

# Muse®

## The Way I See It

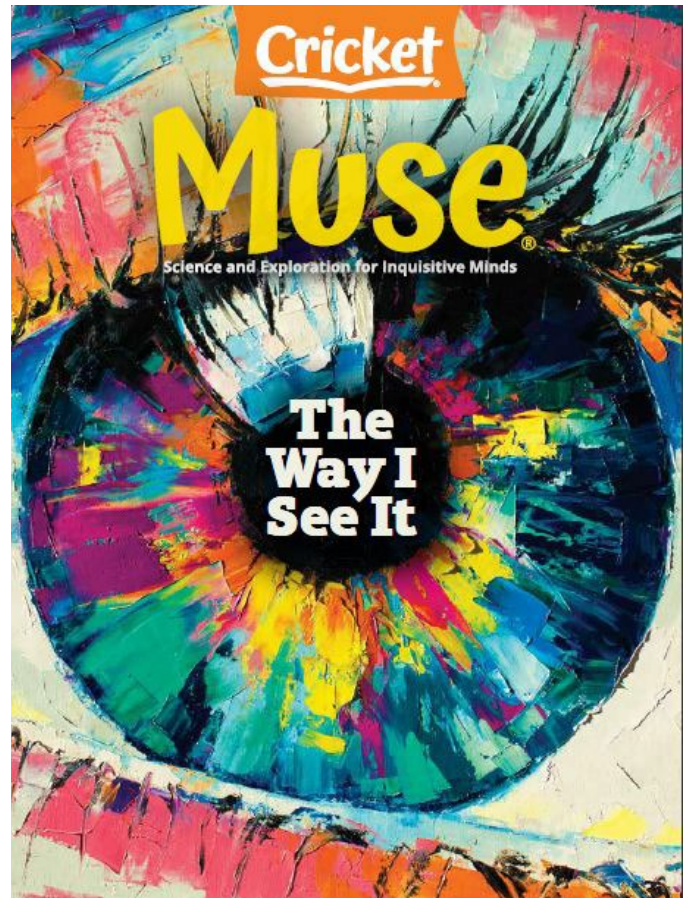
Use the fascinating articles in this issue of Muse to help students explore the sense of sight and how it affects perceptions.

### CONVERSATION QUESTION

How does sight affect perception?

### TEACHING OBJECTIVES

- Students will identify design solutions.
- Students will construct explanations.
- Students will collect evidence that supports an article.
- Students will conduct research and present information.
- Students will write informative texts.
- Students will evaluate historical events and developments.



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

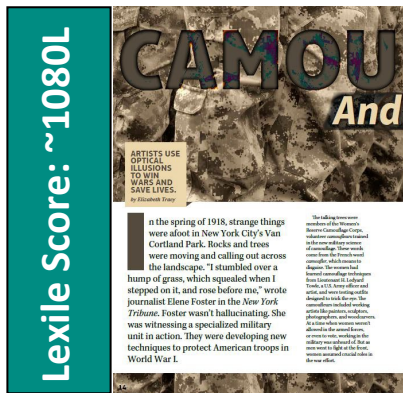
### SELECTIONS

- **Camoufleurs**  
Expository Nonfiction, ~1080L
- **What's Behind Your Eyes**  
Expository Nonfiction, ~940L
- **A More Accessible World**  
Expository Nonfiction, ~1270L

## Camoufleurs

pp. 14–17, Expository Nonfiction

Use this article about the development of camouflage use by the military to help students identify design solutions.



## RESOURCES

- **Designing Solutions**

## OBJECTIVES

- Students will read and analyze a nonfiction science article.
- Students will identify design solutions.
- Students will conduct research and present information.

## KEY VOCABULARY

- **aerial reconnaissance (p. 15)** military activity in which aircraft, such as airplanes, drones, or satellites, are sent to find out information about an enemy
- **vulnerable (p. 16)** open to attack, harm, or damage
- **foliage (p. 16)** the leaves of a plant or of many plants
- **multispectral camouflage (p. 17)** camouflage that conceals objects so they cannot be seen or be detected by infrared light or radar

## ENGAGE

**Conversation Question:** How does sight affect perception?

Review the concept of camouflage. Have students work in small groups to identify examples of human and animal camouflage. Then discuss as a class the similarities and differences between human and animal camouflage. Finally, discuss how the expression “seeing is believing” relates to camouflage.

## INTRODUCE VOCABULARY

Display the vocabulary words and ask students to share how these words might relate to the topic of camouflage. Next, have students find the words in the article and explain what each word means using context clues. Answer questions and clarify any misunderstandings about the definitions.

## READ & DISCUSS

Have students read the article and then lead a class discussion based on the following prompts.

1. How did ideas about camouflage change over the course of WWI?
2. Describe high-similarity techniques used during WWI.
3. How did Norman Wilkinson help the British Royal Navy save its ships?
4. Describe uses of mimicry and disguise during WWII.
5. What role did civilians play in the development of camouflage?
6. How has military technology influenced the development of camouflage?

## SKILL FOCUS: Designing Solutions

**INSTRUCT:** Ask students to identify the problems camouflage designers worked to solve in the article. Point out that the problems designers work to solve often change over time, so new solutions must be designed. Have students use the *Designing Solutions* graphic organizer to describe problems and solutions in the article. Encourage students to choose the details that explain how each design was a solution to the given problem. Tell students that camouflage design is still growing and changing. Have student groups discuss and answer this question: What scientific developments might military camoufleurs need to account for when designing camouflage in the future?

**ASSESS:** Review the graphic organizer and discussions to assess if students are able to identify design problems and solutions.

## EXTEND

**Social Studies/Language Arts** Have students choose something from the article to research and learn more about. Choices include the Women's Reserve Camouflage Corps, Abbot H. Thayer, observation trees, and multispectral camouflage. After students have gathered information about their topic, have them choose a method for presenting what they've learned.

## Design Solutions

Use this chart to organize information about how camouflage, disguise, and mimicry has been used to solve problems during wartime. Identify four problems and solutions in the article.

Page	Problem	Solution

What scientific developments might military camoufleurs need to account for when designing camouflage in the future? Write your thoughts below or on another sheet of paper.

# Muse® Teacher Guide: January 2022

## What's Behind Your Eyes

pp. 18–21, Expository Nonfiction

Give students strategies for learning unfamiliar science information using this article about how vision works.



## RESOURCES

- **Main Idea and Supporting Details**

## OBJECTIVES

- Students will read and analyze a nonfiction science article.
- Students will construct explanations.
- Students will write informative texts.

## KEY VOCABULARY

- **discern** (p. 19) to perceive or recognize
- **neuroscientist** (p. 19) an expert in the study of the human nervous system
- **photon** (p. 19) a tiny particle of light

## ENGAGE

**Conversation Question:** How does sight affect perception?

Place an object in front of the class and ask students to work in pairs to make a list of the steps involved in the process of seeing the object. Encourage students to think about the different parts of the human body that are involved in the process of vision. Explain that reading the article will help them gain more information and fill in some of the gaps in what they might already know.

## INTRODUCE VOCABULARY

Review the vocabulary words and their meanings. Ask students to think about how the words might be related to the concept of vision. For each vocabulary word, have students write a sentence that uses it. Tell students to work in small groups to share their sentences and ask each other questions to ensure each sentence makes sense.

## READ & DISCUSS

Have students read the article with a partner. Then lead a class discussion based on the following prompts:

1. Why is an eye more than just a camera that captures images?
2. What chemical reactions are involved in the process of vision?
3. How does your brain help you see?

Next, distribute a copy of the *Main Ideas and Supporting Details* worksheet to all students. Discuss the content of the article sections and help students come up with a main idea statement for each section. Tell students to write the main ideas next to the section headings on the worksheet. Then have students reread the article and record supporting details for each main idea they wrote.

## SKILL FOCUS: Construct Explanations

**INSTRUCT:** Have students choose one of the article sections and become “experts” on the ideas it contains. Divide the class into small groups and have group members take turns explaining the main ideas and supporting details in their section so that others understand. Encourage students to enhance their explanations with visuals. Tell group members who are listening to come up with questions for the speaker.

**ASSESS:** Use a simple checklist assessment when observing the students give their explanations: Did they understand the material? Were they able to articulate the main idea and supporting details? Were they able to engage their audience? Were they able to answer questions?

## EXTEND

**Language Arts** Have students choose one section from the article and present the information in comic-strip form. Explain that the comic strips should provide clear explanations of the concepts presented in the section. Suggest students conduct additional research if they need more information to make a concept clear.

## Main Idea and Supporting Details

Write a main idea for each section of the article. Then record supporting details for each of these main ideas.

### More Than a Camera

Main Idea	Supporting Details

### Behind the Scenes

Main Idea	Supporting Details

### The Eye-Brain Connection

Main Idea	Supporting Details

### Reading the Images

Main Idea	Supporting Details

### What About 3-D Movies?

Main Idea	Supporting Details

# Muse® Teacher Guide: January 2022

## A More Accessible World

pp. 30–31, Expository Nonfiction

Use this article to show students how evidence is used to support the need to make the world more accessible for people who are visually impaired.



### OBJECTIVES

- Students will read and analyze a nonfiction science article.
- Students will collect evidence that supports an article.
- Students will evaluate historical events and developments.

### KEY VOCABULARY

- **impaired** (p. 30) lacking full function
- **tactile** (p. 30) relating to the sense of touch
- **inaccessible** (p. 30) difficult or impossible to reach, approach, or understand
- **persistently** (p. 30) happening repeatedly without stopping

### ENGAGE

**Conversation Question:** How does sight affect perception?

Discuss with students how technology helps them live their lives and accomplish their goals, at school, at home, and in the community. Discuss forms of technology that are becoming more common: AI, self-driving cars, supermarket self-checkout lanes. Then discuss whether these technologies are also helpful to people who are sight or hearing impaired. Finally, explain that this article reveals the need to make technology more accessible.

### INTRODUCE VOCABULARY

Have students find the words in the article and explain what each word means using context clues. Answer questions and clarify any misunderstandings about the definitions.

### READ & DISCUSS

Have students read the article and then lead a class discussion based on the following prompts.

1. How do automatic kiosks make life more difficult for people who are visually impaired?
2. What do you think are the assumptions people have made that have led to a low number of blind and visually impaired people working in STEM?
3. How can alt text help a blind or visually impaired person understand a meme or picture posted on social media?

### SKILL FOCUS: Argument from Evidence

**INSTRUCT:** Point out that evidence is used in the article to support the argument for technology that is accessible to people who are visually impaired. Use the first paragraph under the heading “Some Surprising Obstacles” on p. 30 as an example. Have students work in pairs to collect or summarize 3-5 statements from the article they feel best support the design of accessible technology for people who are visually impaired.

**ASSESS:** Have students share the statements they collected and explain why this provides the best evidence to support the argument for accessible technology.

### EXTEND

**Social Studies** Share with students the federal definition of assistive technology: “any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.” Discuss examples of assistive technology. Then have students create a timeline showing and describing important events in the history of assistive technology. Tell students to include a few predictions about possible future assistive technologies.