

ask

Clever Cloth

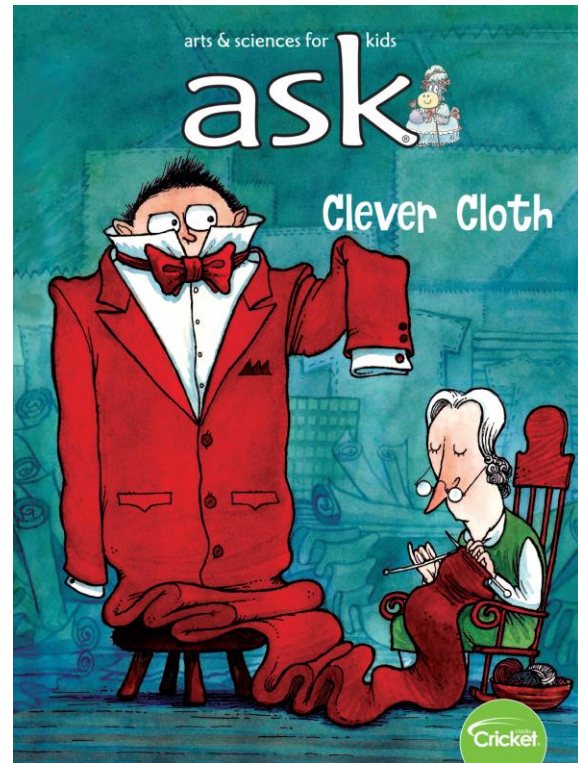
From the beginning of time, people have been using different materials and fabrics to dress their bodies. Generally, style adapts to the needs and desires of a society in the endeavor to create a wardrobe that is a combination of function and fashion. This issue of ASK will teach young readers about the techniques and technology that enhance our clothing.

CONVERSATION QUESTION

How are the beauty and functionality of natural cloth enhanced?

TEACHING OBJECTIVES

- Students will learn about the ancient fabric process and the symbolism of the emperor's robe.
- Students will learn how cloth becomes enhanced with colors and patterns.
- Students will learn about the characteristics of advanced fabrics.
- Students will interpret and analyze symbols.
- Students will obtain and classify information that supports a given scientific statement.
- Students will record the structure and function of new clothing materials.
- Students will create symbols that represent their uniqueness.
- Students will create a theme-based haiku.
- Students will write a fictional short story.



In addition to supplemental materials focused on core STEM skills, this flexible teaching tool offers vocabulary-building activities, questions for discussion, and cross-curricular activities.

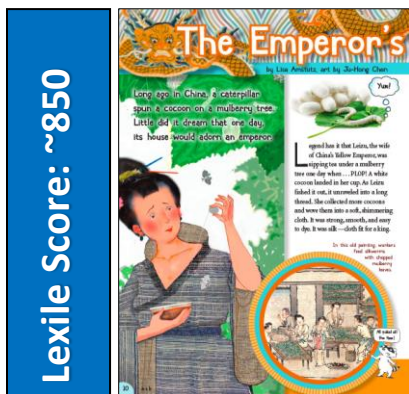
SELECTIONS

- **The Emperor's New Robe**
Expository Nonfiction, ~850L
- **The Dyer's Hand**
Expository Nonfiction, ~650L
- **Future Fashion**
Expository Nonfiction, ~850L

The Emperor's New Robe

pp. 10–15, Expository Nonfiction

From legend to larvae, this interesting article will educate young readers about the process of creating silk fabrics for ancient Chinese dynasties. Learn about the symbolism and the history behind these amazing tapestries.



RESOURCES

- Wearable Artwork

OBJECTIVES

- Students will learn about the ancient fabric process and the symbolism of the emperor's robe.
- Students will interpret and analyze symbols.
- Students will create symbols that represent their uniqueness.

KEY VOCABULARY

- **cocoon (p. 10)** a silky case spun by the larvae of *Bombyx mori* moths, known as silkworms
- **loom (p. 13)** a device used for making fabric by weaving yarn or thread
- **rank (p. 14)** a position in the hierarchy of a society

ENGAGE

Conversation Question: How are the beauty and functionality of natural cloth enhanced?

Motivate students to study this topic by posting the following word problem on the board: *The article we are about to read states that it takes 3,000 cocoons to make one yard of silk fabric. If it takes approximately 2½ yards of fabric to make one robe, how many cocoons would you need to make two robes?* (Ans: $3,000 \times 5 = 15,000$ cocoons)

INTRODUCE VOCABULARY

Introduce this as a *Jeopardy!*-style learning activity. Provide the class with only the definitions of the key vocabulary terms. Have them read and discuss. Inform students that they will revisit these definitions after reading and pose the proper question using words from the article (What is a cocoon? What is a loom? What is rank?). Have them create seven more answers needing questions, for a total of ten, and share with other classes as a post-reading activity.

READ & DISCUSS

Read the article aloud with the students and then lead a class discussion based on the following prompts.

- Explain the legend surrounding silk cloth.
- How is silk made from cocoons?
- How were silk robes similar to uniforms for the workers?
- Why are these ancient robes considered to be valuable heirlooms?

CONCEPT/SKILL FOCUS: Interpret and Analyze

INSTRUCT: Direct students to return to page 15 and study the text boxes, as well as to reread the section subtitled, "Weaving Pictures."

Emphasize the fact that royal artists, weavers, and embroiderers were all responsible for creating a beautiful and meaningful robe for the emperor. Distribute copies of the *Wearable Artwork* graphic organizer and instruct the students to decipher and analyze the symbols that represented the emperor's rule over the universe.

ASSESS: Circulate and converse with the students as they are working. Collect and review worksheets to evaluate individual abilities to interpret information.

EXTEND

Social Studies Instruct students to use five different symbols to represent themselves (Ex: soccer ball, piano, flowers, etc.). Have them draw the symbol and explain its relevance in a sentence. Give each child a cardstock paper strip and various art materials so they can create a headband displaying these five symbols. Allow them to wear completed headbands throughout the day to celebrate their uniqueness.

Wearable Artwork

Unscramble the words below to reveal the symbols that were woven into the emperor's robe. Write and draw the symbol. Use the back of the paper to design the emperor's robe. Be sure to include all 12 symbols.

tewra stplna	efri	usn
limlte sgarni	iarp fo sjra	xae
abts	nmuontia	rehet ssart
onmo	rnodag	shtpeaan

Explain how the symbols above represented the emperor's rule over the universe.

Ask® Teacher Guide: September 2019

The Dyer's Hand

pp. 18–23, Expository Nonfiction

ROYGBIV . . . and beyond! Students will learn how the clothing dyes of the past and the present are responsible for making the world a more colorful place.



ENGAGE

Conversation Question: How are the beauty and functionality of natural cloth enhanced?

Distribute the article to the class. Instruct students to scan the article and to highlight the names of any geographical locations. Enlist the help of students to mark them on a world map. Based on their scanning of the article (noticing subtitles and images), encourage students to discuss its likely content, as a method for activating prior knowledge.

INTRODUCE VOCABULARY

Invite pairs of students to find definitions for the key vocabulary terms. Upon completion, post the definitions provided so that students may check their work for accuracy. Student pairs will choose an additional seven words from the article and procure definitions. They will then create a crossword puzzle using all ten words. Share puzzles with another class for use as a prereading exercise for this article.

RESOURCES

- Dying to Dazzle

OBJECTIVES

- Students will learn how cloth becomes enhanced with colors and patterns.
- Students will obtain and classify information that supports a given scientific statement.
- Students will create a theme-based haiku.

KEY VOCABULARY

- **mordant** (p. 18) a substance used to help dye stick to cloth
- **wrung** (p. 18) twisted forcibly
- **dissolved** (p. 23) became incorporated into a liquid so as to form a solution

READ & DISCUSS

Allow students to work with their partner from the vocabulary activity to locate and record answers to the questions below. Share responses.

- What was used to make most early dyes?
- What is the purpose of a mordant?
- Explain the differences between batik and calico.
- How have methods for making dyes changed over the years?

CONCEPT/SKILL FOCUS: Classifying Information

INSTRUCT: Guide students to obtain information from the text, captions, and photos in the article. Remind students that the article was written to teach readers about a variety of substances and methods that are used for dying cloth. Introduce the *Dying to Dazzle* graphic organizer and instruct students to record their findings. Lead the activity and demonstrate how to reread pertinent passages and how to mark the correct column.

ASSESS: Review information that the students have recorded on their charts. Be sure that they have comprehensively answered the question in the Think Tank. Remediate with a small group if necessary.

EXTEND

Language Arts The article states that ancient Japan was one of the first countries that utilized the batik method for making patterned cloth. Use this opportunity to introduce/review haiku (a traditional Japanese three-line poem written with a 5/7/5 syllable count). Have the students write a haiku that summarizes an aspect of dying/designing cloth. Peruse the entire issue of ASK for further inspiration.

Dying to Dazzle

Use information from the article, "The Dyer's Hand," to properly classify the color facts below. Place an **X** in the correct column to show which color the statement is describing.

Fact	Red	Yellow Orange	Green	Blue	Purple
The shells of murex snails were boiled to make this color.					
This color could be made from onion skins.					
This color could be made from berries or a plant called woad.					
Malachite rock was used to make this color dye.					
The shells of a cactus insect could be used to make this color.					
Wolf lichen could be used to make this color.					
This color could be made from roots of a madder plant.					
The indigo plant could be used to make dye of this color.					

THINK TANK: Explain two ways that modern dyes and techniques are used to color cloth today.

1. _____

2. _____

Future Fashion

pp. 24–27, Expository Nonfiction

Back-to-school shopping may soon become a lot more exciting! Students will be captivated by this article that teaches young readers about the fashion-forward functionality of clothing.



RESOURCES

- FUNctional Fashion

OBJECTIVES

- Students will learn about the characteristics of advanced fabrics.
- Students will record the structure and function of new clothing materials.
- Students will write a fictional short story.

KEY VOCABULARY

- **briskly (p. 24)** in an active, quick, or energetic way
- **coax (p. 24)** to gently and persistently persuade someone to do something
- **wearable (p. 26)** suitable to be worn
- **pigments (p. 27)** substances used for coloring material

ENGAGE

Conversation Question: How are the beauty and functionality of natural cloth enhanced?

Use books and/or video clips to show the class clothing from the past. Discuss why that manner of dress was appropriate and functional at the time. Next, show the clothing of the future (some Sci-Fi is okay!). Discuss how the functional needs of the wearer change over time. Display the title, "Future Fashion," and give students a few minutes to sketch an outfit that they expect to see in the article. Remind them that this article is nonfiction.

INTRODUCE VOCABULARY

After posting and discussing the key vocabulary terms and definitions, guide students to recognize that they are all different parts of speech (*briskly*: adv, *coax*: v, *pigments*: n, *wearable*: adj). Have the class fold a piece of paper into quarters and label them with the parts of speech and place the words in the correct section. After reading the article, they should add other words from the text into the appropriate boxes.

READ & DISCUSS

Pose the following questions to the students to facilitate meaningful discussion following the reading of the article.

- How are scientists using goats to create silk?
- Explain the benefits of reversible clothing.
- Why do the clothing items discussed in the article appear under different subtitles within the article?
- Which clothing item would you like to own? Why?

CONCEPT/SKILL FOCUS: Structure and Function

INSTRUCT: Elicit from students that the main idea of the article is to provide a detailed description of how technology is making clothing that has function beyond fashion. Present the graphic organizer, *FUNctional Fashion*, and tell students that they will be using information from the article to record the special function of each clothing item listed.

ASSESS: Circulate and have mini-conversations with students as they are working. Remind students to include specific details. Collect and review their work to further assess understanding.

EXTEND

Language Arts On page 27 the article explains “chameleon cloth” as clothing that can change color. Brainstorm ways that this could be useful (encourage imaginative as well as realistic ideas). Instruct students to write a short fictional story detailing their adventures wearing chameleon clothing. Bind the stories together to create a class book for your reading center.

FUNctional Fashion

Refer to the article, "Future Fashion," to record how the world of fashion is incorporating function into their clothing. Categorize each clothing item, as per the text: super strong (S), all-season (A), clean collection (C), power up (P), or helpful (H).

Structure (Material)	Function (What is its purpose and how does it work?)	Category (S, A, C, P, H)
kevlar		
air-conditioned shirt		
touch sleeve		
power assist		
airbag suit		
self-cleaning shirt		