



The Book Planter



Ag in the Classroom

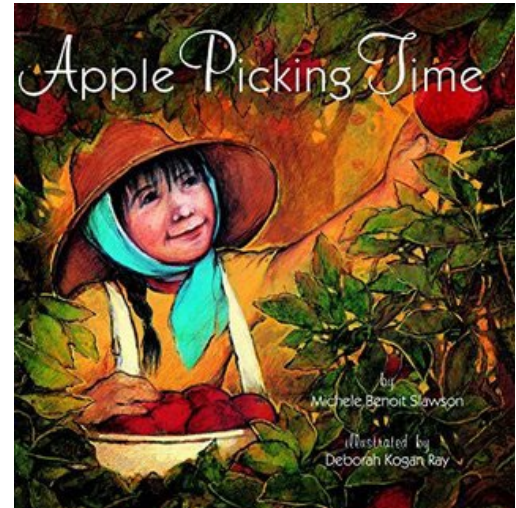
Post Office Box 27766 | Raleigh, NC 27611 | (919) 782-1705
ncagintheclassroom.com

September 2020: *Apple Picking Time*

Written by: Michele Benoit Slawson

Illustrated by: Deborah Kogan Ray

When summer starts to dwindle, and you feel the weather start to turn it is apple picking time! In this town, the whole community helps at the orchards to get the apples picked. Anna has watched her parents and grandparents pick for many seasons, and is helping this year. She is determined to fill a bin by herself, and she does. By doing so, she can cash in her ticket at the end of the long day. Anna explains the whole apple picking process—the tools, the methods, and the hard work required. She understands the importance of the apples to her community and the farms that produce them.



Fun Facts

- More than 2,500 varieties of apples are grown in 36 states—100 of which are grown for commercial sale.^{1,2}
- 25% of an apple's volume is air; that's why they float in water.²
- The four main varieties that make up the bulk of North Carolina's apple production are: Red Delicious, Golden Delicious, Rome Beauty, and Staymen. Over 40 other varieties are grown on a limited basis, including Gala, Granny Smith, Fuji, and Honeycrisp.³
- September is North Carolina's Apple Month.³
- Henderson County is one of the main regions where apples are grown in North Carolina.³
- Peak harvest of NC apples is mid-August through October.⁴
- North Carolina ranks 7th in apple production in the United States.⁴

Before Reading/Student Motivator/Background Information

Have an apple hidden from students. Ask students to close their eyes and listen as you make a sound. When they think they can identify the sound, they should raise their hands. Take a bite or two of the apple. Most students will guess the sounds fairly quickly. Ask, "How many of you eat apples? How do apples grow? Would you like to help pick apples? What tools would help you?"

Explain that the book you are going to read to them is about a family that picks apples in Washington State. Show the students the state of Washington on the United States map. Show them North Carolina in relation to Washington.

Tell students that apples need a number of cold temperature hours to set blooms in the winter, and cooler temperature in the summer to provide a good climate for an apple crop.³ Apple trees prefer warm days and cool nights and full sun. Ask, “Which region in North Carolina do we find cooler climates?” (*The mountain region*) Explain that apples trees are found all over North Carolina, but that they grow best for commercial production in the mountains. Continue discussion by asking, “What are the similarities between North Carolina’s mountain region and Washington State?” (*Acceptable answers: climate, topography, and they both produce apples*) Say, “The North Carolina Mountains and Washington State are known for their apple production.” Continue discussion by asking if students have ever picked their own apples. Allow time for students to share their stories with the class. Students should follow the rules of class discussion, such as waiting turns to speak, or asking questions.

After Reading Discussion Questions

1. What is an orchard? Why do farmers plant apples?
2. What time of year are apples in season? Is the exact season explicitly stated? Find all of the examples within the book that infer what the weather is like during apple picking season.
3. Why do you think the workers get up early to start picking?
4. Why is it important for all of the community to help pick apples?
5. What purpose do the purple tickets serve?
6. What equipment and tools do the apple pickers use? Explain the purpose of each.
7. How does Anna know the proper way to pick apples? Explain your answer using examples from the book.
8. What are migrant workers? (*Migrant workers are people who move around their home country or outside it for work Many farms employ migrant workers to help with planting or harvesting crops. Migrant workers are often seasonal.*) Could Anna’s family be migrant workers? Where would you find migrate workers in North Carolina?
9. Are migrant workers in the community the only people in the story picking apples? Who else helps? Find specific examples in the book.
10. Did Anna experience any struggles during apple picking? What were they? Did she foresee these struggles at the beginning of the day? How did she overcome her struggles?

Activity 1: Parts of an Apple²

Materials:

- 1 set of *Apple Parts Cards* (see *Links* or you can make your own using the vocabulary words)
- Apple
- Cutting board
- Apple slicer (optional)
- Knife

Vocabulary:

Calyx: what is left on the apple from the apple blossom.

Flesh: the sweet part of the apple that you can eat

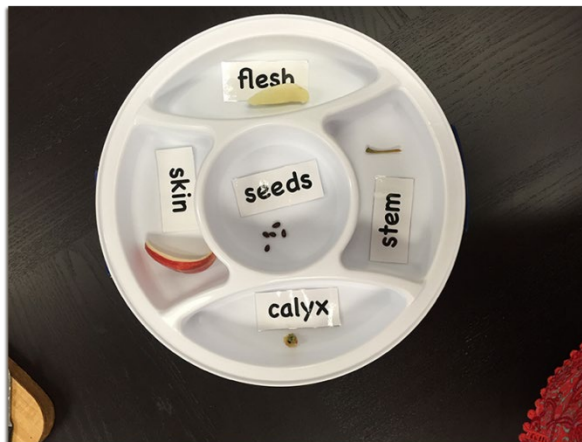
Seeds: can be used to grow new apple trees

Skin: covers and protects the apple's flesh and seeds

Stem: attaches the apple to the apple tree, bringing water and nutrients to the apple

Procedure:

1. Prior to class, print and cut out one set of the Apple Parts Cards to use as labels throughout the demonstration. Explain to students that they are going to learn about the different parts of an apple.
2. Cut an apple with an apple slicer or into slices by hand using a knife. Peel the skin off of one slice. Ask students what it is. Explain that the skin covers and protects the apple's flesh and seeds. Label the skin by placing it next to the "skin" card.
3. Show the students the peeled apple slice's flesh. Explain that the flesh is the sweet part of the apple that you can eat. Place the flesh by the "flesh" card.
4. Pull the stem off of the apple core. Ask students what it is. Explain that the stem is what attaches the apple to the apple tree, bringing water and nutrients to the apple. Place the stem by the "stem" card.
5. Pull some seeds out of the core. Ask the students what they are. Explain that the seeds can be used to grow new apple trees. It takes a long time to grow a new apple tree from seeds. Place the seeds by the "seed" card.
6. Slice the bottom off of the core. Show the students the calyx. Explain that apples grow from flowers. The calyx is what is left of the apple blossom. Place the calyx with the "calyx" card.



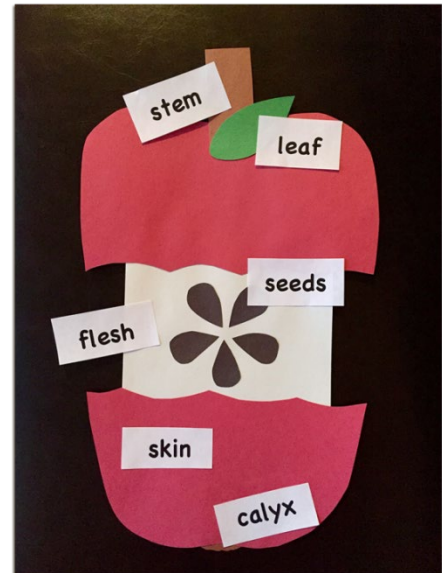
Activity 2: Apple Model²

Materials:

- Construction paper (red, yellow, white, green, brown, black)
- Glue sticks

Procedure:

1. Explain to the students that they will be making a paper model of the parts of an apple.
2. Make a model/example for the students. Show the students the example model. Point out each part reviewing what was taught in **Activity 1**. The skin covers and protects the apple's flesh and seeds. The flesh is the sweet part of the apple. The stem is what attaches the apple to the apple tree, bringing water and nutrients to the apple. The seeds can be used to grow new apple trees. The calyx is what is left of the apple blossom.
3. Give each student two pieces of red, yellow, or green construction paper (they can choose, or you can randomly hand out). Have them cut the top and bottom shape of an apple and bite marks on the straight lines to represent the apple's skin. Glue the colored papers on each end of the white rectangle, which represents the apple's flesh.
4. Glue the brown rectangle on top of the apple to represent the stem. Cut the green paper into the shape of a leaf and attach it to the bottom of the stem.
5. Cut a brown piece of paper to form the shape of a calyx and glue it onto the bottom of the apple.
6. The black paper can be cut into the shape of seeds and attached to the flesh of the apple.
7. Cut out the *Apple Parts Cards* (see **Links**). Read the cards together and have the students label each part of their apple by gluing the cards in place.



Activity 3: Apples in the Orchard¹

1. Show students the [How Does it Grow? Apples](#) video (see **Links** for complete url).
2. Use the following discussion questions to explore the video:
 - a. Why don't farmers grow apples from seed? (*Each seed is genetically unique, meaning that when it grows into a mature tree, the apples it produces will be different than those produced by its parent trees.*)

- b. What is grafting? (*The process of joining a cut stem—or bud—with the trunk of another tree so that the two grow together.*)
 - c. Why do apple farmers graft their trees? (*Grafting allows farmers to “clone” the apple trees that produce the fruit they want. A grafted branch has the same genetic makeup as the tree it was taken from.*)
 - d. Do all apple varieties ripen at the same time? (*No, some varieties ripen earlier than others, so planting different varieties allows farmers to extend their length of harvest.*)
3. Explain to students that apples have been selectively bred for thousands of years to produce the varieties that we know today. Apple breeders, unlike farmers, plant apple trees from seed in order to find and develop new traits. Under human cultivation, the traits that give apple trees a survival advantage are the traits that are most useful and desirable to people. Ask students to brainstorm all the different traits they can think of that might be desirable in an apple tree (e.g., pest resistant, grows fast, has strong branches, produces big apples, juicy apples, sweet apples, crisp apples), and write them on the board.
4. Circle all the traits that are directly related to the fruit of the apple tree (e.g., produces big apples, juicy apples, sweet apples, crisp apples).
5. Based on the information from their data sheets, ask students to vote on which apple variety was their favorite. Imagine that an apple breeder crossed the two favorite class varieties. What characteristics might the resulting apple have?
6. Tie it back to *Apple Picking Time*. Ask students, “What things did you recognize in the video that you also saw in the book, *Apple Picking Time*?” Accept all answers, and allow students to discuss.
7. Ask, “What are some of the safety measures that the apple pickers take in the book and the video?” *Note: Farm safety is not explicitly discussed in the video, so students will need to observe the footage a little more closely.* Explain to students that safety on a farm is important. In the book, the apple pickers lean into their ladders as a measure of safety. Also, they take a break from picking to eat and rest. This is often a safety measure that is overlooked, but it is important to rest when you’re doing anything physical on a farm. Mistakes and accidents happen when your mind and body are not rested. Farmers have many things to consider when producing our food!

Extension Activities:¹

- **Grocery Store Fruit and Vegetable Characteristics:** Many grocery stores have informational sheets on fruits and vegetables. Have students go to the grocery store with a parent or other adult and find out information about a particular fruit or vegetable from the manager of the produce department. For example: How many kinds of apples are carried by the store? Which apples are best for cooking, eating or storing? Which apple has the shortest growing season, and

the longest growing season? Which apple sells the best? Which are the most expensive and why? Where do apples grow in your state?

- **Browning Apples:** Students observed browning in different varieties of apples, but what about browning under different conditions? Have your students think of ways they might slow the browning of apples (add lemon juice, wrap apple slices in plastic, put them in the freezer, etc.). Cut slices of apples, and compare the rate of browning under the different conditions suggested by the students. Make observations over two or three days. Don't forget to provide a control slice (a sliced apple with nothing done to it).
- **Testing Apple Ripeness:** Apple growers try to pick their apples at precisely the right time. They have several ways to test for ripeness that students can try in the classroom. These observations will work best with apples picked in the early fall when you can find varying stages of ripeness—they will not work well with apples from the grocery store.
 - Seed Color Test

Rate the color of the seeds in the apple. A ripe apple has brown seeds. Apple growers use the following scale:

 - 1 = clear (no color)
 - 2 = trace of color (tips of seeds are brown)
 - 3 = 1/4 color
 - 4 = 1/2 color
 - 5 = 3/4 color
 - 6 = fully brown
 - Flesh Color Test

Check the flesh color of the apple by holding a very thin slice—about 1/16th of an inch (1.58 mm)—up to a bright light. A ripe apple has almost no green flesh. Apple growers use the following scale:

 - 1 = flesh all green
 - 2 = some loss of green from center of fruit
 - 3 = heavy green band 1/2 inch (1.27 cm) thick under skin
 - 4 = heavy green band 1/4 inch (6.35 mm) thick
 - 5 = heavy green band 1/8 inch (3.17 mm) thick
 - 6 = green essentially gone from under skin

Have students give their apple a rating from 1 to 6. Remind students that these tests for ripeness involve a skill that scientists must develop—the ability to make careful observations.

Activity 4: Apple Fractions⁵

Materials:

- Apple (one per student or one per group)

- Plastic knives (one per student or one per group)
- Ruler
- String (can also use paper strips)

Procedure:

1. Give each student or group an apple, ruler, piece of string, and a plastic knife. Ask them to measure around the apple with string. Then, they will measure the length of string with a ruler. This will determine the apple's **circumference**. If working in groups, explain group rules and norms. For example, each group member should have a role. For example, one person might measure the apple using the string, and the next person measures the string with the ruler, and so on.
2. Next, tell the students to cut their apple in **half**. Ask, "How many parts do you have?" (2) Explain that each part is called **one-half**. Tell the student to write one-half in a fraction. ($\frac{1}{2}$)
3. Tell students to cut each half in two parts. Ask, "How many pieces do you have?" (4) Explain that each piece is called **one-fourth**. Tell the students to write one-fourth in a fraction. ($\frac{1}{4}$)
4. Lastly, tell the students to cut each piece into two parts again. Ask, "How many pieces are there all together?" (8) Explain that each piece is called **one-eighth**. Tell the students to write one-eighth in a fraction. ($\frac{1}{8}$)

Links

- *Apple Parts Cards* (Vocabulary cards from **Activity 1**)
https://naitc-api.usu.edu/media/uploads/2015/11/09/Apple_Parts_Cards.pdf
- How Does it Grow? Apples (video)
<https://www.youtube.com/watch?v=UWLMeh1HIBw>

Sources

1. https://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=673&grade=0,3&author_state=0&search_term_lp=apple
2. https://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=538&author_state=0&search_term_lp=apple
3. <https://www.ncagr.gov/agcool/teacher/commodities/apple.htm>
4. <https://www.ncagr.gov/markets/commodit/horticul/apples/facts.htm>
5. https://www.michfb.com/MI/uploadedFiles/Documents/Ag_Ed_and_Leadership/K_to_3_Lessons/Math/Apple_Math.pdf

K-5 Subject Areas

Reading, Writing, Speaking and Listening, Science, Social Studies, and Math

NC Standard Course of Study

Reading

- **RL.K.1** With prompting and support, ask and answer questions about key details in a text.
- **RL.K.2** With prompting and support, retell familiar stories, including key details.
- **RL.K.3** With prompting and support, identify characters, settings, and major events in a story.
- **RL.1.1** Ask and answer questions about key details in a text.
- **RL.1.2** Retell stories, including key details, and demonstrate understanding of their central message or lesson.

- **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.3.1** 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.4.2** Determine a theme of a story, drama, or poem from details in the text; summarize the text.
- **RL.4.3** Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text.
- **RL.5.1** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text
- **RL.5.2** Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
- **RI.K.1** With prompting and support, ask and answer questions about key details in a text.
- **RI.K.2** With prompting and support, identify the main topic and retell key details of a text.
- **RI.K.3** With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.
- **RI.1.1** Ask and answer questions about key details in a text.
- **RI.1.2** Identify the main topic and retell key details of a text.
- **RL.2.3** Describe how characters in a story respond to major events and challenges.
- **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.3.2** Determine the main idea of a text; recount the key details and explain how they support the main idea.
- **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.4.2** Determine the main idea of a text and explain how it is supported by key details; summarize the text.
- **RI.5.1** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

Writing

- **W.K.6** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question
- **W.1.6** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
- **W.2.6** Recall information from experiences or gather information from provided sources to answer a question.
- **W.3.6** Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.
- **W.4.5** Conduct short research projects that build knowledge through investigation of different aspects of a topic.
- **W.5.5** Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

Speaking and Listening

- **SL.K.1** Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
- **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.K.3** Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
- **SL.K.4** Speak audibly and express thoughts, feelings, and ideas clearly.
- **SL.1.1** Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions. b. Build on others' talk in conversations by responding to the comments of others through multiple exchanges. c. Ask questions to clear up any confusion about the topics and texts under discussion.
- **SL.1.2** Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- **SL.2.1** Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions. b. Build on others' talk in conversations by linking their comments to the remarks of others. c. Ask for clarification and further explanation as needed about the topics and texts under discussion.
- **SL.2.2** Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
- **SL.2.4** Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent and complete sentences.
- **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.3.4** Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly in complete sentences at an understandable pace.
- **SL.4.2** Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- **SL.4.4** Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; adjust speech as appropriate to formal and informal discourse.
- **SL.5.2** Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- **SL.5.4** Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; adapt speech to a variety of contexts and tasks.

Science

- **K.P.2** Understand how objects are described based on their physical properties and how they are used.
- **1.L.1** Understand characteristics of various environments and behaviors of humans that enable plants and animals to survive.
- **1.L.2** Summarize the needs of living organisms for energy and growth.
- **3.L.2** Understand how plants survive in their environments.

Social Studies

- **K.G.2** Understand the interaction between humans and the environment.

Math

- **K.MD.1** Describe measurable attributes of objects; and describe several different measurable attributes of a single object.
- **2.MD.1** Measure the length of an object in standard units by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
- **3.NF.1** Interpret unit fractions with denominators of 2, 3, 4, 6, and 8 as quantities formed when a whole is partitioned into equal parts.
- **3.NF.2** Interpret fractions with denominators of 2, 3, 4, 6, and 8 using area and length models.

Apple Parts Cards

stem

stem

leaf

leaf

flesh

flesh

seeds

seeds

skin

skin

calyx

calyx