



Lessons to Complement

BEAN TEAM

Soy Educational DVD Series

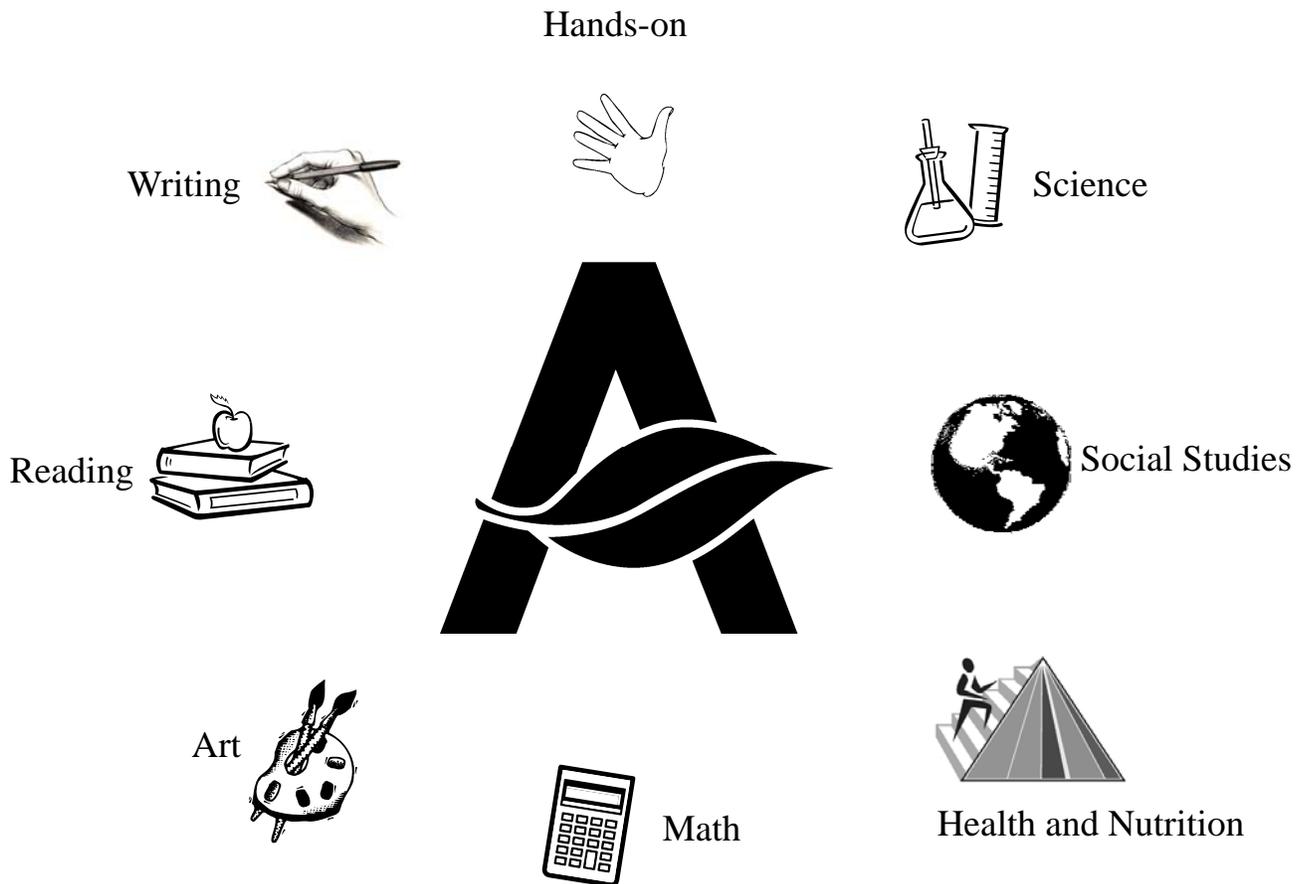
This IAITC booklet was created to complement the United Soybean Board's **The Bean Team: Soy Educational DVD Series.**

The soybean has many important roles in our lives, from the food we eat to even some of the products we clean with.

This booklet is designed with the student audience in mind. These activities can be used in your classroom as supplemental learning in the areas of science, social studies, and math.

The following lessons and activities are correlated to the Illinois State Learning Standards and Assessment Framework.

A visual key has also been created and used with each activity to indicate its subject area. The topics include: hands-on, science, social studies, health and nutrition, math, art, reading, and writing.



Learning Standards & Assessment Framework

 Science <p style="text-align: center;">Exploring Monocots & Dicots</p>  Hands-on	<p>Illinois Learning Standards: 11.A.3c; 12.A.3c; 12.B.3b</p> <p>Assessment Framework: 11.4.03; 12.4.05; 12.4.09</p>
 Social Studies <p style="text-align: center;">Agricultural Transportation in America</p>	<p>Illinois Learning Standards: 15.A.2a; 15.D.2a; 15.D.3a; 17.A.2a; 17.A.2b; 17.C.2b; 18.C.3b</p>
 Math  Science  Health and Nutrition <p style="text-align: center;">Soy Nutritious</p>	<p>Illinois Learning Standards: 7.A.3b; 7.B.3; 11.A.3c; 22.A.3b; 23.B.2</p> <p>Assessment Framework: 7.5.02; 11.4.03</p>
 Writing <p style="text-align: center;">Start Seeing Soybeans</p>	<p>Illinois Learning Standards: 2.A.3d; 2.B.3a; 2.B.2b; 3.B.2b; 3.C.2a; 3.C.3b</p> <p>Assessment Framework: 2.5.13; 3.5.17; 3.6.43</p>
 Reading <p style="text-align: center;">Summarizing Soy</p>	<p>Illinois Learning Standards: 1.B.2b; 1.C.2b; 1.C.2d; 2.A.2b</p> <p>Assessment Framework: 1.4.09; 1.4.10; 1.4.13; 1.4.14</p>
 Writing <p style="text-align: center;">Agriculture in America's Heartland</p>  Social Studies	<p>Illinois Learning Standards: 3.C.3a; 3.C.3b; 5.A.2b; 5.C.2a; 5.C.3c; 15.A.2a; 15.B.3b; 15.C.3; 15.D.3a; 17.A.2a; 17.C.2b</p> <p>Assessment Framework: 3.5.18; 3.5.25; 3.5.28; 3.6.33</p>

Exploring Monocots & Dicots

Grade Level: 4-6

Objective: To compare the growth and development of two types of seeds.

Illinois Learning Standards: 11.A.3c; 12.A.3c; 12.B.3b

Assessment Framework: 11.4.03; 12.4.05; 12.4.09

What You Will Need:

Clear Plastic Punch Cups

Damp Coffee Filters—1 per student

Vermiculite

Corn Seeds—4 to 5 per student

Soybean Seeds—4 to 5 per student



Activity Instructions:

1. Students should write their name or initials on their cups.
2. Each student should line the sides of the clear plastic punch cup with a damp coffee filter.
3. Fill the center of the coffee filter with vermiculite. Pack softly. The vermiculite will hold the moisture needed for the seeds.
4. Between the coffee filter and the cup, carefully place the corn and soybean seeds about half way down, alternating corn then soybeans. **The seeds do not go in the vermiculite.** The cup serves as a window to the seeds allowing students to watch the seeds grow.
5. Add just enough water to dampen the vermiculite. **Avoid standing water.**
6. Place the cups in a warm place out of sunlight.
7. Students should examine their cups each day to make sure the coffee filter and vermiculite remain moist. **Avoid standing water.**
8. Have students keep a journal. Students should make and record their observations daily and compare the seed activity of a Monocot (corn) and a Dicot (soybean).

This activity was taken from the Plant mAGic Kit. Ask your local Ag Literacy Coordinator about the mAGic (Multidisciplinary Agricultural Integrated Curriculum) Kits available in your county. To obtain your local Ag Literacy Coordinator's contact information, visit our website at www.agintheclassroom.org.

Agricultural Transportation in America

Grade Level: 3-6

Objective: To learn how transportation can affect the movement of crops around America and to other parts of the world.

Illinois Learning Standards: 15.A.2a; 15.D.2a; 15.D. 3a; 17.A.2a; 17.A.2b; 17.C.2b; 18.C.3b



Recommended Readings:

Illinois AITC Soybean Ag Mag

SoyStats—A Production of the American Soybean Association

Activity Instructions:

1. Have students research soybean production in the United States.
2. Discuss which states are top producers of soybeans. How do these states transport their soybeans and other agricultural commodities?
3. Give students the worksheet on the following page. Using their research on transportation of agricultural commodities, have students answer the questions in short answer form.

Lesson Extender:

1. Study the WISHH program. WISHH stands for the World Initiative for Soy and Human Health.
2. How does the WISHH program transport their goods to other countries.
3. Have students pick a country that WISHH is currently not involved in. How can textured soy protein be incorporated into the diets of people native to that country? What food products would they want to incorporate soy protein into? How would the soy protein be transported?

Name _____ Today's Date _____



Soybeans Around America



Transportation is a very important part of the agriculture industry in Illinois. Semi trucks, trains, airplanes and barges are used to transport goods throughout the state, across the nation, and to other parts of the world. While the United States does have an advanced transportation system, it hasn't always been that way. There are issues that farmers and those involved in the agriculture industry deal with every day. Read the following scenarios. Then write a short answer response. Be sure to include how each scenario affects agriculture in your area.

1. The United States uses refrigerated rail cars and semi trailers to transport many goods across the nation. The first refrigerator car patent was issued in 1867. Describe how this invention has affected agriculture in your area. Be sure to include goods that are shipped in refrigerated cars as well as how items were shipped prior to this invention.
2. The Illinois Waterway system consists of 336 miles of water from the mouth of the Chicago River to the mouth of the Illinois River at Grafton, Illinois. It is a system of rivers, lakes and canals which provide a shipping connection from the Great Lakes to the Gulf of Mexico via the Mississippi River. There is a series of eight locks and dams that control water flow from Lake Michigan to the Mississippi River System. Discuss how the lock and dam system is utilized in Illinois. Why is the maintenance, upkeep and upgrades to the lock and dam system so important? How has the lock and dam system affected agriculture in your area?
3. Imagine the Illinois Legislature passed a law to reduce the speed limit for semi trucks from 55 miles per hour (mph) to 45 mph. How would this reduced speed limit affect agriculture in your area?
4. Transportation costs continue to soar. How will the projected continuing increase in the prices of gasoline, ethanol and diesel affect agriculture in your area? How do transportation and shipping costs affect the prices of food and other consumer goods?

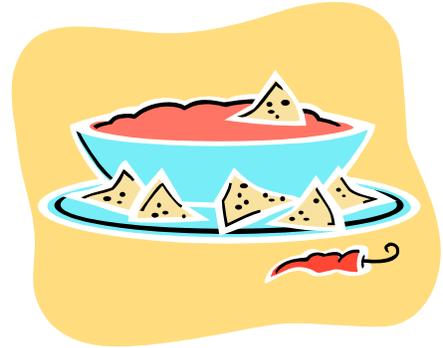
Soy Nutritious

Grade Level: 3-5

Objective: After completing this activity, students should have a better understanding of the nutritional benefits of soy foods as well as the importance of reading food labels.

Illinois Learning Standards: 7.A.3b; 7.B.3; 11.A.3c; 22.A.3b; 23.B.2

Assessment Framework: 7.5.02; 11.4.03



Activity Instructions:

1. Watch Episode 2 of *The Bean Team*
2. Farmer Chuck talks to Ben and Katie about soy foods.
3. Discuss reading nutrition labels, serving sizes, calories and the food guide pyramid.
4. Students should do a label search (at home or at the grocery store) to find labels that include soybeans and soybean products. Discuss the different kinds of foods that contains soybeans and soybean products.
5. Ben and Katie make their own Soybean Tex-Mex Dip. The following worksheet contains a Quick Mex Dip recipe. Students should fill out the worksheet using the recipe.
6. Make the Quick Mex Dip in class and discuss the health benefits of eating soy.

Lesson Extender:

1. Do a soy foods taste test in class. *Be sure to check for allergies with students first.* (Examples of soy foods: tofu, soy milk, edamame, soy ice cream). Have students keep a journal of what they liked and disliked and then share as a class. Be sure to have them include which part of the food guide pyramid each soy food product belongs in.
2. Student can practice writing concise directions by creating their own recipe incorporating a soy food product.

Name _____ Today's Date _____

Soy Nutritious

Ben and Katie made a delicious Soybean Tex-Mex Dip. Using the Quick-Mex Dip recipe below, answer the questions on this page.

Quik-Mex Bean Dip

1 can (15 oz.) black or yellow soybeans, drained
1 Tbs. taco seasoning mix
2 Tbs. salsa

Add all ingredients to blender and mix until smooth. Serve with taco chips cold or warm.

Yield: 10 servings. Per serving: 45 calories, 2 g fat (.3 g sat fat), 0 mg cholesterol, 144 mg sodium, 3.8 g carbohydrate, 3.8 g protein (3.6 g soy protein), 2.4 g dietary fiber.

Recipe taken from www.soyfoods.com

1. If each student in your class were to eat 2 servings of the dip, how many cans of black or yellow soybeans would you have to use? _____
2. Looking at the nutrition part of the recipe, how many calories would 1 whole recipe of dip contain? _____
3. Look up sodium in the dictionary. What is a synonym for it? _____
4. What can too much sodium do to your body? _____

5. Using an encyclopedia or the internet, look up carbohydrate, protein and fiber. Define each of these and name other foods that are good sources of these.

Carbohydrate _____

Protein _____

Fiber _____

Start Seeing Soybeans

Grade Level: 4-6

Objective: To learn about the history of roadside

Illinois Learning Standards: 2.A.3d; 2.B.3a; 2.B.2b; 3.B.2b; 3.C.2a; 3.C.3b

Assessment Framework: 2.5.13; 3.5.17; 3.6.43

Recommended Reading Materials:

Illinois AITC Soybean Ag Mag

The Super Soybean by Raymond Bial

ISBN 978-0-8075-7549-9

Helpful Background Information:

- In 1925, Allan Odell gave his father the idea to create small, wooden roadside signs to advertise their product, Burma-Shave, a brushless shaving cream. His dad gave him \$200 to try out his ideas. Their sales started to soar and soon they were putting their signs up all over.
- At the height of their popularity there were 7,000 Burma-Shave signs stretching across America. The familiar white on red signs, grouped by fours, fives or sixes were a part of every family's road trip. The signs cheered Americans up during the Depression and World War II.
- As highways were built and cars got faster, the small roadside signs were replaced by huge billboards. 1963 was the last year for new Burma Shave signs.

Activity Instructions:

1. Research soybeans and what their used for.
2. Have each student create their own Burma Shave sign promoting Illinois Soybeans.
3. Each sign should include rhyming phrases.

Burma Shave Examples:

Shaving brushes

You'll soon see 'em

On a shelf

In some museum

Burma-Shave

No matter

The price

Now matter how new

The best safety device

In your car is you

Burma-Shave

Lesson Extender:

1. Have your students create a biodiesel advertisement for the side of a bus. Advertisements may include both drawings, pictures and words.
2. Locate local farmers that grow soybeans. Have student write letters to thank a farmer. Be sure they include reasons why soybeans are important to them.

www.ilsoy.org

Start Seeing Soybeans

Summarizing Soy

Grade Level: 4-6 Social Studies & Reading

Objective: This activity is designed to help students become more familiar with the format of a short passage reading followed by multiple choice questions found on the Illinois Standards Achievement Exam.



Illinois Learning Standards: 1.B.2b; 1.C.2b; 1.C.2d; 2.A.2b

Assessment Framework: 1.4.09; 1.4.10; 1.4.13; 1.4.14

Suggested Reading Materials:

Illinois AITC Soybean Ag Mag

The Super Soybean By Raymond Bial

ISBN 978-0-8075-7549-9

Plant mAGic kit

Introduction: This lesson was designed to resemble a short reading passage that could be found on the ISAT test. The lesson has a short excerpt from Raymond Bial's book The Super Soybean. The reading is followed by four short questions laid out in a format similar to the one students will see when taking the ISAT.

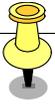
Lesson Extender:

1. Create a PowerPoint presentation on the beginning of soybeans in the United States. Start with George Washington Carver and go through the decades to the present time where we now consider the once forgotten seed as our "Super Seed". The assignment could be made more specific by giving groups of students different individuals that played a role in the popularization of the soybean, such as: William J. "Bill" Morse, Dr. Charles V. Piper, and Palemon Howard (P.H.) Dorsett.
2. Complete the George Washington Carver exercise in the mAGic kit; Social Studies lesson two.

Answers Key:

Fourth Grade 1. (B) 2. (C) 3. (C) 4. (A)

Sixth Grade 1. (D) 2. (B) 3. (B) 4. (C) 5. (A) 6. (B)



The Super Soybean **By** **Raymond Bial**

In 1904, George Washington Carver began studying soybeans at the Tuskegee Institute in Alabama. Although he is best known for his work with peanuts, Carver discovered a method of extracting soybean oil and found many ways to use it. He later invented a process for making paints and stains from soybeans. Most importantly, he encouraged farmers in the South to plant soybeans, along with peanuts and other legumes, to help keep the soil fertile so that cotton and other important crops could be successful.

Most farmers ignored soybeans, but that was about to change. In 1907, William J. "Bill" Morse joined the United States Department of Agriculture, where he studied soybeans as an assistant to Dr. Charles V. Piper. Morse devoted his life to studying soybeans. He was a founder of



the American Soybean Association. He wrote more than eighty publications about soybeans, including *The Soybean*, published in 1923, written together with Charles Piper.

At this time, there were about twenty different varieties of soybeans in the United States. From August 1924 through December 1926, Palemon Howard (P.H.) Dorsett collected soybeans in China and sent back fifteen hundred different varieties. In 1929, Morse traveled on, in northeast China and Korea. From this expedition about forty-five were sent back to the United States.

4th Grade

1

Why did Washington-Carver encourage farmers in the South to plant soybeans?

- A** To help them get rich.
- B** To help keep the soil fertile.
- C** To replace cotton.
- D** So Carver could study soybeans.

2

This story is mostly about ---

- A** how a soybean grows.
- B** who invented the soybean.
- C** early researchers of soybeans.
- D** products made from soybeans

3

Which of the following researchers devoted his life to studying soybeans?

- A** George Washington Carver
- B** Dr. Charles Piper
- C** William J. "Bill" Morse
- D** Palemon Howard Dorsett

4

Which of these did the author use in this story?

- A** Dialogue
- B** Humor
- C** Rhyme
- D** Flashback

6th Grade

1

After reading the title, what should you expect to learn from this selection?

- A** About a plant with super powers.
- B** A giant soybean.
- C** A soybean with healing powers.
- D** Why the soybean is super.

3

The author would most likely agree with which of the following statements?

- A** Soybean research did not start until the 1940's.
- B** That Carver started the research revolution on the soybean.
- C** That most soybean varieties came from the U.S.
- D** That the first soybean was found in Japan.

2

If *discourage* means "to deter or stop," what does encourage mean as used in paragraph one?

- A** To stop or discontinue.
- B** To urge or motivate someone.
- C** To increase confidence.
- D** To insist on doing something.

4

Paragraph three of this selection is mainly about —

- A** what soybeans should be used for.
- B** who discovered soybeans.
- C** how many soybeans the U.S. had and how many were being sent back to the U.S.
- D** China's soybean production.

5

True or False —Palemon Howard Dorsett was the only scientist to research soybeans and send them back to the U.S.

- A** True
- B** False

Agriculture in America's Heartland

Grade Level: 3-6

Objective: To understand the important of importing and exporting and environmental factors that can effect the goods that are imported and exported around the world.



Illinois Learning Standards: 3.C.3a; 3.C.3b; 5.A.2b; 5.C.2a; 5.C.3c; 15.A.2a; 15.B.3b; 15.C.3; 15.D.3a; 17.A.2a; 17.C.2b

Assessment Framework: 3.5.18; 3.5.25; 3.5.28; 3.6.33

Recommended Readings:

Illinois AITC Soybean Ag Mag

Activity Instructions:

1. Watch episode 312 of [America's Heartland](http://www.americasheartland.com) called "Crops and Cars" at www.americasheartland.com. America's Heartland is a series on PBS that shows different places and people involved in agriculture around the nation.
2. After watching the episode, have students make a power point on the benefits of returning shipping containers to its originating country full of soybeans and other agricultural commodities instead of returning them empty.
3. What other goods do we import from countries around the world? What country did they originate from and what state are they shipped to? What agricultural commodities can be returned in the empty containers?
4. How can supply and demand affect the imports and exports?
5. Are any goods imported directly into Illinois? What are they? What goods can we return in the containers?

Illinois **A**GRICULTURE in the ClassroomSM



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