

## Overview:

In this lesson, students gather background knowledge on features of the land around their community, then note how those features are manifested on a topographic map. Students are encouraged to consider how the topography influences weather patterns.

## Objectives:

The student will:

- describe and map features of the land around their community;
- explain how features are expressed on a topographic map; and
- evaluate local topography for differences in weather conditions.

## Targeted Alaska Grade Level Expectations:

### Science

[7-8] 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, islands, and tundra).

## Vocabulary:

**contour intervals** – the difference in height between contour lines

**contour line** – a line on a map joining points of equal height above or below sea level

**elevation** – the height above sea level

**topographic map** – a map that contains lines that mark areas of equal elevation

## Whole Picture:

Knowledge of the land and its topography is interwoven in the language of the Athabascan people. Gaa'al taji njik means "where-game-usually-passes-along-a-trail," and Jak ddhaa means "blueberries mountain" known for abundant blue berries. Kihtr'uu choh means "big bare-topped mountain," and Vineeteiidii van means, "it-floods-over-lake," a lake known to overflow in the winter.

Richard Nelson, in his book "Make Prayers to the Raven," says it best.

To most outsiders, the vast expanse of forest, tundra, and mountains in the Koyukon homeland constitutes a wilderness in the absolute sense of the word. For the Western mind, it is wilderness because it is essentially unaltered and lacks visible signs of human activity, and it must therefore be unutilized. But in fact the Koyukon homeland is not a wilderness, nor has it been for millennia.

This apparently untrodden forest and tundra country is thoroughly known by a people whose entire lives and cultural ancestry are inextricably associated with it. The lakes, the hills, river bends, sloughs, and creeks are named and imbued with personal or cultural meanings. Indeed, to the Koyukon these lands are no more a wilderness than are farmlands to a farmer or streets to a city dweller. At best we can call them wildland. (246)

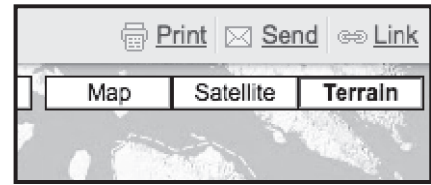
Topographic maps differ from other maps in that they have lines that signify locations of equal elevations. These lines are called contour lines and show the height above sea level. Topography is one of several factors that influence climate. The primary ways in which topography influences climate are temperature and precipitation.

Google Maps displays topographic information. To access this, go to Google Maps (<http://maps.google.com>) and select "Terrain" on the right side of the window. Insert the name of your community in the Google

## EXPLORE THE LAND AROUND YOUR MIDDLE SCHOOL

Maps bar and click “Search Maps.” If contour lines are not visible, zoom in closer. This information is included in the MULTIMEDIA FILE: “Topography on Google Maps.”

Alternatively, local topographic maps may be used in this activity. USGS topographic maps display more ground cover features like tundra and marshes.



### Materials:

- Access to Google Maps
- Blank paper
- Butcher paper (optional)
- Colored pencils (optional)
- VIDEO: “Topography and Climate”
- STUDENT WORKSHEET: “The Land Around My Community”
- STUDENT WORKSHEET: “Topography Around My Community”

### Activity Procedure:

Individual students, students working in pairs, or the class as a whole may complete the information and activities presented in this lesson.

1. Pose the question: “Why would it be necessary to know about the land around a community when considering different energy sources (solar, wind, hydro, firewood, etc.)?” Explain students will describe and map the land around them. Distribute the STUDENT WORKSHEET: “The Land Around My Community” and an extra sheet of paper if necessary. Butcher paper and colored pencils may be used as an alternative for drawing maps on regular sheets of paper.
2. Distribute STUDENT WORKSHEET: “Topography Around My Community” for student completion. After students are finished, discuss student responses and revisit the question posed at the beginning of the lesson.

### Extension Idea:

Share maps with Elders and include traditional place names. Are there any patterns to recognize in the traditional place names? How do they compare to English place names?

### Answers:

#### STUDENT WORKSHEET: “The Land Around My Community”

Answers will vary

#### STUDENT WORKSHEET: “Topography Around My Community”

1. Air blowing over a mountain range becomes drier as moisture falls out in the form of rain or snow.
2. Oceans cause Alaska coastal areas to be cooler in the summer compared to the middle of the state.
3. Winds are generally calmer in the middle of the state.
4. mountain passes
- 5-12 Answers will vary
13. A. lake
14. C. streams

**NAME:** \_\_\_\_\_  
**THE LAND AROUND MY COMMUNITY**

**Directions:** What do you know about the land around your community? List or describe the following features found in your area. Draw a map on the back of this sheet or on another piece of paper. Place the school or your home in the center of the map.

Rivers and creeks:

---

---

Lakes and ponds:

---

---

Hills, mountains and ridges:

---

---

Areas that are steep:

---

---

Large flat areas:

---

---

The highest point in the surrounding area:

---

Areas with different types of vegetation (tundra, forest, marsh):

---

---

Major trails and major roads:

---

---

Any other major features of the land:

---

---

**NAME:** \_\_\_\_\_  
**TOPOGRAPHY AROUND MY COMMUNITY**

**Directions:** Access and investigate the following VIDEO: "Topography and Climate" to answer the following questions:

1. As air blows over a mountain, why does it become drier?

---

---

2. How do oceans affect coastal temperatures in the summer?

---

---

3. Where in Alaska do winds generally seem to be calmer?

---

---

4. What land feature can act as a funnel for winds?

---

---

Topographic maps differ from other maps in that they have lines that signify locations of equal elevations. These lines are called contour lines and show the height above sea level. Topography is one of several factors that influence climate. The primary ways in which topography influences climate are temperature and precipitation.

Click on the button: "Topography and Google Maps" and watch the clip.

Access your community on Google Maps and answer the following questions:

5. What are the contour intervals on your topographic map?

---

6. Where is the highest elevation in your area and what is the elevation?

location: \_\_\_\_\_ elevation: \_\_\_\_\_

7. How can you tell a steep area from a flat area using contour lines?

---

8. Are there locations in your area that are colder or hotter at different times of the year?

---

9. If so, what is the shape of the land, or topography, around that area?

---

NAME: \_\_\_\_\_  
TOPOGRAPHY AROUND MY COMMUNITY

10. Are there locations that receive more rain or snow than other areas?

---

11. If so, what is the shape of the land, or topography, around that area?

---

12. What locations are windy around your community?

---

13. Part of a topographical map is shown at right. Which feature is **most likely** shown on the map?

- A. lake
- B. river
- C. island
- D. mountain



14. Study the topographical maps below. Which of the following features are most likely shown in both topographical maps?

- A. islands
- B. mountain
- C. streams
- D. lakes

