

The Seemingly Simple Soybean

Objective: The students will learn about the soybean and its importance to our daily lives.

Grade Level: 1-3 4-6

TEKS:

S- 1.6B; 2.6C; 3.10A
SS- 1.9; 2.10
M- 3.3A; 3.14A

S- 4.10A; 5.10A
SS- 4.12; 5.13
M- 4.1A; 4.4B; 5.3C; 5.13B, C

TAKS:

GRADE

OBJECTIVES

Reading 3, 4, 5, 6
Writing 4
Math 3, 4, 5, 6
Science 5

1, 3, 4
1, 2, 3, 4, 5, 6
1, 2, 5, 6
2

Assessment Summary:

Objective 1: Students will learn products of soybeans.

Objective 2: Students will learn where soybeans grow in the U.S. and Texas

Background "The Seemingly Simple Soybean" (included in lesson)

Information: "What exactly is a Soy Bean?" Pamphlet from American Soybean Association

"Soy Ink Makes it Easy Being Green" Pamphlet from
National Soy Ink Information Center
C/O Iowa Soybean Assoc.
1025 Ashworth Rd, No. 310
West Des Moines, IA 50265-3542

"Look Where Soybeans Go" Pamphlet from
Archer Daniels Midland Co.
Box 1470
Decatur, Illinois 62525

Websites for:

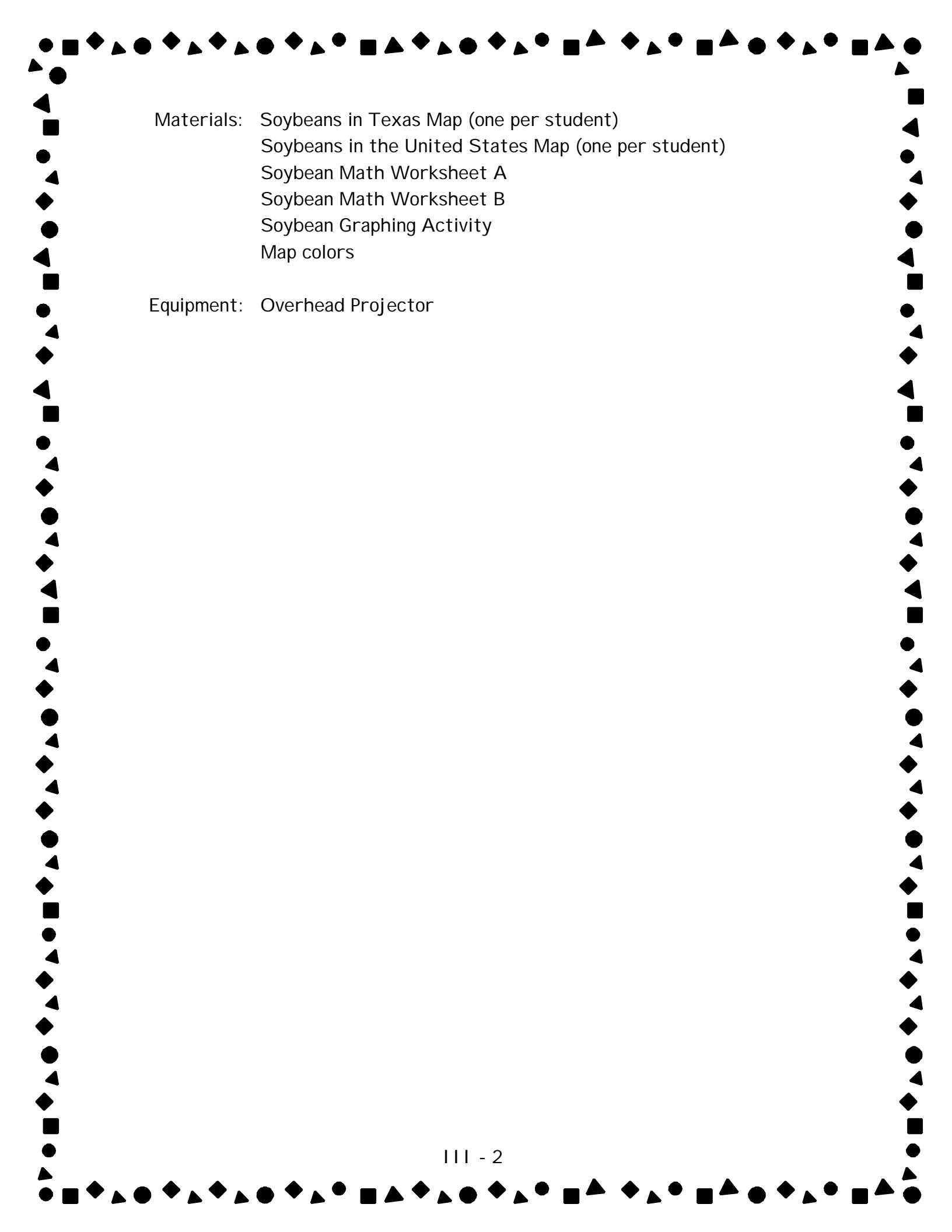
National Soy Ink Information Center - www.soyink.com

American Soybean Association - www.oilseeds.org/asa/

Soybeans(Michigan) -

www.mda.state.mi.us/kids/countyfair/crops/soy/

United Soybean Board - www.talksoy.com

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Materials: Soybeans in Texas Map (one per student)
Soybeans in the United States Map (one per student)
Soybean Math Worksheet A
Soybean Math Worksheet B
Soybean Graphing Activity
Map colors

Equipment: Overhead Projector

The Seemingly Simple Soybean

Procedure

1. Introduce new vocabulary:

Grades 1-3

pod

legume

Grades 4-6

2. Introduce soybeans by having products made with soybeans. Tell students that they will be learning about another crop grown in Texas – Soybeans. Ask how many students know what a soybean is.
3. Read the background information from The Seemingly Simple Soybean to your students. Or have students read individually.
4. Show students products that contain soybeans and instruct them on how to read ingredient labels
5. Have students make a list of products they have at their home that contain soybeans. Have them look for ingredients such as soybean oil, soy protein, lecithin, soy flour, soy isolates. Let students know that many non-food products contain soybeans. Compare and discuss their lists in class.
6. Assessment: Have students complete grade appropriate math, mapping and graphing activities.
7. Alternate Mapping Activity: Instead of using the U.S. and Texas Maps provided in the lesson, hang a large U.S. Map and large Texas Map on the wall. In cooperative groups have students locate states and counties in Texas that grow soybeans and mark them using push pins of the same color. Leave the maps up for use in following lessons. As each agricultural crop is studied, add different color push pins for each crop.

Extension

Have upper grade students conduct research on the history and development of the soybean using Internet and other resources, and write an informative composition on their findings.

The Seemingly Simple Soybean

A Bean Story

What grows in a pod and can be called the "super bean"?

A soybean! A soybean is a hard, dry bean that can be yellow, black or brown. Soybeans belong to the family of legumes - the same family as peas and lentils. Soybeans can be called the "super bean" because there are so many ways to use them.



Soy Food is Good Food

Soybeans can be made into lots of things! Have you ever tasted a soybean? Maybe you haven't tasted a whole soybean, but you have probably tasted many foods that have soy to make them high quality. Soybeans can be made into foods like soy sauce or soy milk. Soybeans also can be turned into ingredients used in noodles, breads, meat patties, peanut butter spreads, sports drinks and many other foods.

To find out if your favorite food has soybeans in it, just look on the label. You may see soy flour, soy protein, soy isolate or soy oil. All of these ingredients are made from soybeans!

Soy Nutrition

Soybeans and soyfoods are tasty and guess what? They are good for you, too. Soy has many vitamins and minerals and is high in protein and fiber. Foods made with soy can help you grow strong and give you lots of energy. Because soy has so much to offer, it is a good product to include in meals. In fact, your school lunch may have soy ingredients. You can find soy everywhere because soy can make foods better and make your lunch even more nutritious!



The Story of Soy

Soybeans have been a favorite food in many parts of the world for more than 5,000 years. In fact, the people living in ancient China were growing soybeans in the year 2800 B.C. Traders, missionaries and maybe even sailors helped bring soybeans to the rest of the



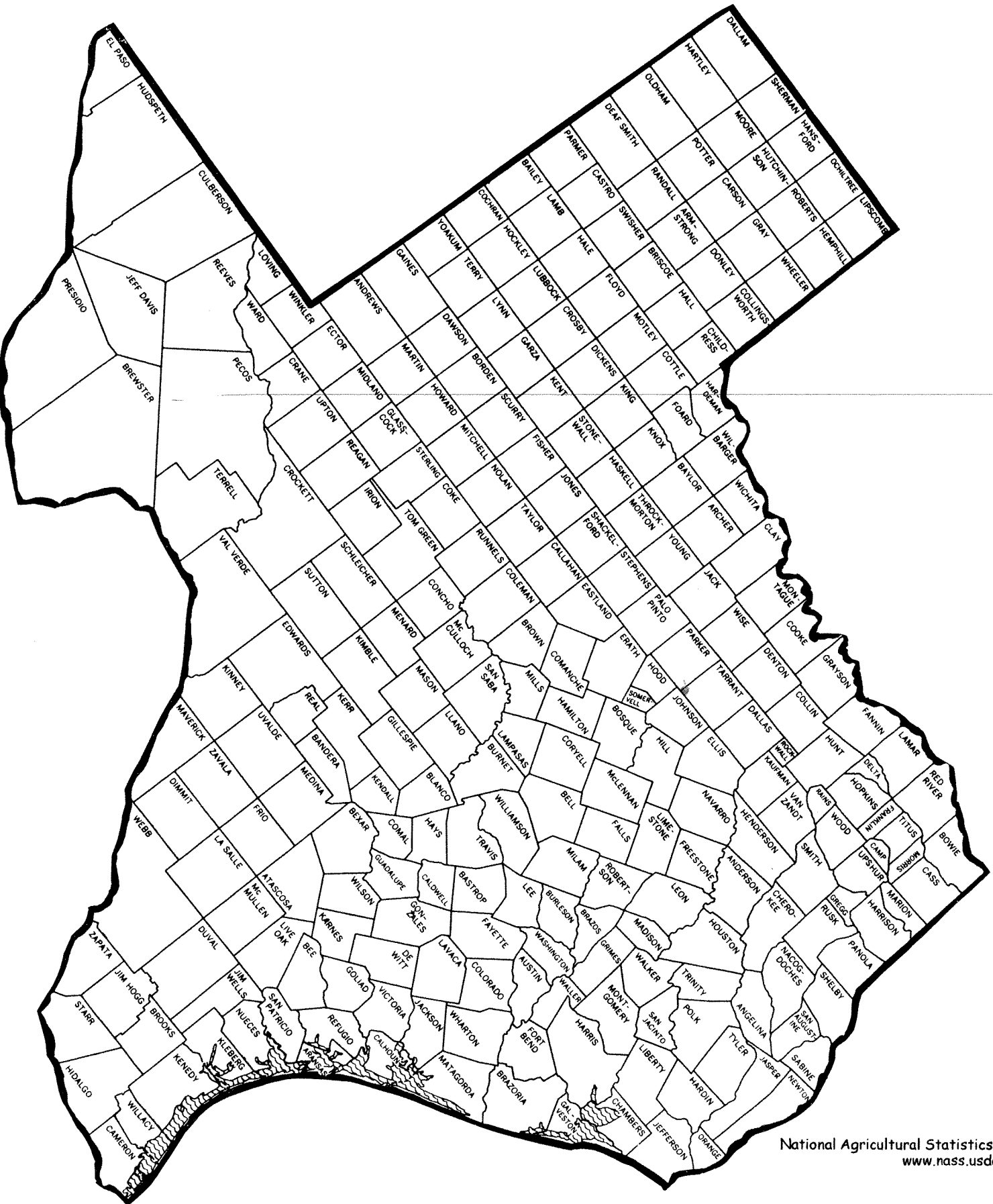
world. Farmers in the United States first grew soybeans in 1829. During the Civil War, soldiers used soybeans as "coffee berries" to brew coffee because real coffee was hard to find. More than 100 years later, U.S. farmers harvest more than 2 billion bushels of soybeans, making the U.S. soybean crop the largest in the world!

United Soybean Board

Photos Courtesy of American Soybean Association

Soybeans in Texas

Soybeans are grown in a number of counties in Texas. The top 10 soybean producing counties in 2004 were: Wharton, Lamar, Matagorda, Fannin, Bowie, Red River, Ochiltree, Victoria, Ellis and Delta. On the Texas map locate and color the top 10 soybean producing counties.



Soybeans in the U.S.

The United States is the world's largest producer of soybeans. The five states that grow the most soybeans are: Iowa, Illinois, Minnesota, Indiana and Nebraska. Texas also grows soybeans. On the map, find and color the top five soybean producing states, including Texas.



National Agricultural Statistics Service
www.nass.usda.gov/tx

1. It takes a farmer 2 hours to plant 15 acres of soybeans. How many acres could he plant in 4 hours?

2. A farmer made \$2,750.00 last year from his soybean crop. This year he made \$1,500.00. How much more profit did the farmer have last year?

3. A farmer grows 189 bushels of soybeans in his field, then pests destroy 62 bushels of soybeans before the farmer harvests the crop. How many bushels does the farmer have left?

4. A farmer plants 54 acres of soybeans on Monday, 26 acres on Tuesday (because the tractor broke down), and 49 acres on Wednesday. How many acres of soybeans will the farmer have planted by Wednesday evening?

5. A farmer has 287 acres of farmland to plant soybeans. A highway is built through his farm and takes up 25 acres of land. How much land does the farmer have left to plant soybeans?

6. Each bushel of soybeans yields 11 pounds of oil. How many pounds of oil can you get from 4 bushels of soybeans?

Name _____

Simple Soybean Math

Worksheet B

1. Finish this chart by figuring out how many bushels of soybeans were harvested from each acre. (Hint: Divide the number of bushels harvested by the number of acres harvested.)

| Year | Acres Harvested | Bushels Harvested | Bushels Per Acre |
|------|-----------------|-------------------|------------------|
| 1960 | 78 thousand | 2.2 million | |
| 1970 | 158 thousand | 4.4 million | |
| 1980 | 630 thousand | 13.9 million | |
| 1990 | 200 thousand | 5 million | |
| 1997 | 400 thousand | 11.2 million | |

2. Use the information above to make bar graphs on the next page. Use map colors or crayons to make your bar graphs.

3. In what year were the most acres of soybeans harvested? _____

4. In what year were the least acres of soybeans harvested? _____

5. In what year were the most bushels of soybeans harvested? _____

6. In what year were the least bushels of soybeans harvested? _____

7. In what year did farmers produce the most bushels per acre? _____

8. In what year did farmers produce the least bushels per acre? _____

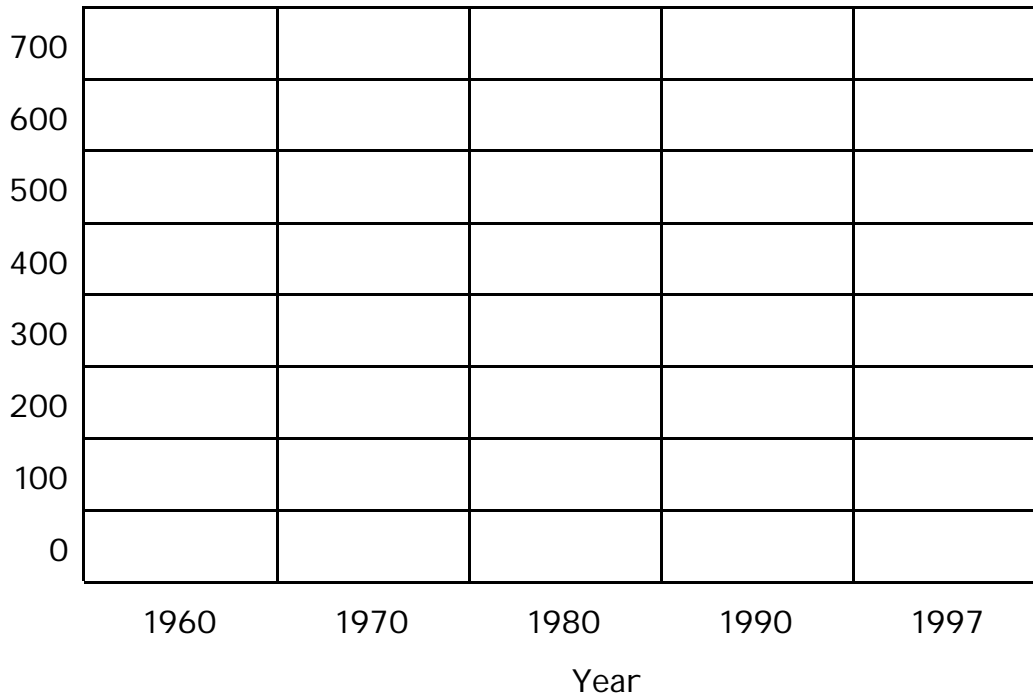
Name _____

Simple Soybean Graphing Activity

Using the information from Simple Soybean Math to complete the following graphs.

Acres of Soybeans Harvested

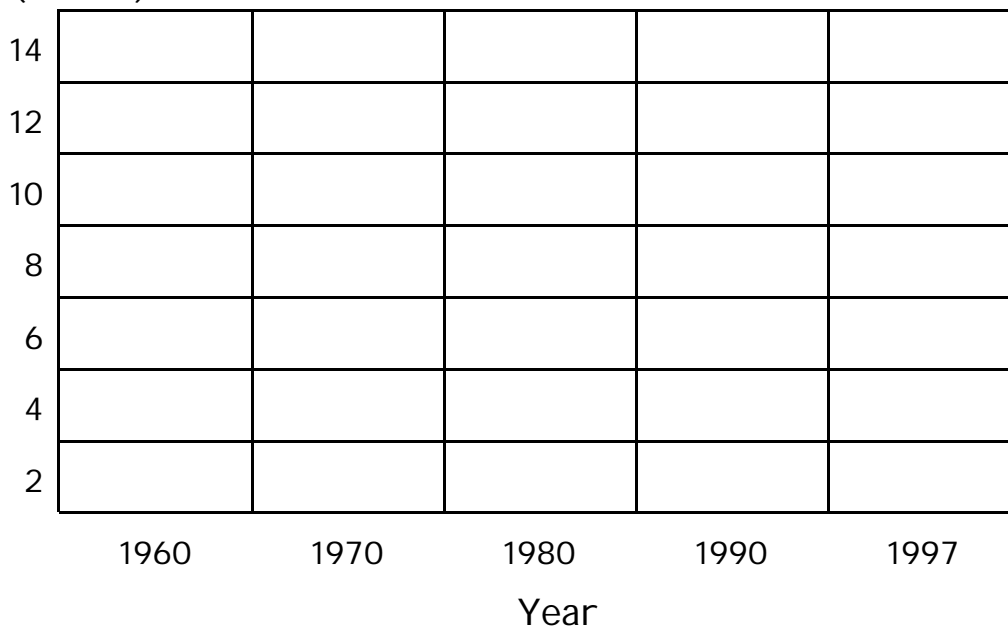
Acres (thousands)



When soybeans are harvested they are measured in bushels. One bushel of soybeans weighs 60 pounds. For extra credit calculate how many pounds of soybeans were harvested each year.

Bushels of Soybeans Harvested

Bushels (millions)



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ANSWER KEY

Soybean Math

Worksheet A

1. 30 acres
2. \$1,250.00
3. 127 bushels
4. 129 acres
5. 262 acres
6. 44 pounds

Soybean Math

Worksheet B

1. *Bushels Per Acre*

1960 - 28.2

1970 - 27.8

1980 - 22

1990 - 25

1997 - 28

3. 1980
4. 1960
5. 1980
6. 1960
7. 1960
8. 1980