

# Michigan's Trees

## AGRICULTURE IN THE MICHIGAN ECONOMY

Grades 4-6

### Objectives

- The students will understand the importance of forestry in Michigan economy.
- The students will develop an understanding of the steps in bringing a wood product to the consumer.
- The students will name the careers along the path.

**Michigan Content Standards: (Social Studies) I.1.1; I.2.2; II.2.2; II.3.1; II.3.3; II.3.4; IV.2.3**

### Materials

- Forest to Home Flow Chart

### Activities

1. Discuss the scarcity of trees. According to the World Book Encyclopedia, each person in the U.S. uses enough forestry products each year to create a tree 100 feet high and sixteen inches in diameter.
2. Discuss trees as a renewable resource.
3. Have the students read and discuss Worksheet 2.1 and respond to the following:
  - a. What is Michigan's leading forest product?
  - b. Which has more forest timberland - the Upper or Lower Peninsula?
  - c. Name five careers related to forestry.
  - d. List ten items in your classroom made from wood.
4. Have the students complete the Forest to Home Flow Chart naming the step, the career and pasting the corresponding picture, in the box.

## **WORKSHEET 2.1**

### ***Valuable Production***

Michigan produces a vast array of forest products, from paper to Christmas trees, industrial production of sawlogs, pulpwood, veneer logs, poles, posts, fuel wood and miscellaneous timber products totaling 284 million cubic feet in 1984 - an increase of 31% since 1977. Of the 61% of Michigan timber used to produce pulpwood, just over half was aspen. Michigan is the leading state in Christmas tree production, producing 5.2 million trees in 1989 at a value of \$50.7 million.

### ***Growing Industry***

Michigan's forest products industry is growing: An estimated 2,778 firms are involved in forest products harvesting, transporting, brokerage, or manufacturing. Manufacturing accounts for 1,799 of these firms. Timber production is concentrated in the northern two regions of the state and more than half of the producers are located in the Upper Peninsula. On the other hand, almost three-quarters of the secondary manufacturers are located in the southern Lower Peninsula.

### ***Stable Land Base***

Half of Michigan is forested. Of this 18.2 million acres, 17.3 million acres support commercial timber growth, a timberland base that has been fairly stable since 1980. The Upper Peninsula is 84 percent forested and contains 48 percent of the state's timberland. The northern Lower Peninsula and the southern Lower Peninsula contain 38 and 14 percent respectively of the state's timberland.

Private ownership accounts for 64 % of Michigan's timberland. Industrial owners have 20 percent of the total; farmers, 18 percent; other private forest owners, 26 percent. Michigan also administers the largest State Forest system in the nation, comprising 21 percent of the state's timberland.

### ***Economic Impact***

Lumber and wood products, wood furniture and pulp products contributed nearly \$2 billion to Michigan's economy in 1980. Pulp and paper contribute more than half of this total. In the same year, these industries, including forest management and logging, provided direct employment of some 63,000 persons. These jobs generated roughly 76,400 additional jobs outside the forest products industry.

### ***New Investment***

Since 1981, new and established forest products industries have invested more than \$41.3 billion in plant construction and expansion in Michigan, including 6 pulp or paper facilities, 4 composite wood producing facilities, 35 secondary or integrated manufacturing plants and at least 6 wood energy facilities. This investment also represents more than 3,700 jobs directly related to the operations of the industry.

### ***Update***

As 1990 approaches, Michigan's forest economy is growing and its forests are showing increased productivity. Since the forest economy was assessed in 1980 by the Michigan State University Department of Forestry, both biological and economic changes have occurred in this important sector, as indicated by new estimates of timber volumes, growth and removals provided by the U.S. Forest Service. New industry was located here and existing industries have expanded, in part through the efforts of the Governor's Forest Products Industry Development Council; the Michigan Department of Natural Resources, Forest Management Division; the Michigan Department of Commerce. Below is a summary of the status of the forest economy; the facts are substantiated by the tables which follow.

### ***Increasing Resource***

Michigan's forests hold an extremely productive timber resource. The current estimate for standing timber is 20.6 billion cubic feet of growing stock, an increase over both 1966 and 1980 measurements. The majority of growing stock is hardwoods (74%). Net timber growth (annual growth minus losses from insects, disease, fire, and other causes) is estimated at 753 million cubic feet per year. Cubic-foot growth was almost twice timber removals in 1986.

## **MICHIGAN FOREST ECONOMY The Facts**

### **Timberland by Region in Thousands of Acres 1987 & 1980**

	<b>1987</b>	<b>1980</b>
Upper Peninsula	8,258	8,289
Northern Lower Peninsula	6,653	6,702
Souther Lower Peninsula	2,430	2,477
<b>Total</b>	<b>17,342</b>	<b>17,468</b>

### **Percentage of Timberland by Type of Ownership 1987 & 1980**

	<b>1987</b>	<b>1980</b>
Industry	20%	20%
Farm	18%	18%
Other private	26%	27%
State	21%	20%
Federal	14%	14%
Other public	1%	1%

### **Timber Growth and Removals in Millions of Cubic Feet 1986 & 1979**

	<b>1986</b>			<b>1979</b>		
	<u>Growth</u>	<u>Removals</u>	<u>Surplus</u>	<u>Growth</u>	<u>Removals</u>	<u>Surplus</u>
Hardwood	521	326	196	472	218	254
Softwood	232	72	160	206	56	149
All	753	398	355	678	275	403

### **Forest Production and Values, 1984**

	<b>Volume</b>	<b>Value</b>
Pulpwood	174 million cubic feet	\$89,956,000
Sawlogs	91 million cubic feet	\$87,378,000
Veneer logs	4 million cubic feet	\$12,236,000
Posts and Poles	3 million cubic feet	\$4,092,000
Other roundwood	12 million cubic feet	\$5,411,000
Mill residues	0.1 million tons	\$1,588,000
Domestic firewood	2 million cords	\$102,781,000
Christmas trees (1986)	5 million trees	\$50,700,000

### Forest Products Firms and Distribution by Region, 1986

	Upper Peninsula	Northern Lower Peninsula	Southern Lower Peninsula	State
Producers, truckers, brokers	506	379	94	979
Primary manufacturers	129	190	110	429
Secondary manufacturers	123	238	1,009	1,370
<b>Total</b>	<b>758</b>	<b>807</b>	<b>1,213</b>	<b>2,778</b>

### Employment and Value Added by Forest Products, 1980

	Direct Employment	Indirect & Induced Employment	Value Added (millions of dollars)
Forest management	3,500	NA	NA
Logging	2,290	2,739	NA
Lumber & wood products	16,400	16,285	\$ 403
Wood furniture	14,190	11,721	\$ 404
Pulp & paper	26,630	45,697	\$ 1,972

### State-Assisted Wood Processing Plant Investments, 1981-87

	Investment (millions of dollars)	Employment Created or Retained
Secondary manufacturing or integrated industry	\$76.2	1,836
Pulp and paper	\$991.8	1,300
Composite wood products	\$114.0	485
Wood energy production	\$97.0	121
<b>Total</b>	<b>\$1,279.0</b>	<b>3,742</b>

## FORESTRY IN MICHIGAN

Michigan is the leading state in Christmas tree production as well as other miscellaneous timber products. There are over 2,500 firms involved in harvesting, transporting, brokerage or manufacturing of these forest products. The Upper Peninsula is 84 percent forested and contains 48 percent of the state's timberland.

Pulp and paper products contribute nearly \$2 billion to Michigan's economy every year. Some of the careers created by these vast timberlands are for loggers, furniture manufacturers, pulp processors and paper manufacturers, forest fire fighters, insecticide specialist, land and water transporters, forest management personnel, tree biologists, etc.

Today, Michigan's forest economy is growing and showing increased productivity.

## FOREST TO HOME FLOW CHART

*Show picture of a tree*

**Step 1 - Tree in the Forest**

**Career:**

**Step 2 -**

**Career:**

**Step 3 -**

**Career:**

**Step 4 -**

**Career:**

**Step 5 -**

**Career:**

**Step 6 -**

**Career:**

**Step 7 -**

**Career:**