



Maple Syrup Science

Grades: 9-12

Standards

Michigan K-12 Standards in Science

Next Generation Science Standards

STEM Connection

Students will learn about the complex environmental and biological factors that are involved in maple syrup production. Maple syruping is a STEM rich activity.

Take Home

Activity worksheets are available via email upon request.

Overview

Students will experience the exciting process of making maple syrup from tree sap. This naturalist-guided program will include an introduction to the techniques used to identify the proper trees for tapping, a walk to the “sugar bush” to see tapped trees and sap collection buckets, and a discussion of the sap collection process. The program will conclude by gathering as a group around the outdoor sap stove to see syrup being boiled from sap into syrup. All participants will be offered a taste sample of syrup produced on site! During this program we will cover plant physiology, historical aspects, and the regional occurrence of maple syrup production.

Details

- This program lasts 1½ hour and can be adapted to suit your needs
- Offered in March
- Appropriate for Grade Levels 9-12

The Experience

In this program, students will be engaged in a multifaceted program experience with activities that may include:

- Exploring a forest habitat where we tap maple trees to make maple syrup
- Learning and using techniques of tree identification
- Seeing sap from local trees being boiled down into maple syrup in an outdoor sap evaporator

Helpful Hints

This program will be held in the great outdoors, please make sure students are dressed for the weather and potentially slippery, icy, snowy, and/or muddy conditions.

Standards

9th-12th Grade

HS-PS1-5

Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.

- Students will explore and discuss the chemical changes in maple sap as it is heated to produce maple syrup.

HS-LS1-5

Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.

- Students will be prompted to explain how photosynthesis factors into the production of tree sap and how that allows for the yearly production of maple syrup.

HS-ESS3-1

Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

- Students will explore and discuss how a warming climate may negatively impact the seasonal production of maple syrup in our region.

* - Integrates traditional science content with engineering.

** - Allow for local, regional, or Michigan specific contexts or examples in teaching and assessment.