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Sample Upper Elementary Lesson Arctic Survival

The Critical Thinking Consortium

This chapter provides a detailed lesson plan¹ that illustrates how elementary students can be engaged and systematically supported in thinking critically about the conditions in the Arctic. The main focus of the lesson is a critical challenge where students must buy supplies for a four-day trip to the Arctic during the winter season.

The lesson is intended to help students learn about the necessities for survival as they decide what supplies are needed to outfit a four-day trip to the Arctic. Students begin by reviewing arctic winter conditions and the differences between needs and wants. They are given a budget of \$3,000 to purchase the needed supplies from a catalogue or, if possible, from a sample “general store” set up in the classroom or from an online catalogue of outdoor equipment. Students categorize the supplies into needs and wants as they decide what supplies are necessary and which luxuries can be afforded within the limited budget. Finally, students are asked to provide specific, factually supported reasons for their choices.

In the course of working through this task it is hoped that students will better appreciate the resourcefulness of the Inuit as they learn that survival in arctic conditions requires careful selection of the important necessities.

The premise of The Critical Thinking Consortium approach is that student success in any critical thinking task depends on their possession of the relevant “tools.”² Below are the key tools that students are taught in this lesson:

Background knowledge

- knowledge of arctic landscape and climate
- knowledge of the properties of various supplies

Criteria for judgment

- criteria for effective purchases (for example, meets all needs to survive in the Arctic, stays within budget, provides a pleasurable trip)
- criteria for a good explanation (for example, specific, supported with facts, more than one reason)

Critical thinking vocabulary

- needs (necessities) and wants (luxuries)

Thinking strategies

- data chart

Preplanning

ASSEMBLE SAMPLE SUPPLIES (OPTIONAL)

In this challenge, students select from a list of approximately fifty items—without exceeding the \$3,000 limit—the supplies they will take on a four-day trip to the Arctic. An illustrated list and order form is provided in Arctic Supplies (Blackline Master 2.1). You may prefer to direct students to use an actual catalogue from an outdoor equipment store such as Mountain Equipment Co-op (www.mec.ca). It is even more engaging if students see the actual items. Consequently, you may want to create a “general store” in a corner of the classroom (or in a spare classroom, the gym, or the library). Assemble as many of the items as possible listed in Blackline Master 2.1. Substitute pictures for items that cannot be located. Mark the price on each item and arrange the goods in departments matching the categories of basic needs (for example, food, clothing, shelter, tools, transportation).

Session One

DISCUSS ARCTIC ENVIRONMENT

Invite students to imagine that they are in the Arctic during the winter. Ask them to identify the climatic and landscape conditions they would expect. If helpful, arrange to have several pictures to show to the class. Record students’ ideas on the board. If needed, prompt students with questions such as the following:

- Would it be sunny? rainy? windy?
- Would the ground be slippery? covered in snow? wet or dry?
- Would the surface be flat or hilly? smooth or rough?

CLOTHING

Winter Boots

Waterproof winter boots with a heavy-duty rubber sole for great traction and support.
\$100.00/pr



PRICE QUANTITY TOTAL

\$100.00 _____

ARE THEY NEEDED? NO YES

REASON FOR DECISION:

Winter Boots

Mid-calf length, lined, waterproof winter boots with rubber toes and soles.
\$120.00/pr

PRICE QUANTITY TOTAL

\$120.00 _____

ARE THEY NEEDED? NO YES

REASON FOR DECISION:

Winter Socks

Pair of quick-drying socks for cold weather.
\$9.00/pr



PRICE QUANTITY TOTAL

\$9.00 _____

ARE THEY NEEDED? NO YES

REASON FOR DECISION:

Winter Underwear

Pair of thermal underwear that helps trap body heat and keep it close to the body.
\$45.00/pr

PRICE QUANTITY TOTAL

\$45.00 _____

ARE THEY NEEDED? NO YES

REASON FOR DECISION:

Winter Pants

Waterproof winter pants.
\$70.00/pr



PRICE QUANTITY TOTAL

\$70.00 _____

ARE THEY NEEDED? NO YES

REASON FOR DECISION:

Winter Pants

Waterproof snow pants with suspenders.
\$180.00/pr

PRICE QUANTITY TOTAL

\$180.00 _____

ARE THEY NEEDED? NO YES

REASON FOR DECISION:

Waterproof Suit

Waterproof hooded winter jacket with pockets that zip up and waterproof snow pants.
\$310.00/ea

PRICE QUANTITY TOTAL

\$310.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Waterproof Jacket



Waterproof winter jacket with hood.
\$130.00/ea

PRICE QUANTITY TOTAL

\$130.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Waterproof Jacket

Hooded waterproof winter jacket with elastic around the bottom.
\$160.00/ea

PRICE QUANTITY TOTAL

\$160.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Winter Jacket

Fake-fur-lined winter jacket with hood.
\$200.00/ea

PRICE QUANTITY TOTAL

\$200.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Winter Vest

Waterproof winter vest.
\$100.00/ea

PRICE QUANTITY TOTAL

\$100.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

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BLACKLINE MASTER 2.1 ARCTIC SUPPLIES (CONT.)

CLOTHING

FOOD

Sweater

Wool turtleneck sweater.
\$80.00/ea

PRICE	QUANTITY	TOTAL
\$80.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Sweatshirt

Thick hooded sweatshirt.
\$60.00/ea

PRICE	QUANTITY	TOTAL
\$60.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Mittens

Warm pair of mittens.
\$30.00/pr



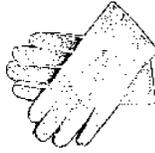
PRICE	QUANTITY	TOTAL
\$30.00	_____	_____

ARE THEY NEEDED? NO YES

REASON FOR DECISION:

Gloves

Warm pair of gloves.
\$40.00/pr



PRICE	QUANTITY	TOTAL
\$40.00	_____	_____

ARE THEY NEEDED? NO YES

REASON FOR DECISION:

Winter Hat

\$12.00/ea



PRICE	QUANTITY	TOTAL
\$12.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Winter Hat

Waterproof baseball hat.
\$15.00/ea



PRICE	QUANTITY	TOTAL
\$15.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Camp Food

One-day supply of nutritious food for breakfast, lunch, dinner and two snacks (suitable for camping).
\$30.00/ea

PRICE	QUANTITY	TOTAL
\$30.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Water Filter

\$90.00/ea

PRICE	QUANTITY	TOTAL
\$90.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Stove

Portable cooking stove (fuel included).
\$80.00/ea

PRICE	QUANTITY	TOTAL
\$80.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Cookware

Five-piece non-stick cooking set.
\$50.00/ea



PRICE	QUANTITY	TOTAL
\$50.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Garbage Bags

Package of 10.
\$3.00/ea

PRICE	QUANTITY	TOTAL
\$3.00	_____	_____

ARE THEY NEEDED? NO YES

REASON FOR DECISION:

BLACKLINE MASTER 2.1 ARCTIC SUPPLIES (CONT.)

SHELTER

Tent

Waterproof free-standing tent that is easy to set up.
\$250.00/ea



PRICE	QUANTITY	TOTAL
\$250.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Heated Room

Shared bedroom in a cabin with electricity and indoor plumbing (includes bed sheets).
\$60.00/night

PRICE	NIGHTS	TOTAL
\$60.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Sleeping Bag

Waterproof sleeping bag that is good for temperatures as low as -20 C.
\$200.00/ea

PRICE	QUANTITY	TOTAL
\$200.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Sleeping Bag



Waterproof mummy sleeping bag that is good for temperatures as low as -50 C.
\$1000.00/ea

PRICE	QUANTITY	TOTAL
\$1000.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Blanket

Heavy-duty blanket.
\$30.00/ea

PRICE	QUANTITY	TOTAL
\$30.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Pillow

Waterproof lightweight camping pillow.
\$20.00/ea

PRICE	QUANTITY	TOTAL
\$20.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Sleeping Pad

Waterproof, lightweight.
\$60.00/ea

PRICE	QUANTITY	TOTAL
\$60.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

TRANSPORTATION

Backpack

Waterproof, internal-framed backpack for carrying heavy loads.
\$300.00/ea

PRICE	QUANTITY	TOTAL
\$300.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Backpack

Waterproof backpack with several different-sized compartments.
\$100.00/ea



PRICE	QUANTITY	TOTAL
\$100.00	_____	_____

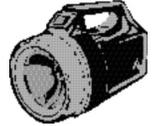
IS IT NEEDED? NO YES

REASON FOR DECISION:

TOOLS

Flashlight

Heavy duty flashlight (batteries not included).
\$30.00/ea



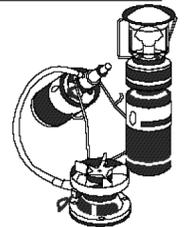
PRICE	QUANTITY	TOTAL
\$30.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Lantern

Lightweight butane lantern (fuel included).
\$50.00/ea



PRICE	QUANTITY	TOTAL
\$50.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Bear Repellent

Guaranteed to chase away all kinds of bears.
\$8.00/ea

PRICE	QUANTITY	TOTAL
\$8.00	_____	_____

IS IT NEEDED? NO YES

REASON FOR DECISION:

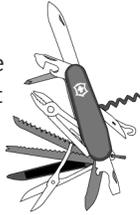
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BLACKLINE MASTER 2.1 ARCTIC SUPPLIES (CONT.)

TOOLS

Knife

Swiss Army knife with 20 different attachments.
\$80.00/ea



PRICE QUANTITY TOTAL

\$80.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

First Aid Kit

\$20.00/ea



PRICE QUANTITY TOTAL

\$20.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Toothpaste and Toothbrush

Small size; ideal for travel.
\$4.00/set

PRICE QUANTITY TOTAL

\$4.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Batteries

Package of 4 "AA" batteries.
\$4.00/ea

PRICE QUANTITY TOTAL

\$4.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Camera

Disposable camera and film (batteries not included).
\$15.00/ea

PRICE QUANTITY TOTAL

\$15.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Sunglasses

Glare reduction.
\$30.00/pr

PRICE QUANTITY TOTAL

\$30.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Hairbrush

\$4.00/ea

PRICE QUANTITY TOTAL

\$4.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Binoculars

High-powered.
\$300.00/pr



PRICE QUANTITY TOTAL

\$300.00 _____

ARE THEY NEEDED? NO YES

REASON FOR DECISION:

Two-Way Radio

Water resistant (batteries not included).
\$100.00/ea

PRICE QUANTITY TOTAL

\$100.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Heavy-duty rope

50' coil.
\$50.00/ea



PRICE QUANTITY TOTAL

\$50.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

Watch

Waterproof with built-in compass.
\$40.00/ea



PRICE QUANTITY TOTAL

\$40.00 _____

IS IT NEEDED? NO YES

REASON FOR DECISION:

TOTAL OF ALL ITEMS

\$ _____

REVIEW NEED VS. WANT

Ask students what things they might “need” if they are to cope with arctic conditions. In the course of this discussion remind students about the difference between “needing” and “wanting” something (for example, “need” means you cannot function without; “want” means you can get by without it, but you would like to have it). Suggest synonyms for the terms: necessities and luxuries. Ask students to offer pairs of related needs and wants as illustrated by the following examples:

- “I would ‘need’ clothing to keep me warm. I might ‘want’ Calvin Klein jeans and a Club Monaco sweatshirt.”
- “I would ‘need’ shelter to protect me from the cold. I might ‘want’ to stay in a fancy hotel.”

INTRODUCE THE CRITICAL CHALLENGE

When students understand the difference between needing and wanting something, present the critical task:

Buy supplies for a four-day trip to the Arctic during the winter season.

Explain to students that everything they bring on the trip must be purchased (students cannot bring anything of their own from home). Students will have a maximum budget of \$3,000 to buy all the supplies they will need. Because of the limited funds, encourage students, first, to carefully choose the supplies they need; and second, to choose the supplies they might want to make the trip as pleasurable as possible.

DECIDE ON NEEDED SUPPLIES

Distribute copies of Arctic Supplies (Blackline Master 2.1), from which all supplies must be bought. Alternatively, direct students to the online catalogue of an outdoor equipment store. Suggest that students use a pencil to record their purchases on the charts so they can make changes. Explain the procedure that students should follow. You may want to summarize the following steps on the board or walk the class through one step at a time, waiting for everyone to complete one step before proceeding to the next:

- **Identify needs.** Go through the list (and, if available, the actual items) looking only for those things students absolutely need, checking the “Yes” box (under the “Is it needed?” column).
- **Record individual cost of needs.** Determine how many of each of the needed items they will require and record the cost of these necessities in the “Cost” column. Remind students they will be gone for four full days and nights.
- **Calculate total spent on needs.** On a separate piece of

paper, direct students to copy down the amount spent thus far on necessities. Encourage students to ignore the cents and round off each cost to the nearest dollar. Determine how much is left to spend (or how much they have overspent).

- **Share decisions about needs.** When students have completed their initial selection of needs, invite three students to list their choices about clothing needs. If there are any discrepancies in their choices, ask them to explain the reasons for their choices. Proceed with other needs if this seems warranted. If students need considerable support in thinking through the implications of the choices about needs, organize students into groups of three or four and ask them to share their decisions for each category of basic needs.

Session Two

DECIDE ON REMAINING SUPPLIES

Explain the procedure that students should follow for the next step:

- **Add/delete supplies.** Go over the list again, adding (or deleting) necessities (for example, three pairs of underwear instead of one, or vice versa) and, if appropriate, adding luxuries that will make their trip more pleasurable. Students should keep track of the additional/reduced cost of purchases to make sure they do not exceed the \$3,000 limit.
- **Calculate exact total cost.** When students have made their purchases, on a separate sheet of paper they should copy the exact amount (dollars and cents) of all purchases and calculate the total. Depending on the sum they may want to make final adjustments to their order.

PROVIDE RATIONALE FOR THEIR CHOICES

When students have completed their deliberations, ask them (possibly as a homework assignment) to provide written explanations for all of their purchases. Draw their attention to the space for recording their decision in each box on Blackline Master 2.1. Explain that they are to write their reasons for buying or not buying each item. In cases where students have a choice among similar items (for example, two different types of boots) they should indicate why they chose the particular option that they did. For each decision, ask students to provide more than one reason that includes details and evidence (for example, students should say more than “I needed it” or “I didn’t need it,” but explain in light of the conditions they will face in the Arctic how each item would be useful or

not). As a class, model the rationale that students might offer in explaining their choice of which boots to purchase. Possible reasons include the following:

- Heavy soles are less slippery on ice.
- Thicker soles may be warmer than thin rubber soles.
- Taller boots may keep deep snow out.
- Waterproof boots are necessary in the snow and ice.

Encourage students to refer to what they have already learned about life in the Arctic to support their answers.

DEBRIEF THE DECISIONS

When students have completed their rationales, discuss issues that arose in deciding what to purchase for the trip and why:

- What questions do students have about what they would “need” to buy?
- Was there anything they “wanted” to buy, but did not have enough money?
- What was their best purchase (that is, the most interesting or resourceful choice)?
- What have they learned from this activity about the Inuit and their ability to live in the difficult arctic conditions?

You may want to raise specific issues that students may miss (for example, why sunglasses may not be needed because of the limited winter light or why bear repellent may be necessary since polar bears don’t generally hibernate).

Evaluation

Assess students’ selection and justification of their list of supplies recorded on Arctic Supplies (Blackline Master 2.1) using the rubric found in Assessing the Purchases (Blackline Master 2.2). According to this rubric, the assignment is worth fifteen marks and is assessed on three criteria:

- identification of needs and wants;
- reasonable selection of supplies; and
- sound reasons for each decision.

Extension

Compare modern survival supplies with what the Inuit traditionally used for their survival. For each of the basic needs, decide how they differ and how they are similar.

BLACKLINE MASTER 2.2 ASSESSING THE PURCHASES

	SOPHISTICATED	VERY GOOD	COMPETENT	SATISFACTORY	IN PROGRESS
Identification of needs and wants	The identification of needs and wants for all items seems very reasonable.	The identification of needs and wants seems reasonable in almost all cases.	The identification of needs and wants seems reasonable in most cases.	The identification of needs and wants seems reasonable in many cases, but major misidentifications are made.	Many items are obviously incorrectly identified as needs or wants.
Selection of supplies	The selected supplies will clearly meet all the necessities of arctic survival.	The selected supplies are generally adequate to meet the necessities of arctic survival.	The selected supplies will meet almost all the necessities of arctic survival, with only one or two major gaps.	The selection of supplies will probably meet many of the necessities of arctic survival, but there are several major gaps.	The selection of supplies is obviously inadequate to meet many of the necessities of arctic survival.
Reasons for choices	Sound reasons supported with relevant facts are provided for every item.	Sound reasons supported with relevant facts are provided for almost all items.	Reasons are provided for most items, with only a few questionable or unsupported reasons.	Reasons are provided for many items, but a number of reasons are questionable or without factual support.	Very few reasons are provided and supported with facts.



Thinking of the intended student audience and the curriculum, critique this lesson. Be sure to identify its positive traits and shortcomings. Discuss what you could do to improve, adapt, or extend this lesson.

ENDNOTES

- 1 This lesson is taken from *The resourcefulness of the Inuit*, ed. J. Nichol and R. Case. 2003. Vancouver, BC: The Critical Thinking Consortium. Used by permission.
- 2 The tools referred to are explained in chapter 6 of the updated (2013) edition of *The Anthology of Social Studies: Issues and Strategies for Elementary Teachers*.