

Overview:

In this lesson, students learn about different processes that produce islands and display their knowledge in the form of a mobile. This lesson assumes that students already understand the basics of how a volcano forms an island as presented in the lesson, “An Island Story.”

Targeted Alaska Grade Level Expectations:

Science

- [3-4] 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.
- [3] SD2.1 The student demonstrates an understanding of the forces that shape Earth by identifying and comparing a variety of Earth’s land features (i.e., rivers, deltas, lakes, glaciers, mountains, valleys, and islands).
- [4] SD2.2 The student demonstrates an understanding of the forces that shape Earth by identifying causes (i.e., earthquakes, tsunamis, volcanoes, landslides, and avalanches) of rapid changes on the surface.
- [4] SE2.2 The student demonstrates an understanding that solving problems involves different ways of thinking, perspectives, and curiosity by identifying multiple explanations (e.g., oral traditions, folklore, scientific theory) of everyday events (e.g., weather, seasonal changes).

Reading

- [3] 1.2.1 The student comprehends literal or inferred meaning from text by locating information explicitly stated in narrative and informational text to answer literal-comprehension questions.
- [4] 2.2.1 The student comprehends literal or inferred meaning from text by locating information explicitly stated in narrative and informational text to answer literal-comprehension questions.

Targeted Alaska Cultural Standards:

- E1 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 standard are able to recognize and build upon the interrelationships that exist among the spiritual, natural, and human realms in the world around them, as reflected in their own cultural traditions and beliefs as well as those of others.
- 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:

- define an island;
- identify islands; and
- differentiate among types of island formations.

Materials:

- Map of Alaska
- Sticky note flags or pins
- Scissors
- Hole punch

- String
- Ruler
- Tape
- Glue
- Nadeau, I. (2006). *Islands*. The library of landforms. New York: Rosen Pub. Group's PowerKids Press.
- STUDENT WORKSHEET: "Alaskan Island Mobile"
- STUDENT WORKSHEET: "Different Types of Islands"
- STUDENT WORKSHEET: "How Different Islands are Formed"
- VISUAL AID: "St. Lawrence Island (Sivuqaq)"
- VISUAL AID: "Emerging Island"

Science Basics:

Islands are areas of land that are completely surrounded by water. They are smaller than continents. One way islands form is through volcanic action. When magma reaches the sea floor, the lava that comes out of the undersea volcano may build up enough to reach above the surface of the sea. At that point, an island is made. Magma is hot, molten rock inside Earth. When it is pushed up out of the ground, it is called lava.

Other forms of islands include barrier islands, which form along coastlines as a result of sand and sediment deposited by wind and ocean waves. Coral reef islands form as a result of coral buildup in warm, sunny, and shallow areas of the ocean. River and lake islands are often carved out of the landscape by glaciers.

Activity Procedure:

NOTE: Please attach a list to the Lesson Review Form that identifies all students who completed the Alaskan Island Mobile. This will be used for assessment purposes, so that you do not have to submit your students' mobiles.

1. Explain students will learn how volcanoes form islands. Islands are areas of land that are completely surrounded by water. They are smaller than continents. Display VISUAL AID: "Emerging Island." Explain one story explains an Alutiiq idea of how the world was made beginning as land emerging from the water. At a time when there was neither day nor night, a *kalagalek*, or trickster, began to blow through a straw. As he blew, land began to emerge gradually from the water and spread. As he continued to blow, the sky opened, and the sun appeared. In the evening, the stars came out and the moon rose. Finally, there were animals and people. Teacher Note: This story was adapted from the account recorded by Hieromonk Gideon of the Russian Orthodox Church on Kodiak Island in the early 1800s (Partnow, 2001, p.32).
2. Display VISUAL AID: "St. Lawrence Island (Sivuqaq)" Explain this is an island located between Alaska and Russia. In their oral tradition, the St. Lawrence Island Yupik Eskimos explain how the island came to be. It is said that the Creator of the world saw the large expanse of sea between the two large continents. He thought that an island was needed there, so he grabbed a handful of dirt from the bottom of the ocean. He squeezed out the sea water and placed that dirt on the sea to form an island. In fact, the Yupik name of the island, Sivuqaq, is related to the word that means "to wring out."
3. Explain scientists have examined the island as well and understand that it was formed by volcanoes. Review the basics of how an island forms through volcanic action.

Critical Thinking: Think-Pair-Share. Ask students to consider (1) what an island is, and (2) how a volcano can form an island. Allow at least 15 seconds of think time, and then have students share their responses with a partner. Call on pairs to share their thoughts with the class.

4. Explain all islands are not formed through volcanic action. Islands may be formed in other ways.

5. Draw the following chart on the board, and guide students in filling out the information from *Islands* by Isaac Nadeau. Read the book aloud as students fill out the chart.

Type of Island	1.	2.	3.	4.
How it is formed				

As it is completed, the chart should contain the following information:

Type of Island	1. Barrier	2. Coral Reef	3. River and Lake	4. Volcanic
How it is formed	Wind and ocean waves deposit sand and sediment.	Coral reefs grow in height as ployps lay down small amounts of minerals.	Past glaciers carved out low spots in the land that filled with water. High areas surrounded by water are islands.	Molten rock from inside Earth breaks the surface of the ocean floor. When the lava reaches the surface of the sea, it is an island.

6. Display a map of Alaska. With sticky note flags or pins ask students to identify islands and identify how they might have been formed. If necessary, guide students in finding some of the different types of islands. Barrier islands are found along the northwest coast of the Seward Peninsula and along the north coast of Alaska. River and lake islands may be found in the Yukon and Kuskokwim Rivers, and in Lake Iliamna and Becharof and Naknek Lakes. Volcanic islands are found along the Aleutian Chain and include St. Lawrence Island, Nunivak Island, and the Pribilofs.
7. Ask students why there are no coral reef islands around Alaska. (*Coral reef islands form in warm, sunny, and shallow ocean water.*)
8. Distribute STUDENT WORKSHEET: "Alaskan Island Mobile." Review the directions and distribute the supplies needed for students to complete.

Extension Idea:

- Research different islands.

Answers:

Student mobiles should show correct correspondence between island type and formation process. They should also define islands as an area of land surrounded by water but smaller than a continent.

Sarichef Island This is a barrier island.	Islands on Lake Iliamna These are lake islands.	Aleutian Islands These are volcanic islands.
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Barrier islands are made of deposited sand and sediment from wind and ocean waves.	Lake islands were formed long ago by glaciers carving up the land.	Volcanic islands are formed when volcanoes in the ocean reach the surface of the sea.
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Lesson Information Sources:

- Black, L.T. (1981). Volcanism as a factor in human ecology: The Aleutian case. *Ethnohistory*, 28, 4, 313-340.
- Ferrell, N. W. (1994). *Alaska: a land in motion*. Fairbanks: University of Alaska Fairbanks.
- Kawerak, Inc. (2006, May 8). Retrieved June 26, 2008 from <http://www.kawerak.org>
- Nadeau, I. (2006). *Islands*. The library of landforms. New York: Rosen Pub. Group's PowerKids Press.
- Partnow, P. H. (2001). *Making history: Alutiiq/Sugpiaq life on the Alaska peninsula*. (p 32). Fairbanks, Alaska: University of Alaska Press.

Name: _____

Alaskan Island Mobile

Different Types of Islands

Student Worksheet (page 1 of 3)

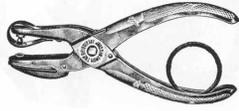
You will need:



scissors



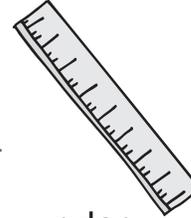
glue stick



hole punch



string



ruler



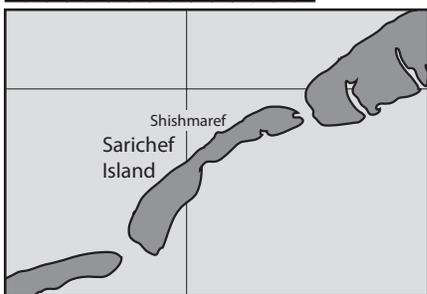
tape

STEP 1: On each circle below, fill in the blank with the type of island shown.

STEP 2: Cut along the dashed lines.

○

This is a _____ island.



○

○

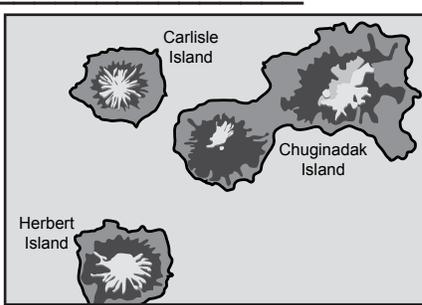
These are _____ islands.



○

○

These are _____ islands.



○

Name: _____

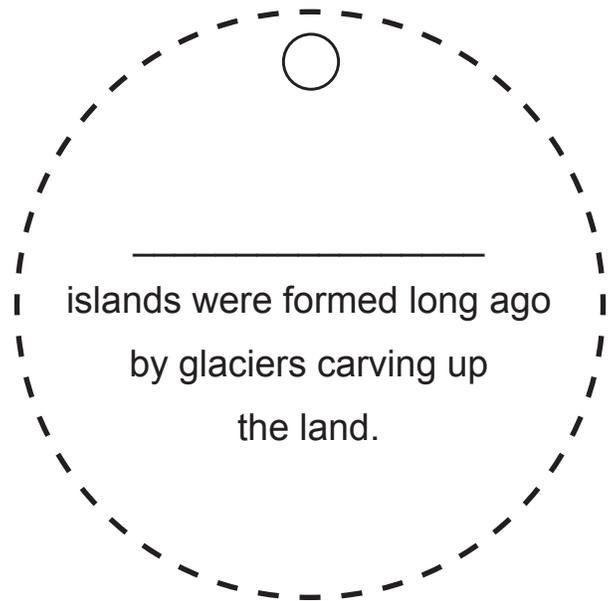
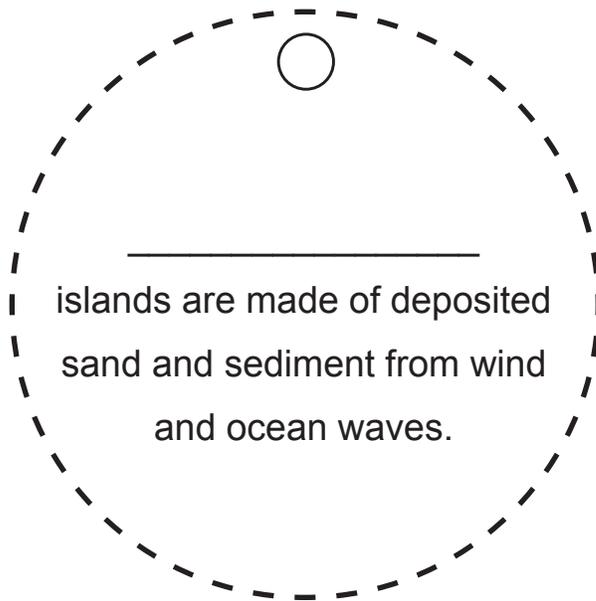
Alaskan Island Mobile

How Different Islands Are Formed

Student Worksheet (page 2 of 3)

STEP 3: On each circle below, fill in the blank with the type of island that is described.

STEP 4: Cut along the dashed lines.



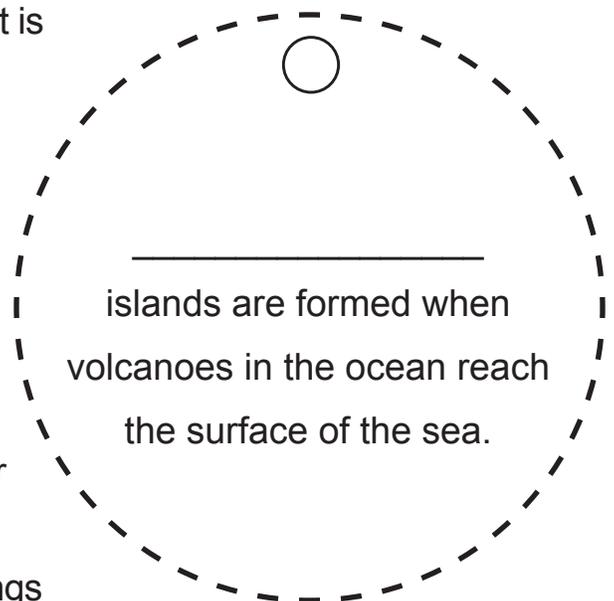
STEP 5: Match the type of island with the way it is formed.

STEP 6: Glue each matched pair back to back.

STEP 7: Use the hole punch to make a hole at the top of each circle.

STEP 8: Measure and cut four pieces of string to the following lengths: 6 inches, 9 inches, 12 inches, and 24 inches. Set the 24-inch string aside for use during STEP 12.

STEP 9: Attach one of the three remaining strings to each circle by poking one end of each string through a hole, and tying a knot.



Name: _____



Alaskan Island Mobile

Student Worksheet (page 3 of 3)

STEP 10: Complete the information needed by filling in the blank lines on the diagram below, then cut it out along the dotted lines.

STEP 11: Fold along the solid lines.

STEP 12: Tape one end of the 24-inch piece of string along the dashed line in triangle D, so that the loose end extends past the top of the pyramid.

STEP 13: Glue triangle D underneath triangle C. Make sure the loose end of the string extends out of the top of the pyramid.

STEP 14: Tape the loose end of the string attached to one of the circles to side A of the pyramid. Repeat to attach the remaining circles to sides B and C.

