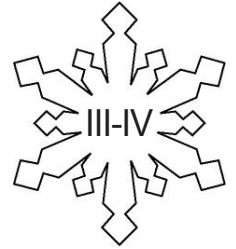


# Tour of the Frozen Ground \_\_\_\_\_

Levels



Grades 5-8

## Overview:

A local Elder visits the classroom to share information on permafrost in the local area.

---

**Teacher's Note:** This activity is repeated in the Level I-II lesson "Walking on Frozen Ground" and Level V-VI lesson "Uses of Permafrost." If other teachers in the school are using the ACMP curriculum, they may wish to collaborate on this activity.

---

## Objectives:

The student will:

- observe and draw local permafrost features; and
- compare and contrast a local use of permafrost with the use described in a novel.

## GLEs Addressed:

*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.
- [5] SG2.1 The student demonstrates an understanding of the bases of the advancement of scientific knowledge by reviewing and recording results of investigations into the natural world.

## Whole Picture:

Permafrost often acts like a sheet of plastic under the ground surface, preventing good drainage and making water pool on top. That's why permafrost areas are poor places for summer trails, but good areas for trails in winter, when surface water is frozen and the snow-covered tundra provides a good platform for snowmachines and four-wheelers.

Permafrost also limits the depth to which tree roots can reach, limiting the growth of trees. A grove of black spruce trees about as high as a person is tall is usually evidence of permafrost beneath soils, and tall, thick, white spruce usually indicate permafrost-free areas. (But these guidelines are not foolproof).

Thawed permafrost under buildings and can damage them, but imaginative Alaskans have also used frozen soil work for them. People in Barrow and other far-north villages have chipped out permafrost to make "ice cellars" to store whale blubber and other foods

## Materials:

- Bastedo, J. (2006). *On Thin Ice*. Calgary: Red Deer Press.
- OVERHEAD: "Permafrost Features"
- STUDENT WORKSHEET: "Tour of the Frozen Ground"

## Activity Preparation:

1. Invite an Elder to visit with students to share local knowledge of permafrost. Within the Activity Procedure are suggestions for Elder involvement; make adjustments as needed to ensure the Elder's comfort. Make sure the Elder has adequate transportation to and from the classroom, and arrange for snacks and drinks for both the Elder and students.
2. Copy pages 90-96 of *On Thin Ice* so that each group of students has a copy to share.

## Activity Procedure:

1. Remind students they should be good listeners and respectful during the activity.
2. Introduce the Elder and explain that he or she will be sharing information on permafrost in the local area, such as: how it has been used by people in the past; how it is used today; how it influences local subsistence activities; how it influences local infrastructure (buildings and roads); how one can tell if there is permafrost under the ground; and where it exists in the local area.
3. If weather permits, invite the Elder to take students on a short walk to investigate local permafrost features.
4. Upon returning to the classroom, show OVERHEAD: "Permafrost Features." Explain that surface features associated with permafrost include patterned ground (polygons) and pingos. These features are caused by a cycle of freezing and thawing of water because water expands when it freezes.
5. Ask students if they saw any of those features on their walk. Have they seen them elsewhere in the local area? Use a map of the community to mark the locations of permafrost features.
6. Divide students into groups and distribute one copy of pages 90-96 of *On Thin Ice* to each group. Ask students to read the passage within their groups, or read it as a class. Discuss the description of the permafrost, its use, and what the main character thought about that use. Compare and contrast the use of permafrost in the novel with use in the local community.
7. Distribute the STUDENT WORKSHEET: "Tour of the Frozen Ground."

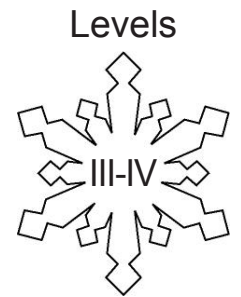
## Answers:

Answers will vary.

Name: \_\_\_\_\_

# Tour of the Frozen Ground

## Student Worksheet



**Directions:** Follow the instructions for each question below.

1. Draw a permafrost feature in the space below.

2. Write the name of the feature drawn above. \_\_\_\_\_

3. Write the name of the Elder who spoke with your class.

\_\_\_\_\_

4. A. Describe a way permafrost was used in the past.

\_\_\_\_\_

\_\_\_\_\_

B. Do people still use permafrost in that way today? Why or why not?

\_\_\_\_\_

\_\_\_\_\_

5. In the novel *On Thin Ice*, a use of permafrost for storing food is described. Compare and contrast this use of permafrost with one used in your community.

\_\_\_\_\_

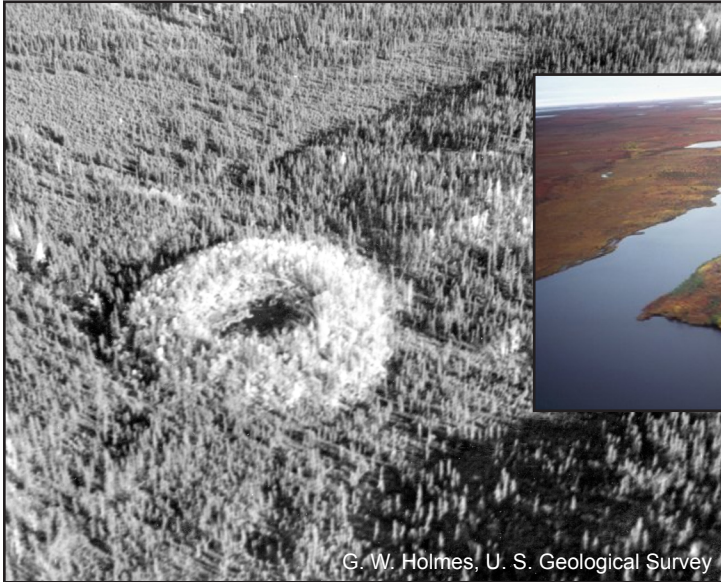
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# Permafrost Features Overhead

## Pingo



## Polygon

