

Maple Sugar Harvest

I. Curricular Areas:

Language Arts
Science

II. Learner Goals:

Students will understand the importance of the maple tree to Ojibwe people and the process of harvesting maple syrup and sugar.

III. Learner Outcomes:

1. Students will correctly identify spring as the time for harvesting maple syrup/sugar.
2. The students will correctly identify the parts of the maple tree and their function.
3. The students will accurately describe how maple sap is harvested and the process that turns it into syrup and sugar.
4. Students will compare and contrast past and present maple sugar harvesting.

IV. The Lesson:

1. Teachers will share background information with students.
2. Teachers will share information on the maple tree.
3. Students can watch all or part of DVD, *Honoring Maple Sugar*.
4. Students will discuss questions on maple sugar harvest.

V. Background Information

Traditionally, maple sugar was an important food staple to the Ojibwe and other woodland tribes. It was the main sugar available until trading introduces other types. In early spring, when snow was still on the ground, families packed their belongings and headed for the sugarbush. The sugarbush or maple grove is an area of the woods where maple trees are tapped. The families carried their belongings on sleds or toboggans and used snowshoes to ease travel through the snow.

Often groups of relatives would stake off a portion of the sugarbush. In this section they usually had two lodges they maintained year after year. One small birch bark lodge was left intact and used for storage for supplies. The frame of a larger lodge was left intact but covered with new bark each year. Platforms were built and placed inside for sleeping. A fire could be built either inside or outside the larger lodge

Maple sugar harvesting was started by tapping trees for sap. Carved wooden pegs with grooves down the center, usually made from sumac, were tapped into the maple trees at a slight downward angle about three feet from the ground. The sap flowed into a birch bark container called a muhkuk by the Ojibwe. The container was either hung on the peg or placed on the ground. The containers were collected when full

and poured into large birch bark pails.

At the maple sugar camp, preparations were made to begin boiling the sap. The large birch bark containers filled with sap were supported by strips of green bark and suspended over the fire, later these were replaced by large iron kettles which were an important trade item. The fire was kept burning all night while people took turns watching the boiling kettles. When the sap had boiled for a while, it became slightly thickened and was called syrup. The syrup was then strained to remove any impurities, then returned to the kettles to be reheated to remove most of the water. The thickening syrup was then removed to a wooden trough and a paddle was used to continue stirring until it reached the desired consistency, a granulating ladle was then used to work it into sugar. This had to be done quickly before the sugar cooled too much. From the trough, the warm granulated sugar was poured into birch bark containers.

Maple sap was boiled into syrup and prepared in three forms. The most common form was the granulated sugar. The second form was the "molded" sugar which was packed in birch bark cones, dishes or in duck bills. The third form was a sticky gum or "taffy." This was placed in small folded birch bark packets.

The maple sugar gathering usually lasted from two to four weeks, until the sap was too thin and bitter to make sugar. The first sap run was considered the best. Rain was said to provide a change in the taste of the sap.

Presently, maple trees are still tapped by many Ojibwe people. However, changes have occurred in some of the activities surrounding the maple sugar harvest. Birch bark containers have been replaced by metal containers. Metal has also replaced many of the sumac taps. With the use of the automobile, many people drive between their homes and the maple groves, whereas, in the past, they lived at the sugarbush until the harvest was over. The birch bark dwelling have been replaced by tents and campers. Presently, maple sugar gathering may not include all family members as it did in the past. Maple sugar is no longer a diet staple, although it is still gathered and enjoyed by many people.

Discussion Sheet - Suggested Discussion Questions

Picture One:

1. Describe some characteristics of a sugar maple tree ?
2. What are "keys?"
3. Why is the maple tree valuable?

Picture Two:

1. Describe how maple trees were tapped?
2. What is sap?
3. What is the Ojibwe word that means container?

Picture Three:

1. Why is the maple sap boiled?
2. Why is the maple syrup strained?

Picture Four:

1. Describe the process of "sugaring off."



2. How do you think the person knows when the syrup is thick enough to remove from the fire?

Sugar Maple Tree

The sugar maple or hard maple, is one of over a hundred types of maple trees. It is the most valuable of maple trees because of its sweet sap and its hard wood. It is usually between 70 and 135 feet in height. Its trunk may reach a diameter of five feet. The sugar maple has smooth grey bark when it is young, but as it gets older, the bark becomes rough. Its dark green leaves are thin and broad, and are cut into five points or lobes. The fruits are winged seeds which are also called "keys." In autumn, the leaves turn beautiful shades of yellow, orange and red.

Ojibwe people found many uses for the sugar maple tree. From the rotted wood the women made purple dye. The men shaped maple wood into canoe paddles, maple sugar paddles and troughs, arrows, dishes and spoons. They also harvested maple sap and turned it into maple sugar, syrup and candy

Parts of a Tree

Here is a look at the parts of a tree and how they function to move the sap and keep the tree alive, growing and healthy.

Roots anchor the tree in addition to absorbing water and minerals from the soil

Leaves (broad leaves and needles) use sunlight to create food for the tree via *photosynthesis*.

Branches hold the leaves aloft in patterns that allow them to intercept sunlight efficiently. Branches also bear flowers and fruit and aid in seed dispersal.

Trunks provide support and act as pipelines to carry water and nutrients

to parts of the tree

Trunk Layers :

Outer bark is what we see covering the trunk and branches. It protects the tree from disease, fire and injury.

Inner bark, or phloem, carries sap - which is rich in sugars made in the leaves as well as minerals- down from the leaves to the branches, trunk and roots. The inner bark can also bring stored sugar up from the roots when it is needed.

Cambium is a layer that is one cell thick. Each year it produces new phloem, inner bark, to the outside, sap wood to the inside and new cambium. Branches, trunks and roots grow in thickness as a result of cambium growth.

Xylem, or wood, makes up the bulk of the tree and provides mechanical support for the trunk, roots and branches. Just inside the cambium is the new xylem or wood called *sapwood*, which carries minerals and water up from the roots to the rest of the tree. To the inside of sapwood is old xylem, called *heartwood*, which mainly supplies support for the tree. Heartwood is older, dead sapwood that is usually darker and can no longer carry minerals and water up from the roots.

Information taken from : Keepers of Life by Michael J. Caduto and Joseph Bruchac and Plants and Their uses by the Chippewa Indian People by Priscilla Buffalohead

• WHY SOME TREES ARE ALWAYS GREEN •

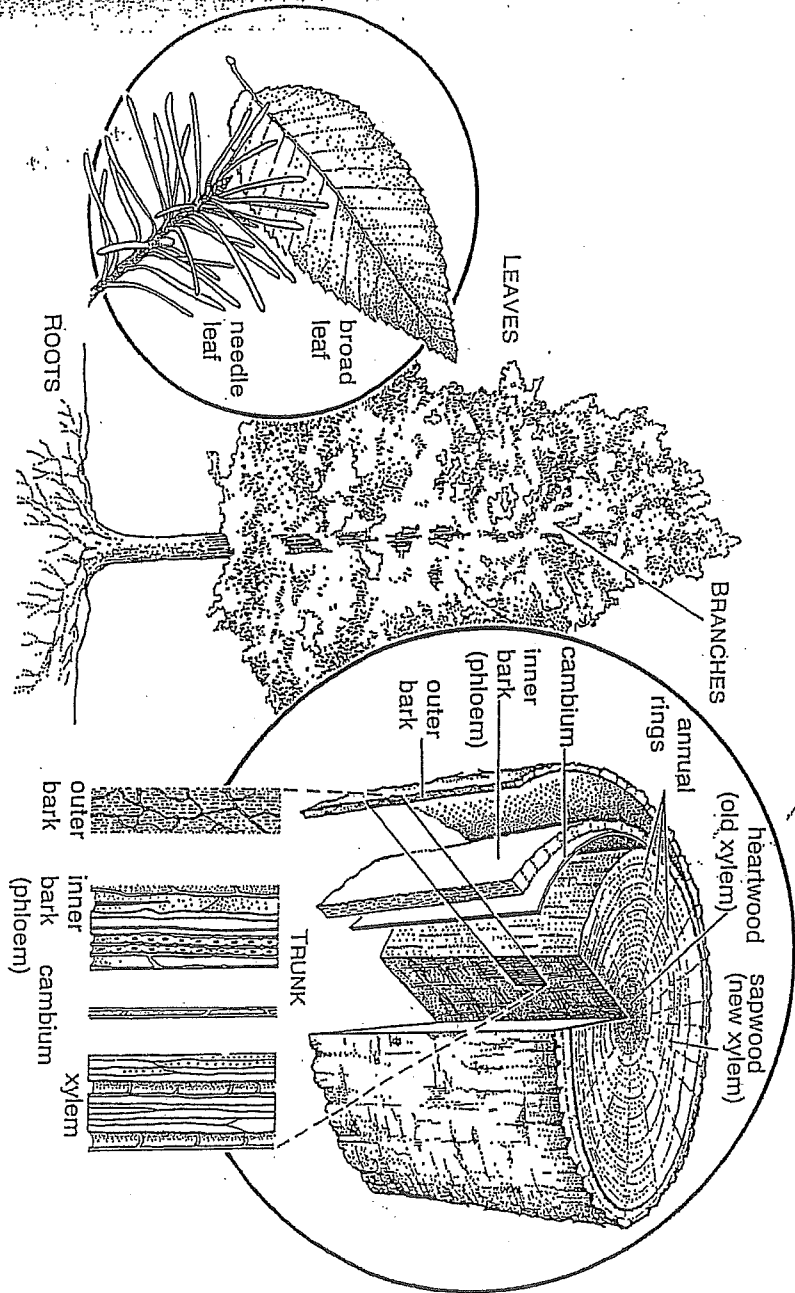



Figure 8-3. The parts of a tree: leaves, branches, trunk and roots. (Illustration by Marjorie C. Leggitt)





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Maple Fun Facts


 Minnesota's early governor in the mid-1800's was James J. Hill. He was one of the railroad barons that moved the railroads west as the country expanded. After his years in government he cooked maple syrup on the "North Shore".


 Yes! Maple syrup is made in Minnesota.


 Minnesota is the state with the most northerly latitude which produces maple syrup.


 It is also the most westerly state to do so.


 Minnesota has many licensed producers as well as numerous hobbyists.


 Minnesota is one of 19 states in the U.S. where maple syrup is made.


 It takes about 40 gallons of sap (what comes from the tree) to make one gallon of maple syrup.


 Pure Maple syrup is only made in certain parts of North America - nowhere else in the world!


 Maple syrup is made in the spring, when the temperatures gets below freezing at night and above freezing during the day.


 Nothing is added to the sap-only water is evaporated away - to make maple syrup.

 Maple syrup is a great "natural" food. It contains no colors, preservatives or additives.

 A gallon of maple syrup weighs 11 pounds.

 There are three shades of Grade A Amber - light, medium, and dark.

 Once a tree is large enough to tap, it can be used year after year.

 Each tap can yield 10-12 gallons of sap during a season (about one quart of finished syrup).

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The Maple Syrup Story

Pure maple syrup is one of nature's sweetest gifts. Boiling down the sap of the maple tree makes pure maple syrup.

Pure maple syrup is produced in the northern United States and Canada during the early spring months. Minnesota is one of the seventeen states and three provinces that produce pure maple syrup.

Pure maple syrup is a "natural" food that contains nothing artificial, no additives, no colorings, or preservatives. The main sugar in pure maple syrup is sucrose. Small amounts of fructose and glucose are found in the darker grades of syrup.

The total solids in maple syrup are sixty-six percent [66%]. A gallon of pure maple syrup weighs 11 pounds. Maple syrup caloric value is 40 calories per tablespoon.

Maple syrup contains a variety of minerals including: calcium, potassium, manganese, magnesium, phosphorus, iron and others. Vitamins including: niacin, riboflavin, pantothenic acid, biotin and folic acid can be found in maple syrup.

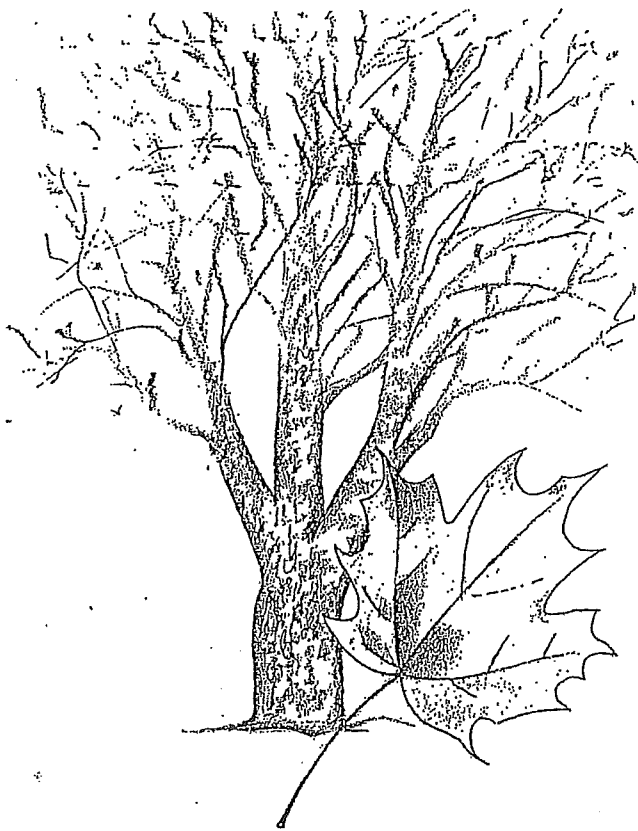
Table grades of maple syrup established by the U.S. Department of Agriculture include-Light Amber with a delicate maple flavor. Medium Amber has a stronger maple flavor and is the choice of many consumers. Dark Amber is used in many recipes. Maple syrup products can be used to replace other sweeteners in recipes.

Baking with Maple Syrup

For every cup of sugar, substitute 3/4 cup to 1-1/2 cups of maple syrup, and reduce the dominant liquid in the recipe by 2-4 tablespoons.

Maple Syrup Recipes

 <u>Breakfast</u>	 <u>Dinner</u>	 <u>Sauces</u>
Harvest Pancake Baked French Toast Baked Eggs in Maple Toast Cups Camp Aquila Maple Granola	Maple Pork Chops Sonia's Golden Curried Chicken Chicken in "Maple-Cream" Apple-Maple Salmon Steaks Maple Beef Teriyaki	Boyd's Bar-B-Q Sauce Maple-Marmalade Sauce Creamy Maple Fondue North Country Basting Sauce Maple Dijon Salad Dressing
 <u>Desserts</u>	 <u>For the Birds</u>	 <u>Lunch</u>
Rixen's Double Maple Rolls Maple Biscuit's Millennium Sundae Maple Glazed Coconut Buns Maple Pecan Scones	Shirley's All-Season Suet	Maple Ham Peaches
 <u>Vegetables</u>	 <u>Snacks</u>	
Stuffed Buttercup Squash Whipped Maple Squash Maple Roasted Root Vegetables Delicious Sweet Potatoes	Maple Popcorn Spicy Maple Almonds Maple Flavored Jerky	



DISCUSSION SHEET FIVE: GRANULATING THE SUGAR

