

LCM Lesson Plan:
Determining Edible Plants From Non-Edible Plants
Time line – This is a 2-day lesson
Level – Intermediate – Can be used school -wide
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Science Concept – Plants may be edible or non-edible.
Edible berries from tundra plants can be used in making Eskimo Ice Cream.

(A second concept that is integrated into the lesson is the concept of “What constitutes a physical change?”

Content Standards

Science:

A-15 - Use science to understand and describe the local environment

B-1 – use the processes of science: observing, classifying measuring, and interpreting data

Cultural Awareness:

A-4 –practice their traditional responsibilities to the surrounding environment.

C-1 – perform subsistence activities in ways that are appropriate to local cultural traditions

D-1 – acquire in-depth cultural knowledge through active participation and meaningful interaction with Elders

Writing:

Ages 8-10 :

3.a –uses a variety of simple and complex sentence structures in written work;(E.A.2)

3.b –proofread and correct grammar, sentence structure, paragraph structure, punctuation, capitalization, spelling, and usage in finished written work; (E.A.5)

Math:

A-2 – select and use appropriate systems, units, and tools of measurement, including estimation.

Gear Up

This activity is a lead-up to the reason for picking berries, thus a need to distinguish edible from non-edible berries/plants.

Make ice cream and observe a physical change. Salt lowers the freezing point of ice and slow freezing causes large crystals to form in ice cream, but this fast freezing keeps the mixture creamy

Materials: 1 lb. coffee can with lid
3 lb. coffee can with lid
Several rubber bands
2-3 lbs. crushed ice
1 1/2 cups of whipping cream
1/4 cup of sugar
2 tsp. Vanilla
Mixing bowl and spoons
Plastic wrap
Box of salt

Procedure: 1. Place the whipping cream, sugar, and vanilla extract in the small can.
2. Place the lid on the can.
3. Cover the can with plastic wrap
4. Place a 2" layer of crushed ice in the bottom of the large can.
5. Sprinkle some salt over the ice
6. Place the small can in the center of the large can.
7. Continue to fill the large can with crushed ice. Layer the ice and salt until the can is almost full.

8. Place the lid on the large can.
9. Sit on the floor and roll the can back and forth. Check every 10 minutes to see if your homemade ice cream is frozen.

Students will identify changes that take place with the liquid mixture and how the change occurred.

Students will eat the ice cream that was made and explain how Eskimo Ice Cream is different.

Questions

1. Have you ever eaten Ice Cream?
2. What different kinds do you know of?
3. Is the consistency the same in all kinds?
4. Why is it not the same, if they answered no to the above.
5. What happened to ice cream that has been left out of the refrigerator?
6. What happens when you refreeze melted ice cream?
7. What is the difference between the refrozen ice cream and the original ice cream?
8. I wonder why?
9. Can you tell me the difference in the taste of this ice cream and in the taste of Eskimo ice cream?
10. What kinds of berries are used in the Eskimo Ice cream that you have eaten?
11. Are there non-edible berries that we are not to eat?
12. How can we identify them?

Process Skills used - Observation

Explore: Rules and guidelines will be given to students about going outside to pick berries in groups. Students will be taken to an area that produces berries. Teachers and elders will be with them to assist in picking berries for the Eskimo Ice Cream that will be made from the berries. Each student will be given a quart-sized plastic Zip-loc bag to hold their berries. Elders will be with groups and will help identify the berries and whether or not they are edible.

Process Skills – Observe, Classify

Generalize –

How can you identify a non-edible plant?

How can we use these berries in making American Ice Cream?

How can we use these in the traditional Eskimo Ice Cream way?

Does a physical change take place with the traditional way?

Predict how much you think you picked/the group picked.

Process Skills – Infer, Communicate, Compare

Explore – Students will take the berries that they picked to their classroom and write down their predictions of the amount.

Students will write each child's name and the weight of berries in ounces that each child has picked. The data will be displayed on a bar graph to go in the hall.

The students will then predict the combined weight of the berries. Add the Individual weights to check.

Classes combine to bring berries and make Eskimo Ice Cream.

1. First the skin of the reindeer fat will be cut away and the fat will be grated, then put in a bowl.
2. Next, a little bit of seal oil is poured into the grated reindeer fat and is mixed together by hand.
3. (Ask if a physical change is taking place)

4. After the fat and seal oil have been mashed together, the berries are added and stirred in.
5. The Eskimo Ice Cream is ready to eat.

Process Skill – Measurement with Venn Diagram

Generalize – Students fill in a Venn diagram on paper to compare and contrast the two ice creams. Responses will be put on the big Venn diagram on the board.

1. Did a physical change take place in each?
2. How were they alike?
3. How were they different?
4. Do they both contain the same ingredients?
5. Can they both have berries in them?
6. Do they have the same consistency?

Measurement/Collect and Graph Data - Write a questionnaire form to tally responses as to student's favorite berry. Then take the responses and graph them in the form of any graph they choose.

Assessment – Write How-To Directions for making Eskimo Ice Cream. Be sure to write the ingredients, tell what is done to each, and explain how you know when it is done. Illustrate the final product, or the steps involved in making it.

Write a descriptive paragraph explaining how to identify non-edible berries from edible berries. Use shapes of leaves and anything that you learned from the elder. Give the common name and the Inupiaq name of the plants.

Extension – Have students bring in parts of different plants. Be sure that some are edible and some are non-edible. Students will research the plant and give its family name, its scientific name, and its Eskimo name in a paragraph below the plant.

Rubric – Gathering and identifying berries

Objective	1	2	3	4	Total
Stay in assigned area with elder	Student roams unchaperoned more than twice	Student strays only once.	Student stays in assigned area with elder and does not stray	Students stay in assigned area and reminds others to do so	
Fill Pint zip-loc with berries	No berries	Student gets some berries, but less than a half	Student picks a pint	Student picks a pint and assists others	
Pays attention to elder as non-edible plants are described and shown	Does not give attention to elder and is unable to describe any on-edible plant	Student gives a partial description	Student can give the name of and description of a non-edible plant	Student can give the name and description of a non-edible plant and identify a second one	
Student can identify at least 3 different kinds of edible berries	Cannot identify any berries	Can identify one kind	Can identify all kinds of berries mostly grown here	Can identify more than 3 berries	