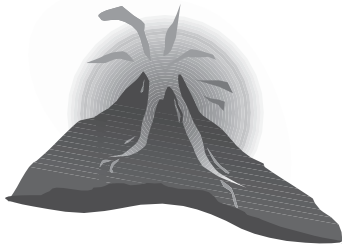
Grades  
5-8



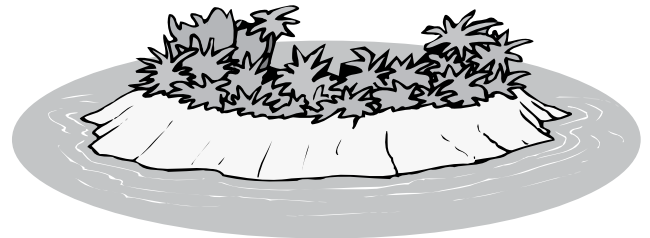
mountain



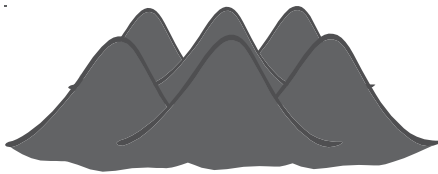
cave



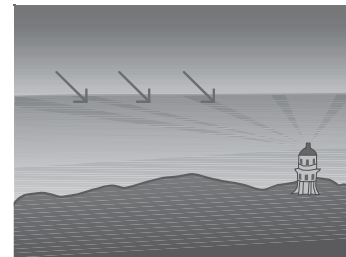
volcano



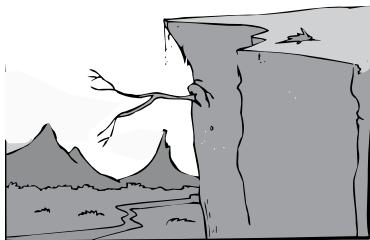
island



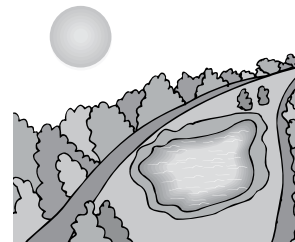
hills



ocean



cliff



lake



land



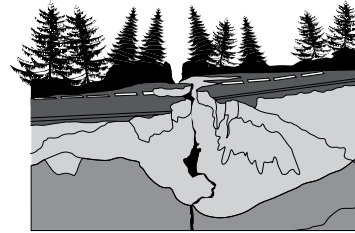
trail

# Land and Water

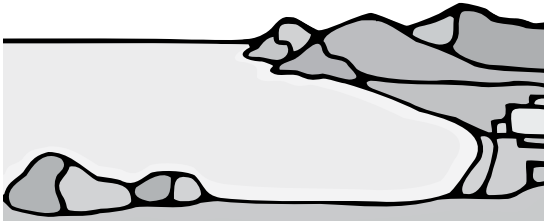
## Student Worksheet (page 2 of 2)



river



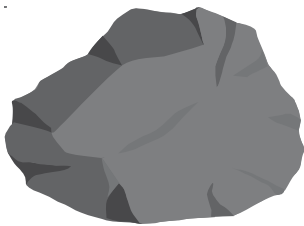
earthquake



bay



tsunami



rock



water



current



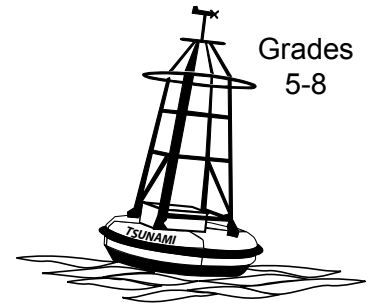
wave

Land and Water

*Unangam Tunuu* (Eastern Dialect)

Student Worksheet (page 1 of 2)

Grades  
5-8



kiiġuusiġ

aduġ

kiiġuusim anġiġii

tanġiġ

qayaġ

alaġuġ

amtiġ

aniġ

tanaġ

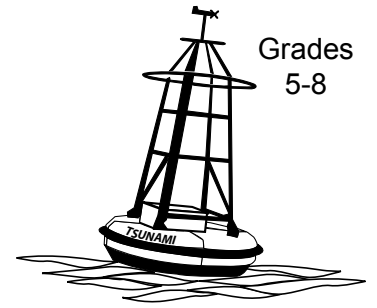
akaluġ

Land and Water

*Unangam Tunuu* (Eastern Dialect)

Student Worksheet (page 2 of 2)

Grades  
5-8



chiġanaġ

adgilaġ

aalġuudaġ

alaġulġuġ

nuġiġ

taangaġ

anuġ

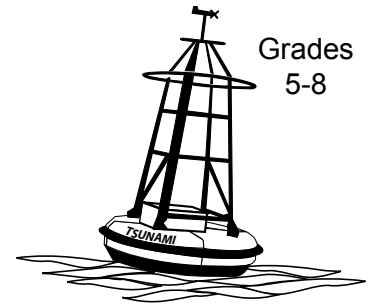
ilmaġ

# Land and Water

## *Unangam Tunuu* (Western Dialect)

### Student Worksheet (page 1 of 2)

Grades  
5-8



kiiĝuusiĥ

aduĥ

kiiĝuusim  
anĝidachaluĝii

tanĝiĥ

qayaĥ

alaĝuĥ

ayanaĥ

haniĥ

tanaĥ

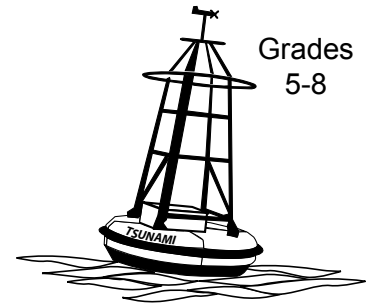
akaluĥ

# Land and Water

## *Unangam Tunuu* (Western Dialect)

### Student Worksheet (page 2 of 2)

Grades  
5-8



chiġanaġ

adgilaġ

udaġ

alaġulġuġ

quġanaġ

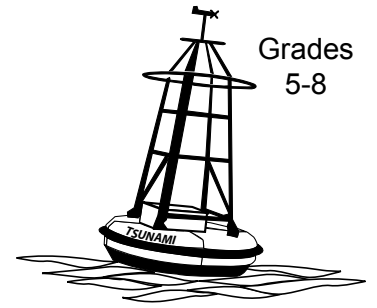
taangaġ

anuġ

hilmaġ

Land and Water—*Sugt'stun*  
Student Worksheet (page 1 of 2)

Grades  
5-8



ing'iq or inggriq

legta

puyulek

qik'rtaq

penguq

imaq

penaq

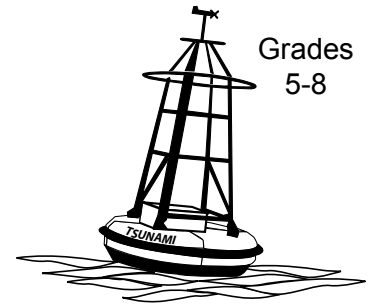
nanwaq

nuna

aprutruaq

Land and Water—*Sugt'stun*  
Student Worksheet (page 2 of 2)

Grades  
5-8



kuik

arulauq

kangiyaq

tung'iruaq

yaamaq

taangaq

carwaq

qangyuk