

**Maple Sugarbush
Activity Packet**

**outdoor
program**

UMD MAPLE SUGARBUSH PROGRAM

Native American Traditions: General Information

The Ojibwe people occupied the land that is now northern Minnesota many years before white settlers arrived. The Ojibwe lived nomadically, carrying their homes, belongings and food from place to place.

Winter was the time they traveled on snowshoes and lived in tipi shaped nushwauooguns insulated with brush and snow on the outside and lined with birchbark and cattails on the inside. The men hunted moose, deer and small mammals while the women and children would sew, cook, gather wild foods and tend the fire. Most of their food was dried meat, grains, fruit and sugar harvested during previous seasons. The long winter evenings were spent around the fire doing chores and listening to elders tell stories about plant and animal origins as well as guidelines as to how one should live each day.

In **spring**, the extended families would move to the sugarbush, or sisibakwatokan, and lived in dome shaped dwellings called waugunooguns. Saplings were cut, bent and tied to form the structure. Birchbark sheets were tied to the saplings as a covering. In the sugarbush, the men would make two hatchet marks in each tree and insert a hand carved wooden trough or wood chip to direct the sap flow into a small, seamless, birchbark pan. The sap was allowed to freeze over for several nights and ice was removed each morning. This process would remove much of the sap's water, but leave most of the sugar. Women and children would collect the sap and transfer it into larger bark containers. Heated stones were added to make the sap boil until most of the water had evaporated and a thick, sugary syrup remained. The syrup was poured into wooden molds and allowed to harden. Many times, the Ojibwe women would allow the sap to boil even longer. They would stir the cooling liquid slowly with a wooden paddle until it formed a granulated sugar similar to coarse, brown sugar. Molded or granulated maple sugar was easy to transport. Some sugar was eaten immediately, but most was saved for summer, autumn and winter use.

During **summer**, families moved closer to lakes, lived in waugunooguns and traveled by canoe. Berries and other edible plants were collected by the women and children. Men fished, hunted and protected the community from enemies.

As **autumn** arrived, the Ojibwe made camp near the wild rice beds to collect, process and store rice for winter consumption. Meat, fish and berries were dried and clothing was mended for the coming cold season.

Before the arrival of white settlers, the Ojibwe people found raw materials for all their food, clothing, shelter and household objects in the natural environment. To obtain these materials, they moved seasonally, harvesting and gathering wherever they went.

Ojibwe people today have inherited these and other rich cultural traditions. Hunting, harvesting wild rice, producing maple sugar and fishing are still important activities that help preserve their culture.

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Native American Traditions: Activities

ACTIVITY 1: SIGNS OF SPRING (Elementary)

OBJECTIVE: The student will observe and record natural changes that signal the transition from winter to spring.

MATERIALS: Binoculars, thermometers, magnifying glasses, snow shovels (if needed), clipboards, compasses, rulers.

PROCEDURE: Divide class into partners or groups of three. Go outside and ask each group to look for signs of spring. Write down phrases that describe what they find. Let students know that they can use any or all of the equipment provided: 1. Thermometers for measuring air and snow temperatures; 2. Magnifying glasses for inspecting tree buds, seedlings, snow crystals, etc.; 3. Binoculars for looking at clouds, birds; 4. Compasses for measuring wind direction; 5. Rulers to measure plant growth, snow depth. Back in the classroom review and list what the students have found. Use this activity to lead into Ojibwe Cultural History.

ACTIVITY 2: OJIBWE CULTURAL HISTORY (Elementary)

OBJECTIVE: In groups of four, students will consider a particular part of the Ojibwe culture and then make a presentation to the rest of class.

PROCEDURE: After writing the signs of spring list, discuss ways people change with the seasons (e.g. clothing, attitudes, food preferences, tires, screens, lawn care, recreation). Focus on food. Leading questions could include:

1. What foods are more available in the summer? Why?
2. If you were living 200 years ago, what would you have eaten in the summer? The winter?
3. How would people have stored food 200 years ago?

Introduce the Ojibwe seasonal lifestyle. What is harvested during the spring? Write the word "sisibaskwat" on the board and explain to the class that they will soon visit a sisibakwatokan. Ask the class to define these words if they can.

To understand any culture, a student should ask questions about how people live. Ask students to either brainstorm questions or write individual questions of interest to them concerning Ojibwe culture. Divide the class into groups of four to discuss these questions and then present their conclusions to the class. Give students the following presentation topics:

1. dramatic presentation
2. build a model
3. speech
4. mural painting
5. bulletin board
6. any other method approved by the teacher

ACTIVITY 3: MAKING MAKUKS (Preschool and Elementary)

OBJECTIVE: The students will create a paper container modeled after the traditional Ojibwe birch bark containers and learn the use of the makuk in the sugarbush.

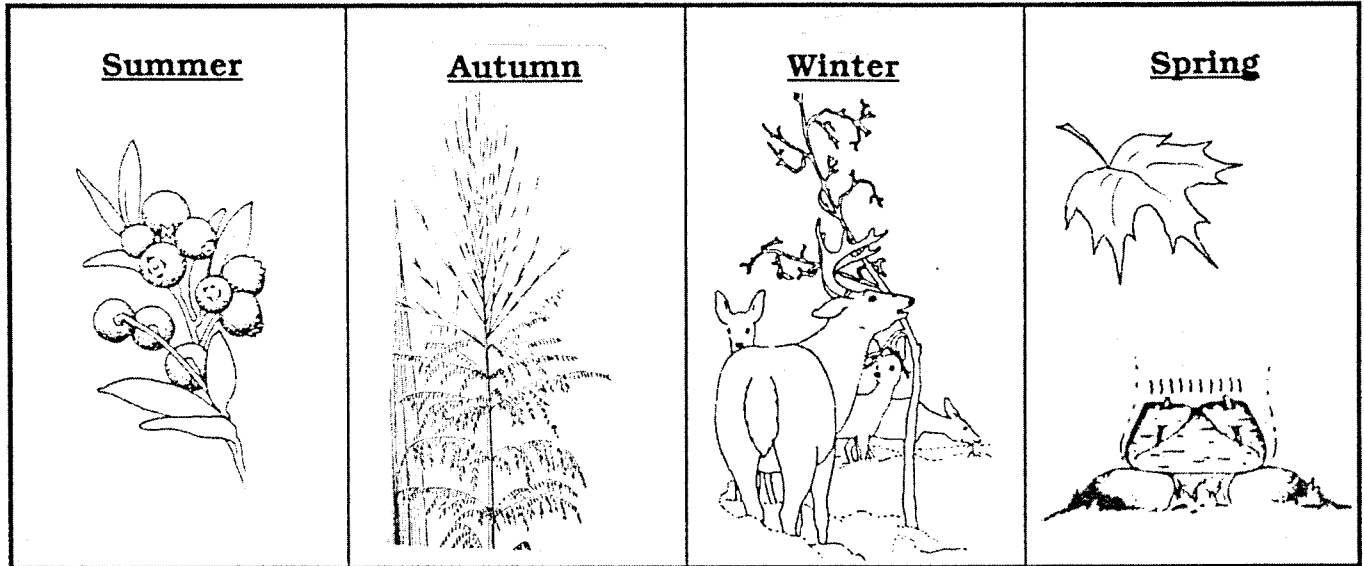
MATERIALS: birch bark makuk picture (in packet), construction paper, scissors, tape, paint, makuk pattern (in packet).

PROCEDURE: Pass around the picture of the makuk (or a real makuk if available), and ask the students to brainstorm how it could be used. Explain how Ojibwe people often used makuks in the sugarbush. Have children make their own paper makuks using the pattern.

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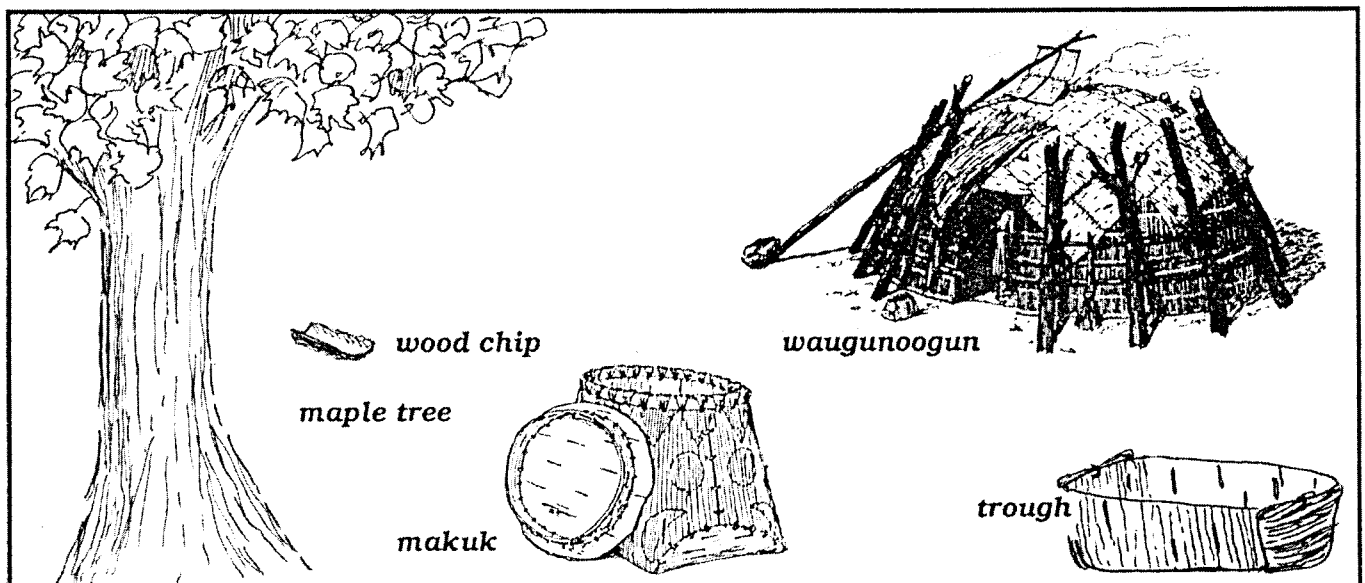
Native American Traditions: Bulletin Board Ideas

1. Ojibwe Seasonal Activities



Have students illustrate Ojibwe seasonal lifestyle activities to post on bulletin board.

2. Ojibwe Maple Sap Production



Paint, cut out or draw maple tree, wood chip, makuk, wagunoogun and trough and mount on board. Label and explain each to students.

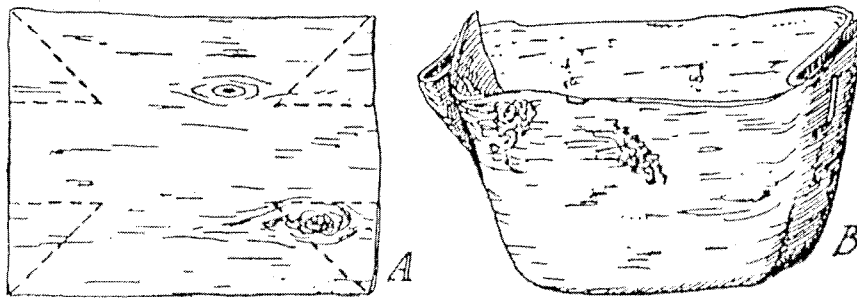
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Native American Traditions

Sugaring Containers

The seamless pan:

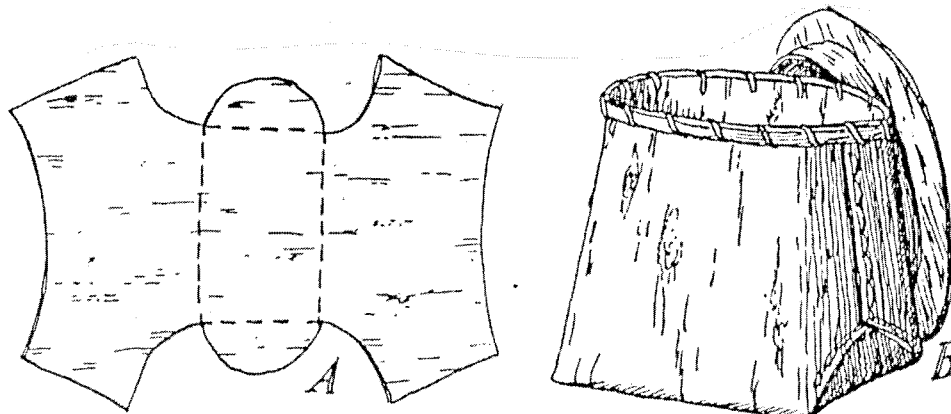
The simplest bark container probably is the seamless maple sap dish or pan used by such tribes as the Ojibwe or Menomini for gathering sap in the making of maple sugar. They were about 8 inches wide, 20 inches long and 8 inches deep, but of course, they could be made in any dimension as the need arose. Bark containers were used for cooking by the addition of hot stones dropped into the dish until the meal was cooked. It is said that as long as the flames of a fire do not reach above the liquid level inside the container, a meal can be cooked over the fire in a birch vessel.



Seamless pan a. pattern b. finished

The makuk

The Ojibwe makuk requires a little more complex pattern and usually was made with some care to last many seasons. A makuk can be described as a deep container with a square or rectangular bottom and inward sloping sides which form a circular or oval opening. It is usually reinforced around the rim and may or may not have a lid or handles. Makuks were made in various sizes from 4-10 inches at the top and larger at the bottom. They may have been as deep as a foot and weighed a pound apiece.

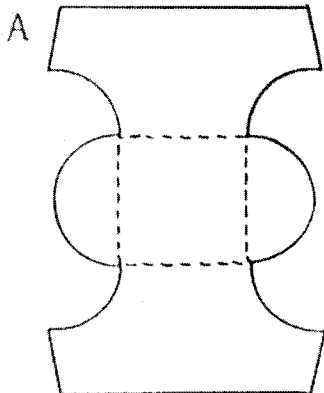
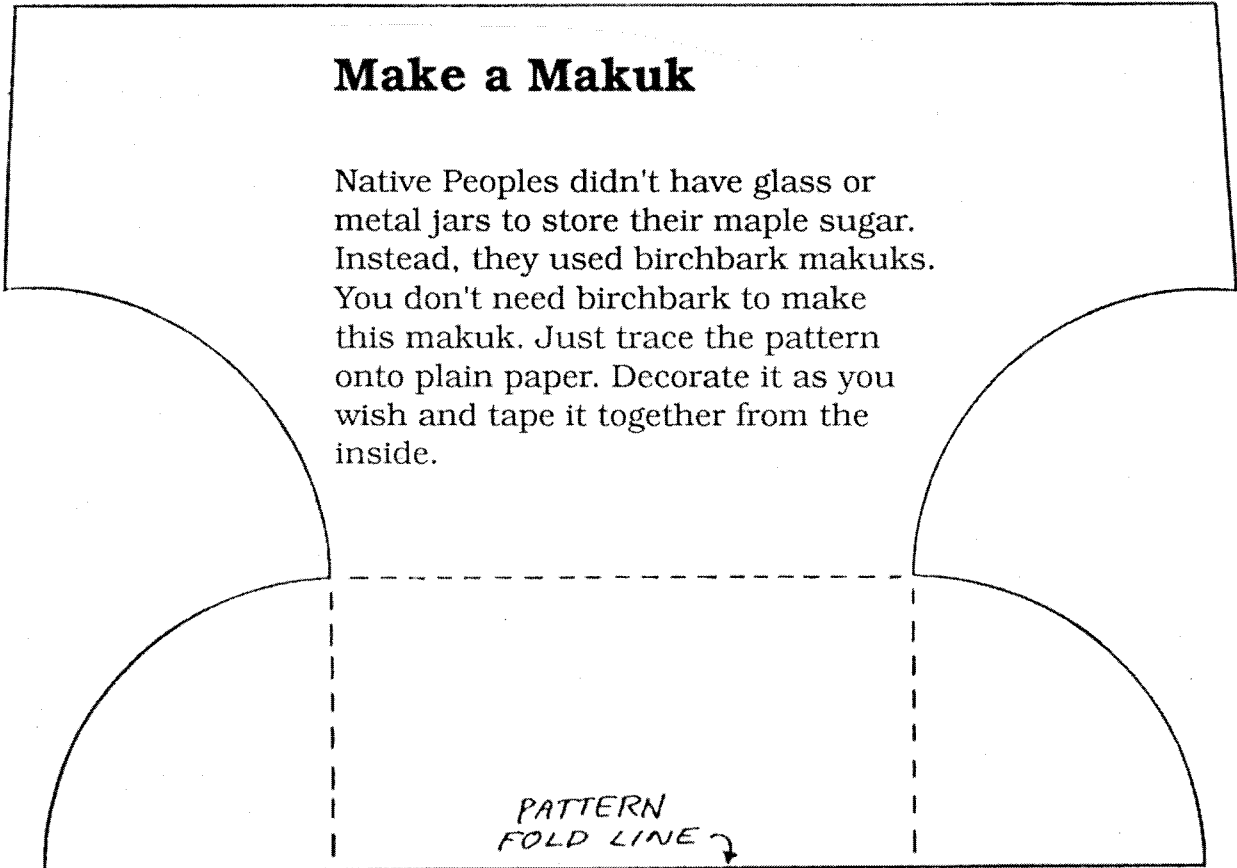


Makuk a. pattern b. finished, with lid

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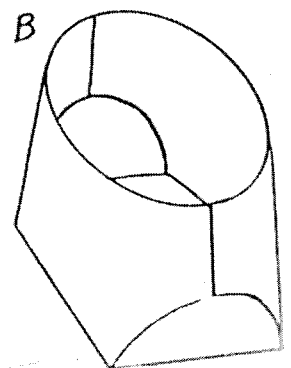
Make a Makuk

Native Peoples didn't have glass or metal jars to store their maple sugar. Instead, they used birchbark makuks. You don't need birchbark to make this makuk. Just trace the pattern onto plain paper. Decorate it as you wish and tape it together from the inside.



Instructions:

1. Fold a piece of tracing paper in half.
2. Place the folded edge of the tracing paper along the fold line of the pattern.
3. Trace the pattern and mark the dotted lines.
4. Cut out the pattern along the solid lines.
5. Open and place your pattern on a piece of heavy construction paper. Trace your pattern and then cut it to fit.
6. Fold your makuk pattern along dotted lines pictured in diagram A.
7. Tape the makuk from the inside so it looks like diagram B. Make your own decorations.



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Ojibwe Maple Sugarbush Vocabulary

Manakiki - maple forest

Auzibeewin - sap collection

Waugaekawaewin - tapping trees

Auzibee - He (she) collects

Neebin - summer

Kookibinaugun - basket

Waugunoogun - dome shaped lodge

Nusuhwauoogun - teepee

Beboon - winter

Menokimmih - spring, soft earth

Zeegwun - spring, it flows

Tugwaugih - autumn

Neenautikgook - hard maples

Sisibaskwat - maple tree

Sisibaskwatokan - maple sugarbush



From: Johnston, Basil. Ojibway
Language Lexicon. Royal Ontario
Museum. Toronto, Canada

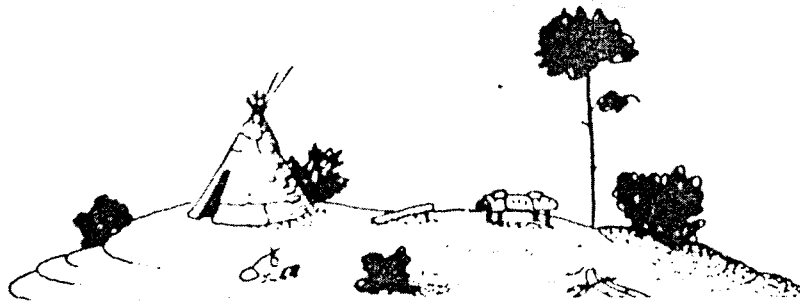
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Name _____

Ojibwe Sugaring Techniques

Directions: Imagine you are an Ojibwe person living in this area 200 years ago. It is spring and you are in the sugarbush collecting sap and making sugar. Place a number by each of the following activities in the order that you would do them.

- _____ Make hatchet marks in maple trees
- _____ Remove ice from sap in bark containers
- _____ Eat fresh maple sugar
- _____ Insert wood chips into hatchet marks in trees
- _____ Transfer sap from small to larger bark containers
- _____ Boil sap by using hot rocks
- 1 _____ Move to sugarbush
- _____ Set up camp
- _____ Store sugar in makuks for summer, fall and winter use



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Name _____

Ojibwe Sugaring Techniques

Answer Sheet

- | | |
|----------|---|
| <u>3</u> | Make hatchet marks in maple trees |
| <u>5</u> | Remove ice from sap in bark containers |
| <u>8</u> | Eat fresh maple sugar |
| <u>4</u> | Insert wood chips into hatchet marks in trees |
| <u>6</u> | Transfer sap from small to larger bark containers |
| <u>7</u> | Boil sap by using hot rocks |
| <u>1</u> | Move to sugarbush |
| <u>2</u> | Set up camp |
| <u>9</u> | Store sugar in makuks for summer, fall and winter use |

UMD MAPLE SUGARBUSH PROGRAM

Natural History: General Information

Sights, sounds and smells abound in the maple forest. Snow patches and old leaves crunch beneath your feet and exploring eyes meet various shades of brown, grey, dark green and yellow. Swollen buds brush against your jacket while crows caw overhead. Squirrels flick their tails and complain with loud trills as you stroll past. Everything you experience is part of the maple forest. Plants and animals here form a community in which all play vital roles, enabling the others to better survive. During your Sugarbush field trip you will learn about relationships among plants, animals and physical factors such as climate and soil. This will help you understand how the natural world functions all around us.

Where does food come from in the Sugarbush? Maple trees make all their own food and stored sap represents a tree's food reserve. In summer, the maple roots bring water and dissolved minerals to the leaves by way of a long tubing system called xylem. The leaves take in carbon dioxide from the air, then use the energy of sunlight to combine the water and carbon dioxide into sugar. This process of making sugar is called photosynthesis. The sugar is moved around the tree and is either used for growth and defense or it is stored.

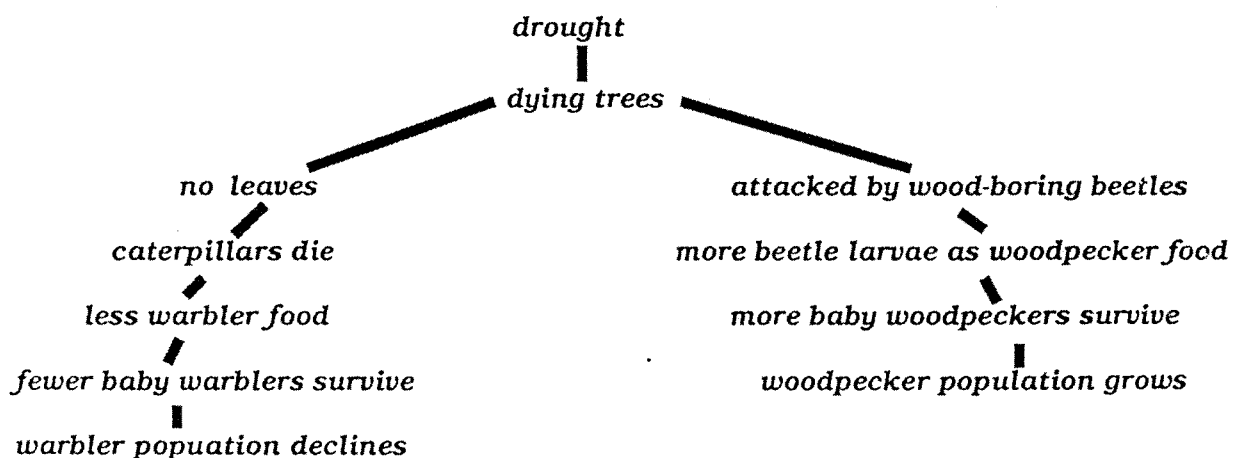
Temperature changes going above and below freezing cause the stored sap to begin flowing and drilled tapholes funnel the sap into collecting buckets. Then we boil it until the sap turns into a thick, sweet syrup. For centuries people have tapped maples each spring to gather sap and make maple syrup.

In addition to humans, many other animals benefit from maple trees. Birds and squirrels use branches as nest supports. Caterpillars and other insects eat the leaves. Moths and mice drink sap oozing from fresh wounds. Rabbits, hares and deer browse twigs and winter buds.

Many other plant species live alongside or under the maple trees and provide food for animals. Deer munch dogwood twigs and beaver chew aspen bark. Chickadees consume birch seeds and hunt for insects in bark crevices. Plants also provide animals with shelter from weather and predators. Woodpeckers, mice and flying squirrels will make or find tree cavities for protection.

These relationships are one-sided, with only the animals benefitting. Often, however, animal activities also help the plants. Insects pollinate flowers so seeds can be made. Squirrels and birds hide or drop seeds that grow into new plants. Nuthatches eat wood-damaging beetles. Earthworms aerate the soil, allow rain to soak in and help release nutrients for plant use. These interactions that benefit both organisms are called symbiotic, which means living together.

Physical factors such as weather also affect this plant-animal community and help direct their interactions. For example, a summer drought this year might kill several trees next year, and the caterpillars on those trees would die from lack of leaves to eat. In turn, warblers would have less food and raise fewer young, so the warbler population would decline the following year. However, the population of wood-boring beetles might increase in the dead trees, raising the food supply for woodpeckers and their chicks. Everything that happens in the maple forest community affects other parts of the community.



Only a few of the community relationships have been mentioned here. Your trip to the Sugarbush will explore the maple forest as a changing and complex natural system.

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Natural History: Activities

ACTIVITY 1: THE HUMAN COMMUNITY (Elementary)

OBJECTIVE: The student will be able to describe or act out the interdependence of various people in their community.

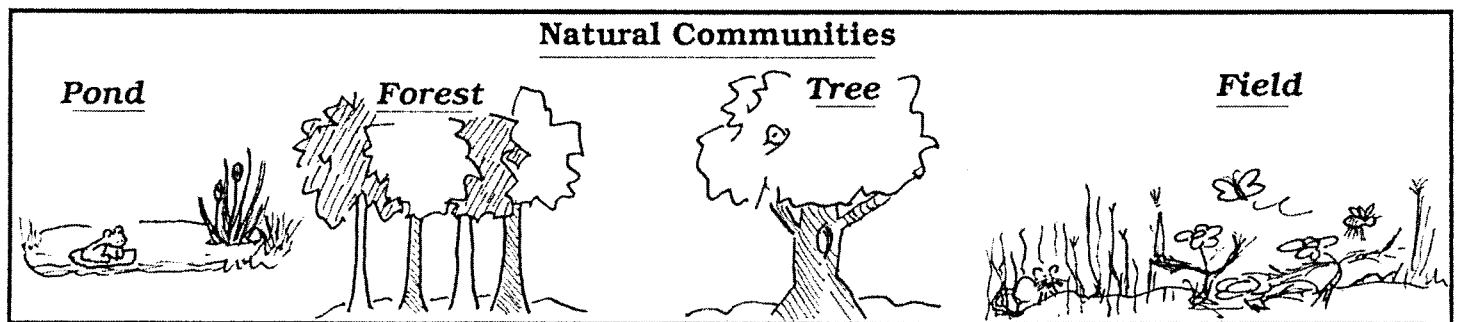
PROCEDURE: Have students brainstorm to identify various jobs people hold in the community. Make a list on the board or hold up pictures suggesting various jobs. Ask students to relate two of the jobs that support one another. For example, a hairdresser might style the accountant's hair. Go through several examples and then divide the students into pairs. Ask each pair to choose two jobs from the brainstorming list. Have them act out or describe the interdependence of their two jobs for the rest of the class.

ACTIVITY 2: MINI-COMMUNITY MURAL (Elementary and Preschool)

OBJECTIVE: Students will identify several natural habitats and create a mural depicting the plant and animal communities that live in each.

MATERIALS: paints, mural paper, large markers

PROCEDURE: Explain that plants and animals interact to form natural communities. Ask students to think of various natural habitats (e.g. pond, tree, field). On mural paper, write several headings of habitats and allow children to paint or draw the plants and animals that live there.



ACTIVITY 3: HOW ARE WE RELATED? (Elementary and Preschool)

OBJECTIVE: The students will describe or write how plants and animals in the maple forest are related.

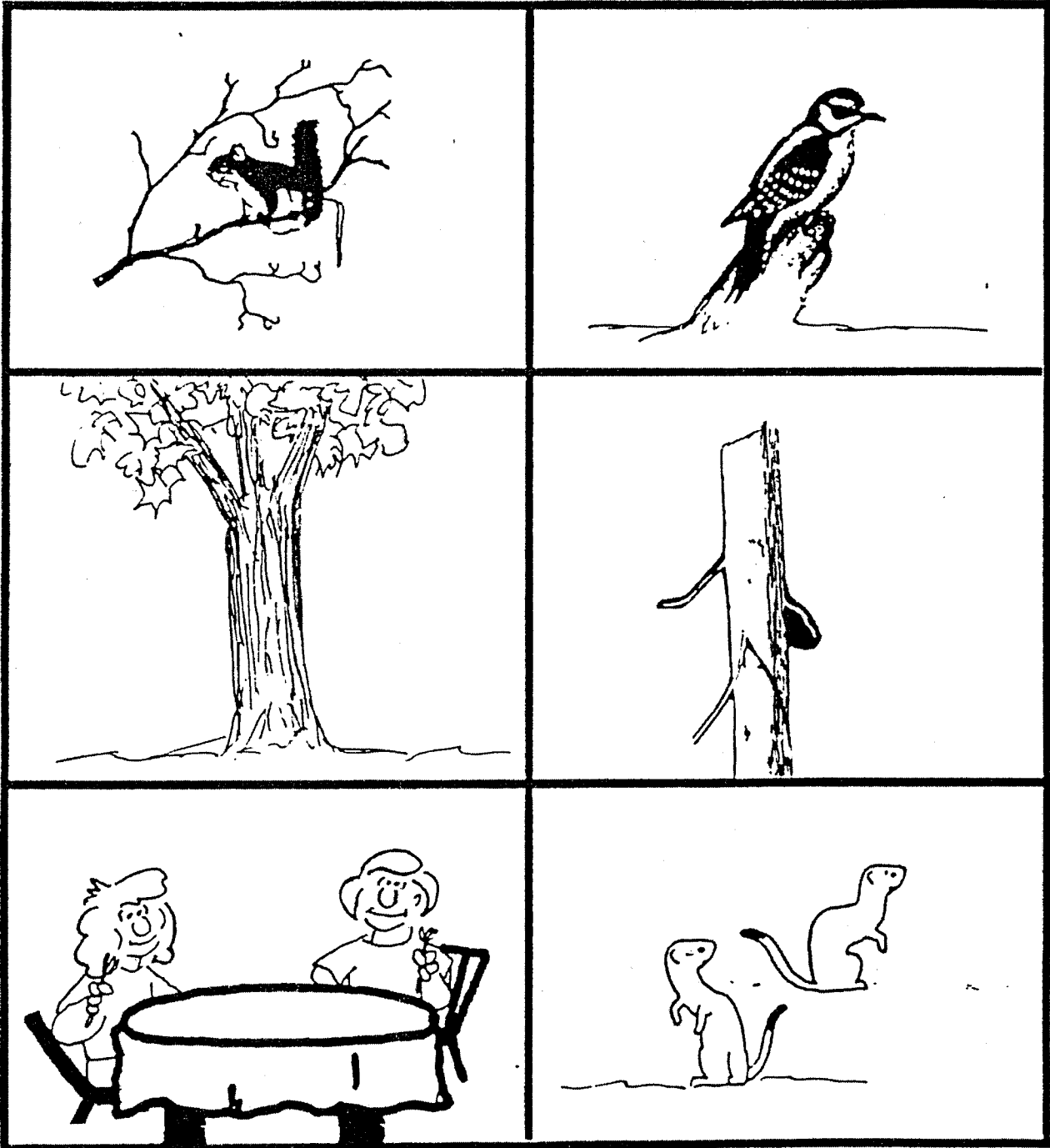
MATERIALS: picture cards (in packet)

PROCEDURE: Divide the class into groups and give each an envelope with animal and plant pictures. The group will discuss how each picture is related to one or all the other pictures. Then the group will write or tell a story using all the pictures, and share that story with the rest of class.

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Natural History

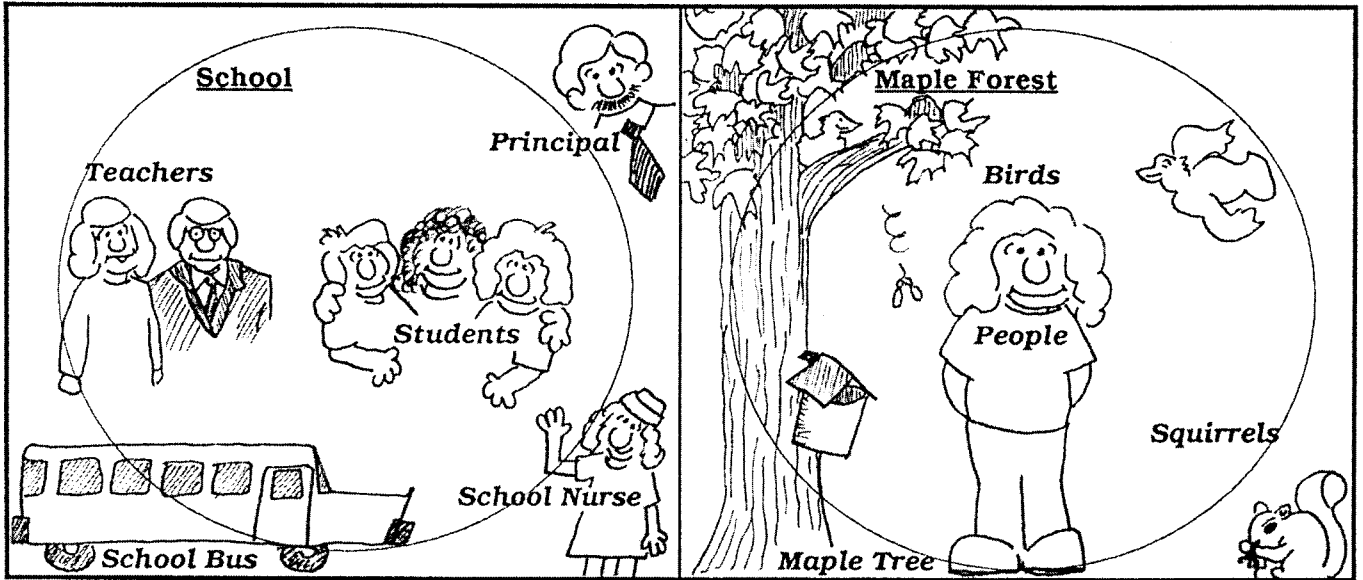
Animal and Plant Pictures



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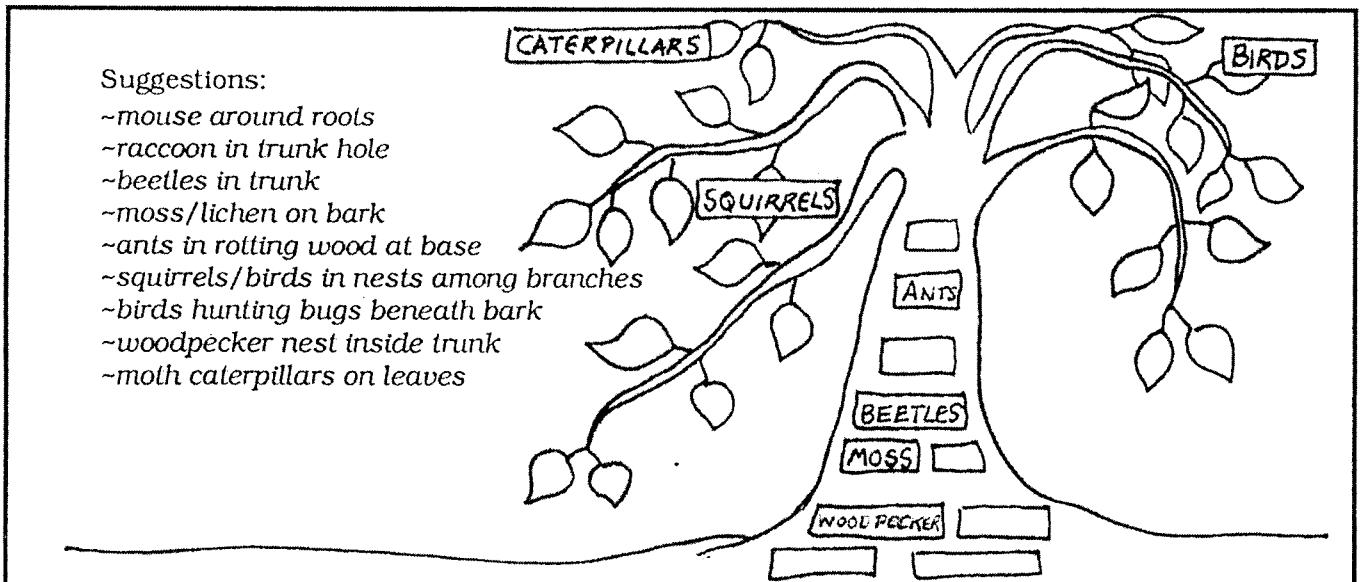
Natural History: Bulletin Board Ideas

1. Community Connections



List all the members of the school and maple communities. Have students draw pictures of each member to post on board. Discuss connections/dependencies of members of communities and draw connecting arrows.

2. Who Lives in a Tree?



Label roots, trunk, bark, branches and leaves with student ideas about what lives in each place. Post on board.

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Name: _____

A Member of the Community

You are a member of your school community. What if you were an animal in the Maple Forest? Where would you live?

What would you eat?

What other animals would help or harm you?

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Worksheet 1

Name _____

Time Machine

If you could travel in a time machine
and live 200 years ago with the Ojibwe people,
what would be your favorite seasonal activity? Why?





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Native American Traditions

Name _____

There are 15 hidden words in the puzzle below.

All of them have something to do with maple syrup. Can you find them? Be sure to look in every direction, even backwards and bottom to top! Circle each one you can find.

evaporate
pancakes
maple
March
wood
sugar
tap
tree
roots
boil
syrup
bush
sweet
sap
makuk

M A P L E Q R B D X P
A N A F V P X S W O R
R O N S A Q D O O D S
C P C Q P B M J M E U
H Y A B O I L K B X G
S F K C R O O T S Q A
U N E S A P A Z Z J R
B S S G T B A H E U Z
K Y S W E E T N E Z E
Z R Y J T N S K R R Y
Y U R N U V W X T A P

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