

March, 2012 Food For Thought

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Farms in NH

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Calendar

Come visit us at one of these events

March 3, NOFA-NH Winter Conference

Sanborn High School, Kingston
workshops, local organic food,
vendors, Frances Moore Lappe
keynote

www.nofanh.org

March 8 National Agriculture Day

March 12, NH Science Teachers
Association Conference,
Keene State College
workshops, networking, speakers

Greetings,

The maple sap has begun to flow, the days are getting longer, chickens are laying more eggs, lambs are being born, indoor seeds are getting started - can spring be far behind? I can't imagine what it would be like to live in a place where the seasons don't change. I have always loved observing and participating in the cycles of change that usher in one season and bring closure to another. There's nothing that thrills me more than hearing the first spring whistle of the chickadee on a crisp February day. Spring may come slowly to New Hampshire, mixing spurts of warmth and mud with snowstorms, but it does come. Some say it starts with the Vernal Equinox on March 20th but if you pay attention to the seasons, as anyone involved in agriculture or in tune with nature does, you know it really begins much earlier than that. It is not just a season of flowers and green grass, it is a season of melting and flowing, of birthing and sprouting. It is a time of renewal and fresh starts.

March is Maple Month in New Hampshire and even though the sap started flowing in early February in many parts of the state, this is traditionally the time when "sugar makers" are most active collecting sap from the maple trees, boiling it down into syrup and bottling it for sale to the public. In this issue of "Food for Thought" we'll share thoughts from some of NH's maple producers, provide information about the process of converting sap to syrup, a list of some resources for further study as well as tips on integrating maple production into your curriculum. You'll also find links for locating maple producers near you. We hope you'll be able to add some of these sweet ideas into your classroom or share ideas with teachers that you know. As always, if there is any way we can help out, don't hesitate to contact me.

Of course, March is also when we launch our Agriculture Literacy program. Thursday, March 8th

<http://www.nhsta.net/>

March 14, NH Environmental Educators Conference, Seacoast Science Center, Rye workshops, networking, speakers
www.nhee.org

March 24-25 NH Maple Weekend
Visit a sugarhouse near you.
www.nhmapleproducers.com

Maple Facts

A tree must be at least 10-12" in diameter before it can be tapped, and about 40 years old. A healthy tree could be tapped for over 100 years.

It takes, on average 40 gallons of sap to make 1 gallon of syrup.

Sap from the sugar maple tree is typically about 2% sugar. When the syrup is finished it is 67% sugar.

Using traditional methods, it is typical to get 1/3 of a gallon of syrup from each tap during a season. This can vary greatly however depending on the individual trees, weather and length of the season.

There are over 300 maple producers in NH making syrup for the commercial market.

In 2011 NH producers made and sold 120,000 gallons of maple syrup.

Vermont is the largest producer of maple syrup in the US. In 2011 that state produced 1,140,000 gallons of syrup!

It takes about 3.25 gallons of fuel oil (or the fire wood equivalent) to make

is National Agriculture Day, a wonderful time to reflect on all that agriculture provides for us. To mark the occasion, NH Commissioner of Agriculture, Lorraine Merrill will read *Charlie Needs a Cloak* to students at the Canterbury Elementary School. The children will also receive a program about sheep and wool from a Canterbury sheep farmer. It's not too late to get involved in Ag Lit. If you would like someone to come to your class or if you would like to volunteer to read and present a program, let us know.

Best wishes,

Ruth

Ruth Smith, Statewide Coordinator
NH Agriculture in the Classroom

Maple Lessons

Teaching about maple syrup production may seem like a stretch for classroom educators who are focused on reading, math and science. However, like most aspects of agriculture, there are a myriad of ways that this theme can be woven into the lessons which educators are expected to teach. A unit on maple syrup can provide an exciting conduit for examining history, utilizing math, exploring literature, and practicing science.

The historical aspects of "sugaring" are ideal for linking to NH history themes. It was the Native Americans who first used the sap from the sugar maple trees to sweeten their meals and make treats for their children and guests. There are various legends about how this process was discovered and became popular, but the journals of early explorers provide records of the sugar camps, tools that were used, the work that was done, and the product that was made. Initially, the product was maple sugar rather than syrup. Making the crystallized sugar was a way to store their primary source of sweeter for year round use long before refrigeration or any canning methods were developed.

For older students the connection to political science can be an interesting topic. From the early settlers on through the Civil War period, making domestically produced sugar from the maple trees enabled greater self sufficiency, less dependence on tariffs and a product free from slave labor. In the

1 gallon of maple syrup with traditional methods. Using reverse osmosis and other efficiency advancements, the fuel required can be reduced to .13 gallons of oil per gallon of syrup.

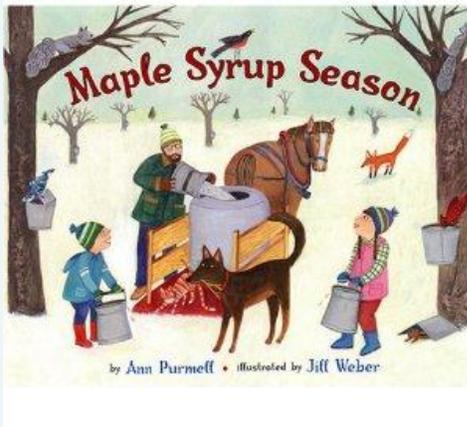
Maple Resources & Books

Storybooks:

Maple Moon

by Connie Brummel Crook

This is an enchanting fictional account of how maple syrup might have been first discovered. In finding this new source of nourishment, a young native boy is able to help his people through a harsh winter. His pride also boosts his confidence in spite of a physical disability, and he is able to rise above the cruel taunts of other children. Ages 4 and up. 1999, Fitzhenry and Whiteside. ISBN: 978-0773760981.



Maple Syrup Season

by Ann Purmell

This book blends light fiction with nuts-and-bolts about an outdoorsy family business. Two children, Hannah and Hayden, appear perched on a horse-drawn sled headed for Grandpa's "sugar bush," where they join three generations of family members in collecting, boiling, and

late 18th and early to mid 19th centuries white sugar was expensive and imported from the West Indies where it was produced by slave labor. As a result maple sugar was favored by Abolitionists and Federalists alike.



We still use the term "sugaring" to describe what happens at this time of year even though most of the product utilized today is syrup rather than sugar. The process of converting the clear, barely sweet, thin sap that comes from the trees into thick brown syrup or sugar is a great opportunity to use science and math. The sap is boiled, providing an example of evaporation and phase change. The ratio of sap to finished syrup is on average 40:1, a great example of math applications. The percentage of sugar in the sap varies from tree to tree and year to year, also providing evidence that farmers use math and science skills in order to be more efficient in their business. Calculating the amount of syrup produced from each tap can be a fun exercise. Interviewing local syrup producers to gather critical information helps them learn to be good investigators and researchers. They might ask how many taps have been put out, how much syrup has been boiled down, how much sap has been collected. All of these numbers become factors in various equations providing answers to important questions.

Science lessons start with the basic question, how do you know which trees to tap? Without leaves at this time of year, identifying sugar maples can be tricky unless you know what to look for. The buds of sugar maples are dark brown and pointy and are found on twigs which have an opposite branching pattern. Maples and ashes are the only full sized trees in our forests that have that opposite branching pattern (other species exist but are

bottling the season's first batch of maple syrup. Grades 1-4. 2008, Holiday House. ISBN: 978-0823418916

Sugarbush Spring

by Marsha Wilson Chall

This story illuminates life on a northern farm in early spring, when the sap's on the rise. The girl narrator rides with her grandfather on a horse-drawn sleigh filled with pails to hang on the taps they will soon place in the sugar maples. Chall blends concrete information with more lovely descriptions of the sugarhouse and the process. Ages 6 and up. 2000, Reed Business Information, Inc. ISBN: 978-0688149079.

Sugaring by Jessie Haas

This book features young Nora and her grandparents engaged in the late winter ritual of sugaring on their small Vermont family farm. With its comforting tone, the smoothly written story is about giving and caring as well as the process of converting sap into syrup. Ages 4 and up. 1996, Reed Business Information, Inc. ISBN: 978-0688142001.

How to books:

Backyard Sugarin': A Complete How-To Guide by Rick Mann

This book swept maple sugarin' buffs off their feet when it first appeared and is still the top-selling guide to the craft after nearly 30 years in print. Like previous editions, this one explains how to make maple syrup right in your own backyard (or school yard) without having to build a sap house or buy buckets, holding tanks, evaporators or other expensive equipment. Adult and older students.

shrubs or more likely in yards). Ash buds are very thick and rounded. Red maple buds are reddish instead of brown.



Other science lessons can include how the sugar in the sap is produced (via photosynthesis last summer) and stored (in the roots during winter) and then flows UP against gravity when the days are warm and the nights are cold (a complicated process involving pressure and suction, described at www.maple.dnr.cornell.edu/FAQ). Students can examine parts of a tree to learn about the role of sapwood vs. heartwood in the life of a tree. Weather and climate studies can tie into the lesson as well. There has been a great deal of discussion about how the mild temperatures and reduced snow this winter will impact the syrup production.

There are also some wonderful stories about maple sugaring that can provide a literature link to this topic. See the resource section for examples.

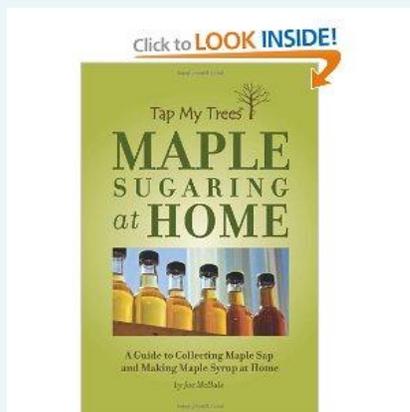
Thoughts from the Sap House

There are plenty of resources available to learn and teach about the maple industry (see the sample provided) but the best way to get information is to talk directly to the producers. You can find some near you by visiting the NH Maple Producers Association website (www.nhmapleproducers.com), the NH Made (<http://www.nhmade.com/SubCatList.cfm?recordID=237>) website or the NH Department of Agriculture, Markets and Food site (www.nh.gov/agric). I spoke with a few syrup makers to find out how the season has been going so far. The answers were as different as the regions and farms, which is a wonderful thing about agriculture in this state. Even within one industry there is a great deal of variety.

2006, Countryman Press; Third Edition. ISBN: 978-0881502169

Maple Sugar - From Sap to Syrup: The History, Lore and How-To Behind This Sweet Treat by Tim Herd

Savor the surprising history of maple sugaring, learn to identify the various kinds of maple trees, discover how to tap your own trees and make your own syrup, and indulge yourself with more than 20 tempting recipes for old-fashioned treats like maple nut bread, maple eggnog, baked beans, maple nutmeg butternut squash, maple-glazed salmon, and pecan pie. Adult and older students. 2011, Storey Publishing, LLC. ISBN: 978-1603427357



Maple Sugaring at Home
by Joe McHale

This book covers it all - from identifying the trees to storing your equipment once the season is over. The maple syrup process is a great family project (or school project) - letting the kids enjoy hands-on work in using natural resources to come up with a delicious product. Adult and older students. 2010, Reine Publishing Group LLC. ISBN: 978-0983125600.

Hank Peterson has been making syrup in Londonderry at the Peterson's Sugar House for 30 years. He is a third generation producer. He admits his operation is relatively small, with about 800 taps, producing on average 125-130 gallons of syrup per year. Like many producers in the southern part of the state, Peterson tapped his trees before Valentine's Day, about two weeks earlier than usual. Because of the mild winter, the sap was already flowing when normally it would be frozen solid. He says it also seems to have lower sugar content this year.

Meanwhile at the Hutchinson's Sugarhouse in Canterbury they tapped their trees at about the same time as usual, and are still at it. They tap incrementally because they have some trees that are on sunny slopes that warm up sooner and others in lower valleys where it stays colder, according to Adrienne Hutchinson.

At Pearl and Sons Sugar House in Loudon they put in 9500 taps this year. They collected enough sap to start boiling and finish their first batch of syrup on February 17th. Through four generations of record keeping, this is the earliest they have ever started making syrup, by about a week.

Something else is different for the Pearls. Last year they installed a reverse osmosis (RO) filtration system which concentrates the sugar before the sap is boiled, reducing the time in the evaporator and amount of fuel used to about 1/6th of what they were doing in the past. With the cost of oil or the amount of work to gather firewood, fuel savings make a huge difference in this process. The other change they made was to use a vacuum pump system. This extracts the sap with a light suction, rather than just through gravity. This system increases the amount of sap which can be harvested from the trees, increasing production in a given season.

Tim Meeh at North Family Farm in Canterbury also uses a vacuum system on his 2100 taps and RO prior to boiling. The technology applied at their farm goes even further. The electricity needed for the RO and vacuum machines are generated from solar panels and a wind mill. Their tractor runs on biodiesel which he makes from recycled cooking oil. Their goal is to have as small an impact on the environment as they can, while still producing a quality product from the land for local consumers.

Some farmers rely on tried and true methods that

NH Agriculture in the Classroom
www.nhagintheclass.org

We have a Maple Sugaring packet for teachers that includes *The Maple Sugaring Story* - an educator's guide, *Sugarbush Spring* and other stories, lesson ideas and coloring books. Contact us to reserve one.

NH Maple Producers Association
www.nhmapleproducers.com

Information about how syrup is made, some basic history, a calendar of events and lists of local sugar houses by county.

The Rocks Estate www.therocks.org
Home of the NH Maple Museum, an extensive collection of maple artifacts. Also offers The NH Maple Experience tour and tasting in season. The website provides a peek at the museum and an introduction to maple sugaring, recipes and information about tours.

UNH Cooperative Extension - Maple Season
<https://extension.unh.edu/Forestry/maple.htm>

This site provides a basic information sheet on the process of making syrup. There are also links to producer's manuals, local sugar producers, videos and other related topics.

Vermont Maple Sugar Makers Association www.vermontmaple.org

Vermont is the leading maple

have changed little from their great grandparents' time, while others are embracing a more modern approach. Yet all the syrup producers that I talked to agreed on two things; they can't predict how this season will turn out; it all depends on the weather and they all do this because they love it. Robin Pearl said, "Like all farming, it's a labor of love, a fascinating transformation." According to Hank Peterson, "It gets in your blood. By April 15 you swear you'll never do it again, but come next January, we're always back down at the sugar house, it's a tradition."

Tradition indeed, and one that provides endless opportunities for learning, whether you are a child in the classroom or a seasoned farmer in the sap house, there is always something to learn. May your season be full of sweet new lessons.

Maple, Dairy, Pork and Hydroponic Tomatoes?

As we get into spring there are ample opportunities for you to expose your students to the bounty of agriculture right near by.

By the time you read this we will be smelling the sweet smells of spring and I don't mean fertilizer. We are blessed with Maple Sugar operations all across our state. You can find out about the industry at their website at www.nhmapleproducers.com. Taylor Brothers in Plainfield is a family owned farm that has been in town for generations. Their website is www.taylorbrotherssugarhouse.com. You might recognize the name of Taylor as our past Agriculture Commissioner. Steve Taylor is widely known for his talks on all things New Hampshire. Other maple producers can be found and many of them will participate in the New Hampshire Maple Weekend on March 24th and 25th.

When folks think of dairy they mostly think of milk. There is so much more to be found. The best part is that it all tastes good and is good for you. Landaff Creamery has been involved in farming for generations also. Check them out at www.landaffcreamery.com. Look at www.nhdairypromo.org for more about New Hampshire's many dairy farms and how they have diversified to meet the new consumer. Their site has a kid's section also.

producing state in the US and takes maple products very seriously. This site provides plenty of background and promotional information but also has classroom resources co-produced by VT Agriculture in the Classroom. There is a teacher's guide (K-8) which can be downloaded, DVDs and other resources that can be ordered.

New York Agriculture in the Classroom

www.nyaged.org/aitc/resources/pdf/

[activities/sugar.pdf](#)

NY is also a leading syrup producer. A teacher's guide (grade 4-5) provides various lessons for teaching about maple sugaring.

New York Maple Studies - Cornell

<http://maple.dnr.cornell.edu/FAQ.htm>

This site provides answers to a collection of frequently asked questions related to maple production.

National Agricultural Statistics

<http://www.nass.usda.gov/>

[Statistics_by_State/New_England_includes/Publications/0605mpl.pdf](#)

Provides charts and graphs of maple syrup production by state and region. Great for applied math activities.

Ontario Maple Syrup Producers Association

<http://ontariomape.com/pages/education/>

Lessons for grades 1-9 are available covering topics such as science, technology, history, weather and more.

New Hampshire Pork Producer's web site is www.nhpork.org. Visit www.gitchsfunnyfarm.com from Hill to learn about raising pigs and rabbits. Our office in Concord has teacher friendly lesson plans for pork.

Now your homework assignment. What are winter hydroponic tomatoes? Go to www.hobbithillfarm123.web.com and find out. Just think fresh tomatoes during the winter and spring.

All of these farms would welcome visitors or questions from your students. How did they get into farming? What skills that they learned in school do they use every day? Why maple, cheese, pork or tomatoes? Why organic or not? How much does it cost to start a business? Where are these farms in relationship to your school?

All fantastic questions and just one more way to bring Ag in the Classroom to you and your students.

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