



The Book Planter

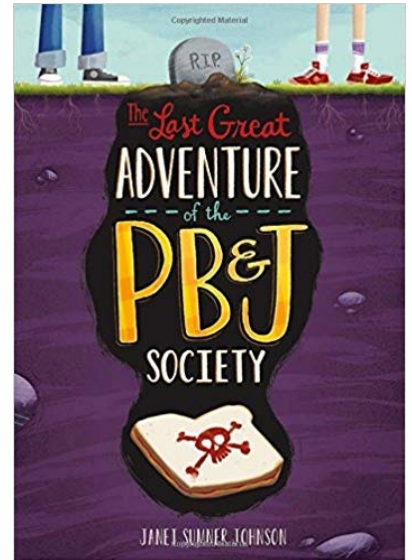


Ag in the Classroom

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April 2019 Chapter Book
The Last Great Adventure of the PB & J Society
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Annie and Jason are best friends and founding members of the elusive PB & J Society. Jason's house is threatened with foreclosure, and Annie is determined to help solve their financial problems to keep her best friend from moving across the country. Unfortunately, donating organs, and winning the lottery are not viable options, but a pirate's treasure could be the answer the PB & J Society was looking for! In the hunt for the treasure, they brave an aggressive rafter of turkeys, and discover the origin story of peanut butter—or so they think. Follow along on *The Last Great Adventure of the PB & J Society*.



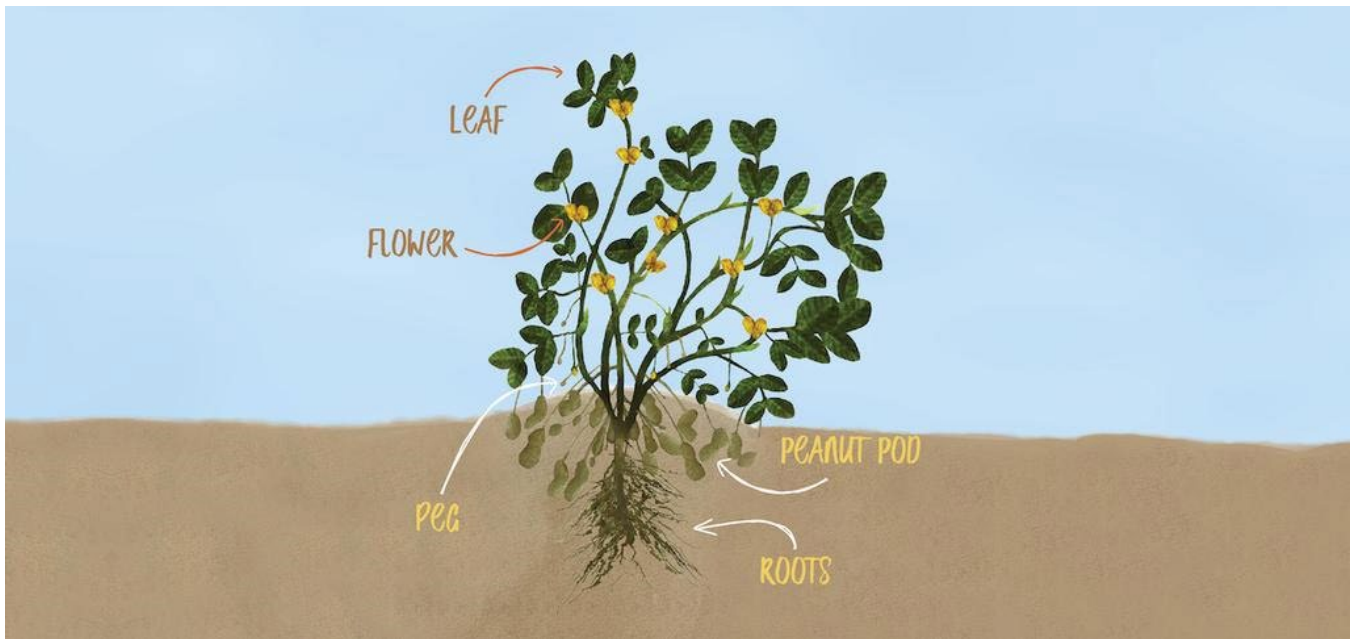
Fun Facts

- It takes about 540 peanuts to make a 12-ounce jar of peanut butter.¹
- Two peanut farmers have been elected President of the United States: Thomas Jefferson and Jimmy Carter.¹
- “Goober”—a nickname for peanuts—comes from “nguba,” the Congo language name for peanut.¹
- The nub between two peanut halves is an embryo.¹
- By law, any product labeled “peanut butter” in the United States must be at least 90% peanuts.¹
- North Carolina ranks fifth in the nation for peanut production.²
- The primary variety of peanut grown in North Carolina is the Virginia peanut. It's known for its large oval shape and reddish-brown skin.²
- Most of North Carolina's peanuts are consumed out-of-hand as cocktail peanuts, instead of processed into peanut butter or incorporated into candies.²
- Peanuts are high in protein and vitamin B.²
- Peanuts are legumes, which means they are part of the bean family.²

Discussion Questions

1. Mrs. Schuster's nickname is Mrs. Meany. Do you think she deserves this nickname? Why or why not? Have you ever been given a mean nickname or one you didn't like? How did it make you feel?
2. Annie compares her friendship with Jason to Peanut Butter and Jelly. Is this a good comparison? Why or why not? How would you describe your friendship with your best friend?
3. Annie and Jason often disagree about what to do, but it is Jason who gives in to Annie most often. Have you ever given in to a friend? Why? Why might it be good to give into a friend? Why might it be bad to give in to a friend? Find examples of each from the book.
4. Jason's family is under a lot of stress because Jason's dad has been out of work for a long time. How does Jason's dad deal with the stress? How about his mom? How do you deal with stressful situations?
5. How would this story have been different if told from Jason's point of view? Mrs. Schuster's? Lila's? (Bonus Activity: Write a scene from a different character's point of view)
6. Why does Mrs. Schuster say she created the treasure hunt for Annie and Jason? (see page 229) Does her explanation justify the lies she told? How would you feel in Annie's place?
7. When Annie is feeling frustrated with the challenges in her life, Mrs. Schuster uses stories about Black marge to cheer her up. How do stories help us face our personal struggles? Discuss.
8. Annie's biggest fear is turkeys. What helped her face her fears? What can help you face your biggest fears?
9. What does Annie mean when she says "organic" when referring to the turkeys? Do you get a sense that she agrees with the term? Explain your answer using research from a reliable source.
10. Why do you think the PB & J Society burial ceremony is so important to Annie? Would you add any new rules? Explain. What song would you want to use to replace "Mary Had a Little Lamb?"
11. Explain Mrs. Schuster's explanation of the origin of peanut butter. Why is Annie so quick to believe her?
12. Even though Jason's family struggles to take care of their basic needs, they keep it a secret. Why is it sometimes difficult to tell others about your struggles?
13. Annie wants to help Jason's family by earning enough money so they can stay in their house. In the end, how does she help them?
14. Compare and contrast Annie and Jason's strengths and weaknesses. Who would you rather have as your friend? Why?

How Peanuts Grow¹



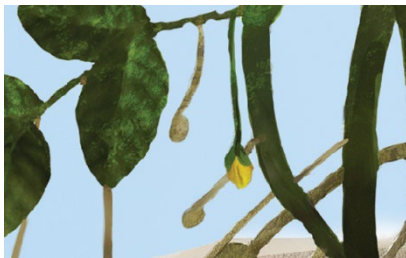
1. First, farmers plant the seeds. Peanuts are planted after the last frost in April through May when soil temperatures reach 65° - 70°. Farmers plant specially grown peanut kernels from the previous year's crop about 2 inches deep, approximately one to two inches apart in rows.

2. Peanut seedlings rise out of the soil about 10 days after planting. They grow into a green oval-leaved plant about 18 inches tall.



Unlike most plants, the peanut plant flowers above the ground, but fruits below ground.

3. Yellow flowers emerge around the lower portion of the plant about 40 days after planting. When the flowers pollinate themselves, the petals fall off as the peanut ovary begins to form.



4. This budding ovary is called a "peg." The peg enlarges and grows down and away from the plant, forming a small stem which extends to the soil. The peanut embryo is in the tip of the peg, which penetrates the soil. The embryo turns horizontal to the soil surface and begins to mature taking the form of a peanut. The plant continues to grow and flower, eventually producing some 40 or more pods. From planting to harvesting, the growing cycle of a peanut takes 4 to 5 months, depending on the type and variety.

Questions:

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 is 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 4-5 months long)

Planting Peanuts⁴

Materials:

- Large, clear plastic drinking cups (one per student)
- Small, round plastic or paper plates (one per student)
- 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

Instructions:

1. Give each student a cup, and have them write their name on the cup with a permanent marker.
2. Make a small drainage hole in the bottom of your cup with a pen or pencil.
3. Fill your cup with soil to within one inch of the top of the cup.
4. Plant 3-5 peanuts about two inches deep in the soil. Press the soil firmly, but do not pack.
5. Fold a paper towel into a square and moisten with water. Place the paper towel under the cut.
6. Then place your paper towel and cup on a paper or plastic plate.
7. Place the cup and plate in a warm spot on a window sill. Keep plants in a warm room and expose them to as much direct sunlight as possible.

Bake Sale Fail to Bake Sale Success³

In *The Last Great Adventure of the PB & J Society*, Annie holds a bake sale that is not successful. As a class, discuss the reasons it wasn't successful and what she could have done better. Have the students create a plan for their own bake sale (individually or in small groups).

They should consider the following ideas:

1. What will they sell? (for purposes of this activity, choosing only one item would be best)
2. How much will they charge for their baked goods?
 - a. Have students research recipes and ingredients, and then source them at local markets or grocery stores, recording the prices for each ingredient. This

information should be reflected in their final price for their baked good. They should give a detailed list and total. Make sure they show their work.

3. How many items would they need to sell to pay for their supplies?
4. When/where will it be held? (have them explain their choices)
5. How will it be advertised?

Burn a Peanut⁵

A peanut will burn producing an impressive amount of flame for a long time. The flame can be used to boil away water and count the calories contained in a peanut. This is a great way to show students how calories are calculated for energy in our bodies.

Materials:

- Fresh peanuts
- 20 mL or larger test tubes (larger tubes are better)
- Test tube holders (ring stand with test tube clamp)
- 10 mL of water (measure with a graduated cylinder)
- Large paper clips
- Aluminum plates
- Sticky tape
- Matches
- Scale

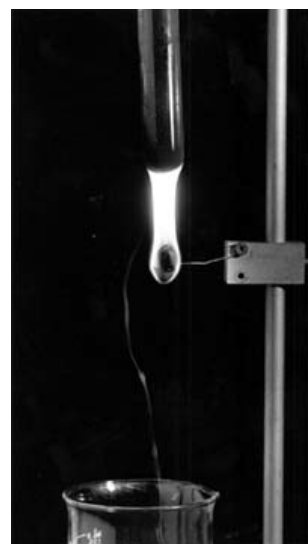
Instructions:

1. Bend the large paper clip to make a peanut holder. Use tape to mount the paper clip in the center of the aluminum plate (pie pan). The pie pan is necessary because the burning peanut may fall off the holder or drip flaming fat drops.
2. Place 10mL of water into the test tube.
3. Mount the test tube in the holder over the paper clip.
4. Tip the test tube at a slight angle, 30° or so. This will allow the water to boil without forcing liquid water out of the tube.

To Do and Notice:

- Find the mass of a whole peanut in grams.
- Mount the peanut on the bent paper clip holder.
- Make sure the peanut is a few centimeters under the test tube of water.
- Make sure your hair and clothing is out of the way and will not be close to the burning peanut or the match.
- Notice the long burning flame.
- Notice that the water in the test tube begins to boil violently.
- Let the peanut burn out and the test tube cool for 5 minutes or so.
- Measure the amount of water left in the test tube and compute the volume (and therefore mass) of water that boiled away.

What's Going On?



The peanut burned. Heat flowed from that burning peanut as combustion converted the hidden chemical energy stored in the nut into the easily measured energy of heat flow. When you eat a peanut, your body does the same sort of thing: it converts the energy stored in the peanut into the energy it needs to keep running. The burning peanut raised the temperature of ten milliliters or ten grams of water from tap water temperature, 20°C, to the boiling point, 100°C then it boiled away 2 grams of water.

Homemade Peanut Butter⁴

1. Measure 1 cup of peanuts and put in a blender.
2. Measure 1 ½ 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 the peanut butter out of the blender and enjoy!

Links

- How It's Made – Peanut Butter (video)
<https://www.youtube.com/watch?v=uh752bxHEeU>
- Who Invented Peanut Butter? (video)
<https://www.youtube.com/watch?v=NKYPHo2JYzo>
- Perfectly Sustainable Peanut
<https://www.youtube.com/watch?v=y0Ly2BH9VLs>

Sources

1. <https://www.nationalpeanutboard.org/peanut-info/fun-facts.htm>
2. <https://www.ncfieldfamily.org/farm/facts-stats/farm-facts-peanuts-2/4/>
3. <http://janetsummerjohnson.com/wp-content/uploads/2015/12/Discussion-Guide.PBJSOCIETY.JSJohnson.pdf>
4. https://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=266&search_term_lp=peanuts
5. <https://www.agclassroom.org/teacher/matrix/resources.cfm?rid=254>
- 6.

K-5 Subject Areas

Reading, Speaking and Listening, Science

Common Core/Essential Standards

Reading

- **RL.K.1.** With prompting and support, ask and answer questions about key details in a text.
- **RL.1.1.** Ask and answer questions about key details in a text.
- **RL.2.1.** Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
- **RL.3.1** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **RL.4.1** Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

- **RL.5.1** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
- **RL.K.3** With prompting and support, identify characters, settings, and major events in a story.
- **RL.1.3** Describe characters, settings, and major events in a story, using key details.
- **RL.2.3** Describe how characters in a story respond to major events and challenges.
- **RL.3.3** Describe characters in a story and explain how their actions contribute to the sequence of events.
- **RL.4.3** Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text.
- **RL.5.3** Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text.
- **RL.3.4** Determine the meaning of words and phrases as they are used in a text, identifying words that impact the meaning in a text.
- **RL.4.4** Determine the meaning of words and phrases as they are used in a text, including words that affect meaning and tone
- **RL.5.4** Determine the meaning of words and phrases as they are used in a text, recognizing specific word choices that contribute to meaning and tone.
- **RI.K.1** With prompting and support, ask and answer questions about key details in a text.
- **RI.1.1** Ask and answer questions about key details in a text.
- **RI.2.1** Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
- **RI.3.1** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **RI.4.1** Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- **RI.5.1** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

Speaking and Listening

- **SL.K.2** Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
- **SL.1.2** Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- **SL.2.2** Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
- **SL.3.2** Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- **SL.4.2** Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- **SL.5.2** Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- **SL.K.4** Speak audibly and express thoughts, feelings, and ideas clearly.

Science

- **2.L.2.1** Identify ways in which many plants and animals closely resemble their parents in observed appearance **and** ways they are different.
- **2.L.2.2** Recognize that there is variation among individuals that are related.
- **5.L.3.1** Explain why organisms differ from or are similar to their parents based on the characteristics of the organism.
- **5.L.3.2** Give examples of likenesses that are inherited and some that are not.