

"Soybeans Go To School"

updated January 2004



Help Soylock Holmes
get a clue about soybeans

Teaching Materials for Grade 4
Science and Social Studies

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Table of Contents

INTRODUCTION

- I. Michigan Soybean Promotion Committee's Commitment to Education - p. i
- II. Michigan's Benchmarks for Science and Social Studies - p. ii and iii
- III. Materials Needed - p. iv
- IV. Unit Vocabulary - p. v

Cluster 1 Why Soybeans? p. 1

Guiding Question: *How are plants used in our lives?*

- Lessons:
- 1. Those Oily Chips! p. 2
 - 2. Why Soybeans? p. 4

Cluster 2 From Tofu to Diesel: The Soybean Grows Up p. 9

Guiding Question: *How have soybeans been used by people in different lands?*

- Lessons:
- 1. Where has the Soybean Been? p. 10
 - 2. Contributions of Scientists Made Through Soybeans p. 15
 - 3. Foods of Different Cultures p. 20

Cluster 3 Racey Soys p. 22

Guiding Question: *How do soybeans grow?*

- Lessons:
- 1. Examining the Bean p. 23
 - 2. Germinating Soybean Seeds p. 26
 - 3. Racey (growing) Soys p. 28
 - 4. What Do Plants Need To Survive? p. 32
 - 5. Soybean Plant Parts p. 34

Cluster 4 Can the Golden Bean Be "Green"? p. 42

Guiding Question: *How are soybeans used to protect the environment?*

- Lessons:
- 1. Old Newspapers Get a Facelift p. 43
 - 2. Beans Give Gas: Soy Biodiesel Fuel p. 45
 - 3. Ink Is Ink Is Ink, Isn't It? p. 47
 - 4. Text Criticism: Crayons p. 49
 - 5. Text Criticism: Environ™ p. 50

Cluster 5 Henry Ford and His Magic Soybeans p. 52

Guiding Question: *What are the benefits of renewable resources?*

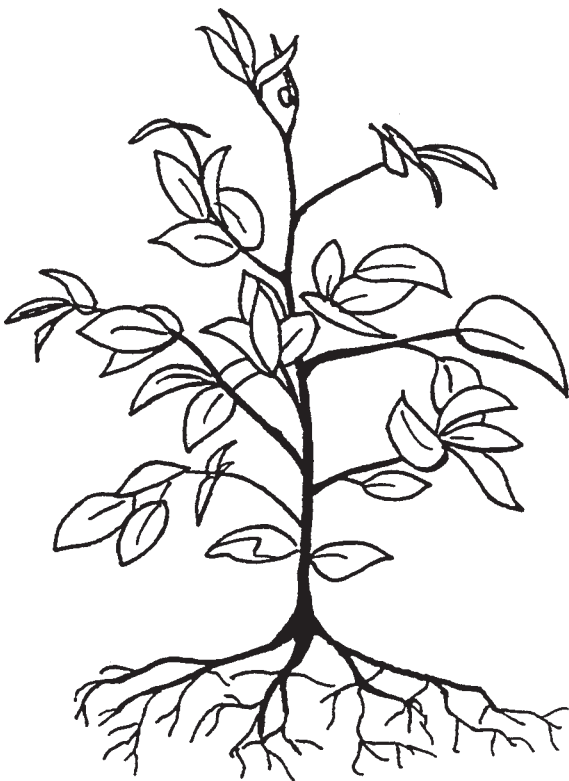
- Lessons:
- 1. Growing a Car p. 53
 - 2. Using Resources p.57

Michigan Soybean Promotion Committee's Commitment to Education

Teachers face pressures to include innovative materials and programs into their classrooms. It is difficult to know which materials directly help students learn the essential concepts needed for the future. Realizing this, the Michigan Soybean Promotion Committee has designed activities in this unit that align with Michigan Framework Benchmarks for science and social studies.

These lessons are designed to help students master essential science outcomes. Activities are specifically targeted at outcomes in the "Life and Earth Science" sections for both elementary and middle school core curriculum. All assessments model the format found on the Michigan Education Assessment Program (MEAP) test.

The Michigan Soybean Promotion Committee hopes that students and teachers gain a better understanding of their crop, soybeans. The committee believes that soybeans help connect agriculture, food and the environment to real-world science instruction. Further, the committee believes that soybeans can play a significant role in providing a renewable resource to help solve some of Michigan's environmental dilemmas. Although most people aren't often aware, soybeans are linked to everyday life; they are in the industrial products we use as well as the food we eat.



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Michigan Benchmarks for Science and Social Studies

Strand/Standard/Benchmark

Benchmark	Science Elementary (K-4)
I.1.E.1:	Generate reasonable questions about the world based on observation.
I.1.E.4:	Use simple measurement devices to make metric measurement.
I.1.E.4:	Develop strategies and skills for information gathering and problem solving.
I.1.E.6:	Construct charts and graphs and prepare summaries of observations.
II.1.E.4:	Develop an awareness of and sensitivity to the natural world.
II.1.E.3:	Describe how technology is used in everyday life.
II.1.E.5:	Develop an awareness of the contributions made to science by people of diverse backgrounds.
III.2.E.3:	Describe life cycles of organisms.
III.2.E.4:	Compare and contrast food, energy, and environmental needs of organisms.
III.2.E.5:	Explain functions of selected seed plant parts.
III.5.E.2:	Describe the basic requirements for all living things to maintain their existence.
III.5.E.3:	Design systems that encourage growing of particular plants or animals.
III.5.E.4:	Describe positive and negative effects of humans on the environment.
V.1.E.5:	Describe uses of materials taken from the earth.
V.1.E.6:	Demonstrate means to conserve natural resources and reduce pollution through reduction, reuse, and recycling of manufactured materials.
IV.1.E.1:	Classify common objects and substances according to observable attributes: color, size, shape, smell ...
	Science Middle School (5-7)
I.1.MS.1:	Generate scientific questions about the world, based on observation.
I.1.MS.3:	Use tools and equipment appropriate to scientific investigations.
II.2.MS.4:	Describe the benefits and risks of new technologies.
II.2.MS.6:	Recognize the contributions made in science by cultures and individuals of diverse backgrounds.
III.2.MS.2:	Describe the life cycle of a flowering plant.
III.5.MS.6:	Describe ways in which humans alter the environment.
III.5.MS.5:	Explain how humans use and benefit from plant and animal materials.
IV.2.MS.4:	Describe how waste products accumulating from natural and technological activity create pollution.

Michigan Benchmarks for Science and Social Studies Continued

Strand/Standard/Benchmarks

Benchmark	Science High School (8-12)
IV.1.HS.1:	Analyze properties of common household and agricultural materials in terms of risk/benefit balance.
	Social Studies Elementary (K-4)
I.1.LE.2:	Place major events in the development of the state of Michigan in chronological order.
I.2.LE.3:	Recount the lives and characters of a variety of individual from the past representing the state of Michigan.
I.2.LE.4:	Identify and explain how individuals in Michigan history demonstrated good character and personal virtue.
I.4.LE.2:	Select decisions made to solve past problems in Michigan and discuss the positive and/or negative effects on the people involved.
II.3.LE.3:	Explain how transportation and communication link people and communities in Michigan.
IV.2.LE.3:	Examine the historical and contemporary role a major industry has played in their community.
IV.5.LE.1:	Trace the national origin of common household items and the trade flow which brought them to the U.S.
	 <p>The logo for MI CLiMB (Michigan Climbing) features a square frame containing stylized figures of people climbing various structures like ladders and ropes. Below the frame, the text 'MI CLiMB' is written in a bold, sans-serif font.</p>

MATERIALS NEEDED

Cluster 1: Why Soybeans?

labels
packaged potato chips
soybeans
SoyNews
paper towels

Cluster 2: From Tofu to Diesel Fuel

yarn

Cluster 3: Racey Soys

hand magnifiers
peat pellets
soybeans
resealable bags
paper towels
cups
metric rulers

Cluster 4: Can the Golden Bean Be Green?

soybean crayons
Environ™ biocomposite
question cards
soy flour
soy biodiesel fuel
newspaper

Cluster 5: Henry Ford and His Magic Soybeans

SoyNews

Note to teacher:

The above materials are provided for you so you do not need to acquire them. To take full advantage of the entire curriculum, you will need to use some materials that are probably already in your classroom and, if you want to take the extra step, bring some materials from home also.

REMINDER: Save SoyNews and remaining soybeans for other lessons!

Vocabulary

air:	invisible mixture of gases surrounding the earth
chart:	an information sheet with tables
coat:	a natural covering of a plant or animal
dormant:	in a resting state
edible:	fit to be eaten
embryo:	the rudimentary plant contained in a seed
food:	an organic substance taken in by a plant or animal that allows it to grow
fruit:	the seed bearing part of any plant
fuel:	coal, oil, gas, wood, etc., burned to supply heat or power
graph:	a diagram representing value
germination:	to start developing, sprout, as from a seed
habitat:	region where a plant or animal usually lives
leaf:	any of the flat, thin parts, usually green, growing from the stem of a plant
minerals:	inorganic substance normally found in the earth
non-edible:	not fit to be eaten
parent:	a father or mother
root:	a part of a plant, usually under the ground, that anchors it and draws water, etc. from the soil
seed:	part of a plant containing the embryo from which a new plant can grow
space:	requirement of living things within a habitat
stem:	any plant part supporting leaves, flowers or fruit
sunlight:	light produced from the sun
water:	colorless liquid necessary for plants and animals to live
young:	being in an early part of life or growth