

# From Bolls to Bolts

## Background

Cotton farmers plant cotton late in the 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 of the 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, dirt 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, about the size of a refrigerator. The bales are sold to cotton merchants who sell them to textile mills in the U.S. 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.

## Language Arts

1. Bring a variety of articles to class that were made from cotton (cotton balls, a cotton shirt, a pair of jeans, cotton embroidery or crochet thread, cotton swabs, towels). Ask your county Extension office to help you acquire some cotton bolls, and bring them to class.
  - Show students the items made from cotton and ask them to guess what they were made from.
  - Show the cotton bolls to your students, and have them guess what they are and what they are for.
  - Let students feel the cotton and try to pull the cotton lint from the cotton boll.
  - Brainstorm adjectives to describe the cotton bolls.

### P.A.S.S.

#### GRADE 3

**Reading**— 1.1,2; 2.1,4; 3.5;  
4.1,2,3,4,5; 5.1

**Writing**— 2.2; 3.6

**Oral Language**— 1.2;  
2.1,2,4

**Visual Literacy**— 1.1,2;  
2.2,3; 3

**Visual Arts**— 3.1,2

#### GRADE 4

**Reading**— 1.1,2; 3.1,2,3,4;  
4.3,4

**Writing**— 1.6; 3.1

**Oral Language**— 1.3; 3.1,2

**Visual Literacy**— 1;  
2.1,3,4; 3

**Visual Arts**— 3.1

## Materials

cotton bolls

articles made from cotton  
(cotton balls, cotton shirt, pair  
of jeans, cotton thread, cotton  
swabs, towels, etc.)

unbleached muslin

commercial dye

fabric scraps

—Have each student write an imaginative paragraph explaining how cotton clothing came to be made from cotton bolls.

—Have students share their theories with the class.

2. Read and discuss background and vocabulary.

3. Discuss time order words with your students.

—Hand out student worksheets.

—Students will read the sentences on the worksheet and place them in the proper order, using the time order words as clues.

—Students will cut the sentences into strips and arrange them in order on their desks before writing the paragraph in the proper order.

## Visual Arts: Tie Dye Bandanas

### ACTIVITY ONE: TIE DYE BANDANAS

1. Purchase unbleached muslin at a fabric store. If possible, buy the end of a bolt, and bring it to class so students can see what a bolt of cloth looks like.

2. Students will tear the cloth into bandana-sized squares to tie-dye.

3. Show students how to tie up the cloth to create designs, as follows.

— The cloth may be knotted, rolled, twisted, folded, or bunched.

—Tie the cloth as tightly as possible so the dye will not soak inside.

—Purchase commercial dye, and follow the instructions on the package.

—Dip the cloth into the dye, and stir gently. The longer you leave the cloth in the dye, the darker the color.

—Take the cloth out of the dye, and rinse it thoroughly in cold water.

—Untie the cloth, and rinse again.

—Squeeze out the excess water, and drain the cloth on newsprint that has been spread flat.

4. Display the creations, using clothes pins and clothes line stretched along the hallway or across the classroom.

### ACTIVITY TWO: PRAIRIE RAG DOLLS

1. Students will make Prairie Rag Dolls, as follows:

—Measure and rip unbleached muslin into a 14- by 8-inch rectangle.

—Measure and mark 16 1/2-inch increments along the length of the muslin and rip 16 1/2-inch strips of muslin.

—Fold 15 of the strips in half, and use one strip to tie off a doll's head. The tie also serves as arms.

—Cut a 1/2-inch hole in the center of each of the two 3- by 9-inch scraps of fabric, and place over the head of the doll.

—Tie the arms on top of both layers of the dress in the front.

—Trim the dress or make a heart cutout on the top layer.

—Tie on a triangle fabric scrap as a bonnet.

## Extra Reading

- Denenberg, Barry, *So Far From Home: The Diary of Mary Driscoll, An Irish Mill Girl, Lowell Massachusetts, 1847*, Scholastic, 2003.
- Gunderson, Jessica, and Jerry Acern, *Eli Whitney and the Cotton Gin*, Capstone, 2007.
- Hamilton, Virginia, *The People Could Fly: The Picture Book*, Knopf/Random House, 2005.
- Hopkinson, Deborah, *Up Before Day Break: Cotton and People in America*, Scholastic Nonfiction, 2006.
- Paulsen, Gary, *The Quilt*, Random House, 2005.
- Woodson, Jacqueline, and Hudson Talbott, *Show Way*, Putnam, 2005.

## Vocabulary

**bolt**—A large roll of cloth of a definite length, as it comes from the loom.

**cotton boll**—The rounded seed pod or capsule of the cotton plant.

**cotton gin**—A machine that separates the seeds, seed hulls and other small objects from cotton fibers.

**fiber**—A natural or synthetic filament, as of cotton, wool or nylon, capable of being spun into yarn.

**lint**—The mass of soft fibers surrounding the seeds of unginced cotton; fuzz.

**square**—The flower bud of a mature cotton plant.

**textile**—Fiber or yarn for weaving or knitting into fabric.



