

The Remick Country Doctor Museum and Farm
Maple Sugar Program Pre-Visit Packet

Dear Teachers/Parents,

This is to confirm your field trip to the Remick Museum and to help integrate the field trip into your classroom studies. Please review the following information and contact us as soon as possible with any changes. The field trip will begin at ____ in the courtyard located in front of our visitor center and will end at _____. Please refer to the directions sheet to see how to get to the museum and parking logistics.

Date of trip: _____

Students: _____

We look forward to seeing you soon!

The Education Staff

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Field Trip Instructions

Payment- The cost for school\group programs is **\$4.00 per person (chaperones and teachers included)**. Bus drivers are free. Payment for your group's program can be made when you arrive at the museum. **One person**, preferably the adult in charge of your group's program, will need to collect the money from all those attending and pay the receptionist upon arrival. This person will need to know how many students, teachers and chaperones they have and are paying for.

Arrival Time- Groups should arrive a minimum of 10-15 minutes prior to their scheduled program. If your group is delayed and knows it will be arriving late, please contact the museum as soon as possible and tell us your approximate arrival time so that we may adjust the program accordingly.

Pre-grouping- If your group must divide into multiple smaller groups, please assign those groups before your arrival (A. B.C. ...). Once here, participants should assemble by groups before the program begins.

Late Arrival- If participants for a program are not coming to the museum together as a group, but instead are meeting here; all parties must be here 10-15 minimums before the start time of the program. If participants show up late for their program, they will have to miss the first activity and wait to join the group for the next activity scheduled in the rotation. It is not fair to those arrived on time to miss out on any part of the program due to others being tardy.

Chaperones- There must be a minimum of one adult per 10 students (can be a teacher of chaperone); for example, 35 children would need 4 adults. The maximum number of adults per 10 students is 3; for example for 35 students the maximum number of adults is 12. Exceptions are made if there are students with special needs in a group; however, we ask to be notified in advance if any students with special needs are attending.

Chaperones must know how many students are in their group, be prepared to assist children with the activities presented and maintain discipline. ***Please turn off cell phones during program.*** Please keep conversation relevant to the program.

We encourage adult chaperones to leave siblings at home, as they frequently distract a chaperone's attention from the full group. If this is not possible, please designate a parent to care for siblings away from the full group, whether in the museum itself or elsewhere. Infants and toddlers have special needs and require a lot of attention; therefore, for the sake of both the participants and the instructors, we ask that they not be in where students are participating in an activity.

Coming prepared

Farm Gear- Many activities take place outdoors or in barns. Groups should come prepared for the weather. In warm weather, participants should bring a hat, water bottle, insect repellent and sunscreen. If it's rainy, raincoats and boots are important. In the cool of fall and spring, hats and jackets are recommended. Winter in New Hampshire calls for a hat, mittens, snow boots, snow pants and a warm coat. No sandals, open-toed or high heeled shoes at any part of the year please.

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Lunch and snack- In most cases, we do not provide meals for groups. Even if your group is cooking as part of your program, participants will need to bring their own prepared lunches. We encourage groups to sample the food they make here, but it will not be a replacement for their own lunch and snack.

First aid- Please advise museum staff of allergies (i.e.-food, bees, animals) before arrival to the museum. If students take medications for specific allergies to animals, hay, bees, food, etc., these should be brought along. The museum has first aid kits in several locations, but you may want to bring your own from school or home.

Please feel free to call us if you would like further information or have any questions at (603) 323-7591 or (800) 686-6117. Email: education@remickmuseum.org

Directions and Parking Logistics

The Remick Museum is located in Central New Hampshire, just south of North Conway and between the White Mountains and the Lakes Region. It is about 2 hours from Boston and about an hour from Concord or Portsmouth, New Hampshire.

From Interstate 93: Take exit #23 (New Hampton). Head East on Route 104 towards Meredith. After about 8 miles you come to a stop light at Route 3. Go North (left) about 1 mile to a stop light in town. Go East (right) on Route 25 about 15 miles to Route 113. Turn East (left) on Route 113 and drive 4/10 of a mile. Turn left (still on Rt. 113) and go about 2 miles to an intersection. You will see signs pointing left to the Tamworth Business District. Turn left at the intersection. The museum is on the right at the end of the village.

From Route 16: Turn West onto Route 25. Go about 2.4 miles and turn right onto Route 113 and drive 4/10 of a mile (still on Rt. 113) and drive about 2 miles to an intersection. You will see signs pointing left to the Tamworth Business District. Turn left at the intersection. The museum is on the right at the end of the village. It is the second house past the church.

Parking: Our parking lot is past the museum center on the opposite side of the road. There is handicapped parking in front of the museum center and the building is wheel-chair accessible.

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Dear Chaperones,

Thank-you for volunteering to assist with our field trip program. The field trip will run from _____ and your involvement is essential. We have designed our field trips to best meet the needs of all students and different learning styles. This includes having small interactive groups where hands-on, inquiry based learning can take place.

We encourage chaperone participation throughout the field trip. Your main responsibilities include:

- keeping a total count of the students in your group
- help with hands-on activities
- allowing students to make discoveries on their own
- having fun!

Our education staff will handle first aid issues if they arise, although your support is much appreciated! We rely on you for keeping discipline among the students. The behavioral problems of a few often detract from the whole groups experience. Also, please keep your conversations with other chaperones to a minimum as they can be distracting to the students as well as the educators.

Sincerely,

The Education Staff

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Field Trip Evaluation Form

We are constantly aiming to improve our programs and welcome positive as well as critical feedback. Please take a few minutes to comment on your field trip experience. Specific comments enable us to provide teachers and students with the best possible program. Your feedback is of great value to us.

1. Please comment on the information, activities, and correspondence prior to coming on the field trip.

(Rating system: 1=very poor; 2=poor; 3=good; 4=very good; 5=excellent)

Information	Did you use it?	Rate (1-5)	Comments
Pre/Post-Trip Activities	Yes No		
Correspondence (phone calls, letters, etc.)	Yes No		

2. What other resources did you use to enhance the field trip experience? Please check all that apply and specific information when applicable.

Resources	Additional Information
Books/Websites	
Activities	
Workshops	
Field Trips	

3. Were your expectations for the field trip met? Please consider your objectives, our teaching methods, and the appropriateness of the activities.

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4. What were the strong points of the field trip for your students? What did they talk about afterwards?

5. What were the strong points of the field trip for you as a teacher?

6. Comment on our staff's performance. Please include the name of any staff person you were able to observe and evaluate them on effectiveness with children, knowledge of subject, and suggestions for improvement.

7. Please list suggestions for program improvement and/or additional comments.

Thanks for your help,

The Education Staff

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Maple Sugaring Activities

Legends of Maple Syrup

Objective- The students will create a story of how maple syrup was discovered using pictures and spelling skills.

1. Brainstorm with children how they think someone (or something) discovered how to make maple syrup. List their ideas on chart paper to use for a reference later.
2. Tell children they are going to draw a picture about their idea of how maple syrup was discovered. Ask children to write the letters they hear in their words to give text to their pictures. As they are writing offer to put “dictionary spellings” under their words if they want.
3. Collect the papers and create a class book of “Kindergarten (or your grade) Maple Syrup Legends”
4. Read a book (suggested reading: *Maple Moon*) that has Native American Legends of how maple syrup was discovered. Compare the book’s story to the stories students created.
5. Have students act out some of the legends they created as well as the ones they read about.

Maple Tree Collage

Objective- The students will have a better understanding of the major components of a maple tree and what their function is.

1. Show the different parts of the maple tree to the students. Discuss what each part does to help the tree to grow and live. See Maple Tree Collage Handout #1.
2. Have the students create their own maple tree using a variety of materials. These materials can include natural materials such as bark, leaves, seeds, etc. that they have collected at an earlier date. The material can also consist of bark rubbing and other creative projects. Be creative!
3. Display collages as a classroom sugar bush. After the field trip you can “tap” the trees and do other activities that would help to illustrate how maple syrup is made.

Evaporation

Objective- To learn the process of evaporation and how that related to maple sugaring.

1. Each student is given a cup of water and tablespoon of sugar.
2. Have students combine the two in the cup and place it in a sunny, warm space in the classroom. Have students observe and record the process of evaporation. How many days did it take for the water to evaporate and the sugars to be left over? How does this process imitate what maple syrup producer do?
3. Explain to students (using teacher information) that some animals use the process of evaporation to get important food energy.

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Teacher Information:

Did you know? Maple sap is about 97.5% water, 2.4% sugar and 0.1% minerals. Sap is made into maple syrup by boiling off the water, concentrating the sugar and minerals. During the process of evaporation, the heat causes chemical reactions in the concentrated sap, resulting in maple syrup with its unique flavor.

Natural New England: Science & Exploration of the Northeast, Issue #11, spring, 2002:
“Those Sap-Sucking Rodents”

Renowned University of Vermont biologist and author Bernd Heinrich made a curious observation in the forests of Maine and Vermont. He noticed red squirrels biting into sugar maples but not removing the bark or slurping the sap exuded onto the bark around their bite mark. Hours later, after much of the sap’s water content had evaporated, the rodents would return and eat the sweet treats. In the *Journal of Mammalogy*, Heinrich describes the squirrels ‘licking the syrup and chewing sugar that had candied.’

Remarkably, the squirrels specifically targeted sugar maples. At one site, Heinrich saw 448 squirrel bites on 15 sugar maples. Sixty-four other trees nearby (red maple, quaking aspen, birch, and apple) had only 6 bites. In addition, the squirrels almost exclusively tapped at times when sap was actually flowing. Together, these behaviors indicate that red squirrels expressly tap sugar maples to produce maple syrup and sugar- just like people. No other animal dines so purposefully on condensed maple sap. Squirrels may be notorious for their sizable teeth, but nobody before Heinrich had documented their sweet teeth.

How Many Taps should go into a Tree?

Objectives: Understanding the importance of taking care of a sugar bush.

1. Read a book (see children’s story books: *The Big Tree*) about how a maple tree grows.
2. Talk about how big a maple tree needs to be before it can be tapped. Have students estimate and demonstrate how large they think it needs to be.
3. Show them a 30” string and explain that the tree needs to be 30” around before it can be tapped.
4. Give each child a string and let them make a circle on the floor with their string. Discuss the size of the circle.
5. Have them find some maple trees either at school or at home. Using their 30” string see if they can identify a certain number of trees to tap to make a gallon of syrup. Have them make a chart/map of where they are and how far it is from the school/house (or their evaporator pan!). This can represent the size of their sugar bush.

Teacher Information:

Tree Diameter (inches)	Tree Circumference (inches)	# of taps
10-15	31-47	1
Over 15	47-63	2

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Are there any sugarhouses in your community?

Objective: Making connections between local maple producers and communities.

1. Learn about NH's Annual Maple Weekend where over 50 sugar houses across the state welcome visitors. Take the opportunity to tour maple orchards and sugar houses and learn how maple syrup is made. Taste free samples of maple products and fill up on pancake breakfasts. For more information about NH Maple Syrup producers or a brochure about NH Maple Weekend, call the Maple Hotline at (603) 225-3757, or check out the web site at www.nhmapleproducers.com.

Food Sweeteners

Objective: To make connections of present day food ways and the past.

1. Have students go on a scavenger hunt at home (with parent supervision) and find all the different kinds of sweeteners in their kitchen. Have them record what they find: what it is, where it comes from, what it is made from, and its primary usage.
2. How are these different/similar from the sweeteners used in the past (ex. 200 years ago)?

Weather Patterns for Sugaring Time

Objective: Students observe the natural world and its relation to the production of maple syrup.

Have the students make a weather chart and record the outside temperatures over period of a few days. You should have them do this at regular intervals at school and home. See if your chart corresponds with that of local maple syrup producers. Are they tapping the trees around the same time your class is recording warm days and cold nights?

Teacher Information:

Natural New England: Science & Exploration of the Northeast, Issue #11, spring, 2002:
Basic Biology of Sap Flow from the University of Vermont Proctor Maple Research Center's biologist Tim Perkins:

“In Autumn, sugar maples store as starches some of the energy obtained through photosynthesis during the growing season. Then, when temperatures rise in late February or March, enzymes convert the starches into sugars to prepare for the springtime formation and growth of leaves. Some 98 percent water and 2 percent sugar, the flowing sap carries the dissolved sugars up from the roots and stems to wherever they are needed throughout the tree.

But sap only flows when cold nights alternate with warm days. This oscillation makes the tree act like a pump. The warm days cause pressure inside the tree to rise, forcing the sap to flow internally – and out any wound that happens to be present, such as a tap. On cold nights, internal pressure drops, causing the tree to suck water in through the roots, primary sap flow for the next day.

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‘Within the tree is a mixture of water and gases,’ says Perkins. ‘As the tree warms up, the bubbles expand and sugars come into solution, causing pressure to build up. This is known as stem pressure.’ When atmospheric pressure is lower than stem pressure, drilling a tap hole is like pricking a pinhole in a water balloon. The sap drips out. In most natural situations the sap doesn’t leak because there are no holes (but see ‘Sap-Sucking Rodents’ sidebar).

Cold nights are essential for prolonging sap flow. ‘As the water in the tree freezes at night, pressure inside the tree declines, pulling water up through the roots,’ says Perkins. Without recurrent cold nights, sap stops flowing from sap holes.

Indeed, when nighttime temperatures stop plummeting below freezing in spring, the sap stops flowing from taps entirely. By this time, the tree has used the energy stored in the sap’s sugars to develop leaves. Then photosynthesis by the leaves during the warmer months provides the energy needed for growth, maintenance, and reproduction. It also yields the starches stored over the winter to start the process anew when the sap flows next year.”

Maple Sugaring Resources

Books:

Allen, Brian. *Sugaring Off: The Maple Sugar Paintings of Eastman Johnson*. Williamson, Massachusetts: Clark Art Institute, 2004.

Carney, Margaret and Janet Wilson. *At Grandpa’s Sugar Bush*. Towanda, New York: Kida Can Press, Ltd. 1998.

Hauser, Susan Carol. *Sugartime: The Hidden Pleasures of Making Maple Syrup with a Primer for the Novice Sugarer*. New York, New York: The Lyons Press, 1997.

Koelling, Melvin et. al. ed. *North American Maple Syrup Producers Manual*. The Ohio State University Extension Bulletin 856. Produced by Ohio State University Extension in Cooperation with the North American Maple Syrup Council, 1996.

Mann, Rick. *Backyard Sugarin’*. Woodstock, Vermont: The Countryman Press, Inc., 1991.

Metcalf, Rosamond S., *The Sugar Maple*. Canaan, New Hampshire: Phoenix Publishing, 1982.

Mintz, Sidney W. *Sweetness and Power: The Place of Sugar in Modern History*. New York, New York: Penguin Books, 1986.

Nearing, Helen and Scott. *The Maple Sugar Book*. Vermont: Chelsea Green Publishing Company, 2000.

Parrella, Deborah. *Project Seasons*. Shelburne, Vermont: Shelburne Farms, 1995.

Perrin, Noel. *Making Maple Syrup*. Storey Publishing Bulletin A-51. Pownal, White River Junction, Vermont: Storey Communications, Inc. 1980.

Raichert, Lance and Paul E. Nunn. *Welcome to our Sugarhouse*. Zenda, Wisconsin: Pyramid Publishing, 2002.

Smith, Claudia. *When the Sugar Bird Sings: The History of Maple Syrup in Lanark County*. Burnstown, Ontario, Canada: General Store Publishing House, 1996.

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Children's Story Books:

- Burns, Diane. *Sugaring Season: Making Maple Syrup*.
- Carr, Sheila. *The Time of the Maple Sugar Moon: The History, the People and the Craft of Sugaring*.
- Carney, Margaret & Wilson, Janet. *At Grandpa's Sugar Bush*. Kids Can Press, Ltd., 1997 (Grades K-4)
- Crook, Connie Brummell. *Maple Moon*. Toronto, Canada: Stoddart Kids Publishing. 1997.
- Elhert, Lois. *Red Leaf, Yellow Leaf*. San Diego, California: Harcourt Brace & Company. 1991.
- Gerstein, Mordecai. *Anytime Mapleson and the Hungry Bears*. Harper & Row, 1990. (Grades Pre-3)
- Gibbons, Gail. *The Missing Maple Syrup Sap Mystery*. Frederick Warne, 1979. (Grades K-3)
- Haas, Jessie. *Sugaring*. GreenWillow Books. 1996. (Grades K-5)
- Hiscock, Bruce. *The Big Tree*. Antheneum, 1991. (Grades K-4)
- Lasky, Kathryn. *Sugaring Time*. Macmillan Publishing Co., 1983. (Grades 3-6)
- Sloane, Eric. *Diary of an Early American Boy*. Ballantine Books. 1962. (Grades 2-5)
- Sorensen, Virginia. *Miracles on Maple Hill*. Harcourt Brace. 1990. (Grades 3-6)
- Watson, Aldren A. *A Maple Tree Begins*. The Viking Press. 1970. (Grades 3-5)
- Watson, Nancy Dingman. *Sugar on Snow*. The Viking Press. 1966. (Grades K-3)
- Wilder, Laura Ingalls. *Farmer Boy*. Scholastic, Inc. 1953. (Grades 2-5)
- Wilder, Laura Ingalls. *Little House in the Big Woods*. Scholastic, Inc. 1974. (Grades 2-5)
- Wilder, Laura Ingalls. *SugarSnow*. New York, New York: Harper Collins Publishers, Inc. 1998.

Children's Information/Activity Books:

- Burns, Diane. *Sugaring Season, Making Maple Syrup*. Carolrhoda Books, Inc. 1990. (Grades 2-6)
- Gemming, Elizabeth. *Maple Harvest*. Coward, McCann & Geohegan, Inc. 1976. (Grades 5-8)
- Linton, Marilyn. *The Maple Syrup Book*. Kids Can Press. 1983. (Grades K-5)
- Wittsock, Laura Waterman. *Ininatig's Gift of Sugar: Traditional Native Sugarmaking*. Minneapolis: Lerner Publications Company, 1993. (Grades K-4)

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Teacher Resources/Activity Books:

Lawrence, James M. & Martin, Rux. *Sweet Maple, Life, Lore and Recipes from the Sugarbush*. Chapters Publishing, Ltd. 1993.

Lockhart, Betty Ann. *The Maple Sugaring Story: A Guide for Teaching and Learning about the Maple Industry*. The Vermont Maple Promotion Board and The International Maple Syrup Institute. Charlotte, Vermont: Perceptions, Inc. 1996. (Grades Pre-K- 6)

Maple Sugaring Manuals:

IPL. *Vacuum Tubing System Setting Technique*. Bellechase, Quebec, Canada: IPL, Inc. 1997.

Lancaster, Kenneth F. *Collecting Maple Sap with Plastic Tubing*. United States Department of Agriculture, Forest Service, Northeastern Area, Northeastern Station, 1982.

Maple Sugaring Catalogs:

Bascom Maple Farms. Maple Supplies Equipment 2004. Alstead, New Hampshire, 603-835-6361. www.bascommapple.com

Bascom Maple Farms. Used Equipment List. Alstead, New Hampshire, 603-835-6361. www.bascommapple.com

Dominion & Grimm Inc. (D & G). Maple Sugaring Equipment and Accessories 2000. Fairfax, Vermont, 802-893-3487. www.domgrimm.com

Leader Evaporator Co. Inc. G.H. Grimm Company Lamb Naturalflow 2004. St. Albans, Vermont, 802-524-3931. www.leaderevaporator.com

Video:

The Maple Sugar Story. Charlotte, Vermont: Perceptions, Inc., 1989. 28 minutes, 27 sec.

Websites:

<http://www.goshen.edu/merrylea/sugar/MAPLE.htm>

<http://main.tellink.net/~sues/>

<http://indy4.fdl.cc.mn.us/~isk/food/maple.html>

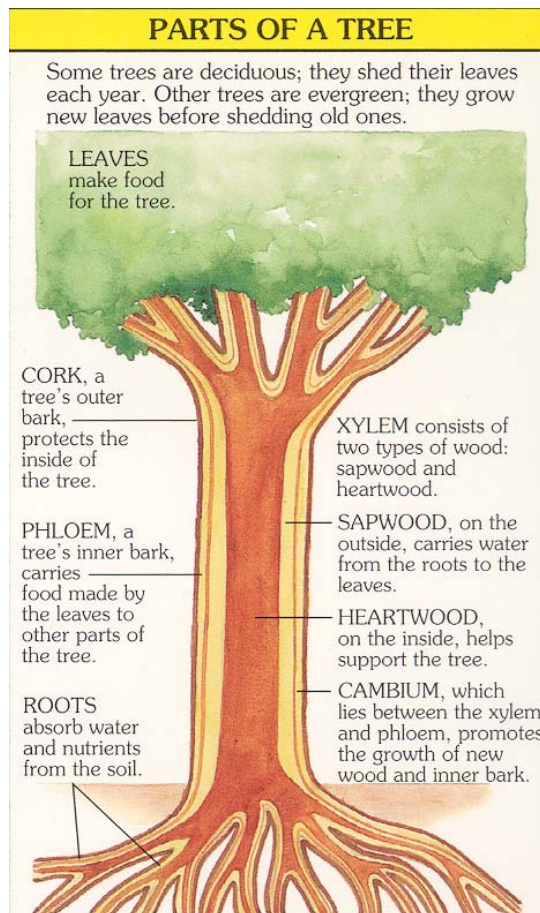
New Hampshire Maple Sugar Houses Directory Information:

New Hampshire Maple Producers Association, Inc.
28 Peabody Row, Londonderry, NH 03053
603-225-3757

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Maple Tree Collage Handout #1



“Ready Reference” By Instructional Fair. McGraw-Hill Children’s Publishing. 1997.

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Caption by Eric Sloane.