



## Overview:

In this lesson, students explore the uses of ice and snow through interviews with local Elders and classroom readings.

## Objectives:

The student will:

- listen to a story;
- identify types of snow in Alaska; and
- identify local words for snow.

## Materials:

- Partnow, P. (2003) *Immiugniq: Winter Sources of Drinking Water*. Barrow Alaska Native Education Program, North Slope Borough School District.
- STUDENT WORKSHEET: "Drinkable Snow" (Level I)
- STUDENT WORKSHEET: "Drinkable Snow" (Level II)

## Activity Preparation:

Invite an Elder to visit with students to share local knowledge of snow and ice. 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.

## Activity Procedure:

1. Welcome the Elder to your classroom and introduce him or her to the students. Explain students will be listening to a story entitled *Immiugniq: Winter Sources of Drinking Water*, and talking about what they have heard.
2. Begin reading the story to the class. After the first chapter stop and ask students why the mother in the story only packed three thermoses of water. (*The adults were planning to teach the children where to find water, along the trail, from snow and ice.*) Ask the Elder to share how much water he or she packs when taking a trip for several days.
3. Read the second chapter. Ask students why people need to drink water. (*To stay healthy we must keep water in our bodies. If we get dehydrated, or lose the water in our bodies, we lose control over our muscles; our skin becomes pale, cool, and clammy; our heartbeat speeds up; our breathing becomes shallow; we can't concentrate; we get a headache; our blood pressure drops; and in extreme cases our body collapses and the brain and other organs can be damaged.*)
4. Read chapter three and go over the following Inupiaq words used in the story (*nutagaq* - fresh powder snow; *silliq* - snow made crusty and hard by strong winds; and *pukak* - granular snow found under another layer). Ask the Elder to share local Native words for different types of snow. List the words on the board.
5. If there is snow on the ground, take students outside and ask them to make observations of the snow. Use a shovel to dig into the snow and look at the various layers. Are they easily seen? How can one be compared to another? What other materials (ash, debris, etc.) can be seen in the snow? Ask the Elder to share his or her knowledge of identifying the right types of snow to melt for drinking water. Encourage discussion, if appropriate, and refer back to the story as necessary.

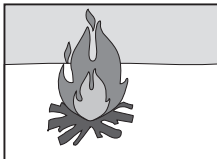
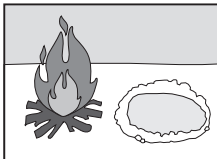
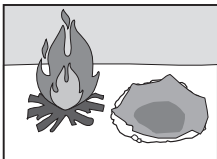
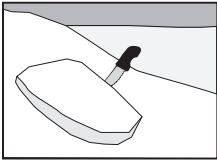
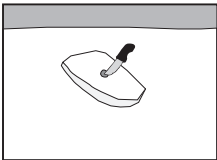
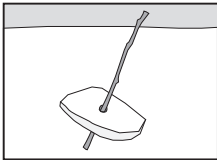
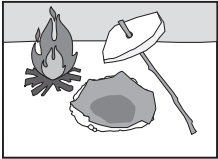
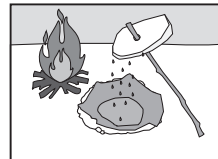
6. Return to the classroom and read chapter four. Ask students where they can get water in the winter that doesn't involve melting snow or ice. (*sikusuilag*, or body of water that never freezes) With the help of the local Elder, locate and mark local sikusilat on a local map. Ask students why the water does not freeze in those places. (*The water is moving so fast that the air doesn't have time to cool it enough to freeze it; or warmer water wells up from underground springs.*)
7. Read the fifth chapter. Discuss the different ways snow and ice were melted in the chapter. As a class, go over the steps for melting snow (see Answers). Ask students why they should not melt snow in their mouths. (*When a person uses their body heat to melt the snow, they use up energy needed to keep warm.*) Ask the Elder to share other ways of melting ice or snow.
8. Thank the Elder for visiting the classroom.
9. Distribute the appropriate level STUDENT WORKSHEET: "Drinkable Snow." Level I students may wish to work with an older student or volunteer.

## Extension Idea:

Find examples of each of the three types of snow (fresh powder snow, snow made crusty and hard by strong winds, and granular snow found under another layer) and gather an equal-sized sample of each type. Label beakers or other clear containers and place the snow in the containers. Cover with plastic wrap and allow the samples to melt completely. Measure and compare the water output of each type of snow. Graph as a class.

## Answers:

1.
 

		
Make a fire.	Scoop out a basin in the snow, close to the fire.	Line the basin with a piece of skin.
		
Cut a flat piece of snow from a snowdrift.	Make a hole in the middle of the snow with a knife.	Place a stick through the hole.
		
Place the other end of the stick in the snow near the fire so that the snow is over the basin.	Let the snow melt.	

2. (for Level II Worksheet only) When a person eats snow, they use their body heat to melt it, which uses up energy needed to keep warm.

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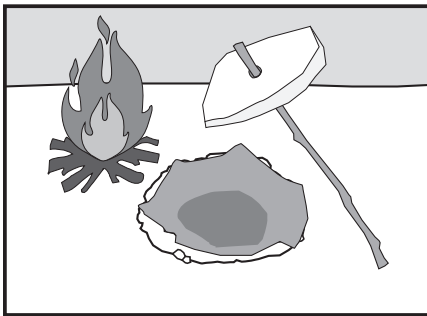
# Drinkable Snow

## Student Worksheet (page 1 of 2)

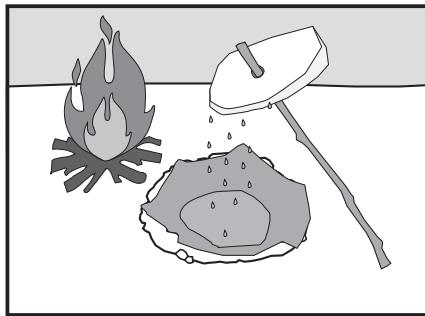
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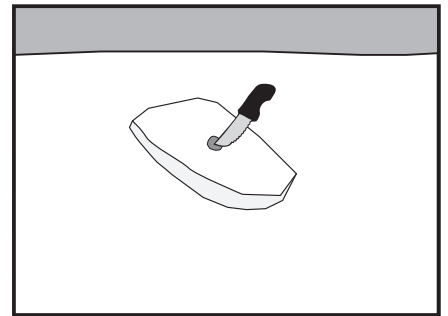
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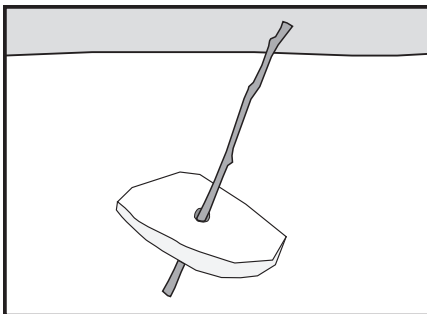
Place the other end of the stick in the snow near the fire so that the snow is over the basin.



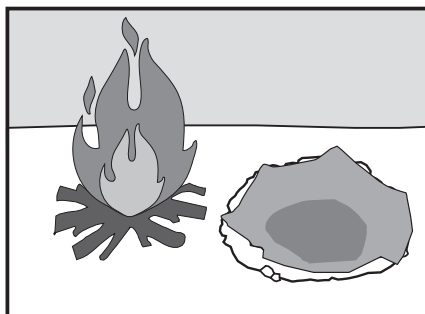
Let the snow melt.



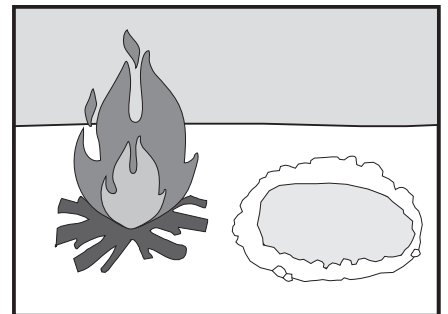
Make a hole in the middle of the snow with a knife.



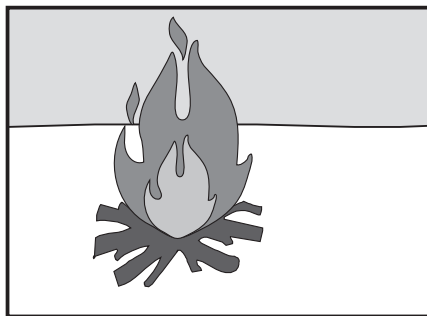
Place a stick through the hole.



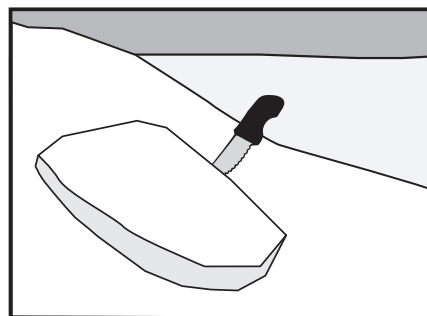
Line the basin with a piece of skin.



Scoop out a basin in the snow, close to the fire.



Make a fire.



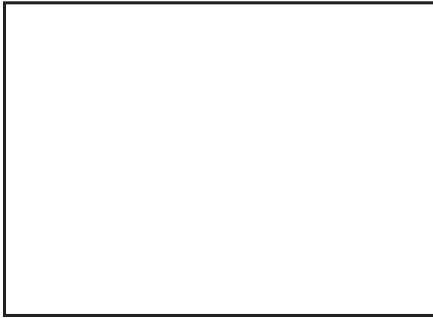
Cut a flat piece of snow from a snowdrift.

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# Drinkable Snow

## Student Worksheet (page 2 of 2)

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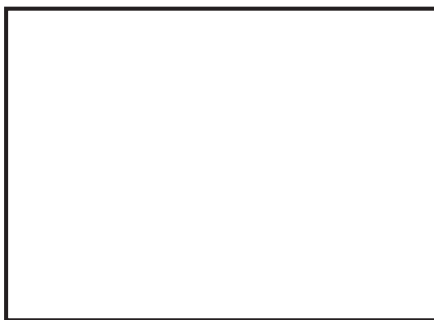
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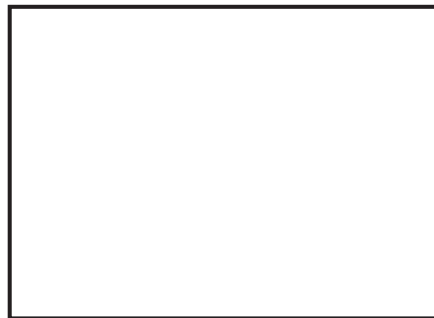
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Name: \_\_\_\_\_

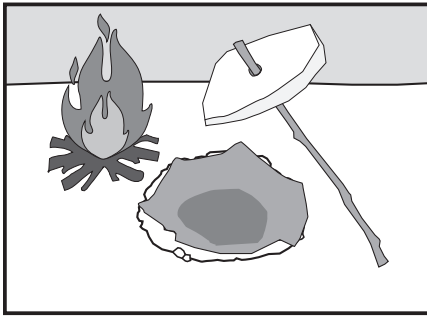
# Drinkable Snow

## Student Worksheet (page 1 of 2)

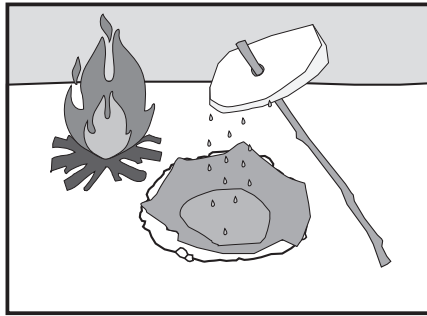
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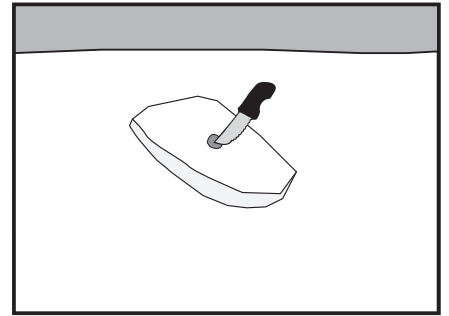
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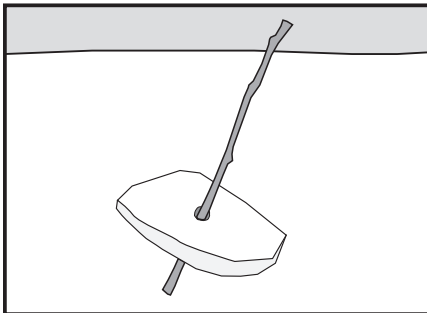
Place the other end of the stick in the snow near the fire so that the snow is over the basin.



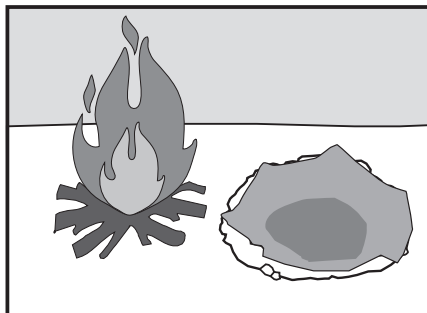
Let the snow melt.



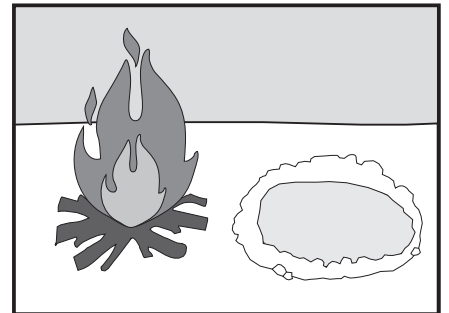
Make a hole in the middle of the snow with a knife.



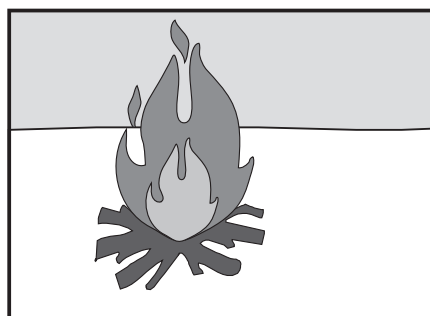
Place a stick through the hole.



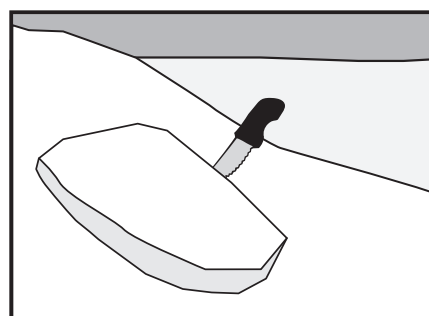
Line the basin with a piece of skin.



Scoop out a basin in the snow, close to the fire.



Make a fire.



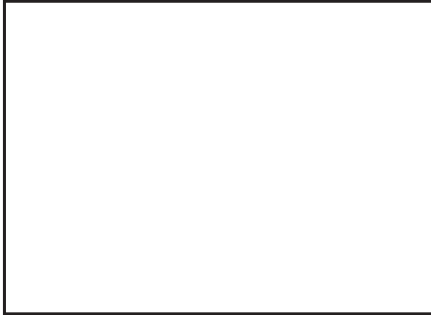
Cut a flat piece of snow from a snowdrift.

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

# Drinkable Snow

## Student Worksheet (page 2 of 2)

1



2



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2. Explain why you should not melt snow in your mouth.

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