



SC Farm Bureau
Ag in the Classroom
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September 2019 Book of the Month

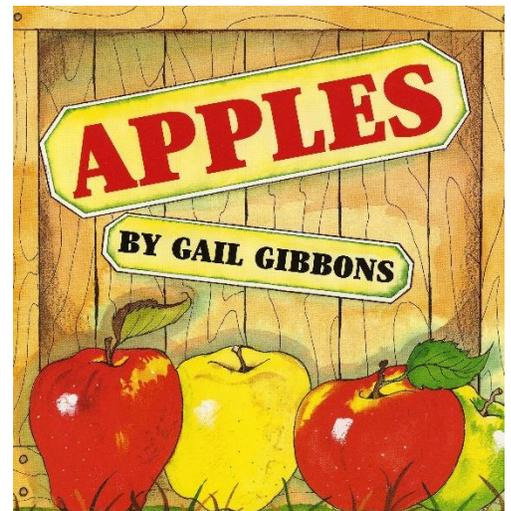
Apples

By: Gail Gibbons

Apples are one of the most popular fruits around, and apple trees grow in more parts of the world than any other fruit tree. Learn all about this fantastic fruit and how people use it in this brightly-illustrated picture book.

A combination of clear, well-labeled diagrams and simple text introduce important vocabulary and concepts for young readers. Parts of the blossom and fruit are clearly explained as Gibbons explores how trees grow and produce apples.

Also included is a look at several popular varieties of apples, a page of interesting trivia, and a delicious recipe for apple pie.¹



Did You Know? (Ag Facts) ²

- Most apples are still picked by hand.
- Apples are a member of the rose family of plants, along with pears, peaches, plums, and cherries.
- It takes about 36 apples to create one gallon of apple cider.

Discussion Questions

- What do you know about apples?
- Tell me about your favorite type of apple, and why.
- How many different ways can we eat apples?

Lesson Plans Available Online at

scfb.org/book-of-the-month

Grade Level(s): PK-2

Purpose: Students will identify the parts of apple, understand some characteristics of apples (including density), and learn how apples are grown.

Vocabulary:

- **calyx:** what is left of the apple blossom
- **flesh:** the sweet part of the apple that you can eat
- **orchard:** a piece of land planted with fruit trees
- **seeds:** can be used to grow new apple trees, but it takes a long time
- **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

Background Agricultural Connections ²

The average American consumes approximately 65 apples a year. There are over 7,500 varieties of apples in the world and about 2,500 varieties are grown in the United States. Apples are the fruit of apple trees. They have green, red, pink, or yellow skin and are used to make apple juice, cider, vinegar, applesauce, and many kinds of salads and desserts.

Apple trees grow in all 50 states, but for efficient fruit production they require a cold period called vernalization. Vernalization takes place during the cold winter months while an apple tree is dormant. Without this cold period, apple trees will not develop sufficient flower buds to produce a good crop of apples. The top three apple producing states in the US are Washington, New York, and Michigan. All three of these states have a significant winter season.

Apple trees are not typically grown from seed because it takes about 15 years for an apple tree grown from seed to produce an apple. Instead, most apple trees are grown by budding or grafting onto rootstocks—sections of tree roots still attached to a part of the tree trunk. Budding involves taking one bud from an existing tree branch and attaching it under the bark of a rootstock with special grafting tape or glue. Grafting is similar, but rather than a single bud, a section of a stem with multiple leaf buds is attached to the rootstock with grafting glue and tape. Grafted or budded trees usually grow in a nursery for about one year before being planted in an **orchard**.

An apple can be divided into several parts. 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.

Honeybees are commonly used to pollinate apple trees. Almost all varieties of apples require cross-pollination, meaning that pollen from a different variety is needed to produce fruit. Apple trees require full sunlight and well-drained soil. Most apples are ready to harvest in the late summer or early fall.

We've all heard the saying, "An apple a day keeps the doctor away." While eating apples does not guarantee good health, apples do have healthy benefits. Apples are naturally fat-, sodium-, and cholesterol-free and are an excellent source of dietary fiber and antioxidants. A medium apple contains about 80 calories and is loaded with vitamin C and beta-carotene. Be sure to eat the skin. Most of the fruit's antioxidants, vitamin C, and fiber are located in, or just under, the skin.

Identifying the Parts of an Apple

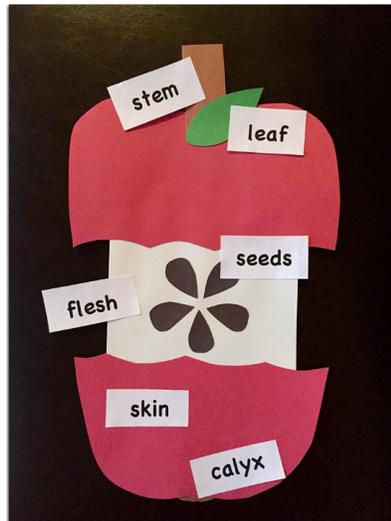
Materials:

- *Apples* by Gail Gibbons
- Apple
- Cutting board
- Apple slicer
- Knife
- 1 set of *Apple Parts Cards* (for demonstration with apple)
- Example of *Apple Model* (make your own following the instructions in *Activity 3*)
- 4.5" (11.43 cm) x 9" (22.86 cm) yellow, red, or green construction paper
- 5" (12.7 cm) x 9" (22.86 cm) white construction paper
- 1" (2.54 cm) x 3" (7.62 cm) brown construction paper
- Brown, green, and black construction paper
- Glue sticks
- *Apple Parts Cards*, 1 set per student

Procedures:

1. Prior to class, print and cut out one set of the *Apple Parts Cards* to use as labels throughout this demonstration.
2. To engage students, read *Apples* by Gail Gibbons. Before reading, ask students what they know about apples. "Has anyone ever been to an apple orchard?" "What do you know about how apples grow?"
3. After reading, explain to the students that they are going to learn about the different parts of an apple.
4. Cut an apple with an apple slicer. 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.
5. 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.
6. 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.
7. 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.

8. Slice the bottom off of the core. Show the students the calyx. Explain that apples develop from flowers. The calyx is what is left of the apple blossom. Place the calyx with the "calyx" card.
9. Explain to the students that they will be making a paper model of the parts of an apple.
10. Show the students the example model.



11. Give each student two pieces of either red, yellow, or green construction paper. 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.
12. 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.
13. Cut a brown piece of paper to form the shape of a calyx and glue it onto the bottom of the apple.
14. The black paper can be cut into the shape of seeds and attached to the flesh of the apple.
15. Cut out the *Apple Parts Cards*. Read the cards together and have the students label each part of their apple by gluing the cards in place.

Sink or Float

Materials:

- Three different varieties of apples (enough for groups or partners)
- Apple Science sheets
- Bowl
- Water

Procedures:

1. Pose the question with students – “Do you think an apple will sink or float? What about its seeds, half the apple, or the stem?” Allow students to handle a few apples before making their predictions.
2. Students will make their predictions on Apple Science sheet.

3. After students have made their predictions, have groups/partners place an apple (different varieties) in the bowl of water to see what happens. All apples should float. Have students record the results. Explain to students that apples are approximately 25% air (they have air pockets) which makes them less dense than the water.
4. Repeat the prediction cycle (procedure steps 1 & 2) with half the apple. Again, half the apple should float.
5. Repeat the prediction cycle (procedure steps 1 & 2) with the apple seeds as well as the stem. Record the results when concluded.
6. Discuss with students the differences and similarities in the results for whole apples, half apples, seeds, and stems. Discuss with students how although the variety of apple was different, each part of the apple performed the same across experiments.

Making Applesauce

Materials:

- Slow Cooker
- *Crock Pot Applesauce* recipe
- Apple peeler corer slicer
- 8 tart apples
- 1 cup (140 g) sugar
- 1 teaspoon (4 g) cinnamon
- 2 cups (480 mL) water
- 2 tablespoons (30 mL) lemon juice
- Liquid measuring cup
- Teaspoon
- Wooden spoon
- Plastic cups, 1 per student
- Plastic spoons, 1 per student

Procedures:

1. Before beginning this activity, students should wash their hands.
2. Explain to the students that apples are used to make apple juice, cider, vinegar, applesauce, and many different kinds of salads and desserts. Today they will be making and tasting homemade applesauce.
3. Explain the process of making applesauce to the students. Show the students the applesauce recipe, pointing out the ingredients list and directions.
4. The apples need to be peeled, cored, and sliced. Show the students how the apple peeler corer slicer works and which parts are sharp. Allow students to take turns using it to peel, slice, and core the apples.
5. Allow students to place the apples into a large slow cooker and mix in cinnamon and sugar. Several students can take turns mixing with a wooden spoon. Pour water and lemon juice over the apples. Cook on high for 3–4 hours until the apples are soft. Your classroom will smell wonderful!
6. When the apples are ready, allow students to take turns mashing the apples into applesauce using the potato masher. Give each student a cup of applesauce to taste.

Suggested Companion Resources

- [How Apples Are Grown & Harvested](#) (Video)
- [Farm Pop-Ups](#) (Activity)
- [Apples for Everyone](#) (Book)
- [Applesauce Day](#) (Book)
- [Bring Me Some Apples and I'll Make You a Pie](#) (Book)
- [From Apples to Applesauce](#) (Book)
- [How Do Apples Grow?](#) (Book)
- [Johnny Appleseed](#) (Book)
- [The Apple Orchard Riddle](#) (Book)
- [The Apple Pie Tree](#) (Book)
- [Up, Up, Up! It's Apple-Picking Time](#) (Book)
- [Apples](#) (Multimedia)
- [All About Apples](#) (Website)

Sources/Credits

1. Gibbons, G. (2000). *Apples*. NYC: Random House.
2. Utah Ag in the Classroom
3. NY Apple Association

Suggested SC Standards Met:

English/Language Arts:

- K.RI.1: Demonstrate understanding of the organization and basic features of print.
- K.RI.2: Demonstrate understanding of spoken words, syllables, and sounds.
- K.RI.6: Summarize key details and ideas to support analysis of central ideas.
- 1.RI.1: Demonstrate understanding of the organization and basic features of print.
- 1.RI.2: Demonstrate understanding of spoken words, syllables, and sounds.
- 1.RI.6: Summarize key details and ideas to support analysis of central ideas.
- 2.RI.10.1: Identify and analyze the author's purpose.

Science:

- K.P.4: The student will demonstrate an understanding of the observable properties of matter.
- K.L.2: The student will demonstrate an understanding of organisms found in the environment and how these organisms depend on the environment to meet those needs.
- 1.L.5: The student will demonstrate an understanding of how the structures of plants help them survive and grow in their environments.

Math:

- K.MDA.4 Represent data using object and picture graphs and draw conclusions from the graphs.
- 1.MDA.5 Draw conclusions from given object graphs, picture graphs, t-charts, tallies, and bar graphs.
- 2.MDA.10 Draw conclusions from t-charts, object graphs, picture graphs, and bar graphs.

Apple Parts Cards

stem

stem

leaf

leaf

flesh

flesh

seeds

seeds

skin

skin

calyx

calyx

CROCK POT APPLESAUCE

Makes about 12 cups (2.83 L).

Ingredients:

- 8 tart apples
- 1 cup (140 g) sugar
- 1 teaspoon (4 g) cinnamon
- 2 cups (480 mL) water
- 2 tablespoons (30 mL) lemon juice

Directions:

1. Peel, core, and thinly slice the apples.
2. Mix the apples with cinnamon and sugar in a large slow cooker.
3. Pour water and lemon juice over the apples.
4. Cook on high for 3–4 hours until the apples are soft.
5. Use a potato masher to mash the apples into applesauce.