

Cotton and the Consumer: Numbered Heads Together

Purpose

To help students locate factual information about cotton, its growth, production, marketing, and uses

Competencies

The learner will use language to express individual perspective through analysis of personal, social, cultural, and historical issues.

The learner will use and evaluate information from a variety of sources.

The learner will continue to refine the use of critical thinking skills and create evaluative processes.

The learner will apply conventions of grammar and usage.

Vocabulary

absorbency	cellulose	chinos	cultivation	fiber
prototype	tarpaulin			

Materials Provided

“Each One, Teach One Directions”

“Each One, Teach One Cards”

“Numbered Heads Together Directions”

“Cotton and the Consumer”

“Numbered Heads Together Questions: ‘Cotton and the Consumer’”

Teaching Strategy

Preparation: Print and cut “Each One, Teach One” cards. You will need to print enough so each student has a card. For most classes, this will require two sets to be printed and cut. Prepare copies of “Cotton and the Consumer.” Each student will need his/her own copy.

1. Distribute “Each One, Teach One Cards” to students. Conduct “Each One, Teach One” activity using “Each One, Teach One Directions.”
2. Continue class session by stating that all the facts on the cards were about cotton. Discuss with students how they encounter cotton in their daily lives (i.e. clothing, bedding, furniture). Ask students the connection between cotton and their blue jeans. Establish that blue jeans are made from cotton. Next ask students the following questions:
 - Why do people refer to their jeans as “Levis?”
 - What is the difference between khakis and chinos?

- What are chinos?
 - How are khakis connected to the United States military service?
3. Distribute copies of the article, "Cotton and the Consumer." Tell class that they should be able to find answers to the questions using this article.
 4. Use "Numbered Heads Together Directions" and "Numbered Heads Together Questions: 'Cotton and the Consumer'" to evaluate student comprehension.

Notes: After the reading of the article is completed, the teacher may choose to collect the text and require students to operate from their memory of what was read. The teacher may also choose to allow students to keep copies of the article and practice locating information in text. When calling numbers of students to respond to questions, do so in an unpredictable fashion so all students are required to remain attentive at all times. Dice or a game spinner may be used if desired.

Each One, Teach One Directions

1. Tell students that in this activity, you will have two roles: a teacher and a learner.
2. Tell students that each one will receive a card which has one fact printed on it. The job of each individual is to teach that one fact to everyone else in the group. Students may use whatever teaching strategies they wish to help their classmates learn. At the same time they are teaching their fact, they will also be learning as many facts as possible. The goal is to be a good teacher and a good learner.
3. Conduct an evaluation at the end of the activity in which the good teachers and the good learners will be recognized.
4. Tell students to think of a fact someone else taught. Students raise their hands to share the facts. As students share facts they remember, be sure to write the facts on a transparency so the visual learners can see them in print. Also, as facts are shared, ask the student who taught that fact to stand and take a bow.
5. After all facts have been shared, or until no one is able to remember another fact, have all the students who shared a fact stand and take a bow. Recognize them as good learners.

Each One, Teach One Cards

Scientists searching caves in Mexico found bits of cotton bolls and pieces of cotton cloth that proved to be at least 7000 years old.

Eli Whitney invented a machine to remove seeds from cotton 50 times faster than was being done by hand.

The name “gin” in cotton gin is short for “engine.”

Cotton is a leading cash crop in the United States.

Cotton is a fiber, feed and food crop.

U.S. textile mills spun more than 10 million bales of cotton in 2000. That's enough cotton to make 3 billion pairs of men's jeans and 8 billion men's dress shirts.

Cotton seeds are crushed to separate it into its three products—oil, meal and hulls.

Cottonseed oil is a common component of many food items, used primarily as a cooking oil, shortening and salad dressing.

Texas is the leading cotton-producing state. North Carolina ranked 5th in the nation in 2008.

A bale of cotton weighs slightly less than 500 pounds. Worldwide, China is the largest grower of cotton.

Each One, Teach One Cards (page 2)

Once cotton is harvested, it is stored in modules –which hold 13 to 15 bales—for protection against the weather. Modules are stored in the field or on the gin yard until it is ginned.

One bale of cotton can make 1,217 men's T-shirts or 313,600 one hundred dollar bills.

The boll weevil is the primary insect enemy of cotton.

A boll weevil can complete an entire lifecycle in three weeks, lay 200 eggs per female—each in a separate cotton square or boll, ensuring the destruction of each—and spread rapidly, covering 40 to 160 miles per year.

A significant amount of the U.S. cotton supply is exported each year.

Cottonseed oil is used extensively in the preparation of such snack foods as crackers, cookies and chips.

Cotton meal and hulls are used as livestock, poultry and fish feed and as fertilizer.

The cotton plant is a perennial; however, it is treated as an annual.

Once cotton is harvested, it is stored in modules – which hold 13 to 15 bales – for protection against the weather. Modules are stored in the field or on the gin yard until the cotton is ginned.

Numbered Heads Together Directions

1. Students are in teams of four; each student numbered 1, 2, 3, or 4. One group may have membership one greater or one less than four if the class size requires it.
2. In each group, students take turns reading the article, “Cotton and the Consumer.” Because the text is divided with subheadings, reading assignments can change with each subtitle.
3. After reading the story, teacher asks questions one at a time. Questions are found on “Numbered Head Questions – ‘Cotton and the Consumer.’”
4. After a question is read, student groups take “think time” and reach consensus as to the correct response.
5. Teacher calls out a number from 1-4 randomly. That student in each team stands. The teacher then calls on one of the students who is standing to answer the question.
6. Teacher asks all other students standing if they agree with that response.

This activity helps students verbally communicate, demonstrate comprehension of text, and participate cooperatively with others to come up with an appropriate answer.

Adapted from Spencer Kagan’s Cooperative Learning Structures

Cotton and the Consumer

Cotton is a miracle of nature...

It's a fiber, feed and food crop.

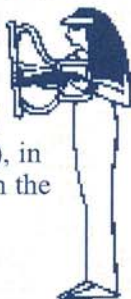


The fiber of a thousand faces and almost as many uses, cotton is noted for its versatility, appearance, performance and—above all—its natural comfort. From all types of apparel... to sheets and towels... tarpaulins and tents... cotton in today's fast-moving world is still nature's wonder fiber, providing thousands of useful products and supporting millions of jobs as it moves year after year from field to fabric.

Here are some of the most frequently asked questions about this miracle fiber. If your question isn't answered here, check out www.cottoncounts.net

How long has cotton been in use?

Cotton has been cultivated and used to make fabrics for at least 7,000 years. It may have existed in Egypt as early as 12000 B.C. Fragments of cotton fabrics have been found by archeologists in Mexico (from 3500 B.C.), in India (3000 B.C.), in Peru (2500 B.C.) and in the southwestern U.S. (500 B.C.).



What's the difference between cotton and linen?

Natural fibers fall into two main groups: protein fibers, which come from animals, and vegetable fibers, which come from plants. The main ingredient in all vegetable fibers is cellulose, a carbohydrate found in all plant life. Both cotton and linen are vegetable fibers. Linen is made from the flax plant, cotton is made from the cotton plant.

What is the origin of denim?

Two of the fabrics most symbolic of American fashion - chambray and denim - are French imports. A soft comfortable fabric with contrasting colored and white yarns, chambray was first found in Chambray, France. Denim, originating in Nimes, France, was introduced to this country via work pants designed for the mining industry by Mr. Levi Strauss.



Are khakis and chinos the same thing?

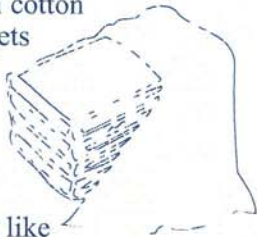
Both chino and khaki were fabrics once used in military uniforms. Today these words are used interchangeably to refer to the tan-colored pants inspired by military looks. Khaki is derived from a Hindu word that means "dust color." Originally, khaki referred to a dull yellow-brown cotton or wool uniform fabric used for its camouflage effect by the armed forces of England, France and the U.S. since the mid-19th century.



In World War I, a green tint was added. Khaki work pants and jackets were adapted for sports by men and women in the 1950s and 60s. Chino has its roots in World War I when the U.S. army purchased this durable cotton twill from China for use by soldiers in the Philippines. In the late 1950s, it was adapted by men and boys for school and general wear, particularly for pants.

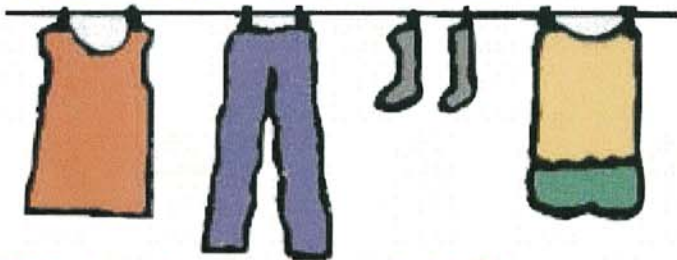
What makes terry cloth towels so absorbent?

Most terry cloth is made with cotton because the absorbent fiber gets stronger when wet and it can be sanitized without harm in very hot water using strong bleach and detergent. Terry cloth is usually made with looped pile because loops act like very small sponges. Looped pile is also better able to withstand the strain of rubbing, pulling twisting and tugging by the user. Loosely twisted loops are softer and more absorbent than tightly twisted loops, which produce a rougher fabric. Long pile is more absorbent than short pile. Terry cloth is most absorbent when it has loops on both sides. Cotton can absorb up to 27 times its own weight in water.



Why do cotton and wool shrink when you wash them?

There are two kinds of shrinkage. Progressive shrinkage occurs when the fiber itself shrinks. Wool fiber shrinks a little more each time it is washed, which is why wool is usually dry cleaned. Relaxation shrinkage is when the fabric shrinks. It is caused by the tension applied to yarns and fabrics during construction. The tension is released when the fabric is washed or steam pressed, causing it to shrink to its natural size. Most cotton fabric shrinkage occurs during the first wash.



What makes cotton wrinkle?

During wearing and cleaning, fabrics are temporarily distorted to accommodate the stress of use. If the fabric does not recover its original shape, the results are described as wrinkling. Untreated cotton fibers do not have a permanent memory. The cellulose chains in the fiber move by breaking and re-establishing hydrogen bonds. There are no natural forces to promote the cellulose chains to return to their original configuration.

What is wrinkle-resistant cotton?

This innovative fabric treatment works by strengthening the molecular “bridges” that connect cellulose molecules in a cotton fiber. The special process stabilizes the hydrogen bridges. This permits the fabric to retain its smooth surface, even after numerous washings. The finish does not alter cotton’s durability, color clarity or natural absorbency.

How can you pack cotton clothes to minimize wrinkling?

Cotton knit sweaters and t-shirts can be rolled and placed in a suitcase to prevent wrinkling. Garments made from woven cotton fabrics such as button-down shirts and trousers should first be folded along their natural creases. Then, drape each garment across the suitcase so that the ends hang over the sides. Alternate putting the top of each garment on the right and left side so that the thickness remains uniform. Next, fold each item around the other, alternating the overhang from right and left sides. By following the “inter-folding” method of packing, clothes cushion each other and are less likely to get wrinkled.

How did the T-shirt get its name?

One of the earliest prototypes for the T-shirt dates to 1880, when sailors in the U.S. Navy were issued an elbow and hip length undershirt. When laid out on a flat surface, it resembled a perfect “T.” This military undergarment was transformed over the next few decades and became a staple in civilian men’s wardrobes by the 1950s.



Why do sheets vary so much in price?

A single bed sheet can cost as little as \$10 or as much as \$100. Fiber content, thread count and brand name help determine the price. Thread count refers to the number of threads in one square inch of fabric. The higher the count, the softer and stronger the fabric, and the finer the quality of the sheet. (Counts usually range from 128 to 310.) Muslin, a simple weave, is a cotton sheeting fabric with a thread count of less than 180. Percale is a closely woven cotton fabric, usually made with combed yarns with a thread count of 180 or higher. Fabric finishes and embellishments can affect cost. Mercerized cotton has been treated with alkalis for a distinctive sheen; sanforized cotton has been pre-shrunk; easy-care and wrinkle-resistant finishes are chemical treatments intended to keep sheets looking smoother. Distinctive details such as hem stitching, piping or eyelet trim are also factors contributing to cost.

What are personal care products made from?

Many people purchase personal care products such as swabs, cosmetic puffs, rounds or wipes and automatically assume they are made of cotton. They're sometimes surprised to find that what they bought is actually made of rayon, polyester or polypropylene. Although beauty aids made from other fibers may look like cotton, they often don't perform as well. Unlike synthetics, cotton has superior absorbency and a naturally textured surface that makes it an effective cleanser. Because the fiber can withstand high temperatures, it can be sterilized. In addition, cotton personal care products are "finish free." Synthetics are often chemically treated to make the fiber suitable for processing. Individuals with hypersensitive skin or are prone to allergic reactions, may prefer to stick with beauty aids made from natural fibers.



How do I care for cotton clothing?

- Sort clothing by color, keeping whites, darks, brights and medium colors together.
- Wash heavily soiled items separately from slightly soiled items to prevent fading.
- Garments which generate lint, such as fleece, flannels and chenille, should be washed separately.
- Chlorine bleach can be used safely on cotton whites and color-safe bleach on dyed cottons.
- All garments that are not colorfast should be washed separately.
- Cold rinse water saves energy and makes ironing easier.
- Use a higher heat setting for the dryer since cotton takes longer to dry than less absorbent fibers.
- All cotton clothing should be left in the dryer just long enough to remove wrinkles and moisture. If left too long, the heat can "set" wrinkles, increase static cling and cause shrinkage.
- Use highest setting on an iron for cotton clothing.



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**Numbered Heads Together Questions:
“Cotton and the Consumer”**

1. Name at least one continent on which cotton has been grown for at least 500 years.

Answer: Asia, North America, South America

2. From what plant is linen made?

Answer: the flax plant

3. What is the main ingredient in all plant (vegetable) fibers?

Answer: cellulose

4. What European country claims to be the place of origin for chambray and denim?

Answer: France

5. Which two cotton fabrics were originally used for military uniforms?

Answer: khaki and chino

6. Terry cloth is made with twisted loops of cotton thread. The loops can be twisted loosely or tightly. They can be long or short. What combination of qualities of loops results in the most absorbent terry cloth towel?

- a. loose, long loops
- b. tight, long loops
- c. loose, short loops
- d. tight, short loops

Answer: a. loose, long loops

7. In what country was cotton determined to have been used at the earliest time?

Answer: Egypt

8. Name the individual and the industry credited with bringing denim to the United States.

Answer: Levi Strauss and the mining industry

9. What branch of the U.S. military is credited for inventing and name the “T-shirt?”

Answer: U.S. Navy

10. Name three factors that can determine the price of a bed sheet.

Answer: fiber content, thread count, brand name