

Overview:

Students will calculate the water use of their individual families and use the cumulative data from the class to analyze the water needs of their village.

Objectives:

The student will:

- calculate the water needs of their individual families;
- determine the average per person water consumption in the village and the overall needs of the village during the winter months; and
- compare their findings to the village water storage capacity.

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] SA1.2 The student demonstrates an understanding of the processes of science by using quantitative and qualitative observations to create inferences and predictions.
- [5] SE1.1 The student demonstrates an understanding of how to integrate scientific knowledge and technology to address problems by identifying a community problem or issue and describing the information needed to develop a scientific solution.
- [7] SE1.1 The student demonstrates an understanding of how to integrate scientific knowledge and technology to address problems by describing how public policy affects the student's life (e.g., public waste disposal).

Materials:

- Pencils
- STUDENT WORKSHEET: "Water Wise"

Activity Procedure:

Many villages throughout the Bering Strait School District pipe their water from local rivers or creeks and store this water in huge holding tanks for use during the winter months. Students may have experienced times of water rationing due to a late spring thaw, or because the existing water tank is no longer adequate to meet community demands.

1. Prior to this lesson, determine how village water needs are met during the year. If a water tank is used, establish its size. Determine how many people depend on that water supply and for approximately how many months per year. As a lesson extension, students may be asked to research this information.
2. Ask students where their water comes from, both in the summer months and during the winter. Ask if they have ever had to reduce their water usage due to a water shortage. Explain that, in this activity, students will determine how much water each of their families uses per day on average, and then use the average of that amount to compute the annual water needed for their village.
3. Hand out the STUDENT WORKSHEET: "Water Wise" and ask students to complete the first part independently. Complete the second part as a class.

Answers to Student Worksheets:

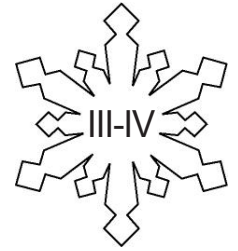
Answers will vary.

Name: _____

Water Wise

Student Worksheet (page 1 of 3)

Levels



Section I:

1. Fill out the following table to determine approximately how much water your family uses each day.

Activity	Gallons/day									
Showers	Number per day: _____	x	Number of minutes: _____	=	Total minutes: _____	x	Average: 2 gal/min	=	_____	
Baths	Average: Number per day: _____				x	30 gallons/bath	=	_____		
Toilet flushes (average is 4 per person)	Number in family: _____	x	Flushes per day: _____	=	Total flushes: _____	x	Average: 2 gal/flush	=	_____	
Teeth brushing	Number in family: _____	x	Number of brushings per day: _____	=	Total brushings: _____	x	Average: 1/2 gal/brush	=	_____	
Hand washing	Number in family: _____	x	Number of hand washings per day: _____	=	Total hand washings: _____	x	Average: 1/2 gal/wash	=	_____	
Dishwashing by hand	Number of times dishes washed per day: _____	x	Minutes water runs per time: _____	=	Total minutes water runs: _____	x	Average: 2 gal/min	=	_____	
Dishwasher	Number of loads per week: _____				x	15 gal/load	÷	7 days per week	=	_____
Laundry	Number of loads per week: _____				x	35 gal/load	÷	7 days per week	=	_____

2. Total Daily Use by Household (Gallons per Day) = _____

3. Total Daily Use ÷ Number of People in the Home (Gallons per Person per Day) = _____

Name: _____

Water Wise

Student Worksheet (page 2 of 3)

4. Make a bar graph of family water use per day by filling out the table below:

