

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

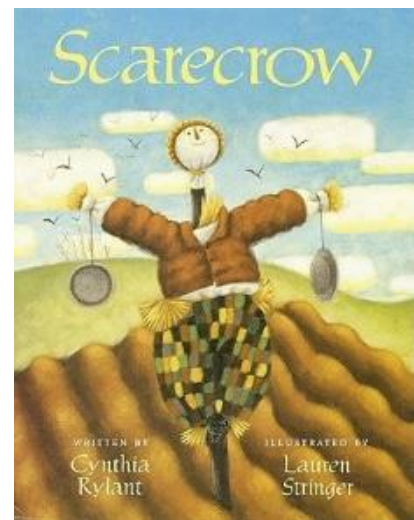


September 2021 Book of the Month

Scarecrow

By: Cynthia Rylant

Although the scarecrow is made from simple materials, his story is an interesting tale. From an old cotton shirt, to the burlap on his face, to the twine that ties him together, this character is made of various collected textiles from a farmer's life. The scarecrow watches as the seasons change, and how crops like beans, sunflowers, and pumpkins grow throughout their lifecycle. While he may seem ordinary at first, there are many important agricultural processes intertwined throughout this scarecrow's experience on a farm. ²



Did You Know? (Ag Facts) ²

- Scarecrows have been around for over 3,000 years. The first use of scarecrows dates back to ancient Egypt, where they were placed along the Nile River to scare away quails.
- Scarecrows are typically constructed using burlap, straw, and old clothes.
- Today, scarecrows are used more for decoration during the Fall, rather than being used for pest control. More modern technology has been developed for farmers to scare away birds and other animals, such as nets or noise machines.
- By 1900, South Carolina was second only to Massachusetts as a cotton-textile-producing state, and by 1930, the state passed the Bay State to rank second behind North Carolina.

Discussion Questions

- Where have you seen a scarecrow? What did it look like?
- What is the significance of the name "scarecrow"?

Lesson Plans Available Online at

scfb.org/book-of-the-month

Grade Level(s): K-5

Purpose: Students will gain a broad understanding of the types and sources of different fibers, examining their origins and observing their differences.

Vocabulary:

- **fiber:** thin thread of natural or artificial material that can be used to make yarn
- **natural fiber:** fiber from a natural source, such as a plant or animal, that can be used to make yarn without chemical alteration
- **nonrenewable resource:** limited natural resource that cannot be replaced or reproduced within a generation and cannot be managed for renewal. Examples: oil, soil, mineral resources (lead, iron, cobalt, zinc, etc.)
- **renewable resource:** natural resource that can be replaced naturally or by human efforts at a sustainable rate. Examples: forests, fish, wildlife, agriculture, plants, animals
- **synthetic fiber:** fiber that is man-made; the original substance is chemically altered to form fiber that can be used to make yarn
- **textile industry:** concerned with the design, production, and distribution of yarn, cloth, and clothing
- **warp:** the set of lengthwise threads on a loom that are crossed at right angles by the weft
- **weft:** thread or yarn which is drawn through the warp to create cloth

Background Agricultural Connections: ³

From traditional animal skins to high-tech synthetics, there are hundreds of types of fabrics available today. Almost all of our fabrics are made of fibers, including those used to make sheets, towels, curtains, and rugs. **Fibers** are thin threads. The hairs on your head are fibers. Like human hair, the fibers used to make fabric can be straight or curly, smooth or coarse. Most fibers can be lumped into two categories—natural and synthetic. Most **natural fibers** are the direct product of agriculture, while **synthetic fibers** are made by people.

Fiber is a word often used to describe something that should be in our diet. Many people think that farmers involved in the production of food and fiber are producing the things we need to eat. Fiber is in our food, but when farmers and other agriculturists use the term, they are talking about the fiber used to make our clothes. Fiber is the raw material that is long, strong, and pliable enough to be spun into yarns and woven into fabrics. The characteristics of fabric are determined by the type of fiber used and the weave or the knitting technique used. The same weave made using a different fiber will create a different type of fabric. Nature provides many different kinds of fibers that can be made into cloth. All the fibers gathered from plants and animals are called natural fibers. They have served people for centuries.

Natural Fibers

A variety of animals provide natural fibers. Wool comes from sheep. Llamas and their relatives, alpacas, guanacos, and vicuñas also provide a fiber called wool. Angora rabbits provide angora fiber and Angora goats provide mohair. Cashmere comes from Kashmir goats. The large white moth caterpillar, commonly called the silkworm, provides the finest silk. The fur and skins from animals such as mink, beaver, muskrats, and rabbits can also be found in clothing. Although leather is not a fiber, it is widely used as a fabric. Cattle hides are the source of most leathers, but the hides of pigs are also extensively used in soft leather goods.

Plants provide us natural fibers for fabric as well. The world's most important non-food crop is cotton. So many things are made of cotton that it would be hard to go through a day without using or wearing cotton cloth. Cotton has been found in tombs in India dating back to 3,000 BC. Linen, one of the world's oldest fabrics, is made from the fiber of the flax plant. Lesser-known natural fibers such as ramie, jute, and hemp have many uses, varying from finely woven fabrics to rope.

Synthetic Fibers

Since the late 1800s people have had synthetic fiber options to choose from. These fibers are made by chemists, and they fall into two broad groups depending on their source. One group of fabrics is made from natural materials, such as cellulose, which are chemically converted into compounds that can be made into fiber. Most cellulose used for making synthetic fiber comes from softwoods or the short fibers sticking to cottonseeds. Rayon and acetate are cellulose-based fabrics.

The second group of synthetic fibers is formed solely from chemical compounds, most of which are by-products of the oil-refining process. These fibers can be woven into cloth and are often mixed with natural fibers. They are resilient, although some are easily damaged by high temperatures. Petroleum-based fabrics include Kevlar®, nylon, polyester, acrylic, polypropylene, olefin, and spandex.

Fibers and Natural Resources

All fibers, whether natural or synthetic, have one thing in common. All are made from natural resources. Some natural resources are renewable because they are replenished by natural cycles. Fibers from trees, plants, and animals come from renewable natural resources. Even the synthetic fiber rayon is made from a **renewable resource**—the plant product cellulose. But not all natural resources can be regenerated or replaced naturally within a reasonable amount of time. It would take millions of years to replenish our oil and petroleum reserves—not a reasonable amount of time. Polyester, orlon, nylon, polypropylene, and spandex are made from oil and petroleum—**nonrenewable resources**.

Textile Processing and Careers

It takes many steps and jobs to change fiber into a fabric that can be used to make clothing. Wool, for example, is first sheared from sheep. Then it is sorted by type and quality before it goes to a mill. In the mill, the wool is cleaned to remove dirt and grease. When the wool is clean, it can be dyed if desired. It is then carded to remove tangles and any remaining dirt. Carding turns the wool into long, soft strands that are then spun into yarn. Wool yarn is woven on looms or knitted into fabric. For wool or any fabric to be made into clothing, the fabric is sold to a clothes manufacturer. Clothing is designed and patterns are developed before the fabric is cut. The fabric is cut according to the pattern, sewn into a garment, and sold to stores. Finally, you, the consumer, buy the garment at the store—often after seeing some advertising. This process and the many careers involved make up the **textile industry**.

Jobs involved in producing and preparing clothing for the consumer may include agricultural producers (farmers and ranchers), plant and animal scientists, veterinarians, shearers, wool buyers, sorters, classers, carders, spinners, dyers, weavers, knitters, fabric designers, fabric buyers, clothes designers, pattern makers, seamstresses and tailors, advertising writers and artists, models and photographers, truckers, salesclerks, and more. There's no question that the journey from resources to you involves many jobs, businesses, and industries all over the world.

Cotton

Cotton grows best where it stays warm and sunny for at least half of the year. Large amounts are grown in the southern United States, China, and India. In the United States, cotton farmers plant cotton in the late spring. They use mechanical planters that can plant seed in as many as eight rows at a time. During the growing season, scouts go out into the fields to count harmful insects. If there are too many, the farmer will use pesticides to control them.

About two months after planting, flower buds (called squares) appear on the plant. Three weeks later the blossoms open. The petals change colors as they mature. First they are creamy white. Then they turn yellow, then pink, and finally, dark red. After three days the red flowers wither and fall, leaving green pods called cotton bolls.

The boll is shaped like a tiny football. Moist fibers grow and push out from the newly formed seeds. As the boll ripens, it turns brown. The fibers continue to expand in the warm sun. Finally they split the boll apart, and the fluffy cotton bursts out. Cotton is harvested in the fall. Most cotton is harvested by

machine. After the cotton is harvested, it is stored at the edge of the field in big mounds or loaded on trailers or trucks and carried to the cotton gin. At the cotton gin powerful pipes suck the cotton into the building and through cleaning machines that remove burs and leaf trash. Then circular saws with small, sharp teeth pull the fiber from the seed. The ginned fiber is called lint. The lint is pressed into 480-pound bales that are about the size of a large refrigerator.

The bales are sold to cotton merchants who sell them to textile mills in the United States or in foreign countries. At the textile mills, huge machines spin the cotton fibers into cotton thread. The thread is then woven into cloth on looms. The rolls of cloth that come off the looms are called bolts. Clothing manufacturers buy bolts of cloth and cut jeans, shirts, dresses, and other items of clothing from them to sew.

Wool

Wool cloth is woven from yarn that is spun from the fibers grown as the thick fleece of sheep. Sheep wool comes in shades of black, white, and brown. There are several hundred breeds of sheep. (Generally, only hand spinners keep and raise colored sheep. Commercial wool producers discriminate against all but white sheep. Only white wool can be dyed.) Once a year, sheep have their fleeces cut off, or sheared. An experienced shearer can shear a sheep in 1–4 minutes. Wool is like hair in that it grows back.

After the wool of a sheep has been cut, or sheared, it is sent to the factory where it is washed, dyed, carded (brushed), and spun into yarn. Then it is ready to knit, crochet, or weave into a blanket, a rug, a sweater, a pair of socks, or something else. People who weave cloth set up the warp threads first. The **warp** threads are the threads that go up and down. The **weft** threads are woven side to side through the warp threads. This action locks the threads together. Today, most weaving is done in factories by machines. The machines are faster than the old-fashioned wooden looms, and the patterns they create are more uniform.

Scarecrows and Textiles ²

Materials:

- *Scarecrow* by Cynthia Rylant
- “Make a Scarecrow” video
- Natural Fibers, Synthetic Fibers handout
- Clothing Investigations handout
- Materials to make a scarecrow (from video): a pair of pantyhose, a pair of denim jeans, twine, and a flannel button-up shirt (a denim shirt was used in the video, but the flannel shirt will be interesting to use since it will have different fibers than the denim pants)

Procedures:

Before Reading Questions

Before reading *Scarecrow* with your class, use the following questions to give students some background knowledge and encourage them to make predictions.

- Looking at the front cover, what is the scarecrow *wearing*? What do you think his clothes say about his character in the story?
- What is a scarecrow used for? Why do you think farmers use scarecrows?

After reading the short description on the back cover, what do you think this tells us about what will happen in the story?

- Do you have any questions about what you have observed before reading?
- What are your inferences about the story before we have read it, based on the front and back covers?

During Reading Questions

While reading *Scarecrow*, use these questions to help students explore the information found within the book.

- On the two-page spread depicting the scarecrow next to the farmer in overalls, what do you notice about what the characters are wearing? What is similar and what is different about the kinds of clothing they are wearing?
- The book shows pictures of different crops such as sunflowers, beans, and pumpkins growing during different seasons. Why do you think this is? What does this mean about the life cycles of plants?
- The scarecrow sees many different seasons change throughout the year. What is your favorite season and why?
- If you had to create a scarecrow, what materials, fabrics, and resources would you use? Explain your answer.

After Reading Questions

- Go back and re-read the description of the story on the back cover. Now that you have read the story, what do you think the author meant when she said “there’s more to a scarecrow’s life than meets the eye?” Why do you think this is?
- The author did not give the scarecrow a name throughout the story. Why do you think this is? What was the author’s purpose of leaving the scarecrow nameless?
- The scarecrow watches over the crops in all seasons, no matter how harsh the weather is. Why do you think he still enjoys being a scarecrow, even though the environment around him is harsh and constantly changing?
- Would you like to live the life of a scarecrow? Why or why not?
- Would you like to live the life of a farmer? Why or why not?

Textiles Investigation

1. After reading *Scarecrow* and completing the discussion questions, engage in a conversation with your students about clothing and what it’s made out of. Where do these clothes and materials come from? Ask the students if they name some materials that make clothing.
2. Once you have asked these introductory questions, introduce the “Make a Scarecrow” video. Ask your students to pay close attention to the materials, both clothing and non-clothing, that are being used in the video to create a scarecrow similar to the scarecrow mentioned in the book. Encourage students to write down their observations or questions as they watch.
3. Next, pass out the *Natural Fibers, Synthetic Fibers Handout*. Read through it with your students and encourage them to highlight or take notes on the important facts and definitions found within the handout. Ask them to think about the video they saw and ask them what fibers and textiles may have been used in the creation of the scarecrow. This can be done on a whiteboard by creating two columns labeled “Natural Fibers” and “Synthetic Fibers” and labeling the corresponding clothing items or materials students observed within the video.
4. After reading this information, bring out materials that are used to create a scarecrow and are similar to those used in the video. These materials include: a pair of pantyhose, a pair of denim jeans, twine, and a flannel button-up shirt (A denim shirt was used in the video, but the flannel shirt will be interesting to use since it will have different fibers than the denim pants).
5. Once the materials have been shown to the class, pass out the *Clothing Investigations Activity Sheet*. Next, display the tags for each scarecrow item on the board, showing the item’s textile information. Students will then fill out the investigation sheet. If time allows, students may even inspect their individual clothing items as well.
6. Once students have had time to fill out their worksheets, ask students to think more about the sources of these clothes: Where were most of the clothes made? Do they think the fibers were produced in the country where the article of clothing was made? Discuss the connection between agriculture and clothes, and how materials used to make clothes come from agricultural commodities, such as cotton and wool.
7. Finally, talk about how textiles as an industry are an important part of their everyday lives, because it makes up the clothes they wear. To tie this lesson back to the book, discuss how the scarecrow was made from different pieces of fabric to create something useful for farmers. Talk about how textiles, and in this case clothing, can be used for more than what we wear.

Sunflower Life Cycle ⁴

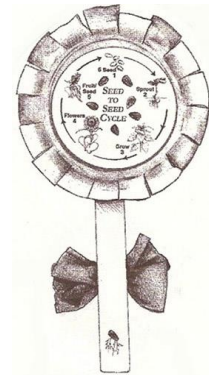
Materials:

- [Sunflower growth stage pictures](#)
- [Seed to seed cycle handout](#) copied on orange or yellow paper – one per student
- Small white paper plates – one per student
- Large craft sticks or popsicle sticks – one per student
 - These can be purchased at craft stores – most sizes will work for this activity
- Sunflower seeds – at least 6 per student
- Green paper, cut into 1" pieces
- Sunflower heads or pictures of sunflower heads
- Glue and/or Tape
- Crayons

Procedures:

(In the book *Scarecrow*, students read about how the main character's job, as a scarecrow, was to protect crops as they grow throughout the seasons. This activity encourages students to explore the life cycle of one of those crops: sunflowers.)

1. Begin the activity by showing students the *Sunflower Growth Stage* pictures. Show the students an actual sunflower head with seeds inside if you can, but if not, use pictures from books or the internet. Go through each step of the cycle. Place the pictures on the board with tape or a magnet and leave them for the next activity.
2. Next, introduce the activity. Students will be creating paper plate sunflowers to learn about the sunflower life cycle.
3. Distribute the activity supplies.
4. Glue the [Seed to Seed Cycle](#) in the middle of the paper plate, and set aside.
5. Ask students what the first step in the Seed Cycle is (*seed*). Have students glue one sunflower seed about 1" up the craft stick, as if they were planting a seed in the ground and the stick is the stem that would grow from the seed.
6. Ask students what the next step in the cycle is (*sprout*). Talk with them about what is needed for a seed to germinate. Have students draw roots on their craft stick below the seed with the brown crayon.
7. Ask students what the next step is (*grow*). As the stems and leaves begin to grow,
8. have students cut out leaves from the green paper and glue them to the stick above the seed.
9. Ask students what step 4 is (*flower*). Have them color the white paper plate around the *Seed to Seed Cycle*. Use scissors to snip the plate edges to the center circle to create flower petals.
10. Talk with students about step 5 (*fruit*). Students should glue sunflower seeds to the center of the *Seed to Seed Cycle*.
11. Tape or glue the paper plate flower to the craft stick.
12. Once the students have completed their sunflower craft, ask them to consider how they could relate this activity and what they learned to *Scarecrow*. How do the seasons affect flower growth? What do sunflowers need to grow? How might scarecrows protect sunflowers?



Extension Activities:

- Provide students with a black and white map of the world. Ask them to use online resources to identify the top five countries for producing wool, cotton, and flax fiber. Then have them shade those countries on the map using different colors for each fiber. Discuss why certain fibers are produced in different regions of the world.
- Break your class down into groups of four. In a predetermined amount of time, ask the groups to list as many jobs as they can think of from farm to fashion.

Suggested Companion Resources:

- [Levi Strauss and Blue Jeans](#)
- [Cotton Reader](#)
- [Cotton Boll Kit](#)
- [Cotton Education Kit](#)
- [Wool Samples](#)
- [Wool Spinning Kit](#)
- [America's Heartland: Bachelor Sheep Ranch](#)
- [America's Heartland: Cotton Episodes](#)
- [America's Heartland: Wild & Woolly Roundup](#)
- [Cotton in the Classroom](#)
- [Cotton... From Field to Fabric](#)
- [How It's Made: Cotton Yarn](#)
- [How It's Made: Wool](#)
- [Illustrated Accounts of Moments in Agricultural History](#)
- [A World of Cotton](#)
- [Wool Biopolishing Process Scratches the Itch Factor](#)

Sources/Credits:

1. Rylant, Cynthia. *Scarecrow*, Houghton Mifflin Harcourt, 1998.
2. NC Ag in the Classroom
3. Utah Ag in the Classroom
4. Iowa Ag in the Classroom

Suggested SC Standards Met:

English/Language Arts:

- K.RL.5.1 With guidance and support, ask and answer who, what, when, where, why, and how questions about a text; refer to key details to make inferences and draw conclusions in texts heard or read.
- K.RL.5.2 With guidance and support, ask and answer questions to make predictions using prior knowledge, pictures, illustrations, title, and information about author and illustrator.
- K.RL.6.1 Describe the relationship between illustrations and the text.
- K.RL.7.2 Read or listen closely to compare familiar texts.
- 1.RL.5.1 Ask and answer who, what, when, where, why, and how questions to demonstrate understanding of a text; use key details to make inferences and draw conclusions in texts heard or read.
- 1.RL.5.2 Make predictions using prior knowledge, pictures, illustrations, title, and information about author and illustrator.
- 1.RL.6.1 Describe the relationship between the illustrations and the characters, setting, or events.
- 2.RL.5.1 Ask and answer literal and inferential questions to demonstrate understanding of a text; use specific details to make inferences and draw conclusions in texts heard or read.
- 2.RL.5.2 Make predictions before and during reading; confirm or modify thinking.
- 2.RL.8 Analyze characters, settings, events, and ideas as they develop and interact within a particular context.
- 3.RL.5.1 Ask and answer literal and inferential questions to determine meaning; refer explicitly to the text to support inferences and conclusions.
- 3.RL.8 Analyze characters, settings, events, and ideas as they develop and interact within a particular context.
- 4.RL.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.RL.6.1 Determine the development of a theme within a text; summarize using key details.
- 4.RL.8 Analyze characters, settings, events, and ideas as they develop and interact within a particular context.
- 5.RL.5.1 Quote accurately to analyze the meaning of and beyond the text to support inferences and conclusions.
- 5.RL.6.1 Determine and analyze the development of a theme within a text; summarize using key details.
- 5.RL.8 Analyze characters, settings, events, and ideas as they develop and interact within a particular context.

Science:

- 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.
- K.E.3A.3 Obtain and communicate information to support claims about how changes in seasons affect plants and animals.
- K.P.4A.2 Develop and use models to describe and compare the properties of different materials (including wood, plastic, metal, cloth, and paper) and classify materials by their observable properties, by their uses, and by whether they are natural or human-made.
- 1.E.4: The student will demonstrate an understanding of the properties and uses of Earth's natural resources.
- 1.L.5 The student will demonstrate an understanding of how the structures of plants help them survive and grow in their environments.
- 2.E.2: The student will demonstrate an understanding of the daily and seasonal weather patterns
- 2.L.5 The student will demonstrate an understanding of how the structures of animals help them survive and grow in their environments.
- 3.E.4A.3 Obtain and communicate information to exemplify how humans obtain, use, and protect renewable and nonrenewable Earth resources.
- 3.L.5 The student will demonstrate an understanding of how the characteristics and changes in environments and habitats affect the diversity of organisms.
- 4.E.2: The student will demonstrate an understanding of the water cycle and weather and climate patterns.
- 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.
- 5.L.4 The student will demonstrate an understanding of relationships among biotic and abiotic factors within terrestrial and aquatic ecosystems.

Natural Fibers

A variety of animals provide natural fibers for cloth. Wool comes from sheep, llama, alpaca, guanaco, and vicuña. Angora rabbits provide angora fiber and Angora goats provide mohair. Cashmere comes from Kashmir goats. The large white moth caterpillar, commonly called the silkworm, provides the finest silk. The fur and skins from animals such as mink, beaver, muskrats, and rabbits can also be found in clothing. Although leather is not a fiber, it is widely used as a fabric. Cattle hides are the source of most leathers, but the hides of pigs are also extensively used in soft leather goods.

Plants give us natural fibers for fashions too. The world's most important non-food crop is cotton. So many things are made of cotton that it would be hard to go through a day without using or wearing cotton cloth. Cotton has been found in tombs in India dating back to 3,000 BC.

Linen, made from fibers of the flax plant, is one of the world's oldest fabrics. Lesser-known natural fibers such as ramie, jute, and hemp have many uses, varying from finely woven fabrics to rope.

Synthetic Fibers

Since the late 1800s people have had synthetic fiber options to choose from. These fibers are made by chemists, and they fall into two broad groups depending on their source. One group of fabrics is made from natural materials, such as cellulose, which are chemically converted into compounds that can be made into fiber. Most cellulose used for making synthetic fiber comes from softwoods or the short fibers sticking to cottonseeds. Rayon and acetate are cellulose-based fabrics.

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Seed



Sunflower seeds are usually black with white stripes

Sprouts

Sunflower seeds need water, soil, and warmth from the sun to begin growing.



Growth



Sunflowers grow a very tall stem and leaves.

Flower



The head of the flower can be 15" in diameter or more!

Wilting

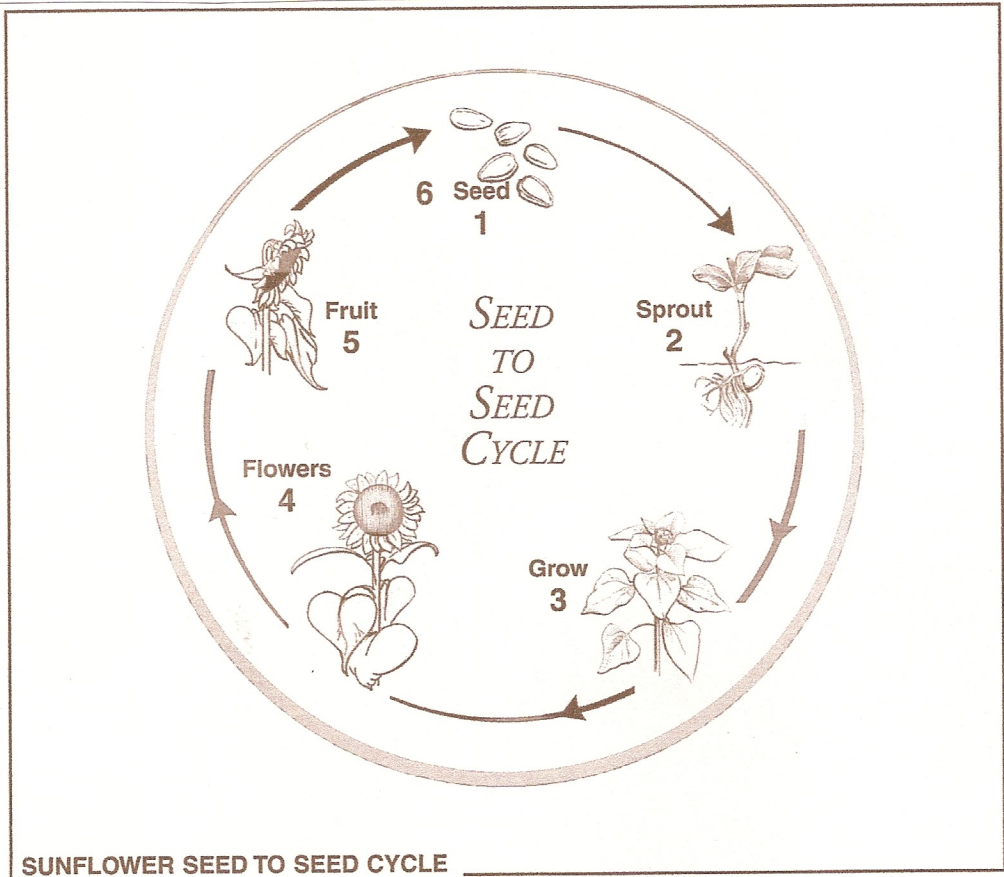
The petals fall off and the weight of the seeds make the flower droop.



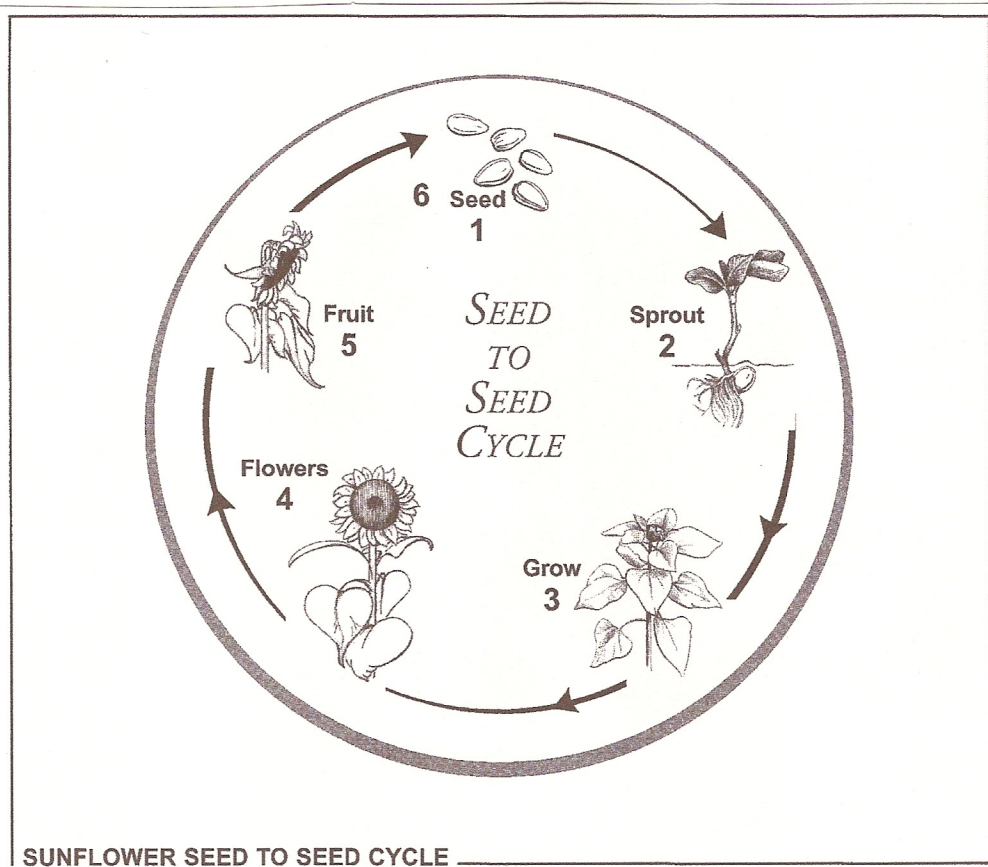
Seeds



The seeds are harvested.



SUNFLOWER SEED TO SEED CYCLE



SUNFLOWER SEED TO SEED CYCLE