

Making Maple Syrup



Teachers Guide:

A Classroom activity to demonstrate how maple syrup is made can be educational and fun. The process is simple. Remember, the magic maple formula is 40:1 (40 gallons of sap yields 1 gallon of syrup).

Materials

Hot plate (device that will boil water)
3.2 oz. jug of pure Mass. maple syrup
1 empty gallon (128 fluid ounce) container (plastic milk carton)
1 measuring cup
1 eight quart pot for boiling
disposable wooden sticks (enough for 3 per student)
or plastic spoons

Procedure

Step 1. With a measuring cup add 125 ounces of potable water to the plastic milk container. Be sure the milk container is properly cleaned and rinsed.

An alternative to consider is to acquire a one gallon container of potable water from the grocery store. Simply reduce the total by approximately 3.2 ounces.

Step 2. With water in the one gallon container add 3.2 ounces of pure maple syrup. Replace cap on the gallon container and shake to thoroughly mix the syrup and water.

You have created the equivalent of "maple sap", with 2.1% sugar content.

Step 3. The students should be provided with a tasting sample. The students can be asked to use their senses to make observations on color, taste, and smell. These observations can be compared to the syrup created after step 4.

Step 4. The newly created "maple sap" should be placed into a container suitable for boiling. Make sure the container is properly cleaned first. Be sure the container can hold at least 2 gallons to give room for the boiling "sap" to foam up without boiling over. A smaller boiling container can be used if you continuously add more "sap" to the boiling pot from time to time. It is best to

add only a small amount at a time so as to not stop the boil. **Important:** Add a few drops of vegetable oil or a tiny dab of butter to the "sap" to keep the foam down. Once the "maple sap" reaches a boil, the "sap" should be allowed to boil continuously until the quantity of the boiling solution is reduced to maple syrup, having used almost all the "maple sap" solution. This boiling away of the water from the "sap" to produce maple syrup will take about 3 hours, so plan ahead for this exercise.

Note: The point at which the "sap" reaches syrup can be determined by a number of methods. For a classroom probably the easiest way is to measure how deep in your boiling pan 3.2 oz. of liquid takes up. When boiling, take the pan off the heat and measure the depth of the liquid. When it reaches the 3.2 oz. level, it should be syrup. Another way is to use a candy thermometer and stop the boiling when the temperature reaches 7 degrees above the boiling point of water. You can also dip a large spoon into the boiling liquid, carefully watching the liquid as it pours off the edge of the spoon. When it comes off as a "sheet" instead of in single drops, your syrup is ready. See "Aproning" on the "Sweet Talk" sheet. Be extra watchful as your boiling "sap" nears being syrup, as it is very easy to go too far and scorch your syrup.

CAUTION: Take care with heating devices and boiling liquids.

- Step 5. The students should be provided with an opportunity to repeat step 3 and make comparisons of observations.