



## Quarrybrook

EXPERIENTIAL EDUCATION CENTER

### Program Title: **Maple Sugaring**

**Audience:** 2nd grade students

**Program Theme:** In the springtime, much of the Northeast is busy making maple syrup. How do we get maple syrup from a tree's sap? We will learn all about the sugaring process and how it has changed over the years. Students will also learn how to identify which trees are sugar maples, and how to measure a tree to determine if it is large enough to be tapped. Then we'll taste maple syrup made from the sap from Quarrybrook's very own tapped trees!

**Program Goals:** Students will understand that maple syrup is made from sap, a natural resource produced by a tree. Students will be able to identify a sugar maple tree, and determine if it is an appropriate size to tap.

#### **Next Generation/Common Core Connections:**

**Topics:** 2-PS1 Matter and its Interactions

CCSS.MATH.CONTENT.2 Measurement and Data

SS:HI:4 US/NH History

**Dimensions:** Chemical Reactions, Cause and Effect  
Measure and Estimate Lengths in Standard Units  
Economic Systems and Technology

#### **Program Outline:**



Teachers are always welcome to make any classroom-connecting comments that contribute to student understanding.

**Activity 1: SUGARING THROUGH THE CENTURIES (25 min.)** – We will begin with the students working together to determine which sugaring tools belong to which time period: Native American, Colonial, or Present Day/Modern. Then we'll discuss how each time period has had a similar yet unique approach to the sugaring process. Students will be asked to explain how they think the tools were used.

This activity is adapted from "Sugaring Tools Through Time" from Shelburne Farms' *Project Seasons: Hands-on activities for discovering the wonders of the world.*"

**Objective:** Students will make sense of the varying tools and processes used to make maple syrup and maple sugar during different time periods.

**Intended Outcome:** Students will place the examples of tools into the correct time period (Native American, Colonial, or Present Day/Modern) depending on when they were used. If placed incorrectly, students will reassess and move the tools to the correct time period.

Activity 2: TO TAP or NOT TO TAP? (75 min.) – Once students have an idea about how to tap a maple tree, they will learn how to identify which trees are the maples! Students will also learn that a tree must be a certain circumference before a tap should be put into it.

**Objectives:** Students will know how to distinguish a maple tree from the other deciduous trees. Students will know how to determine the number of taps that can be placed into a tree.

**Intended Outcomes:** Students will correctly identify maple trees. Students will provide the accurate number of taps that each tree can handle, based on its size.

Activity 3: REAL or NOT REAL? (15 min.) – To gain a better understanding of how sap is turned into syrup, students will create a sugar-water mixture and boil it, to replicate the process of concentrating the sugar by evaporating out the sap's water. Students will also compare and contrast samples of sap and water, as well as pure maple syrup and pancake syrup.

**Objective:** Students will observe the change in the sugar-water mixture as it boils.

**Intended Outcome:** Students will be able to explain the change which occurs when boiling sugar-water, and how it relates to evaporating the sap into syrup.

**Conclusion/Wrap-up:** (5 min.) Students will share one piece of information which they learned about the maple sugaring process.

**Successful completion of this program will help support your students' proficiency in NGSS**

**Performance Expectations:**

2-PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

CCSS.MATH.CONTENT.2.MD.A.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.

SS:HI:4:4 Students will demonstrate an understanding of the changing forms of production, distribution and consumption of goods and services over time.