

SC Farm Bureau
Ag in the Classroom
Post Office Box 754
Columbia, SC 29202

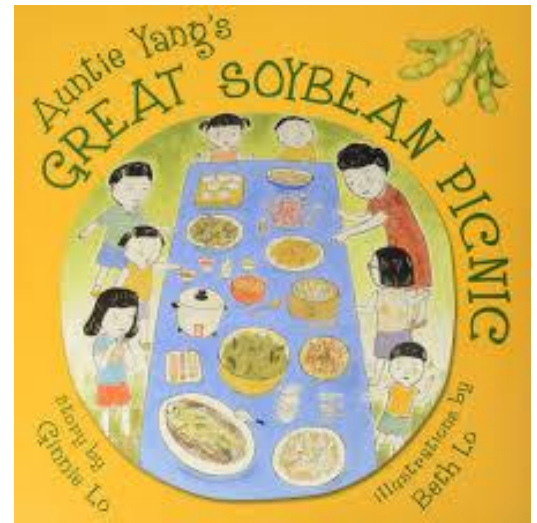


August 2020

Auntie Yang's Great Soybean Picnic

By: Ginnie Lo

Jinyi and her sister love visiting Auntie and Uncle Yang's home where they enjoy dumpling-eating contests and backyard adventures with their cousins. One weekend, on a Sunday drive among cornfields, Auntie Yang spots something she has never seen before. Could it be one of their favorite Chinese foods—soybeans? The soybeans were being grown for livestock feed, but the farmer allowed Auntie Yang to pick some for the family to eat. Excited by their discovery, the families have their very first soybean picnic. Every year after that, Auntie Yang invites more people to share in the food and fun. Pretty soon, more than two hundred friends and neighbors are gathering at the picnic to play games and eat soybeans together.¹



Did You Know? (Ag Facts)

- Soybeans were originally cultivated in northeastern China about five thousand years ago.¹
- Soybeans arrived in North America in the late 1700s. At first, soybean cargo was not intended to be eaten. It was only used as a weight to balance the sailing ships.¹
- Soybeans are used to create industrial products such as ink, fabric, plastic, and fuel.
- The United States is the world's leading producer of soybeans. In South Carolina, the top producing soybean counties include Horry, Dillon, Florence, Darlington, Sumter, and Clarendon.²

Discussion Questions

- What do you know about soybeans? Have you ever seen or eaten soybeans? Do you know any other names for soybeans? What other foods do you think might be similar to soybeans?
- What are some cultural traditions that you and your family participate in?

Grade Level(s): 2-6

Purpose: Students will identify the variety of soybeans uses for human consumption, livestock feed, and industrial products; and create a bioplastic made from soybeans.

Vocabulary:

(Note: These vocabulary words provide an explanation of English and Chinese words that may be unfamiliar, including pronunciations for Chinese words that approximate how they are said in Mandarin.)

- **Baba** (bah-bah): familiar name for father; Papa
- **bean thread:** long, clear noodle made from beans and water
- **Chi fan le** (chr fan luh): “Time to eat.”
- **Dao le (dow luh):** “We’re here.” or “We’ve arrived.”
- **dumpling:** very thin, round piece of dough folded over a filling, usually of meat and/or vegetables, pinched and closed, and boiled or fried; a popular Chinese food
- **Eight Treasure Rice:** special dessert made with a mound of steamed sticky rice; the sweet “treasures” in the rice are eight different kinds of fruits and seeds
- **emperor:** powerful head ruler of a Chinese dynasty or empire; China was ruled by emperors until 1911
- **huan ying** (whan ying): welcome
- **Jinyi** (jin-ee): female name meaning “bright and happy”
- **mahjong:** game of Chinese origin usually played by four people with domino-like tiles
- **mao dou** (mao doe): soybeans
- **Pei** (pay): female name meaning “admire”
- **Ping** (ping): female name meaning “peace”
- **Yellow Mountain:** famous mountain in the Chinese province of Anhui; also known as Huang Shan

Background Agricultural Connections: ³

Seventy-five million acres of U.S. farmland are used to grow one of the most versatile crops—soybeans! Soybeans first arrived in the United States in 1765 and were planted in Georgia by British colonist Samuel Bowen. Today, soybeans are grown predominately in the Midwest, which includes top soybean-producing states Illinois, Iowa, and Minnesota. During the summer, this **legume** is a bright green, leafy plant that transforms to bright yellow in the fall. One soy plant produces about eight pods that contain three or four beans each.

Believe it or not, soybeans find their way into almost everything! George Washington Carver is credited for discovering the value of oil and protein found in soybeans. Because of their high oil and protein content, soybeans are especially useful in manufacturing various products from food to biodiesel. Soybean oil is used in food products such as margarine, salad dressings, and cooking oil. It can also be found in industrial products such as biodiesel fuel and plastics. **Lecithin** (extracted from soybean oil) is a natural emulsifier and lubricant used in products like pharmaceuticals and protective coatings. After the extraction of soybean oil, the remaining parts can be processed into various edible soy protein products or used to produce soybean meal for livestock feed.

Soybean Plastic ³

Materials:

- Cornstarch
- Soybean oil (vegetable oil)
- Sandwich-sized resealable bag
- Liquid food coloring
- Microwave
- Water
- Pipette or eye dropper
- Tablespoon measuring spoon
- Kitchen scale (1 per group)
- *Soybean Plastic* lab sheet
- [Properties of Matter PowerPoint](#)

Procedures:

1. To introduce the term “bioplastic” to students, write “bioplastic” on the board and break it into two parts. “Bio” means life. “Bioplastic” is plastic that comes from a living thing. Two common bioplastics are corn plastic and soybean plastic.
2. Ask students to consider other plastic items in the classroom that are not made from bioplastic. Ask the students, "What is this plastic made from?" (*Many plastic items are petroleum-based, which is a nonrenewable resource from the earth.*)
3. Explain to the students that they will be making a bioplastic using materials that come from the soybean plant and renewable resources.
4. Divide the class into groups of 3-4 students and give each student a *Soybean Plastic* lab sheet.
5. Give each group a resealable sandwich-sized plastic bag, cornstarch, soybean oil, liquid food coloring, water, a pipette or eye dropper, a tablespoon measuring spoon, a kitchen scale, and access to a microwave.
6. Instruct the students to follow the step-by-step procedures on the lab sheet and answer each of the questions.
7. Soybean plastic procedures:



- a. Place 1 tablespoon of cornstarch into the plastic bag. (Figure 1)
 - b. Add 2 drops of soybean oil. (Figure 2)
 - c. Add 1 tablespoon of water. (Figure 3)
 - d. Close the bag and knead it with fingers, mixing the contents. (Figure 4)
 - e. Add 2 drops of food coloring. (Figure 5)
 - f. Seal the bag and mix remaining contents.
 - g. Open the bag slightly so it can vent.
 - h. Weigh the contents of the bag on a kitchen scale. (Figure 6)
 - i. Heat the bag in the microwave for 20-25 seconds. (Figure 7)
 - j. Remove the bag from the microwave and let the plastic cool. **Caution: The bag and contents will be hot!**
 - k. Weigh the contents of the bag again. (Figure 8) Compare the weight measurements from before and after microwaving.
8. Using the *Properties of Matter* PowerPoint, discuss physical and chemical changes with the students. Ask, "Is soybean plastic a physical or chemical change?" (*Chemical*)
 9. Discuss the weight of matter when new substances have been formed. Ask the students:
 - a. How much does the plastic weigh (in grams) after the changes occurred?
 - b. Is this weight close to the starting weight?
 - c. Why or why not?
 10. Explain to the students that regardless of the type of change that occurs when heating, cooling, or combining substances, the total weight of matter is conserved. Their bioplastic should weigh very close to the starting weight before it was heated.
 11. Wrap up the bioplastic activity by asking students to consider everyday plastic objects that they use. Consider asking the following questions to promote critical thinking:
 - a. What objects can be made with bioplastic? (*Disposable items such as packaging, cutlery, and bowls are common. Some companies have even produced bioplastic toys.*)
 - b. How does plastic and bioplastic affect the environment?
 - c. How does bioplastic affect farmers?

You Have To Live In Someone Else's Country To Understand – Teaching Tolerance ⁴

Preparation:

Invite an adult or student who is literate in a second language who will read the poem in his or her language to the class. Most students should not be familiar with the language. If there are several who do speak the language, it will offer interesting contrast to the majority's interaction with the reading.

Materials:

- Poem, "You Have to Live in Somebody Else's Country to Understand" by Noy Chou
- Journal

Procedures:

1. Tell the class that a guest speaker has volunteered to read the poem "You Have to Live in Somebody Else's Country to Understand," written in 1984 by Noy Chou, a ninth-grade

student from a high school in suburban Boston who was born in Cambodia. Have the reader introduce him or herself in the second language. Expect students to express discomfort, surprise, confusion, etc.

2. Request that students close their eyes as they listen to the poem to remain free of distractions. Remind them to listen without talking. Invite the guest to read.
3. After the poem is read, instruct the guest to give students these instructions in the second language: "Please take out a piece of paper and complete this journal assignment in five minutes. Describe a time when you felt like an outsider, or when someone judged you without knowing you or being aware of your circumstances."
4. Repeat the instructions in English, indicating that this is for the benefit of those who are non- native speakers of the guest's second language.
5. Ask students to describe their reactions during the first reading of the poem. Cluster student responses as they speak. Sample discussion questions include:
 - How did you feel when you did not understand the language?
 - What did you want to do when the reader began to recite in a language with which you were unfamiliar?
 - Were you able to pick up on any aspect of the poem—cadence, emotion, etc.— despite not knowing the language?
 - For those who might have understood the language, how did the poem make you feel?
 - What was your thought about classmates who could not understand the poem? How might you have helped them?
 - How might the teacher and the reader have helped you to understand?
6. Have students review the clustered responses. Ask them to consider more broadly how the feelings they experienced relate to those of new immigrants. Based on this activity, what are some of the issues immigrants face when they arrive somewhere new? She might be feeling like an outsider?
7. Hand out copies of the poem in English. Have either the guest or you read it aloud or have students read it. Have students analyze and discuss the poem. Ask them to review it again to select phrases, lines, or passages that interest them. Ask students to write a corresponding personal experience that reflects the essence of the selected sections. Allow five to ten minutes for this activity. Invite students to share their thoughts.
8. Have students relate their experiences to those of immigrants. Some discussion questions include:
 - What groups and individuals are treated like outsiders in America?
 - What are the possible results or consequences when people feel like outsiders in their surroundings?
 - What did you learn from this experience and the poem that might help you better understand the feelings of outsiders in the future?
 - How might you act differently toward someone when you recognize that she/he might be feeling like an outsider?

Extension Activities:

- Use the [Soybean Living Necklace kit](#) to familiarize students with the soybean plant. Allow students to plant a living soybean necklace where they can track the growth and development of a germinating soybean seed. This kit is available for purchase from [agclassroom.org](#).

- View the video [Farm to Car](#) to explore the ways in which Ford Motor Company is continuing Henry Ford's legacy by using plant-based plastics in their products.

Suggested Companion Resources:

- [Full of Beans: Henry Ford Grows a Car](#) (Book)
- [Soybeans in the Story of Agriculture](#) (Book)
- [Grains and Legumes of the World](#) (Kit)
- [Living Necklace Kits](#) (Kit)
- [Packing Peanuts](#) (Kit)
- [Field to Film Career Snapshots](#) (Multimedia)
- [Ag Today](#) (Booklets & Readers)
- [Biotechnology Ag Mag](#) (Booklets & Readers)
- [Into the Outdoors: Farm Science](#) (Website)

Sources/Credits:

1. Lo, Ginnie. *Auntie Yang's Great Soybean Picnic*, Lee & Low Books Inc., 2012.
2. National Agricultural Statistics Service
3. https://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=740&search_term_lp=soybean
4. NC Ag in the Classroom

Suggested SC Standards Met:

English/Language Arts:

- 2.RL.5.1 Ask and answer literal and inferential questions to demonstrate understanding of a text; use specific details to make inferences and draw conclusions in texts heard or read.
- 2.RL.5.2 Make predictions before and during reading; confirm or modify thinking.
- 2.RL.8.1 Read or listen closely to: a. compare and contrast characters' actions, feelings, and responses to major events or challenges; b. describe how cultural context influences characters, setting, and the development of the plot; and c. explain how cause and effect relationships affect the development of plot
- 2.RL.10.1 Use context to determine the meaning of words and phrases.
- 3.RL.5.1 Ask and answer literal and inferential questions to determine meaning; refer explicitly to the text to support inferences and conclusions.
- 3.RL.6.1 Determine the theme by recalling key details that support the theme.
- 3.RL.8.1 Use text evidence to: a. describe characters' traits, motivations, and feelings and explain how their actions contribute to the development of the plot; and b. explain the influence of cultural and historical context on characters, setting, and plot development.
- 3.RL.10.1 Use paragraph-level context to determine the meaning of words and phrases
- 4.RL.5.1 Ask and answer inferential questions to analyze meaning beyond the text; refer to details and examples within a text to support inferences and conclusions.
- 4.RL.6.1 Determine the development of a theme within a text; summarize using key details.
- 4.RL.8.1 Use text evidence to: b. explain the influence of cultural, historical, and social context on characters, setting, and plot development.

- 4.RL.10.1 Use definitions, examples, and restatements to determine the meaning of words or phrases
- 5.RL.5.1 Quote accurately to analyze the meaning of and beyond the text to support inferences and conclusions.
- 5.RL.6.1 Determine and analyze the development of a theme within a text; summarize using key details.
- 5.RL.8.1 Cite evidence within text to: a. analyze two or more characters, events, or settings in a text and explain the impact on the plot; and, b. explain the influence of cultural, historical, social and political context on characters, setting, and plot development.
- 5.RL.9.1 Cite examples of the author's use of figurative language, dialogue, imagery, idioms, adages, and proverbs to shape meaning and tone.
- 5.RL.9.2 Analyze and cite examples of how the author's choice of words and conventions combine to create mood, shape meaning, and emphasize aspects of a character or setting
- 5.RL.10.1 Use cause and effect relationships and comparisons to determine the meaning of words or phrases.
- 6.RL.5.1 Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- 6.RL.6.1 Determine a theme of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.
- 6.RL.10.1 Use the overall meaning of a text or a word's position or function to determine the meaning of a word or phrase.

Science:

- 2.P.3: The student will demonstrate an understanding of the observable properties of solids and liquids and the special properties of magnets.
- 3.P.2: The student will demonstrate an understanding of the properties used to classify matter and how heat energy can change matter from one state to another.
- 5.P.2: The student will demonstrate an understanding of the physical properties of matter and mixtures.

Social Studies (2020):

- 2.CG.1 Identify cultural and ethnic groups in the U. S., explore their characteristics, and communicate how civic dispositions build relationships between groups in a diverse society
- 3.4.1.PR Investigate the cultural characteristics of places and regions around the world.
- 3.4.2.HS Investigate the economic and land use characteristics of places and regions around the world.

Soybean Plastic Lab Sheet

Materials Needed:

- Measuring spoon
- 1 tablespoon cornstarch
- 2 drops (about 1/8 teaspoon) of soybean oil
- 1 tablespoon water
- 2 drops food coloring
- Resealable sandwich-sized bag
- Microwave
- Kitchen scale

Procedures: Part 1

1. Place 1 tablespoon of cornstarch into the plastic bag.
2. Add 2 drops of soybean oil.
3. Add 1 tablespoon of water.
4. Close the bag and knead it with fingers, mixing the contents.
5. Add two drops of food coloring.
6. Seal the bag and mix remaining contents.
7. Open the bag slightly so it can vent.
8. Weigh the contents of the bag on a kitchen scale.

-
1. How many grams does your bag of contents weigh BEFORE microwaving?

 2. Describe the mixture in your plastic bag:

 3. How does it feel when you squish the bag?

 4. Is your mixture a solid or a liquid?

Procedures: Part 2

1. Heat the bag in the microwave for 20-25 seconds. Do not seal the bag all the way! Leave part of the bag unsealed so the contents can vent, and steam can escape.
2. Remove the bag from the microwave and let the plastic cool. Be careful, the bag and contents will be hot!

-
1. What does your new substance look like?

 2. How many grams does your bioplastic weigh? Is it the same weight as before? Why or why not?

 3. What products could you make with bioplastic?

Physical Change

- A change that does NOT change the identity of the substance.
 - Melting ice
 - Boiling pasta
 - Tearing paper
 - Chopping wood



Chemical Change

- A change that causes the identity of the substance to change.
 - Burning wood
 - Digesting food
 - Baking a cake
 - Cooking an egg



Indicators of a Chemical Change

- Indicators (signs) of a chemical change include:
 - Light is produced
 - Heat is absorbed or produced
 - Gas is produced
 - Change in color

Is it a physical or chemical change?

Type of Change	Physical	Chemical
Melting Ice	✓	
Burning Wood		✓
Souring Milk		✓
Shredding paper	✓	
Rusting metal		✓
Chopping Wood	✓	
Soybean Plastic		✓

What about the weight of matter?

- Whether a change results in a new substance or not, the total amount of matter is always conserved.
 - Melting an ice cube
 - Dissolving salt in water
 - Combining baking soda and vinegar in a closed bag
 - Producing soybean plastic



"You Have to Live in Somebody Else's Country to Understand" by Noy Chou

What is it like to be an outsider?

What is it like to sit in the class where everyone has blond hair and you have black hair? What is it like when the teacher says, "Whoever wasn't born here raise your hand."

And you are the only one.

Then, when you raise your hand, everybody looks at you and makes fun of you. You have to live in somebody else's country to understand.

What is it like when the teacher treats you like you've been here all your life?

What is it like when the teacher speaks too fast and you are the only one who can't understand what he or she is saying, and you try to tell him or her to slow down?

Then when you do, everybody says, "If you don't understand, go to a lower class or get lost." You have to live in somebody else's country to understand.

What is it like when you are an opposite?

When you wear the clothes of your country and they think you are crazy to wear these clothes and you think they are pretty.

You have to live in somebody else's country to understand

What is it like when you are always a loser?

What is it like when somebody bothers you when you do nothing to them? You tell them to stop but they tell you that they didn't do anything to you.

Then, when they keep doing it until you can't stand it any longer, you go up to the teacher and tell him or her to tell them to stop bothering you.

They say that they didn't do anything to bother you. Then the teacher asks the person sitting next to you.

He says, "Yes, she didn't do anything to her" and you have no witness to turn to. So the teacher thinks you are a liar.

You have to live in somebody else's country to understand.

What is it like when you try to talk and you don't pronounce the words right? They don't understand you.

They laugh at you but you don't know that they are laughing at you, and you start to laugh with them.

They say, "Are you crazy, laughing at yourself? Go get lost, girl."

You have to live in somebody else's country without a language to understand.

What is it like when you walk in the street and everybody turns around to look at you and you don't know that they are looking at you?

Then, when you find out, you want to hide your face but you don't know where to hide because they are everywhere.

You have to live in somebody else's country to feel it.

Published in 1986 by the Anti-Defamation League for the "A World of Difference" project.