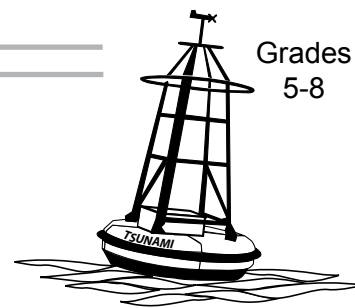


Tsunami Sleuthing

Grades
5-8



Overview:

The 1964 Prince William Sound tsunami event greatly affected Alaska. Several other tsunamis made their impact as well. In this lesson, students discuss research strategies, group together to investigate several Alaska tsunamis and present their findings to the class.

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.

[6] SD2.3 The student demonstrates an understanding of the forces that shape Earth by describing how the surface can change rapidly as a result of geological activities (i.e., earthquakes, tsunamis, volcanoes, floods, landslides, avalanches).

Reading

[8] R3.2.2 The student reads texts aloud by giving an oral formal presentation (e.g. research reports, literature responses).

Objectives:

The student will:

- research Alaska tsunamis using SLED (Statewide Library Electronic Doorway); and
- present research to the class.

Materials:

- Map of Alaska
- Computer with Internet access
- STUDENT WORKSHEET: "Tsunami Facts"

Science Basics:

The Aleutian tsunami event occurred on April 1, 1946. Early that morning, a magnitude 7.4 earthquake occurred approximately 90 miles south of Unimak Island. Approximately 48 minutes after the earthquake, a 100-foot tsunami struck the area of Scotch Cap, completely destroying the U.S. Coast Guard Lighthouse and killing all five members of the lighthouse crew. About five hours later, without warning, the tsunami reached the shores of Hawaii. The tsunami destroyed much of the shorelines of Hawaii, especially the city waterfront at Hilo, killing 159 people. In total, 165 people were killed and over \$26 million in damage occurred.

The 1957 Andreanof Islands tsunami event occurred on March 9, 1957, after a magnitude 8.6 earthquake struck a section of the Aleutian Trench south of the Andreanof Islands. On account of the sparse population of that section of the Aleutian Islands, the only reported casualties across the Aleutian Islands were sheep. The tsunami hit Hilo, but this time, Hawaii was warned and officials were able to evacuate low-lying areas of the islands. Due to the fact that many of the buildings in Hilo were already damaged, and because the tsunami waves were not as high, property damage was not as great, and only totaled \$150,000.

The 1958 Lituya Bay tsunami event occurred on July 7, 1958, after a magnitude 7.9 earthquake occurred along the Fairweather Fault. The epicenter of the quake was 13 miles from Lituya Bay, however, the tsunami was not caused by the earthquake, but by a landslide that occurred in the bay. The mass of rock, which fell into the bay, resulted in a wave that surged to 1700 feet, the highest run-up of a tsunami ever recorded. The sheet of water stripped all vegetation from the point it struck, leaving a bare rock face. In addition to the initial splash, the rockslide also sent a giant local tsunami sweeping across the bay, clearing millions of trees. Two boaters in the bay were killed, as well as three other people on land.

Activity Procedure:

1. Write the following three dates and locations on the board:

1946--Scotch Cap, Alaska

1957--Andreanof Islands, Alaska

1958--Lituya Bay, Alaska

Explain that these dates and locations have something in common. Point out the locations on a map of Alaska and announce that students will learn more about these places.

2. On a computer with Internet access, navigate to <http://sled.alaska.edu>.
3. Explain to students that SLED stands for the Statewide Library Electronic Doorway. As it states on the "SLED Mission and Policies" Web page,
 - a. SLED serves the community of all Alaskans.
 - b. SLED is a catalyst for making information about Alaska available online.
 - c. SLED offers access to Internet resources.
 - d. SLED supports local training efforts, provides online help and the SLED Help Desk.
 - e. SLED is an information delivery service. Its telecommunications charges are paid by the State Library and UAF Rasmuson Library.
4. Ask students if they know the definition of a database. Explain that a database is a collection of materials that share a theme, and are placed in categories based on their topic. For example, on SLED, science material is in one section and culture is in another. A database makes browsing easier than searching a random selection of materials or a search based solely on usage.
5. Discuss how a database differs from a search engine such as Google. (A database may or may not have a search feature, and items are categorized for easy browsing. A search engine does not have items in categories, so finding materials on a specific theme requires a more complicated search.)
6. Discuss when someone might want to use a database and when he or she might want to use a search engine. (A database would be used when someone knows what topic they want to research, such as medical information or recipes, but not the specific items they are looking for. A search engine is more useful when a search is likely to lead in many directions. For example, a general search on bears may lead to information on bear habitat, use of bear fur, hunting, bear predator and prey relationships, etc.)
7. Return to the SLED Web site, and click on "Environment, Science, & Natural." Point out that there is a list of Web sites that deal with the environment, science, and nature that are related to Alaska.
8. Return to the SLED Web site, and click on "Magazines, Newspapers, and More." Explain that this page lists databases that SLED subscribes to so that Alaskans can have access to them. These databases span more topics than those related to Alaska.

9. Invite students to join together in groups and explore some of the databases SLED offers. After students have had time to explore, invite them to share the databases they investigated with the class.
10. Explain that in this lesson students will group together to research information on Alaska tsunamis. Divide the class into three groups, hand out the STUDENT WORKSHEET: "Tsunami Facts," and assign each group a tsunami to research (1946, 1957, and 1958).
11. Explain that after students have completed their research they will be asked to present their findings to the class. Use of visual aids, such as photographs or PowerPoint slides, should be encouraged, as well as any other creative presentation technique.

Critical Thinking:

Discussion Method: Ask students to pick a different partner to compare their answers and discuss how they came up with their answers. For example, they may discuss conflicting information located during a Web search, or talk about the Web sites and databases they used for their search.

Extension Ideas:

- Ask students to write a one page narrative of what they did during "their" tsunami event, writing as if they were there. Ask them to have an adult or sibling at home read their story and comment.

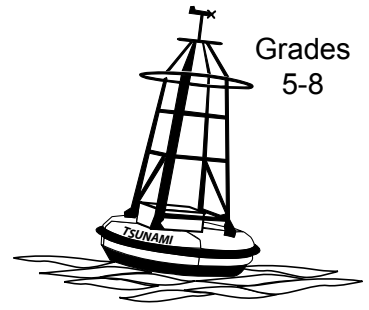
Answers:

Answers will vary.

Name: _____

Student Worksheet

Tsunami Facts (page 1 of 2)



Directions: The teacher will assign a tsunami to research. Using the Web sites and databases available through SLED (Statewide Library Electronic Doorway), <http://sled.alaska.edu>, answer the questions below. For each answer, cite the Web page or database used to find the information. Then, prepare a presentation for the class to explain the findings.

1. Which tsunami was researched? _____

2. What caused the tsunami? _____

Web address: _____

3. Which communities in Alaska were impacted by the tsunami?

Web address: _____

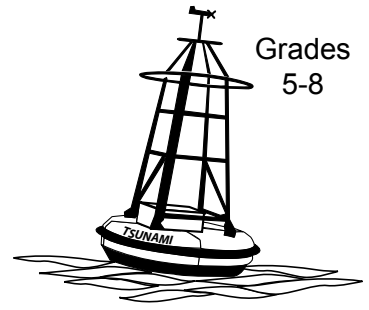
4. Were communities in other parts of the world affected by the tsunami? If so, which ones?

Web address: _____

Name: _____

Student Worksheet

Tsunami Facts (page 2 of 2)



5. What damage did the tsunami cause to the environment (land, animals, etc.)?

Web address: _____

6. What damage did the tsunami cause to people (deaths, property damage, etc.)?

Web address: _____

7. Explain one fact learned about tsunamis.

8. Explain one fact learned about SLED or databases.
