

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

803.936.4237
f SC Ag in the Classroom
@SCagintheclass

March 2022

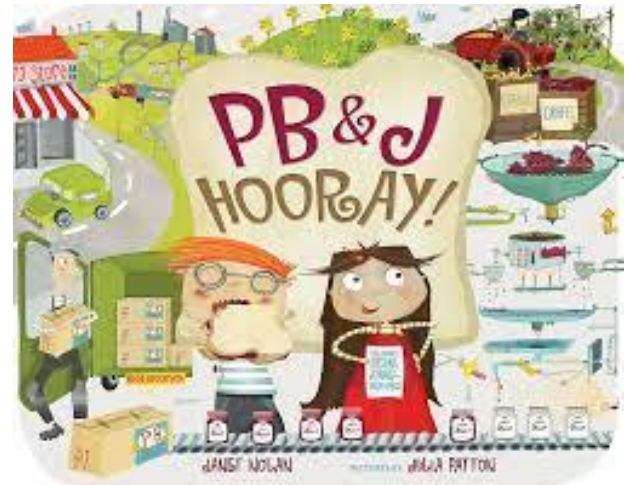
PB&J Hooray!: Your Sandwich's Amazing Journey From Farm to Table

By: Janet Nolan



SCAN ME

From peanut, grape, and wheat seeds to sandwich, *PB & J Hooray!* is all about how peanut butter and jelly sandwiches are made. The story begins with the kitchen and works backward to the shopping, delivery, production, harvesting, farming, and planting processes! In fun, rhythmic language, readers discover how peanuts become peanut butter, grapes are made into jelly, and wheat turns into bread. ¹



Did You Know? (Ag Facts) ²

1. Four of the top 10 candy bars manufactured in the USA contain peanuts or peanut butter.
2. Peanuts are one of the star ingredients in a Snickers bar and each bar contains about 16 peanuts. About 100 tons of peanuts go into making the 15 million Snickers bars that are produced by Mars, Inc. every day.
3. Peanut butter/peanut paste is the leading use of peanuts produced in the U.S. (1/2); followed by snack nuts and in-shells (1/4); and, candy and confections (1/4).

Discussion Questions

- What do you know about peanuts? How are they grown? What about grapes?
- Did anything about the peanut plant surprise you?

Grade Level(s): 3-5

Purpose: Students will identify the life cycle of a peanut as well as where peanuts are primarily produced.

Vocabulary:

- **peanut:** a plant in the pea family that bears the peanut, which develops in pods that ripen underground and are widely cultivated, especially in the southern US

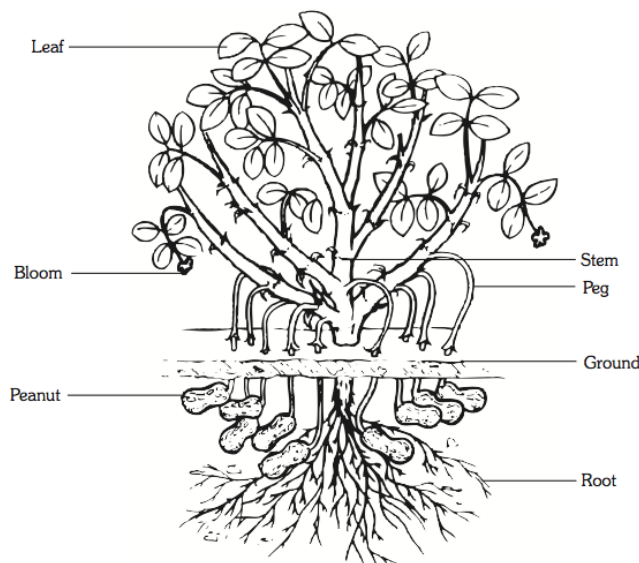
Background Agricultural Connections: ²

The History of the Peanut

The peanut plant probably originated in Brazil or Peru, although no fossil records exist to prove this. Peanuts were grown as far north as Mexico by the time the Spanish began their exploration of the New World. The explorers took peanuts back to Spain, where they are still grown today. From Spain, traders and explorers took peanuts to Africa and Asia. Africans were the first people to introduce peanuts to North America. Eventually, peanuts were planted throughout the southern United States. Today, peanuts are one of America's favorite foods.

The "Father of the Peanut"

George Washington Carver began his research into peanuts in 1903 at Tuskegee Institute in Alabama. The talented botanist recognized the value of peanuts as a cash crop. He proposed to farmers that peanuts be planted as a rotational crop in their fields. Many farmers found this procedure especially valuable in the southeastern cotton growing areas when insects, called boll weevils, threatened the cotton crops. By listening to the great scientist, peanut production flourished. States growing peanuts today include Georgia, Texas, Alabama, North Carolina, Oklahoma, Virginia, Florida, South Carolina, and New Mexico. Georgia grows more peanuts than any other state. Carver was able to discover over 300 uses for the peanut, including shaving cream, leather dye, coffee, ink, and shoe polish.



How the peanut plant grows

Unlike other nuts, peanuts do not grow on trees. The peanut is unusual because it grows on a plant that flowers above the ground, but the actual fruits (the peanuts) grow underground. A farmer usually plants his peanuts in April or May. Once planted, peanut seeds grow into a green plant with oval-shaped leaves that reaches about 18 inches in height. From planting to harvesting, the growing cycle of a peanut takes four to five months.

Types of peanuts

Although peanuts come in many varieties, there are four basic market types: runner, Virginia, Spanish, and Valencia. Each of the peanut types is distinctive in size, flavor, and nutritional value. Runner peanuts are known for their consistent, medium kernel size. Runner peanuts are mainly used to make peanut butter. They are also used in candy and snacks. Virginia peanuts are known for their extra large kernel size. They account for most of the peanuts roasted and processed in the shell. When they are shelled, the larger kernels are sold as snack peanuts. Peanuts known for their smaller kernels and reddish-brown skins are called Spanish peanuts. They are used in peanut butter, snack peanuts, and peanut candies. The Spanish peanuts also have a high oil content, which allows the oil to be crushed out and extracted for use in cooking. Valencia peanuts are known for having three or more small kernels to a shell and for their bright red skins. Valencia peanuts are very sweet and are usually roasted and sold in the shell.

Where do Peanuts Grow?

Eleven states produce almost all of the US peanut crop. Georgia grows nearly half of all US peanuts, followed by Florida, Alabama, Texas, North Carolina, South Carolina, Mississippi, Virginia, Oklahoma, Arkansas, and New Mexico. The peanut-producing states are grouped into three regions. The Southeast region produces the most peanuts and includes Alabama, Georgia, Florida, and Mississippi. Second in production is the Virginia-Carolina region, which includes North Carolina, South Carolina, and Virginia. Third is the Southwest region, which includes Texas, Oklahoma, New Mexico, and Arkansas. In 2013, 72% of all the peanuts grown in the United States were grown in the Southeast region, 15% were grown in the Virginia-Carolina region, and the remaining 13% were grown in the Southwest region.

Food for Thought

Dr. John Harvey Kellogg applied for the first patent for peanut butter in 1895. The world was introduced to peanut butter at the Universal Exposition in 1904 in St. Louis. The peanut treat sold for about six cents per pint. Both peanuts and peanut butter are protein powerhouses, providing 12 percent of the recommended daily allowance per serving. About one ounce of peanuts or two tablespoons of peanut butter equal one serving. Peanuts are also a good source of fiber. Fiber reduces the risk of some kinds of cancer and helps the digestive system eliminate waste from the body. In addition, peanuts contain mostly unsaturated fat, which is known as the "good fat."

Access more fun facts about peanuts at the [National Peanut Board](#) website.

A Nutty Life³

Materials:

- Egg cartons (1 per group of 3-4 students)
- Soil
- Peanut seeds
- Water
- 11x17 sheet of paper (1 per group of 3-4 students)
- Markers, crayons, or colored pencils

Procedures:

1. Split students into groups of three to four.
2. Have each group fill one egg carton with potting soil and get 12 peanut seeds.
3. Instruct students to use their pinkie finger to make a hole for the seed in each compartment of the egg carton. Students should push their finger in until the soil is to the top of their fingernail. Have students place one seed in each hole and cover with soil.
4. Completely saturate each compartment with water.
5. Place in a warm area where light will reach the seeds.
6. Post the following timeline for students to see, using a projector or white board:
 - In the U.S., peanuts are planted after the last frost in April through May.
 - In 10 days, peanut seedlings poke through soil.
 - In 40 days, yellow flowers appear on the plant.
 - Flowers pollinate themselves and the petals fall off. The peanut ovary, called a “peg,” begins to form.
 - The peg grows away from the plant and back into the soil. The peg turns into a peanut! The peanut is technically the fruit of the plant.
 - In four to five months, peanuts are harvested.
7. Have groups create a visual timeline on a large (11 x17) sheet of paper. As the peanut plants grow in the classroom, have students note observations on their timelines.

Processing Questions:

1. What is unique about the life cycle of the peanut plant? a. Listen for students to observe that the plant flowers above ground, but the fruit (peanut) grows below ground.
2. What is unique about peanuts compared to other common nuts? a. Listen for observation that most other nuts, like pecans and walnuts, grow on trees.

Where In The World?³

Materials:

- USA map (one for each student)
- Production Map of Peanuts
- Peanuts, unshelled (about 20 peanuts per student)
- Glue
- Projector or large world map for reference

Procedures:

1. Distribute USA maps to students.

2. Have students identify the 15 states in the U.S. where peanuts are commercially grown by lightly shading with a pencil. These states are Georgia, Texas, Alabama, North Carolina, Florida, Virginia, Oklahoma, New Mexico, South Carolina, Louisiana, Arizona, Arkansas, Mississippi, California, and Tennessee. Show students the Production Map of Peanuts to see how it aligns with the shaded regions on the USA map.
3. Inform students that, while peanuts are grown in many warm regions around the world, the U.S. is a major exporter of peanuts. This means that the U.S. sends peanuts and peanut products to other countries.
4. Using a large reference map, identify the major regions where the U.S. exports peanuts. Canada, Mexico, and countries in the European Union are locations where the U.S. exports peanuts. Have students note these areas by drawing an arrow from the U.S. and lightly shading with a pencil.
5. Distribute peanuts and glue. Have students complete their maps by gluing peanuts on the shaded regions and along the export paths.

Processing Questions:

1. What is the difference between an export and import? a. Listen for students to clarify that an export is something a country ships out, while an import is something the country brings in.
2. What factors might cause a country to export or import a commodity like peanuts? a. Listen for students to describe that different regions of the world are suitable for growing different things. The southern U.S. is perfect for growing peanuts, so we are able to produce enough for our own consumption, and enough to sell to other countries who may not be able to grow their own.

Extension Activities:

- Watch a tour of a SC peanut farm – Rogers Brothers - <https://vimeo.com/565781561>
- **Homemade Peanut Butter:**
Have students enjoy peanut butter and crackers while they are completing the activities. Use the following recipe to make homemade peanut butter.
 - Measure 1 cup of peanuts and put in a blender.
 - Measure 1 1/2 teaspoons peanut oil and put in blender.
 - Cover and blend for approximately 3 minutes.
 - Scrape sides of blender with a spoon and push peanuts to the bottom of the blender.
 - Cover and blend for 3 more minutes.
 - Scoop out of blender and enjoy on crackers or celery.
 - Compare the homemade peanut butter to store brands.
- Learn about growing peanuts (you don't have to live in the south!) in the article [Peanuts-Grow Nuts in the Garden Next Year](#). Then, plant peanuts as an introduction to learning about social studies core concepts. Did you know most people in Mali use peanuts for special foods during the Harvest Festival (the largest celebration)?
- Watch the [Virginia Peanut Farmer](#) video segment of America's Heartland. You will learn about the Dunn family in Virginia. The Dunn family are 7th generation farmers. Their farming heritage stretches back to the days of George Washington.
- Watch the peanut video segments of the *Field Trip!* series devoted to peanuts. [Part 1](#) teaches all about the peanut including varieties of peanuts, how they grown, and how they are harvested. [Part 2](#) shows how peanuts are processed into peanut butter.

Suggested Companion Resources:

- [Burn a Peanut- Count Calories](#)
- [A Home Run for Peanuts](#)
- [A Picture Book of George Washington Carver](#)
- [A Pocketful of Goobers](#)
- [A Weed Is a Flower: The Life of George Washington Carver](#)
- [From Peanut to Peanut Butter](#)
- [George Washington Carver for Kids: His Life and Discoveries, with 21 Activities](#)
- [George Washington Carver: Agriculture Pioneer](#)
- [George Washington Carver: Ingenious Inventor](#)
- [In the Garden with Dr. Carver](#)
- [Spill the Beans and Pass the Peanuts](#)
- [The Little Plant Doctor: A Story About George Washington Carver](#)
- [The Secret Garden of George Washington Carver](#)
- [My American Farm](#)

Sources/Credits:

1. Nolan, Janet. *PB&J Hooray!: Your Sandwich's Amazing Journey From Farm to Table*, Albert Whitman, 2014.
2. Utah Ag in the Classroom
3. National Peanut Board

Suggested SC Standards Met:

English/Language Arts:

- 3.RI.5.1 Ask and answer literal and inferential questions to determine meaning; refer explicitly to the text to support inferences and conclusions.
- 3.RI.12.3 Read and respond according to task and purpose to become selfdirected, critical readers and thinkers.
- 4.RI.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.RI.12.3 Read and respond according to task and purpose to become selfdirected, critical readers and thinkers.
- 5.RI.5.1 Quote accurately from a text to analyze meaning in and beyond the text.
- 5.RI.12.3 Read and respond according to task and purpose to become selfdirected, critical readers and thinkers.

Science (2021 standards):

- 2-LS2-1. Plan and conduct an investigation to determine what plants need to grow.
- 2-LS4-1. Make observations of plants and animals to compare patterns of diversity within different habitats.
- 3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment
- 3-ESS2-2. Obtain and combine information to describe climate patterns in different regions of the world.
- 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function together in a system to support survival, growth, behavior, and reproduction.
- 5-LS1-1. Support an argument with evidence that plants obtain materials they need for growth mainly from air and water.

Social Studies (2019 standards):

- 2.G.1 Identify the geographic location of the U. S. in relation to the rest of the world.
- 3.2.1.ER Recognize and explain how physical features are distributed around the world.
- 3.4.2.HS Investigate the economic and land use characteristics of places and regions around the world.
- 5.5.CX Contextualize the changes in rural communities in South Carolina within national and global industries.

PERFECTLY POWERFUL PEANUT



Planting

Peanut seeds from the previous year's crop are planted after the last frost in April or May when the soil temperature is 65-70 degrees. Specialists at the SCDA seed lab test seeds for germination to make sure farmers are getting the highest quality seeds.



Applying Land Plaster

Peanuts need more calcium than soil alone can supply, so farmers apply additional sources to meet the high requirements of the crop.



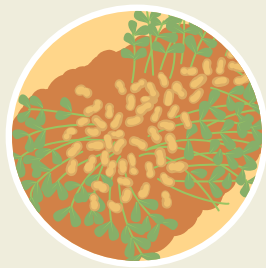
Mid Season

Farmers scout for mid-season peanut diseases to identify any potential threats to the plant and determine if it's necessary to apply fungicide.



Combining

Once the peanuts are dry, they are collected using a combine. The combine removes the peanuts in their hulls, deposits them into the hopper or wagon and returns the vines to the ground where they will help improve soil nutrition through addition of organic matter.



Windrow Drying

The exposed rows of peanuts are left in the field for a few days following digging to dry.



Digging

In October, farmers dig their peanuts using an attachment on their tractor. The peanut plants are uprooted, exposing the peanuts to the sun.



Loading to Buying Point

Farmers transport their peanuts to the buying point where the peanuts will be purchased by retailers and wholesalers, or will go for further processing into peanut butter or other products.



Sampling

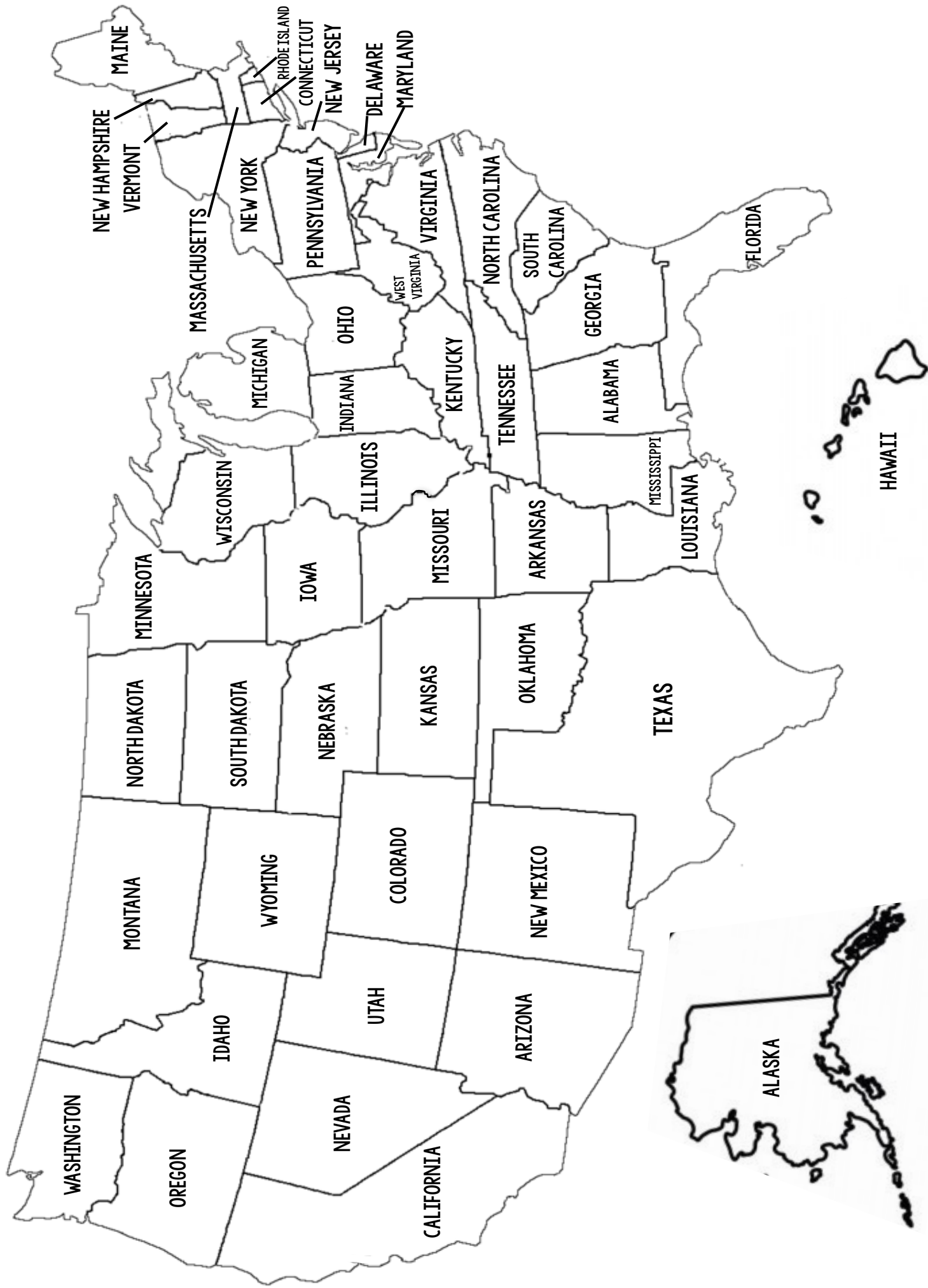
SCDA certified peanut inspectors grade peanuts for quality, and oversee all aspects of the sampling process including the sale of the peanuts, the workers at the buying point and how the seeds are stored.



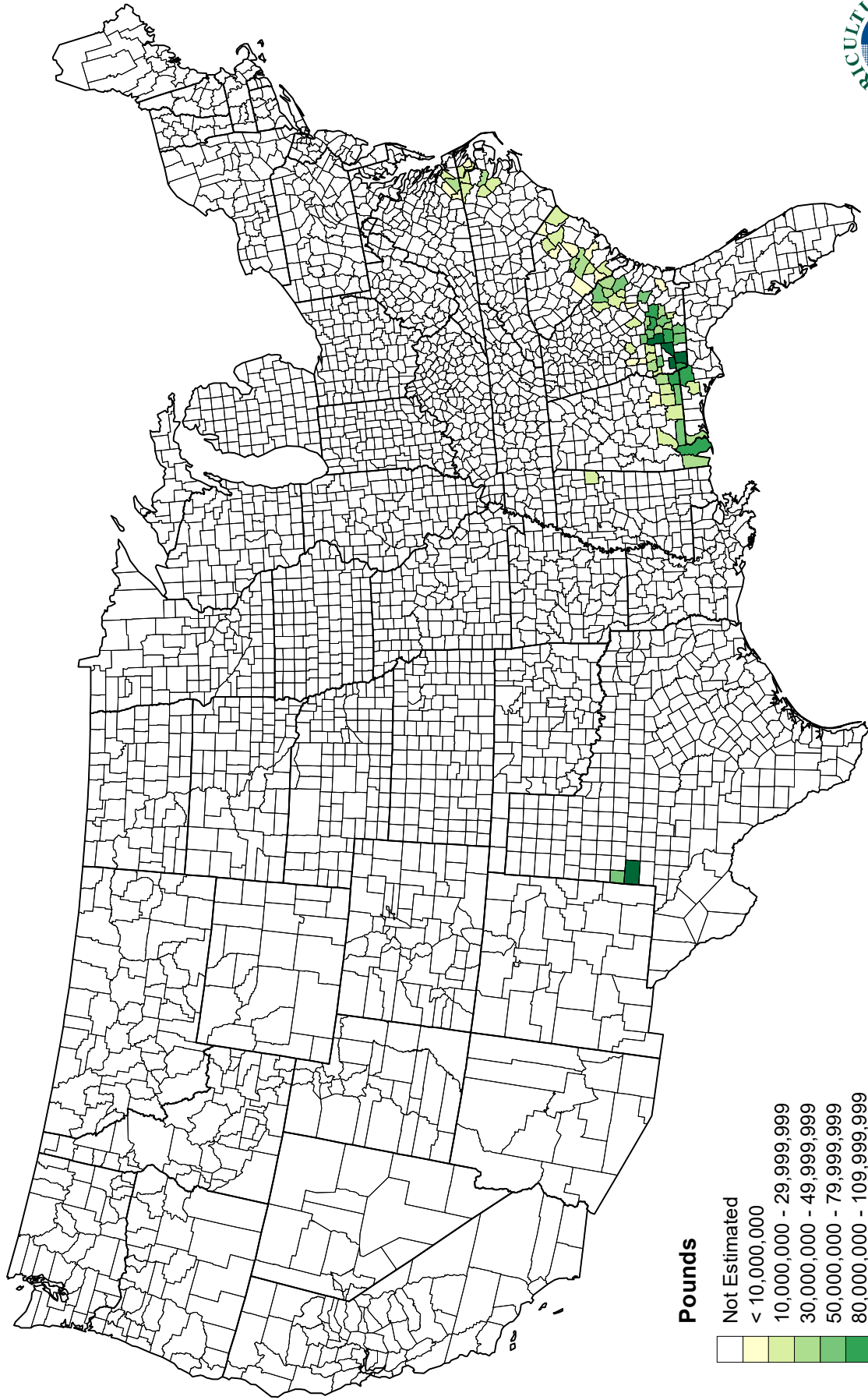
Enjoy!

Peanuts are sold in the shell or are made into other foods like peanut butter or peanut oil, a premium cooking oil. Enjoy this naturally cholesterol free, protein-packed powerhouse!

United States Map



Peanuts 2019 Production by County for Selected States



Name _____ Pd _____

Basic World Map

Basic Map of the World

Instructions: Label as many countries as you can. Label as many oceans and bodies of water as you can. Be neat!

