

Nuts About Peanuts

Grade Level(s)

3 - 5

Estimated Time

1 hour

Purpose

Students label the parts of a peanut plant on a diagram, follow step-by-step instructions to plant a peanut, and use a chart to record the growth of peanut plants.

Materials

- *Peanut Plant* activity sheet
 - *My Peanut Plant Growth Chart* activity sheet
 - Large, clear plastic drinking cups
 - Small, round plastic or paper plates
 - Sand or sandy loam soil
 - 3-5 raw peanuts per student
- Note: These are available at health food stores. Peanuts that have been dry roasted or blanched will not sprout!*
- Plastic spoons
 - Permanent marker
 - Paper towels
 - Water
 - Pen or pencil
 - Several pots (12 inches in diameter) or a ten-gallon aquarium

Essential Files (maps, charts, pictures, or documents)

- [Peanut Plant Activity Sheet Key](#)
- [Peanut Plant Activity Sheet](#)
- [My Peanut Plant Growth Chart Activity Sheet](#)

Essential Links

- [The Peanut Institute's "Peanut Facts" Website](#)
- [National Peanut Board's "Fun Facts" Website](#)

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

Did you know? (Ag Facts)

- Four of the top 10 candy bars manufactured in the USA contain peanuts or peanut butter.
- 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.
- 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).

Background Agricultural Connections

The History of the Peanut

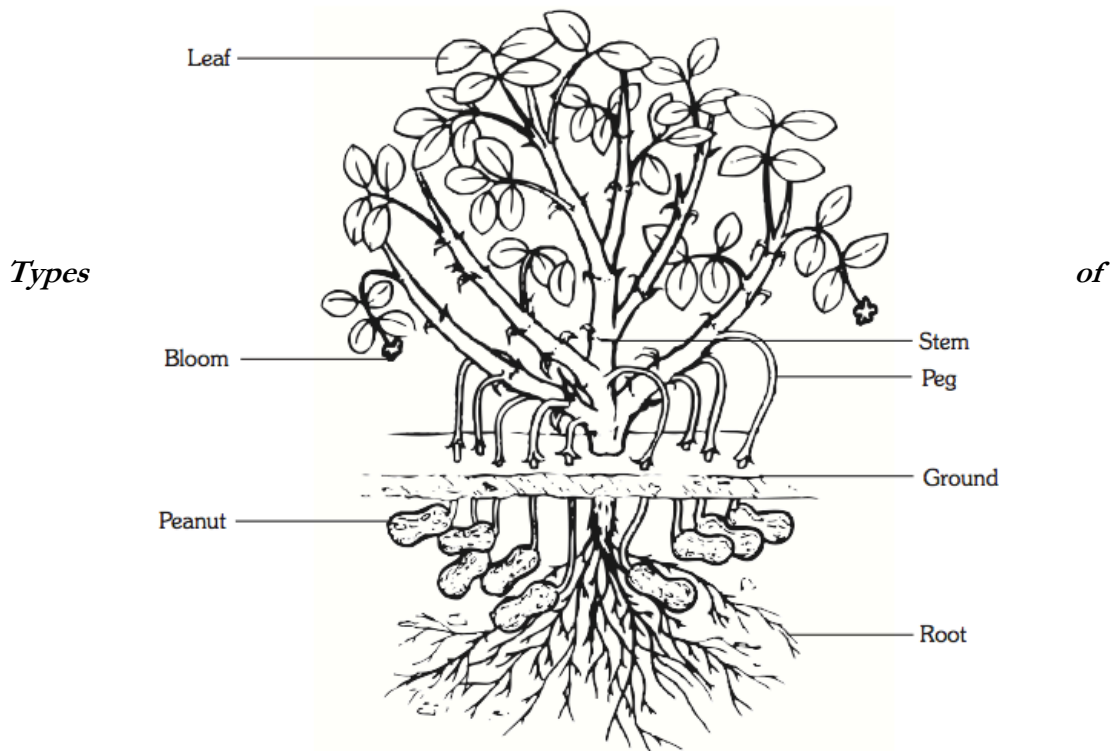
The peanut plant probably originated in Brazil or Peru, although no fossil records exist to prove this. Peanuts were grown as far north as Mexico by the time the Spanish began their exploration of the New World. The explorers took peanuts back to Spain, where they are still grown today. From Spain, traders 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.



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.”

Peanut Allergies

The occurrence of peanut allergies in the United States has grown significantly. Some peanut allergies are very serious health concerns. Prior to completing any of these activities, be aware of any allergies in your classroom or school and what measures should be taken to avoid allergic reactions.

Interest Approach – Engagement

1. Ask your students if they can tell you what protein does for their bodies. Allow students to draw on their prior knowledge to recognize that protein helps build and repair muscles in their body.
2. Ask your students, "What kind of foods contain lots of protein?" Students will likely list various meat products. Meat comes from animals and has an abundant supply of protein. Ask your students if they can think of a protein-rich food that comes from a plant. If students cannot guess, give them some or all of the following clues until they guess *peanut butter*.
 - This food can be spread on bread.
 - Many people like to eat it with apples, celery, or bananas.
 - It is made by cooking and crushing a specific type of nut until it is a smooth and creamy texture.
 - You can make a sandwich using this food, jelly, and bread.
3. Explain to your students that peanut butter is a good source of protein in our diets. It is processed or made from peanuts. Today, your students are going to learn about the peanut!

Procedures

1. Read the information contained in the *Background Agricultural Connections* section of the lesson aloud to the students. Check student understanding by asking the assessment questions.
2. Pass out the *Peanut Plant* activity sheet to students. As a group, label the parts of the peanut plant.
3. Have the students follow these directions for planting peanut seeds. You may wish to demonstrate the steps as they follow along with their own cups. (Note: Peanut seeds should be soaked overnight before planting.)
 - a. Get a cup. Write your name on it with a permanent marker.
 - b. Make a small drainage hole in the bottom of your cup with a pen or pencil (with teacher's help).
 - c. Fill your cup with soil to within one inch of the top of the cup.

- d. Plant three to five peanuts about two inches deep in the soil. Press the soil firmly, but do not pack.
 - e. Fold a paper towel into a square and moisten with water. Place the paper towel under the plastic cup.
 - f. Then place your paper towel and cup on a paper or plastic plate.
 - g. Place the cup and plate in a warm spot on a window sill.
 - h. Record observations daily on “My Peanut Plant Growth” activity sheet.
4. Keep plants in a warm room and expose them to as much direct sunlight as possible.

Questions for Investigation and Assessment:

1. How do peanuts grow? (*on a plant out of the ground and not on a tree*)
2. Describe what a peanut plant looks like. (*green, oval shaped leaves, plant about 18 inches tall*)
3. When does a farmer plant peanuts, and how long is the growing cycle? (*plants in April or May; growing cycle is four to five months long*)
4. Name some states that grow peanuts. (*Georgia, Florida, Alabama, Texas, North Carolina, South Carolina, Mississippi, Virginia, and Oklahoma*)
5. About how many uses for the peanut did Carver find? (*Over 300*)
6. What is the name of the insect that threatened the cotton crop? (*boll weevil*)
7. Name something Carver developed from peanuts. (*Answers can include shaving cream, leather dye, coffee, ink, shoe polish*)
8. Review the books *Spill the Beans and Pass the Peanuts* by Meredith Sayles Hughes and *A Pocketful of Goobers, the Story of George Washington Carver* by Barbara Mitchell.

Enriching Activities

▪ **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.

1. Measure 1 cup of peanuts and put in a blender.
 2. Measure 1 1/2 teaspoons peanut oil and put in blender.
 3. Cover and blend for approximately 3 minutes.
 4. Scrape sides of blender with a spoon and push peanuts to the bottom of the blender.
 5. Cover and blend for 3 more minutes.
 6. Scoop out of blender and enjoy on crackers or celery.
 7. 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 Discovery Channel's four-minute segment *How It's Made-Peanut Butter*.
 - 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](#) (Activity)
- [A Picture Book of George Washington Carver](#) (Book)
- [A Pocketful of Goobers](#) (Book)
- [A Weed Is a Flower: The Life of George Washington Carver](#) (Book)
- [From Peanut to Peanut Butter](#) (Book)
- [George Washington Carver: Agriculture Pioneer](#) (Book)
- [In the Garden with Dr. Carver](#) (Book)
- [PB&J Hooray!](#) (Book)
- [Spill the Beans and Pass the Peanuts](#) (Book)

Sources/Credits

Information from American Peanut Council's "No-Nut Peanut" a teacher's kit for grades 3-5. Reprinted with permission from American Peanut Council.

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Organization Affiliation
Utah Agriculture in the Classroom

Nuts About Peanuts- Grades 3-5

Health:

- **3rd Grade:**
 - **Standard 4:** “Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks” (NHES, 2007).
 - **Standard 5:** “Students will demonstrate the ability to use decision-making skills to enhance health” (NHES, 2007).
- **4th Grade & 5th Grade:**
 - **Standard 5:** “Students will demonstrate the ability to use decision-making skills to enhance health” (NHES, 2007).
 - **Standard 7:** “Students will demonstrate the ability to practice health-enhancing behaviors and avoid or reduce health risks” (NHES, 2007).

English Language Arts:

- **3rd Grade, 4th, & 5th Grades:**
 - **Reading Informational Text (RI):**
 - **Standard 4:** Read with sufficient accuracy and fluency to support comprehension.
 - **Meaning and Context (MC):**
 - **Standard 5:** Determine meaning and develop logical interpretations by making predictions, inferring, drawing conclusions, analyzing, synthesizing, providing evidence and investigating multiple interpretations.
 - **Language Craft and Structure (LCS):**
 - **Standard 11:** Analyze and critique how the author uses structures in print and multimedia texts to craft informational and argument writing.

Math:

- **3rd Grade:**
 - **Standard 3.MDA.3:** Collect, organize, classify, and interpret data with multiple categories and draw a scaled picture graph and a scaled bar graph to represent the data.
 - **Standard 3.MDA.4:** Generate data by measuring length to the nearest inch, half-inch and quarter-inch and organize the data in a line plot using a horizontal scale marked off in appropriate units

4th Grade:

- **Standard 4.MDA.1:** Convert measurements within a single system of measurement, customary (i.e., in., ft., yd., oz., lb., sec., min., hr.) or metric (i.e., cm, m, km, g, kg, mL, L) from a larger to a smaller unit.
- **Standard 4.MDA.4:** Create a line plot to display a data set (i.e., generated by measuring length to the nearest quarter-inch and eighth-inch) and interpret the line plot.

5th Grade:

- **Standard 5.MDA.1:** Convert measurements within a single system of measurement: customary (i.e., in., ft., yd., oz., lb., sec., min., hr.) or metric (i.e., mm, cm, m, km, g, kg, mL, L) from a larger to a smaller unit and a smaller to a larger unit.
- **Standard 5.MDA.4:** Differentiate among perimeter, area and volume and identify which application is appropriate for a given situation

Science:

- **3rd Grade:**

- **Standard 3.S.1:** Standard 3.S.1: The student will use the science and engineering practices, including the processes and skills of scientific inquiry, to develop understandings of science content.
- **Standard 3.L.5A Conceptual Understanding:** The characteristics of an environment (including physical characteristics, temperature, availability of resources, or the kinds and numbers of organisms present) influence the diversity of organisms that live there. Organisms can survive only in environments where their basic needs are met. All organisms need energy to live and grow. This energy is obtained from food. The role an organism serves in an ecosystem can be described by the way in which it gets its energy.

- **4th Grade:**

- **Standard 4.S.1:** The student will use the science and engineering practices, including the processes and skills of scientific inquiry, to develop understandings of science content.

- **Standard 4.L.5:** The student will demonstrate an understanding of how the structural characteristics and traits of plants and animals allow them to survive, grow, and reproduce.

- **5th Grade:**

- **Standard 5.S.1:** The student will use the science and engineering practices, including the processes and skills of scientific inquiry, to develop understandings of science content.

- **Standard 5.L.4:** The student will demonstrate an understanding of relationships among biotic and abiotic factors within terrestrial and aquatic ecosystems.

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.



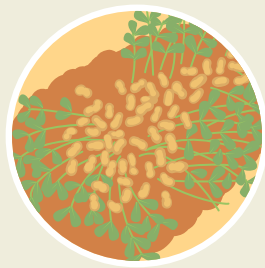
Mid Season

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!



**USDA, NASS
SOUTHERN REGION**

355 East Hancock Ave, Suite 100
Athens, Georgia 30601
Phone: (706) 713-5400
E-mail: nassrfosor@nass.usda.gov



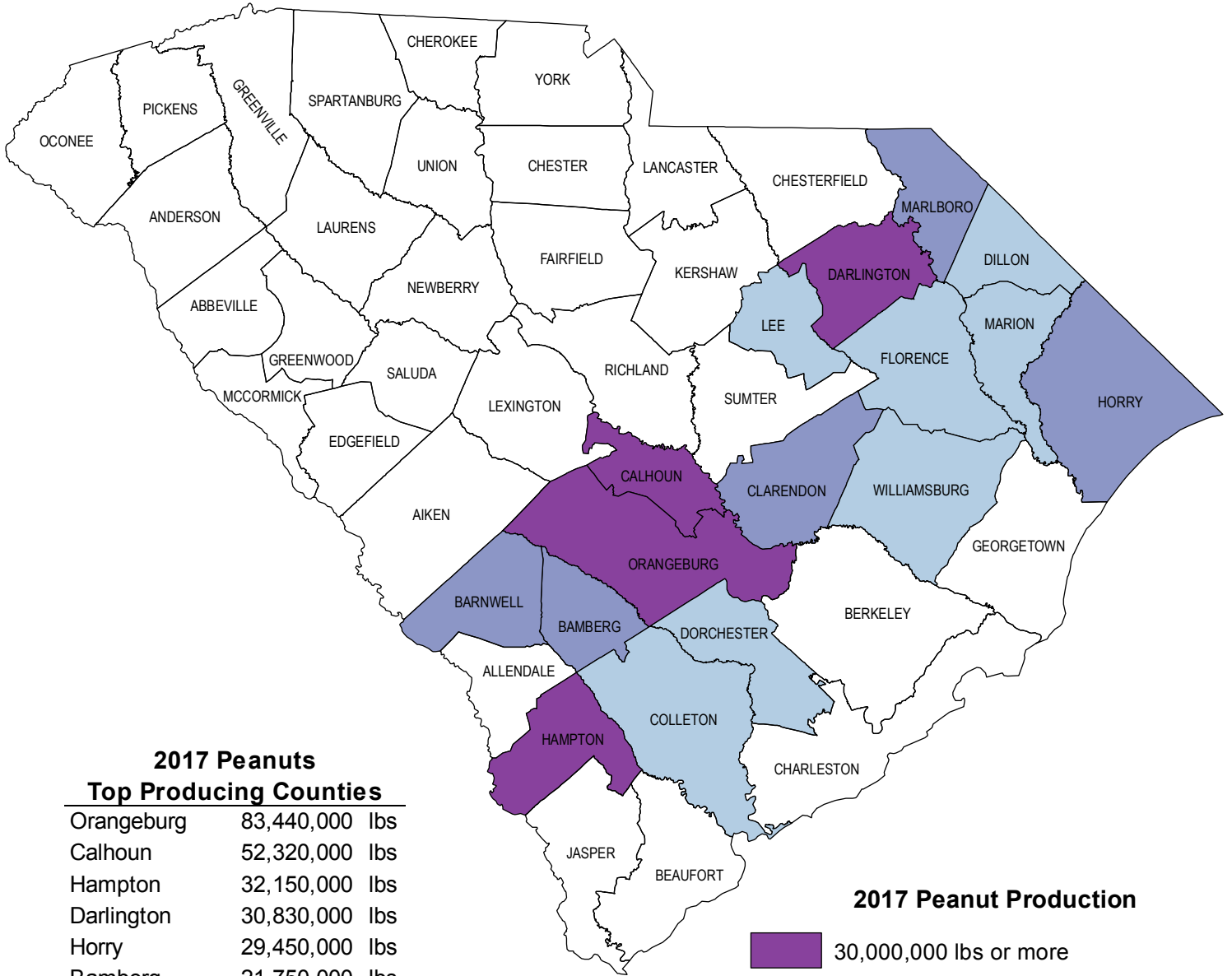
Cooperating with the South Carolina
Department of Agriculture

South Carolina County Estimates

Peanuts 2016-2017

Released: May 2018

State Statistician: Eddie Wells

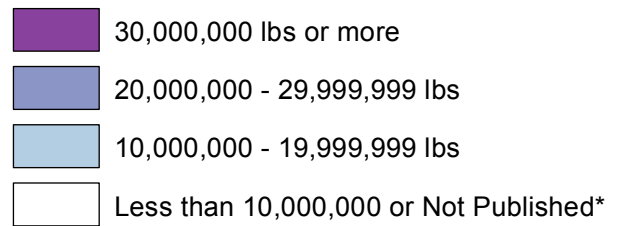


2017 Peanuts

Top Producing Counties

Orangeburg	83,440,000 lbs
Calhoun	52,320,000 lbs
Hampton	32,150,000 lbs
Darlington	30,830,000 lbs
Horry	29,450,000 lbs
Bamberg	21,750,000 lbs
Marlboro	21,620,000 lbs
Clarendon	21,580,000 lbs
Barnwell	20,380,000 lbs
Marion	19,160,000 lbs
State Total	472,000,000 lbs

2017 Peanut Production



* Counties not published due to insufficient data or to avoid disclosure of individual operations.

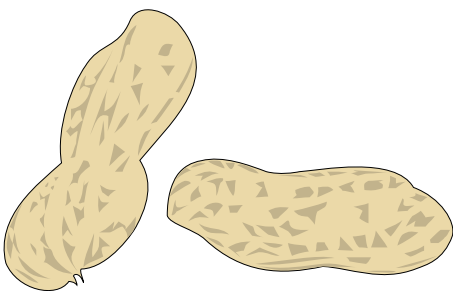
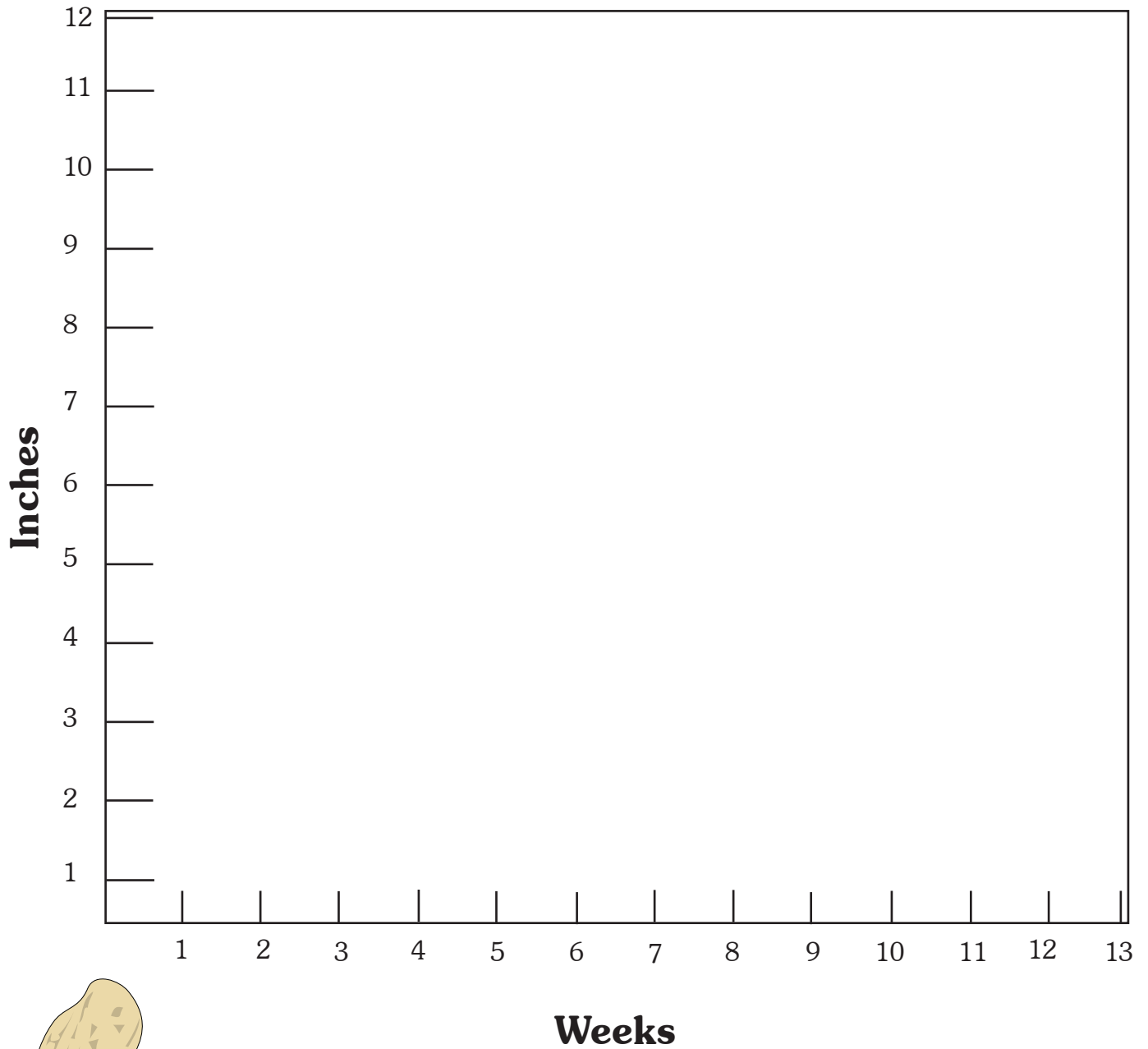
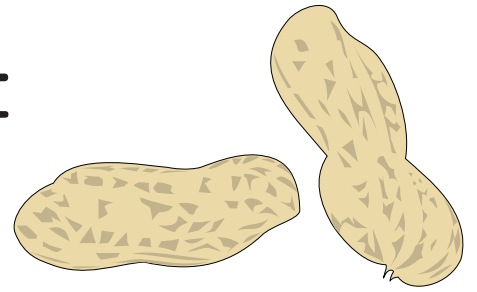
Peanut Area Planted and Harvested, Yield, and Production by County — South Carolina: 2016 and 2017

County	2016				2017			
	Planted	Harvested	Yield per acre	Production	Planted	Harvested	Yield per acre	Production
	(acres)	(acres)	(pounds)	(pounds)	(acres)	(acres)	(pounds)	(pounds)
D10 Northwest.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
D20 North Central.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Darlington.....	6,200	6,100	3,180	19,400,000	7,300	7,100	4,342	30,830,000
Dillon.....	2,900	2,800	3,214	9,000,000	3,500	3,400	4,235	14,400,000
Florence.....	(D)	(D)	(D)	(D)	4,100	4,000	4,433	17,730,000
Horry.....	9,200	8,500	2,587	21,990,000	9,100	8,800	3,347	29,450,000
Marion.....	4,500	4,400	3,227	14,200,000	5,300	5,100	3,757	19,160,000
Marlboro.....	5,300	5,200	3,262	16,960,000	5,900	5,800	3,728	21,620,000
Williamsburg.....	4,800	4,600	2,748	12,640,000	5,700	5,500	3,000	16,500,000
D30 Other counties.....	4,400	4,200	3,717	15,610,000	1,300	1,100	3,482	3,830,000
D30 Eastern.....	37,300	35,800	3,067	109,800,000	42,200	40,800	3,763	153,520,000
D40 West Central.....	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Calhoun.....	11,500	11,000	3,105	34,160,000	12,200	11,800	4,434	52,320,000
Clarendon.....	7,400	7,200	3,264	23,500,000	5,400	5,200	4,150	21,580,000
Lee.....	2,600	2,500	3,012	7,530,000	4,300	4,100	4,085	16,750,000
Orangeburg.....	16,900	16,300	3,356	54,700,000	19,800	19,400	4,301	83,440,000
Sumter.....	2,800	2,700	3,541	9,560,000	(D)	(D)	(D)	(D)
D50 Other counties.....	1,900	1,900	3,763	7,150,000	4,100	3,800	3,958	15,040,000
D50 Central.....	43,100	41,600	3,284	136,600,000	45,800	44,300	4,269	189,130,000
Bamberg.....	4,900	4,800	3,279	15,740,000	5,400	5,200	4,183	21,750,000
Barnwell.....	4,800	4,700	3,796	17,840,000	5,200	5,000	4,076	20,380,000
Colleton.....	3,700	3,600	2,583	9,300,000	3,900	3,700	3,654	13,520,000
Dorchester.....	4,100	3,900	3,379	13,180,000	4,200	4,100	3,200	13,120,000
Hampton.....	6,500	6,200	2,981	18,480,000	8,200	8,000	4,019	32,150,000
D80 Other counties.....	3,500	3,300	3,139	10,360,000	4,500	4,300	3,930	16,900,000
D80 Southern.....	27,500	26,500	3,204	84,900,000	31,400	30,300	3,888	117,820,000
Other districts total.....	2,100	2,100	3,762	7,900,000	2,600	2,600	4,435	11,530,000
State total.....	110,000	106,000	3,200	339,200,000	122,000	118,000	4,000	472,000,000

(D) Counties not listed are not published due to insufficient data or to avoid disclosure of individual operations.

Name _____

My Peanut Plant Growth Chart



Name _____

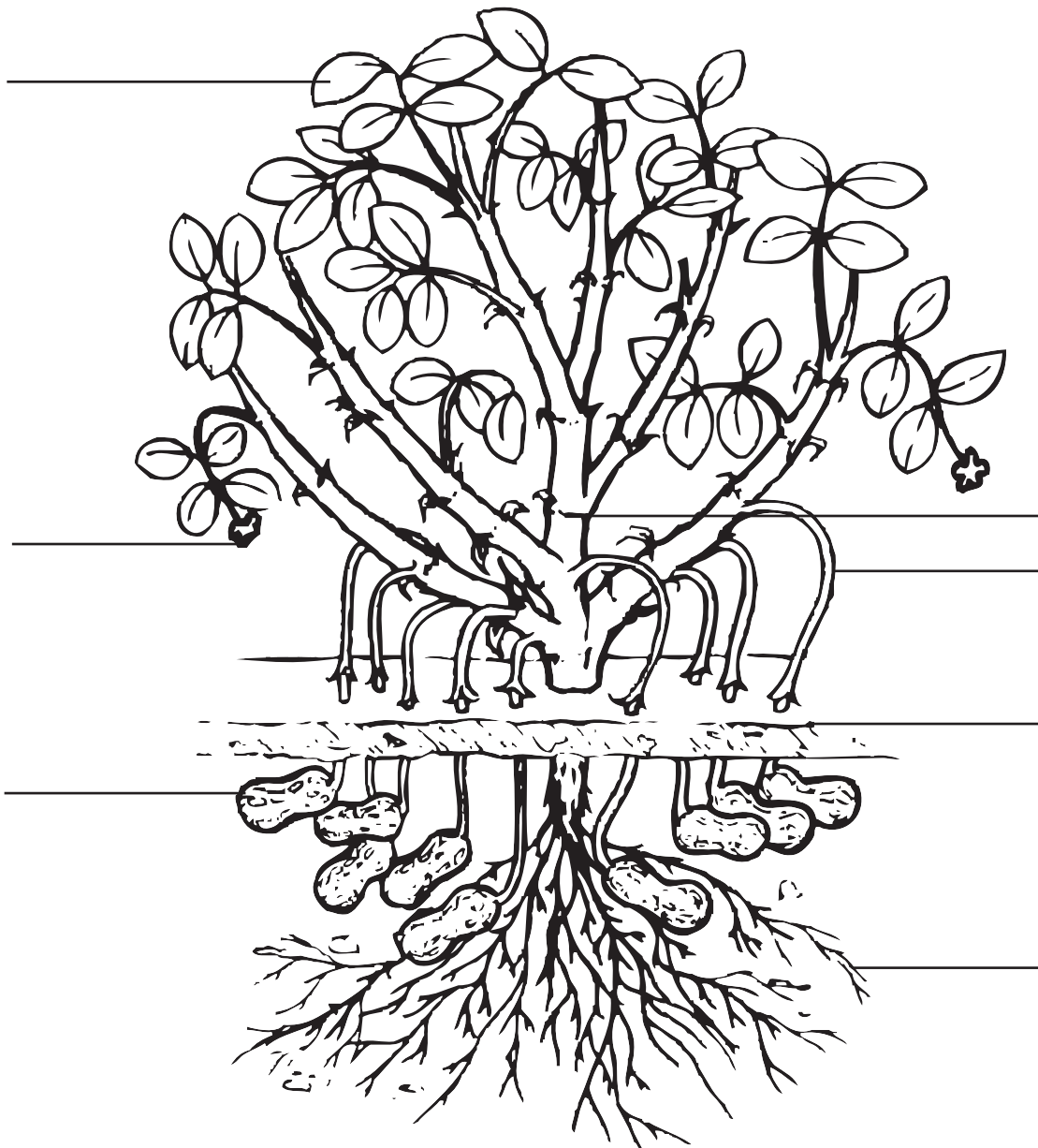
Peanut Plant

Can you label the parts of the peanut plant below?

Root
Peanut

Peg
Ground
Leaf

Bloom
Stem



Peanut Plant

Answers

Can you label the parts of the peanut plant below?

Root
Peanut

Peg
Ground
Leaf

Bloom
Stem

