

A Kid's Guide to
MAPLE TAPPING

Let's Make Maple Syrup

by Julie Fryer



A Kid's Guide to Maple Tapping

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Guide to Maple Tapping. A Tree to Table Handbook for the Maple Tapper

How to Open & Operate a Financially Successful Small Farm

co-authored with Melissa Nelson

Growing Peppers: Clover's Home and Garden Guide to Gardening

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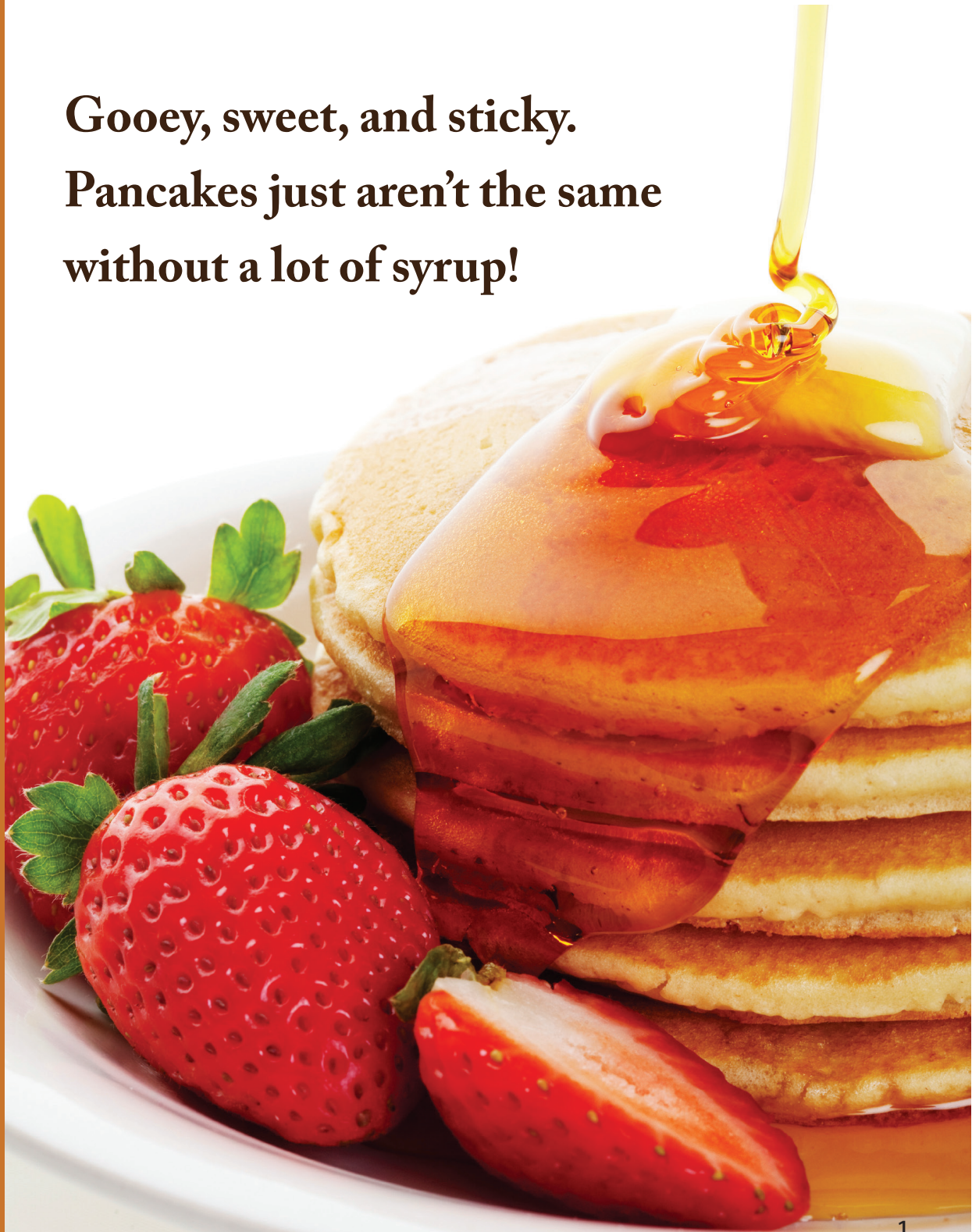
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**Goosey, sweet, and sticky.
Pancakes just aren't the same
without a lot of syrup!**



Corn Syrup

INGREDIENTS: CORN SYRUP, LIQUID SUGAR (NATURAL SUGAR, WATER), WATER, SALT, NATURAL AND ARTIFICIAL FLAVOR (LACTIC ACID), SODIUM HEXAMETAPHOSPHATE, PRESERVATIVES (SODIUM BENZOATE, SORBIC ACID), CARAMEL COLOR, PHOSPHORIC ACID.

Nutrition Facts

Serv. Size 1/4 cup (60mL)

Serv. per Container about 31

Calories 200

Amount/Serving	%DV*
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Total Fat 0g	0%
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Sodium 140mg	6%
---------------------	-----------

Total Carb. 53g	18%
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Sugars 26g	
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Protein 0g	
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*Percent (%)Daily Values are based on a 2,000 calorie diet.

But did you know that not all syrup is real maple syrup? “Pancake syrup” bought at the grocery store is most often made from corn syrup. Unless it says pure maple syrup on the bottle, coloring and artificial flavorings have been added to corn syrup to make it look and taste like real maple syrup. But it’s not, and after reading this book you’ll know why!

Sweet Fact

There is nothing added to pure maple syrup. No sugar, flavoring, or coloring.

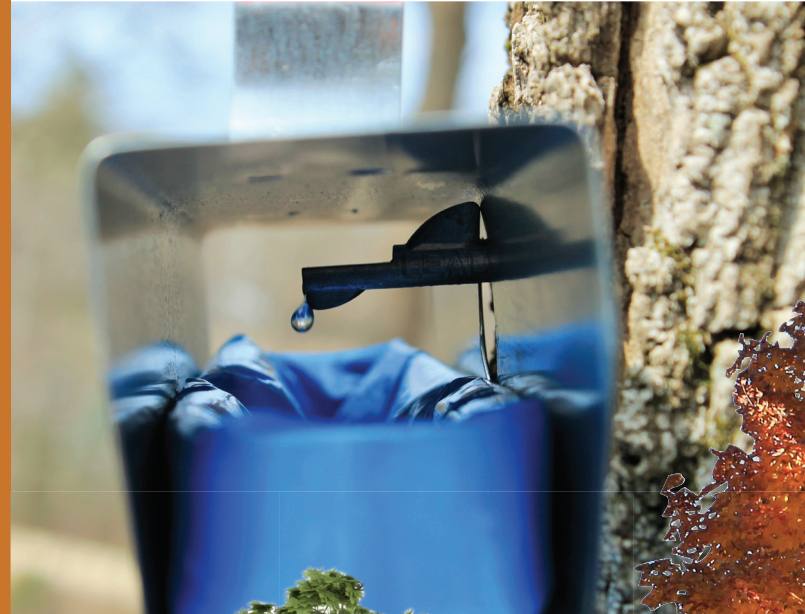
It’s just what’s left after the water is removed from sap.

Real, pure maple syrup is made from the sap of maple trees. And it's so much better than that corny store-bought stuff!



**Let's follow the trip that
sap makes from tree to table.**

All trees have sap. Sap is a watery liquid produced by trees to carry nutrients from their roots all the way to the highest branches and back.

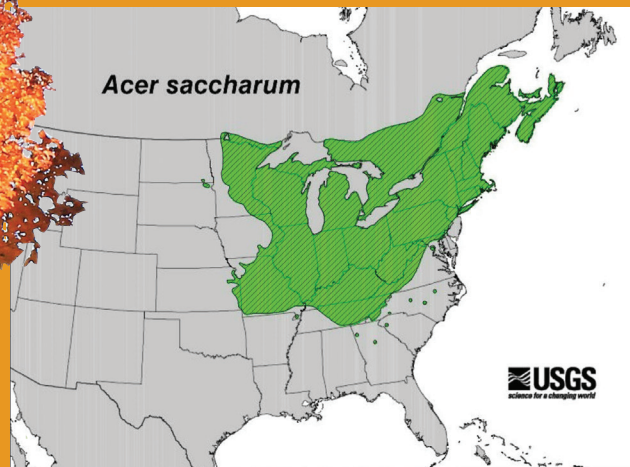


Not all trees, though, have sweet sap. Maple trees are the only ones with sugary enough sap to make syrup. Hard maples or sugar maples have the sweetest sap of all.



This sweet sap also gives
maple trees the brightest
fall colors.

Sweet Fact

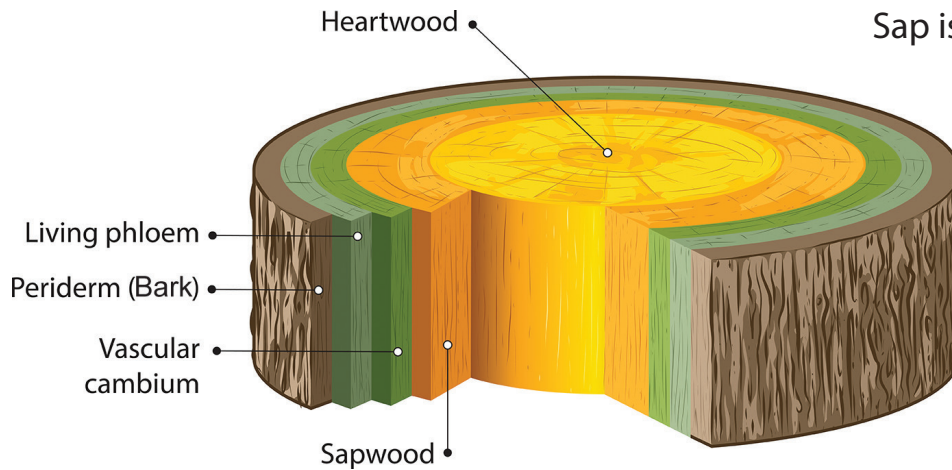


Hard maple trees can only be found
in North America. If you live in the
Midwestern or Northeastern United
States or in Canada, you probably have
a maple tree in your neighborhood.

See Activity #1 for tips on
identifying a hard maple tree.

This watery liquid feeds
the tree and
sometimes
feeds birds,
animals, and
even insects!





Sap is held in the trees' wood just beneath the bark. That part of the tree is called the sapwood.

During the winter, cold temperatures make the sap freeze inside the tree. This is okay because the trees are dormant, or resting, and they don't need food.



Sweet Fact

During the growing season, maple trees produce sugar inside their leaves through photosynthesis. Sap is a mixture of this sugar and the water absorbed through the tree's root system. For more information on this interesting process, look in the back of this book at Activity #2.

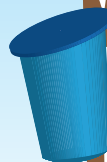
In the springtime, as the temperatures warm up and the trees start to wake up, the sap thaws out and starts moving through the tree again. This is called the sap run.



How Sap Flows



During the day as temperatures warm up, positive pressure is created within the tree causing the sap to flow. If the tree is tapped, this pressure is released and sap is forced out through the taphole.



When temperatures drop below freezing at night, negative pressure or suction, is created which draws water into the tree through the roots and slows down the sap flow.

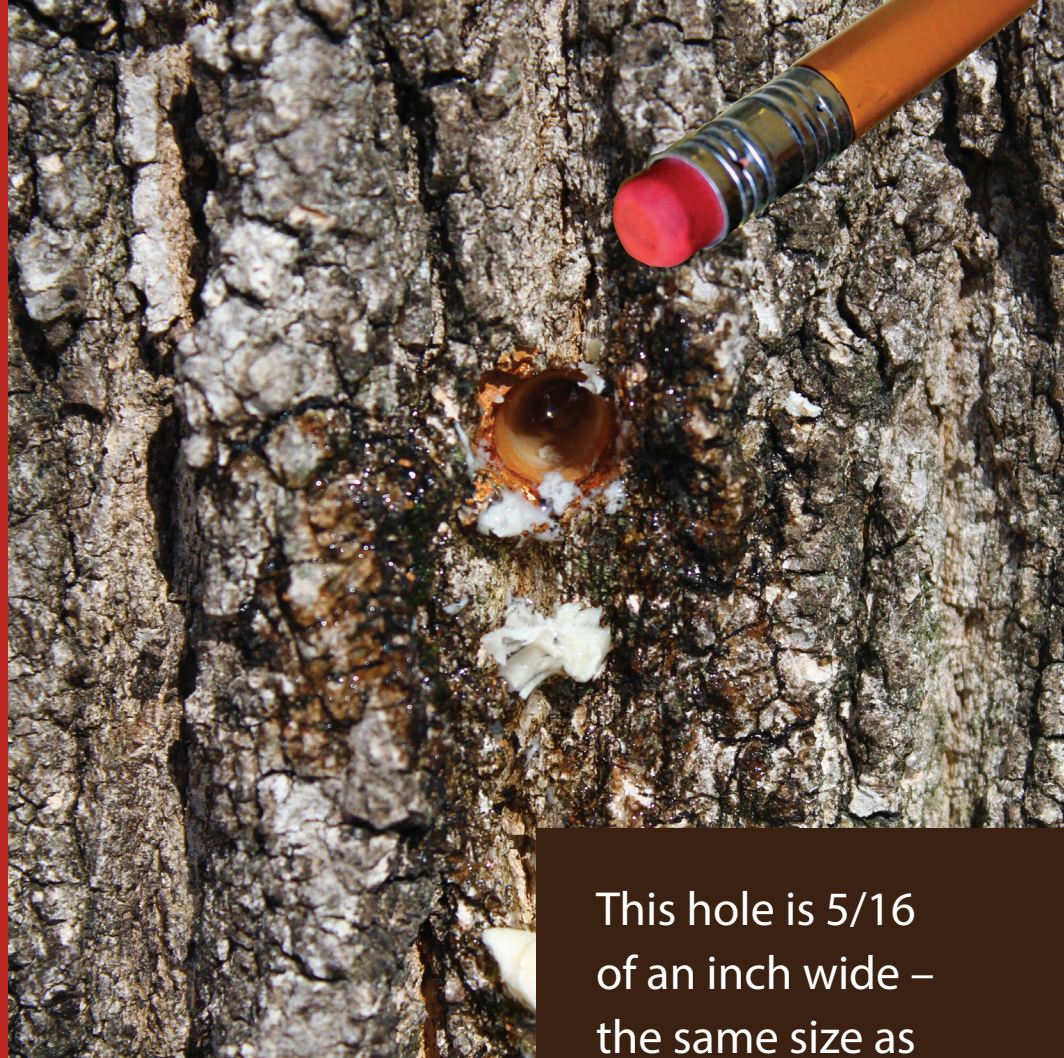
Sap runs all summer long in the tree but it's only sweet enough for syrup-making during early spring – usually in March and the beginning of April. This is when sugarmakers tap their trees.



To tap a tree, the sugarmaker drills a small hole in the tree.



After the hole is drilled, creamy shavings spill out and the sap starts to run out from the hole.



This hole is 5/16 of an inch wide – the same size as a pencil eraser.

Sweet Fact

In 2014, maple syrup makers collected 3.17 million gallons of syrup. That's enough to fill 71,000 bathtubs!



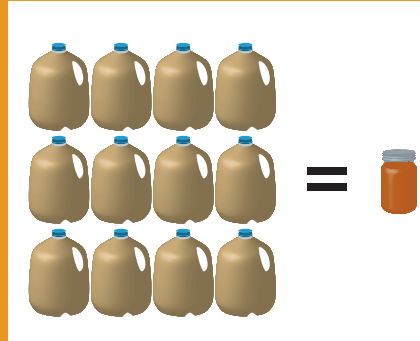
Once the hole is drilled, the sugar-maker puts a small tap, or spile, in the hole and the sap runs out of the tree into a bucket or bag.

Sometimes it starts running before he can even get the spile all the way in! This little hole does not hurt the tree and will heal up quickly after the spile is taken out.



Sweet Fact

During the season, one taphole will put out almost 12 gallons of sap. After cooking, this will be about one quart of syrup.



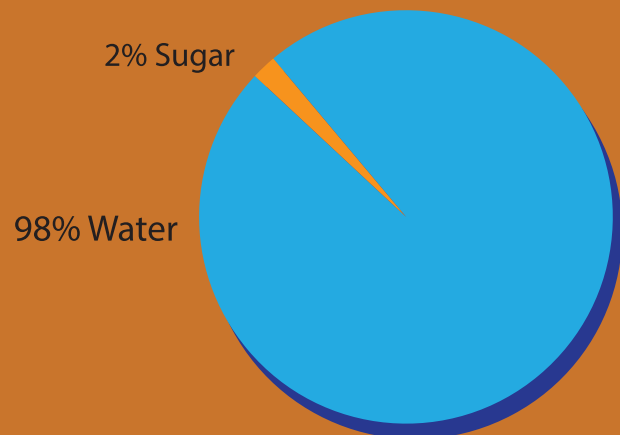
After the spile is in the tree, the sugarmaker attaches a bucket or a bag to catch the sap. The tap stays in the tree all season long.

Every day during the tapping season, the sugarmaker returns to his trees to check if the tapping bags or buckets are full of sap.



If so, he empties this sap into a larger bucket and takes it home to start making syrup.

Straight from the tree, the sap is clean and clear with a barely-sweet flavor. That's because right now it's 98% water and only 2% sugar.





Sweet Fact

Maple syrup is the oldest agricultural crop produced in the United States. Native Americans long ago carved wooden spiles and used hollowed-out logs to collect the sap. They also traded with other tribes and taught early settlers how to collect sap and make syrup.



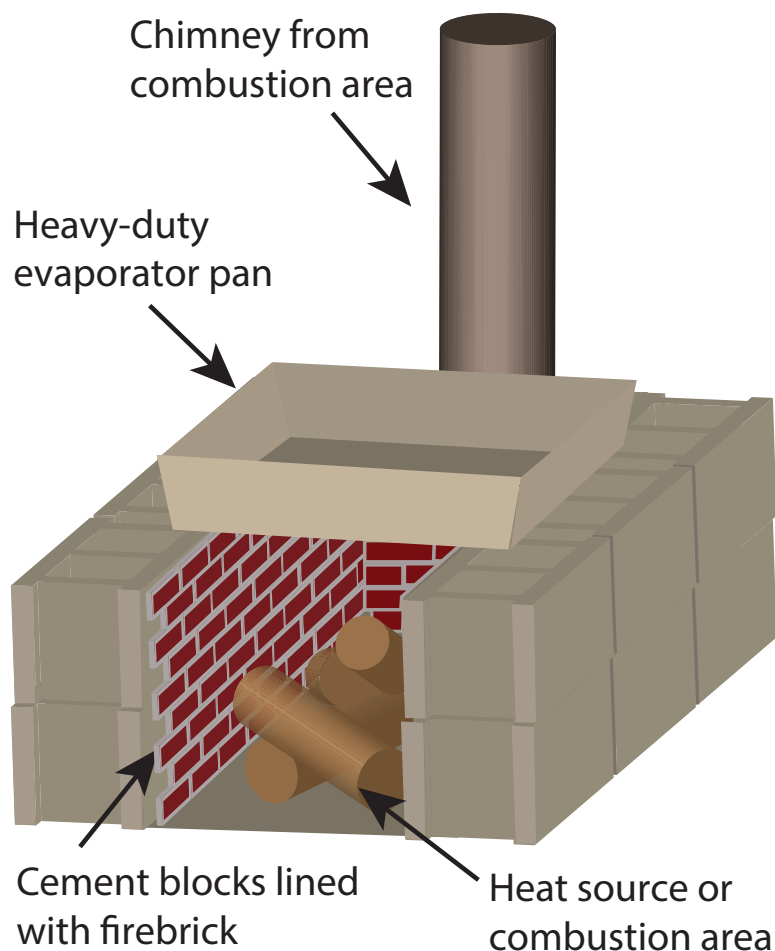


Each day's sap is filtered and poured into a large pan called an evaporator pan. This pan sits over a fire or stove burner and the sap inside it is heated up.



Eventually the sap starts boiling and steam rises off the top. The steam is the water turning into vapor – or evaporating from the sap and going into the air. The sap is boiled for hours and hours. As the water evaporates, the sap in the pan slowly starts to thicken, sweeten up, and turn maple-brown. It's becoming syrup!

Many people use simple plans like this to build their own evaporators or stoves for cooking sap.



Look for Activity #3 in the back of this book for an evaporation experiment you can do at home.



When the sugarmaker's syrup is almost ready, it is filtered again and poured into a smaller pot for the final boiling process.



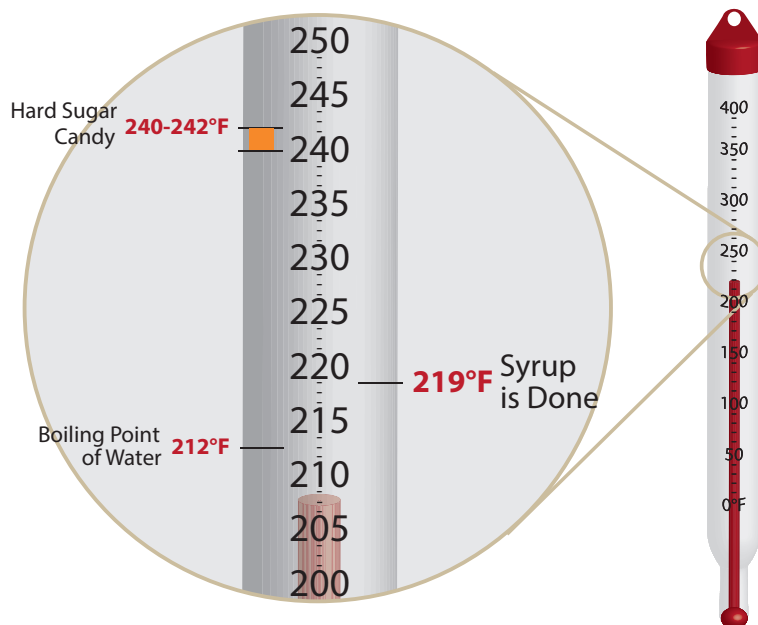
The sugarmaker uses a thermometer in that smaller pot to watch the temperature rise and waits for it to reach 219°F.

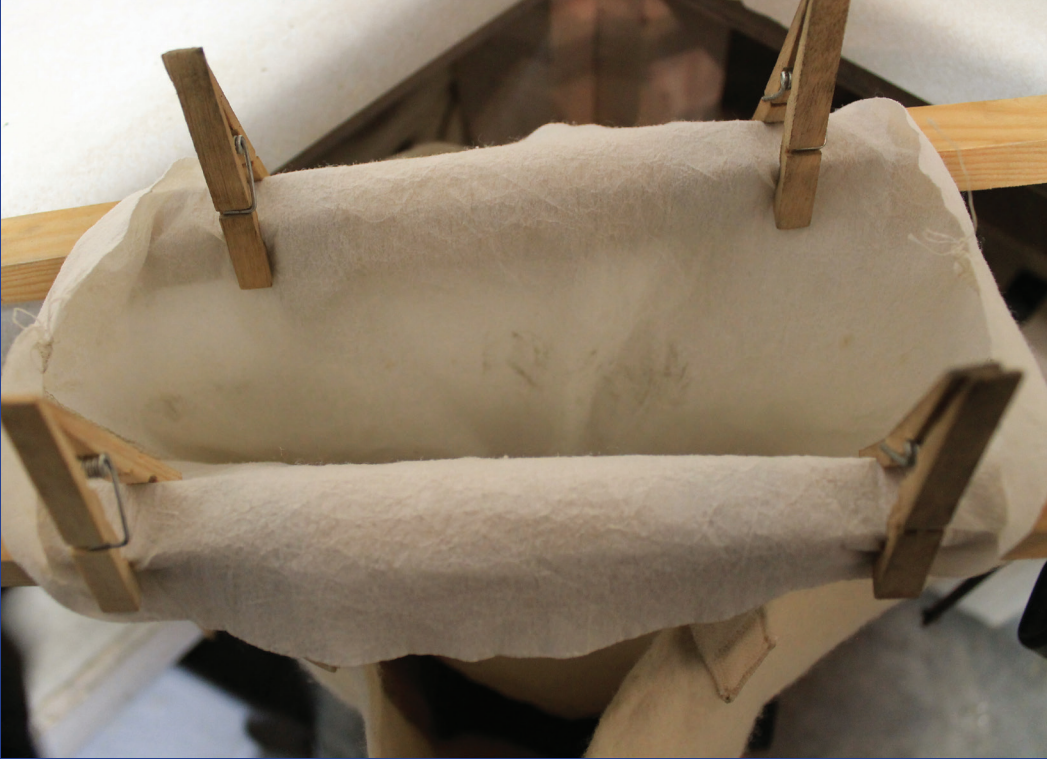
Sweet Fact

Water starts boiling at 212° Fahrenheit – this is called the boiling point. To make syrup, sap has to be boiled to 7° more than the boiling point!



If it's boiled
to a higher
temperature,
it will turn into
hard candy!





After the syrup reaches the right temperature, the sugarmaker turns off the heat and pours it through two more filters specially made for making syrup.

The filters remove tiny particles called sugar sand (or niter) that sometimes are left after boiling.

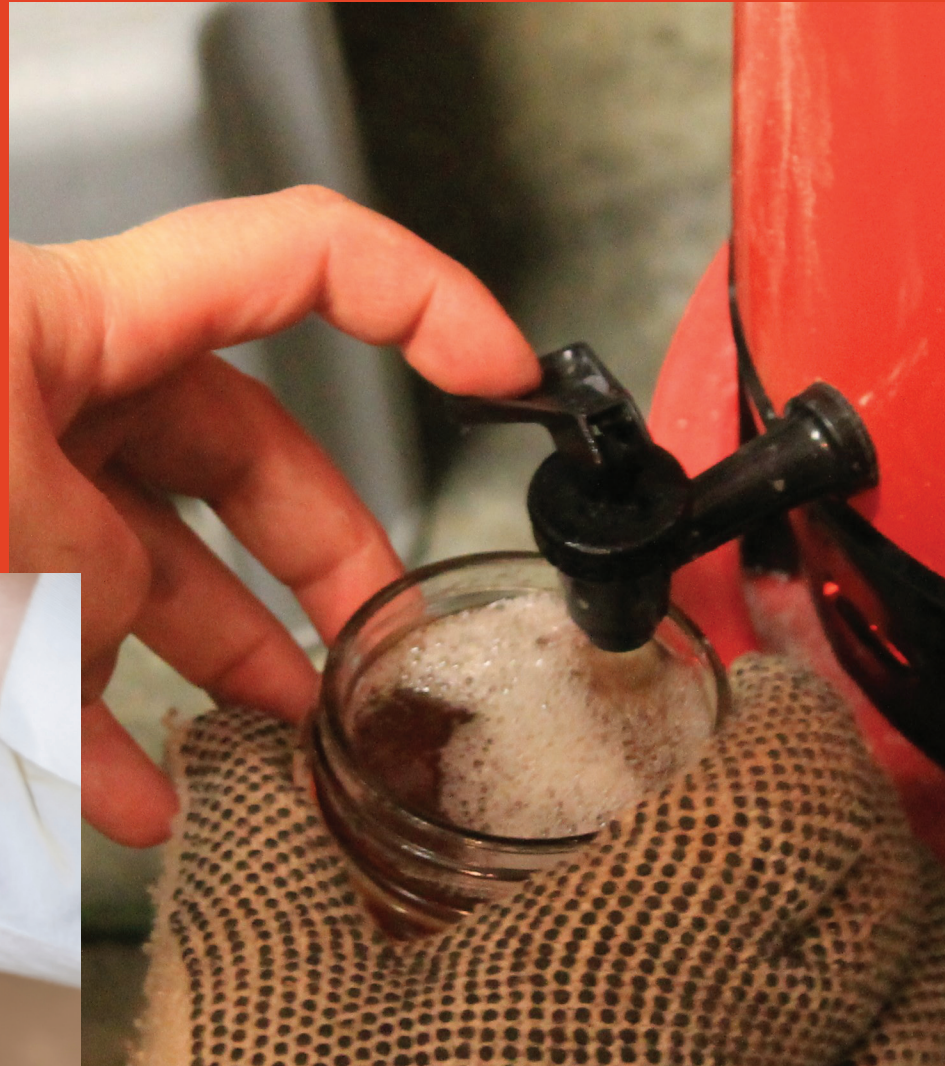


**Once the pans are empty,
the sugarmaker squeezes every
last drop through the filters.**



**Look in the back of the book for Activity #4 to
experiment with how filtering works.**

**After it's filtered, the
hot syrup is poured
into bottles or jars
and sealed with a lid.**



**Large sugarmakers
sometimes use a
special machine to
fill their bottles.**


Sweet Fact

While it cools, the syrup shrinks! This jar was full to the lid when it was first filled.



When it cools to room temperature, the jars can be labeled and taken to the market for sale or put away in the kitchen cupboard for the next yummy pancake breakfast.



A close-up photograph of maple tree branches covered in small, reddish-brown buds. The background is a soft-focus view of a snowy landscape with more trees.

The maple sugaring season ends when the sap run slows down or when the trees start to bud out. Once the buds appear, the sap starts to lose its sweetness and doesn't make good-tasting syrup.

Sweet Fact

Tree buds form in the summer but stay dormant all winter. Take a look at the branches in your yard in August or September and you'll see the tightly closed buds near the end of each branch.

In the spring when the temperatures warm up and sap flows, these little buds know it's time to wake up and start growing into leaves for summertime.

These little buds will turn into leaves and the growing process starts all over again.

After working
hard all summer,
the leaves once
again turn colors
and the tree goes
back to sleep for
the winter.







At the end of the season, sugarmakers remove their taps from the trees, clean their equipment, and store it away for next year.



Over the summer, the tapholes will heal and are barely noticeable by the next spring.

Sweet Fact

Sugarmakers tap the same trees every year but use a different spot on the tree. Some maple tree farms have been tapping the same trees for over 100 years!



Now comes the best part of sugar-making: having breakfast with the sweet syrup! Pure maple syrup can also be made into a hard candy; a soft, chewy candy; or even used to replace sugar in baking.

So are you ready to make your own syrup? You'll need a little help from an adult so we've included a section at the back of the book with more detailed, step-by-step instructions on the tapping and syrup making process. Give it a try – we know you'll have fun!




Sweet Fact



In the pioneer days, white sugar was hard to find. So people used maple syrup and maple sugar to sweeten cakes, cookies, and other sweet treats. Look in the next Activity Section for some fun recipes you can try at home.

Activity Section





The following pages have fun activities to help you identify trees, experiment in the kitchen, and make sweet treats from your own maple syrup.

#1 How To Identify a Hard Maple Tree.

#2 How is Sap Made?

#3 Evaporation Experiment.

#4 Experimenting with Filters.

#5 Make a Leaf Rubbing.

#6 Cooking with Maple Syrup.

#7 Maple Leaf Coloring Page.





How to Identify a Hard Maple Tree

Hard maples give the best sap but you can also tap red or silver maple – the sugar content is lower so you'll have lower syrup yields and longer boil times. Folks also tap the box elder tree which is technically part of the maple family. Box elder syrup has a heavy, sorghum-like flavor and can be somewhat bitter compared to pure maple syrup.

Maple trees have very unique features. Look in your yard or a neighborhood park for these characteristics:

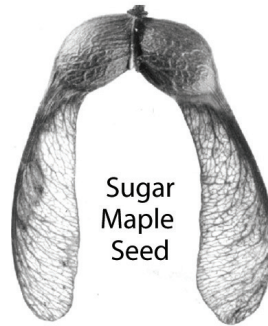
Hard Maple Leaf



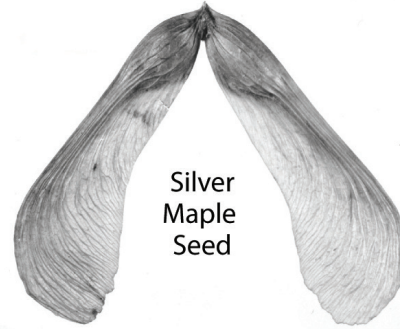
Soft Maple Leaf



Leaves have five separate segments or lobes and somewhat pointy leaves. Hard maples have a “U” shaped valley between each lobe, soft maples have a “V” shaped valley.



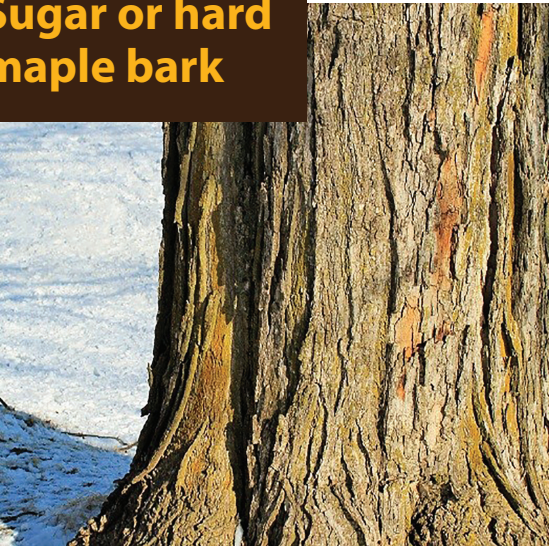
Sugar
Maple
Seed



Silver
Maple
Seed

“Helicopter” seeds with two v-shaped wings that flutter down and away from the tree like helicopter blades. Hard or sugar maples drop their seeds in late summer and soft or silver maples drop their seeds in spring.

**Sugar or hard
maple bark**




**Silver or soft
maple bark**





Once you've found a hard maple tree, tie a bright weather-resistant ribbon around it so you can find it next spring. You can buy this ribbon at the hardware store.

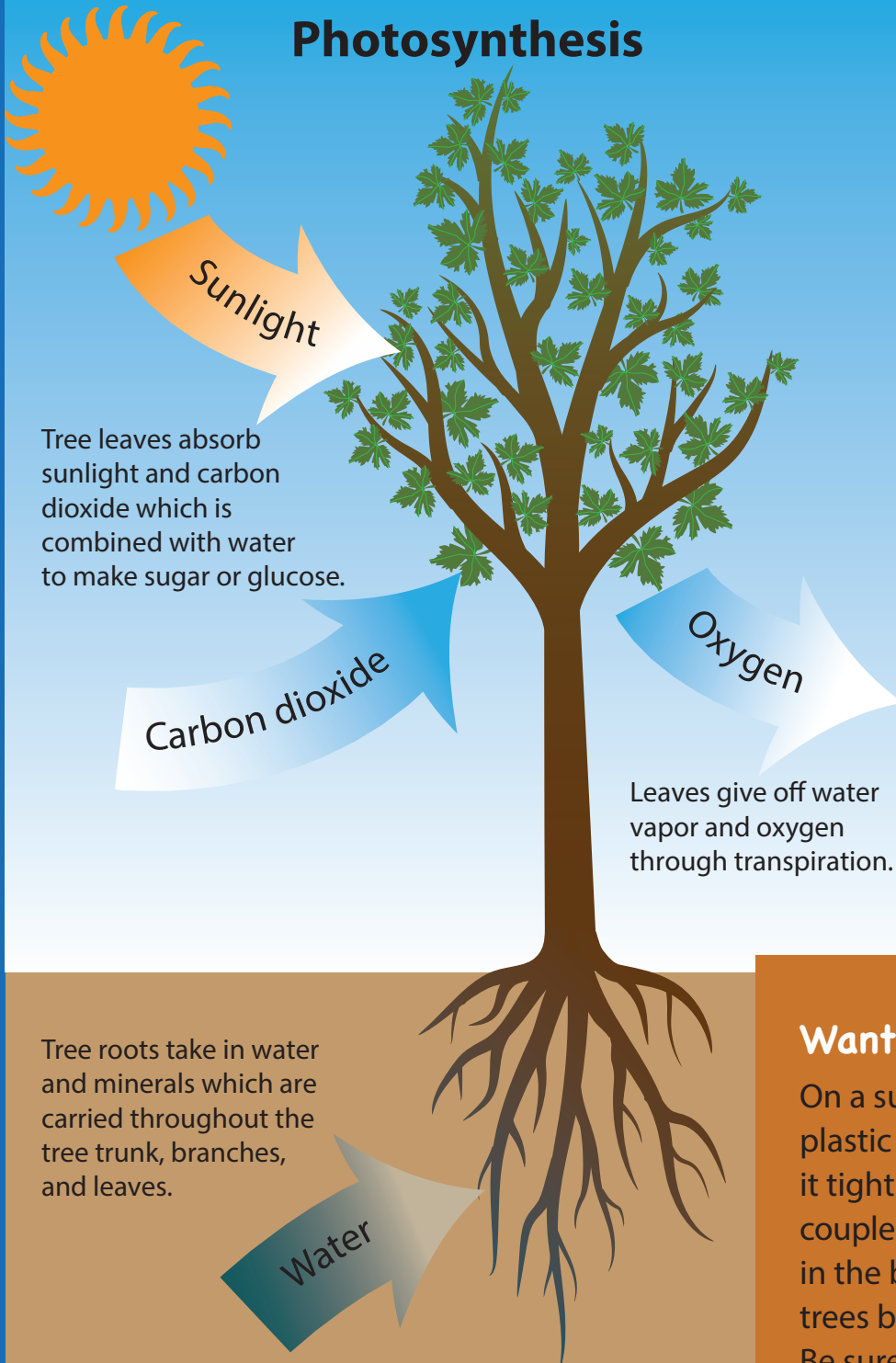


In the fall, hard maples usually have the most colorful red, orange, or yellow leaves.

Mature trees will have a thick, round canopy and light to dark gray bark with narrow, deep furrows. They can grow to be 80-feet tall.



Photosynthesis



Activity #2

How is Sap Made?

During the growing season, maple trees produce sugar inside their leaves through photosynthesis. Sap is a mixture of this sugar and the water absorbed through the tree's root system. The more leaves a tree has, the more sugar it produces to feed the tree and keep it healthy.

Want to see a tree breathe?

On a sunny day, place a large, clear plastic bag over a leafy branch. Tie it tightly to seal it. Check back in a couple hours. Do you see water droplets in the bag? This is the water vapor that trees breathe out during transpiration. Be sure to remove the bag!



In the fall as the days shorten and the temperatures drop, the tree stops growing. Some of the sugar from summertime is still trapped in the tree. The sugar trapped in the leaves creates the maple tree's beautiful fall colors.

Sugar also stays in the layer just below the bark called the sapwood. It will stay there frozen all winter. When spring comes and the days warm up, the sap thaws out and once again starts feeding the tree. When a tree is tapped, the taphole breaks into the path through which the sap travels. Instead of running up and down the tree, a small portion of the sap drips out through the hole and along the spile. Don't worry though, the tree is just fine without this little bit of sap.



During the early spring, sap refreezes and thaws many times so it will often stop at night and run more quickly as the day warms up.

Activity #3

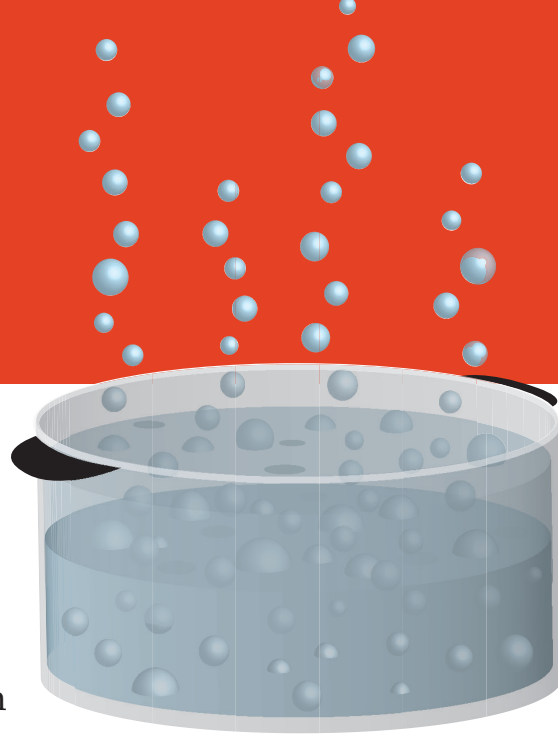
Evaporation Experiment

Try this easy experiment at home but make sure you have an adult help you!

Step One: Measure four cups of water into a small saucepan and heat on the stove.

Step Two: Carefully watch the pan and you'll see bubbles forming on the bottom. Eventually these bubbles get bigger, start to move around, and rise to the surface.

Step Three: Once the water starts boiling, you'll see steam rising up from the pan. This is the water turning into a vapor or evaporating.



Step Four: Let your water boil for about 15 minutes and turn off the heat.

Step Five: After the water is cooled down, pour it back into the measuring cup. Is there still four cups?

Result: The missing water turned into steam and escaped into the air. This is the same process used to remove water from sap – only the water evaporates and the sweet sugar is left.





Experimenting with Filters

This is a fun sandbox or bathtub activity but you'll have to ask to borrow a few things from the kitchen!

Supplies: colander or strainer, coffee filter, cheesecloth, old bath towel or dish towel, large rubber bands, empty bowl, pitcher, big tub to pour water into, water, and materials to strain such as pebbles, sand, marbles, or dried beans.

Step One: Fill your pitcher half-way with water and drop in your materials.

Step Two: Set up your filters. If using a colander, just set it in your tub. If using cloth, stretch it over the opening of another bowl and secure it with a rubber band.

Step Three: Slowly pour the water and material through your filter. What happens to the stuff that's in the water? Does the size of the holes in the colander or the thickness of the cloth let some things pass through?

Result: This process is exactly how the sugarmaker gets out sugar sand or other unwanted debris in the sap or syrup. After filtering, he keeps the clear syrup and rinses the filters to get rid of the leftovers.



A yellow, crumpled paper-like graphic with the text "Activity #5" in brown. The background of the page features a large, detailed leaf rubbing in shades of red, orange, and brown on a light blue background. The rubbing shows the intricate vein structure of the leaf.

Activity #5

Make a Leaf Rubbing

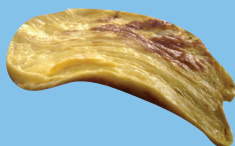
What you'll need: You'll need colored pencils or crayons, plain white paper, and some leaves (green or fall colors will both work.)

What to do: Arrange your leaves on a hard surface such as table top or clipboard. Lay the paper over the leaf and gently color back and forth over the leaf. Soon the leaf shape will appear! Use fall colors and cut out your leaves to make a pretty fall bouquet or frame your finished picture to hang on your walls.

Activity #6

Cooking with Maple Syrup

Maple sugar and maple candy recipes date back to the pioneer days, but they're still just as tasty today. You can use already-bottled pure maple syrup for these recipes. You'll need an adult's help with these recipes because the syrup gets very hot! You'll also need a candy thermometer so you can measure the temperature. Look in cooking stores or hobby stores for candy molds designed for hot liquids. These all make great gifts and are fun for the whole family.



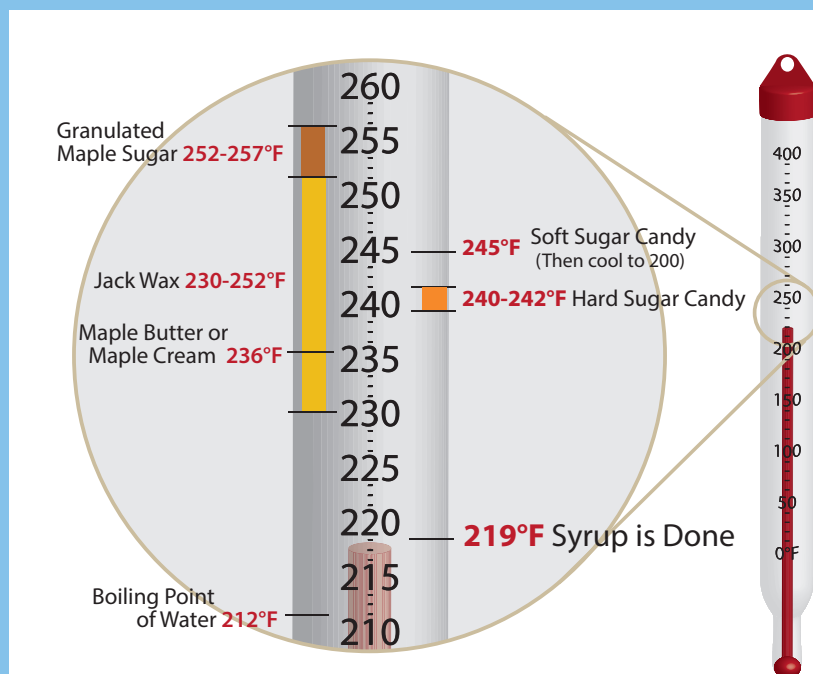
Tip for the adults: it's best to calibrate your thermometer so you can be sure you're getting your syrup to the right temperature. Directions are included in the Adult section.

Granulated Maple Sugar. On a non-humid day, heat syrup to 252°F to 257°F (or 40°F to 45°F above the boiling point) and transfer immediately to a flat pan. Stir within this pan until it becomes granulated and all the moisture is gone. Sieve through a coarse screen (1/8-inch hardware screen) to create uniform granules.

Hard Molded Sugar. Follow the same steps for granulated sugar but do not put through a screen. Instead pack into candy molds – be sure to follow the manufacturer's directions on prepping and cleaning the molds.

Molded Soft Sugar Candy. Heat syrup to 245°F (or 33°F above the boiling point,) pour into a flat pan, and allow to cool undisturbed to 200°F but no lower than 160°F. Once it drops to this temperature, stir until the syrup is soft and pliable and pour or pack into molds. When cool, poured candies will have a glazed surface.

Hard Maple Sugar Candy. Boil the syrup to 240°F to 242°F (or 28°F to 30°F above the boiling point.) Keep at least 1½-inches of liquid in the pan to avoid scorching. Allow to cool to 150°F and pour or pack into molds.





Jack Wax or Maple-on-Snow. Start out by filling a pan with clean snow or shaved ice and keep frozen. The boiling range is wide for this treat: at the low end of 230°F (or 18°F above the boiling point) you'll get a taffy-like candy while at the high end of 252°F (or 40°F above the boiling point) you'll have a glass-like candy. Consistency changes within this temperature range. Once your syrup has reached your preferred temperature, immediately pour it in ribbons on the snow or ice. It will be done instantly and is typically eaten right away as it does not keep well.



Maple Butter or Maple Cream. Add $\frac{1}{4}$ teaspoon of butter, cream, or oil (for dairy-free) to approximately 2 cups of pure maple syrup and boil to 236°F (or 24°F over the boiling point.) While it's boiling, fill a large bowl with ice and water. When the batch reaches the temperature, set the entire pot in the ice bath – do not stir or let water lap over edge. When it's cooled to room temperature, remove from the ice bath and stir slowly with a wooden spoon until it turns opaque and becomes the consistency of peanut butter. Store in the refrigerator. Note that not all syrups will work for maple cream – light colored syrups work best.

Sweet Fact

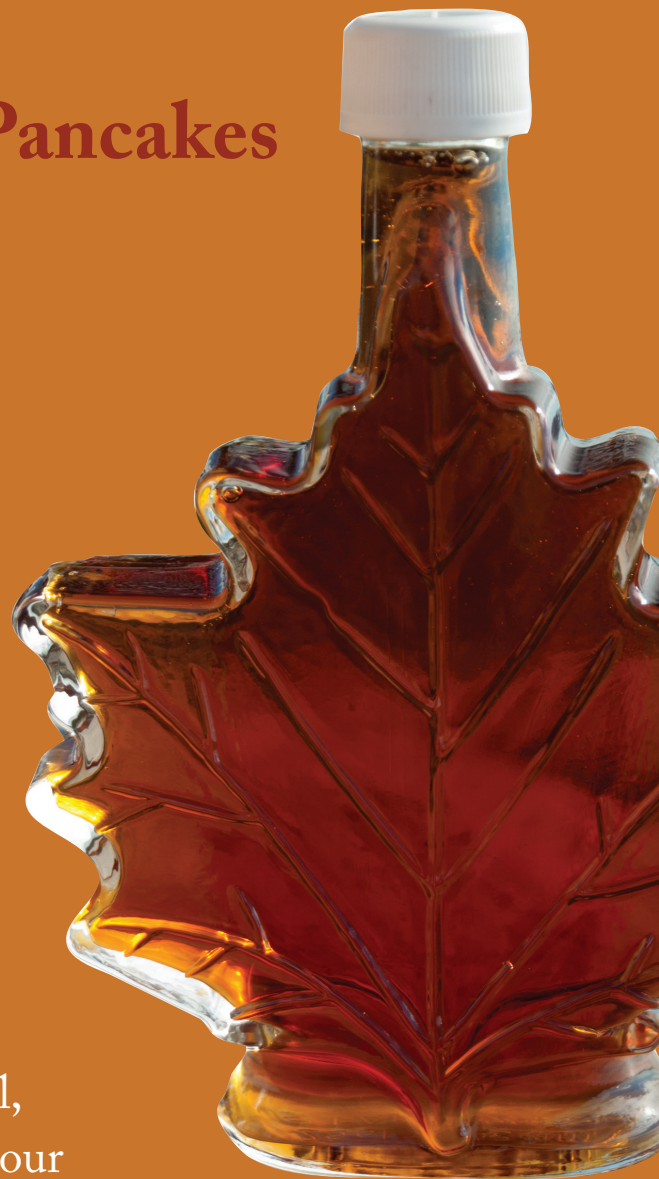
The Guinness Book of World Records lists the world's largest stack of pancakes at 2-feet, 10-inches tall. It was created by a group of students from Fukuoka Visionary Arts in Fukuoka, Japan, on June 29, 2014.

Homemade Whole Wheat Pancakes With Warm Maple Syrup

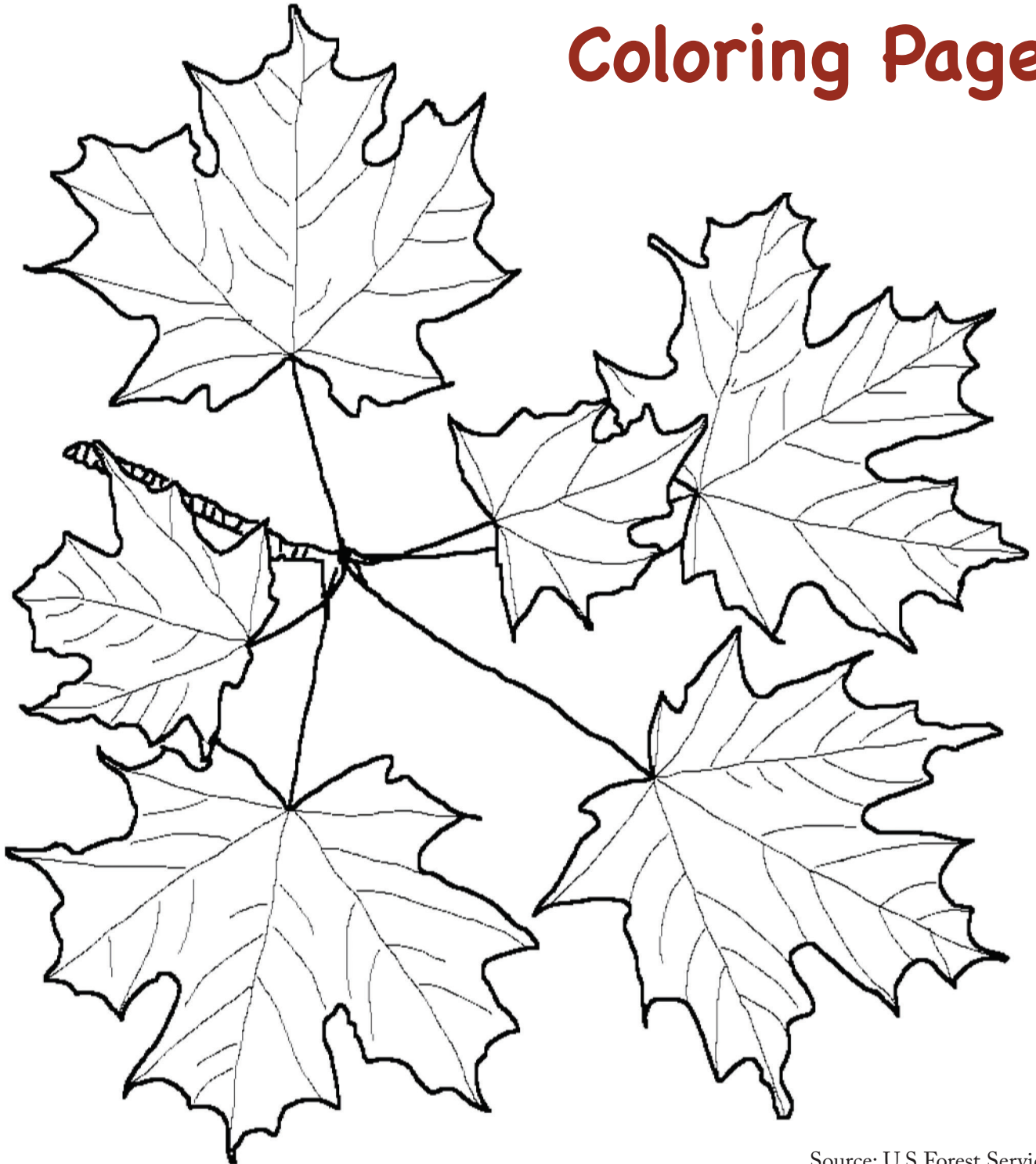
Ingredients


- 1 1/3 cups whole wheat flour
- 1 1/2 teaspoons baking powder
- 1/4 teaspoon salt
- 1/4 teaspoon baking soda
- 1 egg, large
- 1 tablespoon brown sugar
- 1 1/3 cups buttermilk
- 1 tablespoon vegetable oil

Measure flour, baking powder, salt, and baking soda into a large mixing bowl. In a separate bowl, combine egg, buttermilk, brown sugar, and oil. Pour wet ingredients into dry ingredients and stir just until moistened. Batter should be slightly lumpy. Let batter rest while you heat the pan. Lightly spray or oil your griddle and preheat over medium heat. Pour 1/4 cup of batter for each pancake onto hot griddle. Flip the pancake when bubbles start to appear on the surface. Serve with warmed pure maple syrup.



Coloring Page



A photograph of a snowy forest. In the foreground, a snow-covered slope is visible. Several trees are present, some of which have blue sap collection buckets attached to their trunks. A blue collection bag is also hanging from one of the trees. The background shows a dense forest of bare trees under a clear blue sky.

Sap to Syrup Now It's Your Turn

Grab a Grown-Up for Help



The children in your life want to tap a tree and make syrup – and you’re probably thinking how will we ever do that? It’s a surprisingly simple activity and much less complicated than you think. Once you’ve been through a season, you’ll have all the tools and knowledge you need to call yourself a sugarmaker. And with this quick primer you’re already well on your way to that first pancake breakfast. We’re going to go through a quick rundown of the process of both tapping a tree and making syrup but we’d suggest further research to acquaint yourself with the details. A good first step is to visit our website at www.mapletapper.com. Here you’ll find handy how-to videos and articles, an ever-growing question and answer forum, a full-length adult how-to book, and much more.

How to Tap a Tree

You will need a few special tools for tapping, most of which you probably already own. In addition to the spiles and collection containers, you’ll need a drill with a wood-boring drill bit (5/16” or 7/16” depending on the spile you’re using); a marker; a small hammer; and a few five-gallon, food-grade buckets to transfer your collected sap.





Step One: Identify and Mark Your Trees

Hard maples, also called sugar maple, black maple, or rock maple, have the highest sugar content and produce the best tasting syrup. You can also tap the red or silver maple but the sugar content is lower so you'll have lower syrup yields and longer boil times. Folks also tap the box elder tree and the finished product has a heavy, sorghum-like flavor.

The best time to identify a maple tree is in the summer or fall when it is in full leaf. Maple trees all have the same characteristics with slight and subtle variations between each subspecies of tree. Consult an illustrated tree reference guide for more details or refer back to Activity #1 for photos and details on hard maple characteristics.

Once you've identified the tree, choose a tree at least 12" in diameter with a full canopy of strong healthy

branches. Tie weather-resistant marking tape around your tree so you can easily find it in the spring.

Step Two: When to Tap

The tapping season varies from region to region but generally starts in early March and lasts until mid-April. When the sap starts and stops running depends greatly on day and nighttime temperature fluctuations. Watch the weather forecast – sap starts flowing when the temperatures are below freezing at night but climb to the 40°F and above range during the day. If this freeze/thaw pattern is predicted, get out and tap your trees! Don't be tempted to do it early, though, as this could cause the sap to freeze in your spiles which could damage your equipment and the tree. Remove your taps when you have enough sap or when the tree buds out as that can lead to an off or "buddy" flavor in the finished syrup.

Step Three: Drilling the Taphole

No matter what system you choose, the drilling procedure is the same. The only variation is the size of drill bit needed –

most of our kits use a 5/16" spile so that is the size drill bit you'd need. Select a wood-boring drill bit and mark it with tape or a marker at 1½" from the end. This mark



will show you where to stop drilling so you only go into the sapwood. Pick a spot on the tree trunk approximately four-feet off the ground below a large branch or above a large root. If using a bucket or jug that will sit on the ground, be sure your tubing will reach the bucket even after the snow melts underneath it.

Drill at a slightly upwards angle into the tree and do not go deeper than 1 ½". Shavings that come out of the hole should be creamy or light yellow and sap will most likely start running immediately.



Step Four: Inserting the Spile

Once the hole is drilled, you simply insert the spile, gently tap it in with a hammer until it feels snug, and attach your bucket, jug, or bag to collect sap. This tap will stay in the tree for the entire season.

Step Five: Collecting Sap

Each day, come back to your trees to collect your sap. Sap left sitting in buckets can grow bacteria – this is not harmful because the sap will be boiled but the bacteria will eat away at your sugars which can affect the syrup's taste. If you can't boil your sap every day, chill it for a few days until you've collected enough to cook. Normally, a single taphole produces between one quart to one gallon of sap per flow-period (which can last a few hours or more than a day.)



Step Six: Removing the Spiles

Once you've collected enough sap or the trees bud out, simply pry the spiles from the tree with a small claw hammer. The taphole will heal over the summer and the same tree can be tapped year-to-year, although you cannot reuse the same taphole. Thoroughly rinse all of your equipment – do not use detergents – let air dry and store away for next season.



How much sap or syrup will I get from each taphole?

The amount of sap each taphole yields varies greatly depending on the tree, the time of year, environmental conditions such as the weather and soil conditions, and even at what point you are in the tapping season. In a normal season, a single taphole produces approximately 10- to 12-gallons of sap. Your finished yield of syrup will depend on the sugar content of your sap. Generally, assume a 40-to-1 conversion – so 12 gallons of sap will boil down to 1 quart of syrup. With this ratio in mind, you'd need four tapholes to produce one gallon of syrup for the season.

How to Calibrate a Thermometer

1. Heat distilled water to a rolling boil.
2. Place your thermometer in the water making sure to have 2-inches of room on all sides and up from the bottom of the pan.

Temperature should read within +/- 2°F of 212°F (the boiling point of water.) If it's outside of this range, take note of the discrepancy or replace the thermometer. For syrup making, you're looking for a temperature of 219°F for finished syrup – if your thermometer is +3°F off, you'll know to boil it to 222°F (as shown on your thermometer.)



How to Make Maple Syrup

If you're intimidated by this process, visit with a local sugarmaker while they're cooking. Most folks are happy to share their experience and might even trade you some finished syrup for sap. You will need a few tools for the boiling process. These include: basic kitchen tools such as funnels, potholders or heavy duty gloves, ladles, and spoons; a candy-type thermometer with a readable, one-degree scale; food-grade, syrup-specific filters; glass jars with sealable lids; heavy-duty stainless steel pans; and a hydrometer (this tool is optional.)

Step One: Sugar Shack Preparation

The boiling process can take many hours, lots of fuel, and everything around the pots will be covered in a sticky film. Even the steam coming off the sap has tiny bits of sugar! For this reason, most sugarmakers boil



their sap outside and many create a separate “sugar shack” to house their cooking and bottling operations. As a hobbyist, it’s not essential to build an entire sugar shack but you will need a cooker, some kind of overhead shelter with lighting, an abundant source of fuel such as split firewood or a large propane tank, and a work surface for bottling. You can find pre-made hobbyist evaporator pans from large suppliers as well as many DIY “evaporator plans” if you’d like to build your own cooking stove.



Step Two: First Filter

Sap is first filtered on the day it’s collected to remove debris or insects. Pour your sap through a piece of clean cotton cloth such as tee-shirt or a few layers of cheese-cloth. Any materials used for filtering must not have been washed with detergent. Once filtered you can cook your sap right away or store it away in the refrigerator or a snowbank until it’s time for boiling. Be sure to use

a food-safe container that has not been washed with dish soap or detergents. Chilled sap will keep for up to five days.

Step Three: Beginning Boil

If using a wood cooker, start your fire ahead of time so you will have a



good bed of coals to cook over. Pour filtered sap into a shallow evaporator pan and cook over high heat. Because sap will sometimes boil over, 3- to 6-inches of space must be left at the top of the pan. This means that all the day’s sap may not fit into the evaporator pan at once. In this instance, you’ll need to warm the additional sap separately and add it to the main batch as it boils down. This process is continued until all the sap is boiling in one big batch. Boil sap aggressively until the temperature reaches approximately 216°F.

Step Four: Second Filter and Finish Boil

When sap reaches the 216°F range, remove it from the main heat source and pour through filters designed for maple syrup making. This filtered sap is then boiled in a smaller pot on



a cooker such as a regular kitchen stove or outside propane cooker. While the previous boil seemed to take forever, the finishing stage goes quickly and your sap can rapidly climb over the target temperature of 219°F. If it goes over this temperature, it will turn into candy!

Step Five: Final Filter and Bottling

After it reaches 219°F, remove your syrup from the heat, test with the hydrometer (this step is optional), and run through a two-layer filter to remove sugar sand or niter. Keep your filtered syrup warm and pour into glass jars or bottles. Wipe the bottle rims, seal with a food-safe lid, turn the bottle upside to flood the lid and heat the seal, and let your bottles sit for 24 hours.

Step Six: Storage

After the jars have cooled, wipe the outsides, label with the date, and store in a cool, dry place. Properly bottled and sealed pure maple syrup will keep for up to one year.

Maple syrup can also be frozen indefinitely – it will not harden, though, due to the high sugar content. Once opened, syrup should be stored in the refrigerator and used within six months of opening. If



you notice any mold or discoloration, discard the contents as it may not be safe to eat. Also, do not store your syrup in plastic containers as the syrup may absorb odd flavors or odors from the plastic.



Why is my syrup cloudy or crystallized?

This sugar sand, or niter, is sometimes left if your syrup was not filtered enough. It can also be created by boiling the sap too far past the finishing point. In either case, it does not affect the quality of your syrup and will usually sink to the bottom during storage. You can reheat your syrup and put it through another filtering to remove the sugar sand.

What makes sap into syrup?

Sap becomes syrup as the water is removed through evaporation and the sugars become concentrated. The flavor of your finished syrup is created by the caramelization of the sugars during the boiling process – the longer the sap is boiled in the pan, the darker and stronger the flavors become. Flavor can also be affected by the tree's qualities and genetics; by the time of year and method through which sap is collected; and by the cleanliness of the boiling room and storage containers.

How long does it take to boil down the sap?

The rate at which your water will evaporate depends on numerous factors such as: pan size and construction; type of heat source; and even the temperature of sap being added to the evaporator. If using a shallow, rectangular pan with lots of surface area, it takes between 9 and 18 hours to produce one gallon of syrup. With a deep, circular pan, it can take as little as 28 hours and as long as 56 hours.





Hi folks, my name is Jim Kuehnle and I'm the owner of Maple Tapper. I'm so glad we've been able to share the world of sugarmaking with you! I founded Maple Tapper because as a child I enjoyed the tapping of maple trees on my family's farm in Michigan. I have fond memories of sap-filled tapping buckets on sunny, early spring days and even fonder memories of fresh maple syrup poured over pancakes at my Grandparent's farmhouse breakfast table. I want to share this family tradition and teach others the hobby of home-based maple tapping and the art of syrup making. We at Maple Tapper are doing this by providing simple instructional information along with our easy-to-use tapping kits. Both beginners and seasoned maple tappers will find that our how-to information and supplies make sugaring simple and fun.

All of us at Maple Tapper are thrilled to see the resurgence in this age-old pastime and we know you'll find sugarmaking to be fun, easy-to-learn, and a great excuse to get outdoors with your kids, family, and friends.

Tap a tree this season and see what sweet things happen!



Happy Tapping,

Jim Kuehnle



www.mapletapper.com