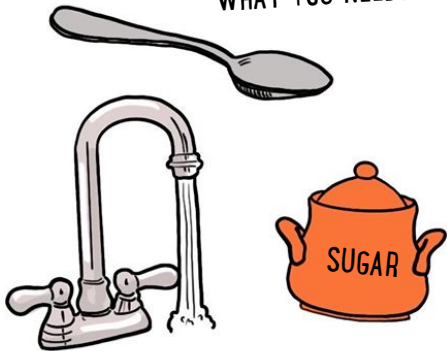


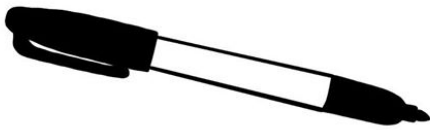
# THE SCIENCE OF SAP

Why do trees produce more sugar during the cold months?

## WHAT YOU NEED:



two plastic cups, permanent marker, water, sugar, spoon



1

Half fill each cup with water. Add two heaping spoonfuls of sugar to one cup. Stir until dissolved. Mark the cup with the sugar with an "S".

2

Place both cups in the freezer. After two hours, compare the contents of the two cups. One will be frozen, and the other will take longer to freeze!

Sap is a watery liquid that carries nutrients from the roots of trees to its leaves. This occurs from early spring until late fall. However, only the sap from spring is sweet enough to make into syrup! When cold weather is approaching in the late fall, the tree makes more sugar than usual. The sugar mixes with the watery sap and helps to prevent the tree from freezing solid during the winter. In early spring, when temperatures are not as cold, the sap thaws by day and freezes at night. The freezing and thawing starts the sap flowing. This sap stays sweet until the nights are warm and the tree no longer needs its special antifreeze sap!

Question to ask: How do trees survive during the cold months?

Question to ask: Why do you think some trees produce more sugar than others?

Make a hypothesis!

**WHAT DO YOU THINK WILL HAPPEN TO THE LIQUID IN THE TWO CUPS ONCE IN THE FREEZER?**

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