

## Teacher Background Information

### Sugarbush Tales (SC070110)

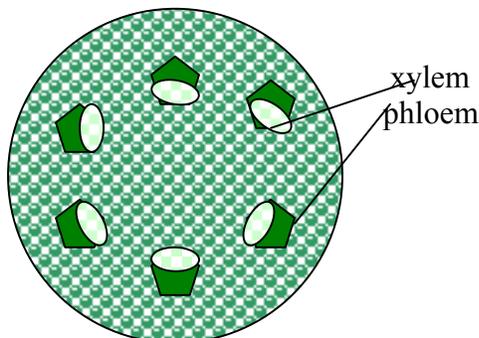
This lesson can be as simple or as elaborate as you choose. In areas where sugar maples grow, it is easy to tap the trees in late February or early March. (Check the web sources for a better estimate of the date for your area.) If a holiday is coming up, adding pancakes to the syrup-making experience can create a celebration.



Sugar Maple (*Acer saccharum*)

Directions for tapping: If you choose to tap your own sugar maple, you will need a drill, brace and 7/16ths inch bit. You will also need a tap, a bucket with a lid, and a rubber tube. Make a hole about 2" deep, 3 feet up from the ground. Pound the tap into the tree. Hang a new, 5 gallon bucket with a lid (to keep out insects) and connect the tap to a tube through the lid. You can also use gallon milk jugs, but watch that they don't overflow. Refrigerate the sap until you are ready to boil it. Plug the hole with tree wax to protect it for another year. The sap must be boiled down to about 1/40 of its original volume to become thick syrup; but commercial syrup is often much thinner than this. The suggested dilution of the simulated sap in the lesson of 20:1 is more concentrated than what would come from most trees, but is sweet enough for students to taste and identify. Very thick syrup can be poured on snow to make a chewy maple candy. Make sure you stopper the tap holes with tree wax to protect the tree from insects and blight.

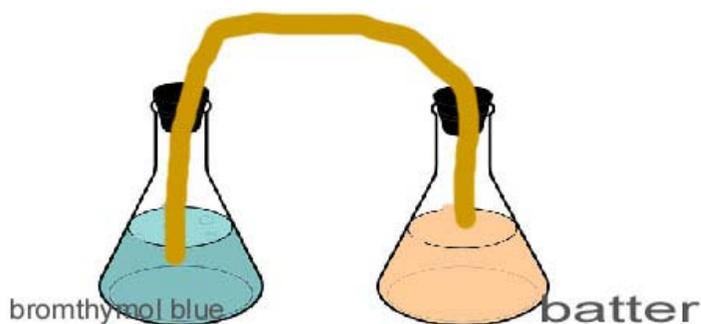
Xylem is the water-bearing tissue in a root, stem or leaf. Phloem carries food down the tree to the roots. This diagram may help:



Safety Precautions: NEVER eat in a lab that you don't KNOW is clean. If chemicals or dissections/animal experiments are in a lab, use the home economics room or cafeteria for culinary adventures.

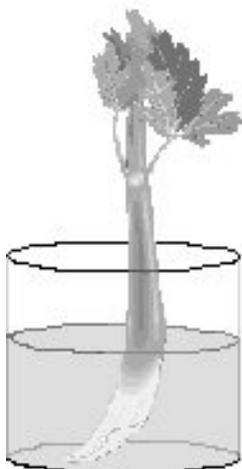
**An extension/review:**

If you plan to use your maple syrup on pancakes, you can take the opportunity to review with students what they have learned in the second lesson in this unit on carbon dioxide. Put a little baking powder or yeast batter in an Erlenmeyer flask and allow the gas generated to flow into bromthymol blue. Allow the experiment to "proceed" while you are making your pancakes or biscuits. Then ask students to explain their observations (reviewing carbon dioxide, respiration, and indicators.)



**A Useful Demonstration:**

Many teachers have found this demonstration useful to help students remember the tubes in plants:



Put a stalk of celery in food coloring and water and leave it on the display counter for several days. The tubes will carry the food coloring to the leaves. When the stem is cut, the tubes will also be brightly colored.