

Maple Syrup Lesson Plan

Keywords: maple sugar, syrup, sap, sugar makers

Lesson Plan Grade Level: 6th - 8th

Total Time Required For Lesson: 50 minutes as one continuous time block (not including the optional field trip)

Setting: Classroom

Subjects Covered: Science

Topics: Maple Syrup Production, Maple Products

Goals For The Lesson:

Students will understand the process of making pure maple syrup.

Students will identify differences between pure maple syrup and artificial maple syrup.

Materials Needed:

Maple Syrup fliers (From The Woods Series)

Maple Syrup Pretest (one for each student)

Maple Syrup Posttest (one for each student)

Imitation maple syrup (for students to sample)

Flavored pancake syrups (strawberry, blueberry etc.) (for students to sample)

Pure maple syrup (for students to sample)

Small containers (for the maple syrup samples)

Plastic spoons (at least four for each student)

Appendix 1 (one for each student)

Appendix 2

Pennsylvania State Standards Addressed:

E&E Standards: 4.2.7, 4.4.7, 4.8.7

Teaching Model: Experiential Learning Model (Experience, Share, Process, Generalize, Apply)

Methods:

Preparation:

Read through the entire lesson and appendices to ensure your understanding of the process of making pure maple syrup and the included activity.

Contact a local sugar maker to establish a time to take the class to observe the process.

Generally they should be contacted in November or December to ensure their cooperation and

determine when it is convenient to arrange a visit. (The maple sugaring season in Pennsylvania can vary greatly from February through March depending upon the weather.)

Provide several types of syrup (at least one of: pure maple syrup, artificial maple syrup, and two flavored syrups); the students will be completing a taste test, trying to determine which is pure maple syrup.

Create four areas in the classroom for the sampling of the syrups. Place number cards at each sample, the students will be evaluating each sample.

Doing The Activity:

Introduction to the lesson: Display a pure maple syrup container. Ask the students what is in the container. After the class has identified the substance as maple syrup, explain to the class that today's lesson will describe the process of making pure maple syrup. This lesson would be best conducted before the visit to a sugar maker (if possible).

Steps:

(Experience and Share Stages 25 minutes)

1. Administer the pretest to the students; explain that the purpose of the pretest is test knowledge the students already have acquired on the subject. (allow approximately 7 minutes for the test then collect)
2. Ask the students if they have any comments concerning the pretest.
3. Give each student a copy of the *Maple Syrup* flier; explain to the students that they may read with a partner or independently. After the students have completed the reading ask if there are any questions.
4. Ask the students to refer to the photos describing the steps of making pure maple syrup (in the flier) and discuss.
5. Explain to the students that they will be completing a taste test to see if they can identify pure maple syrup.
6. Divide the students into four groups. Tell them they will be rotating every 2 minutes, until they have tasted each sample.
* Hand out Appendix 1 and read over the directions with the class. There are several spaces provided if you prepare additional samples.
7. Assign the groups to the centers and begin the rotating process. Monitor that all students complete the tasting. Be sure proper hygiene is used when samples are being tasted. A "used" spoon should never be put into a clean sample. Used spoons should be thrown away and not used by other students.

(Share and Process Stages 8 minutes)

8. After the students have tasted all the samples, allow the students to share what they documented about the tastes. Ask the students to share their favorite and discuss the differences.
9. Then go over the actual products, display the bottles/ containers in front of each sample. Ask the students to compare pure maple syrup with the artificial maple syrup. If necessary allow the students to taste the samples again.

10. Ask volunteers to read the ingredient labels of each sample; comparing the other maple syrups with the pure maple syrup.

(Generalize and Apply Stages 12 minutes)

11. Prepare the students for the posttest. (complete discussion questions Appendix 2), ask the students if there are any questions.

12. Administer the post test. Allow the students time to complete then collect.

Assessment: The students will be evaluated through participation and upon completion of the post test.

Conclusion To The Lesson: “This completes today’s lesson I hope that you have gained a more thorough understanding of making pure maple syrup. Does anyone have any further comments concerning the lesson? “

References and Resources:

Maple Syrup flier (From The Woods Series)
The Pennsylvania State University
112 Agricultural Administration Building
University Park, PA 16802

This lesson was prepared by Katie Roth, Middle School Teacher and Sanford Smith, Extension Specialist Penn State School of Forest Resources.

Appendix 2- Discussion Questions- Maple Syrup

1. What region of the United States do sugar maple trees grow naturally?
(northeastern)
2. Explain the purpose of maple syrup for the Native Americans.
(to sweeten foods)
3. What season is favorable for tapping sugar maple trees for sap?
(spring)
4. What is another name for a maple producer? *(sugarmaker)*
5. Ask the students to describe the process of creating pure maple syrup.
(1. tap 2. tubing collects sap into storage tanks or buckets collect the sap from trees 3. sap is placed into an evaporator to boil water out 4. tested 5. filtered; sugar sand is filtered out 6. placed in a container for sale)
6. If you have 40 gallons of pure maple syrup approximately how many gallons of sap were collected for its production? *(1600 gallons of sap)*