

# Muse®

## Super Powers

This issue of MUSE magazine examines how a superhero can be a fictional character with superhuman powers or simply a person (or animal!) with extraordinary abilities. Students will read articles proving that greatness is all around us.

## CONVERSATION QUESTION

Why are superheroes a necessary part of our world?

## TEACHING OBJECTIVES

- Students will learn how comic book superheroes were inspired by real people and real science.
- Students will learn that birds are the unsung superheroes of the animal kingdom.
- Students will learn about the famous psychic entertainer, Uri Geller.
- Students will compare and contrast the origin stories of comic book creations with their realistic counterparts.
- Students will sequence quantifying measurements in a directed order.
- Students will construct explanations from an expository text.
- Students will use specific interrogative words to practice critical thinking skills.
- Students will use information from the article to create and solve mathematical word problems.
- Students will write a properly formatted resume.



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

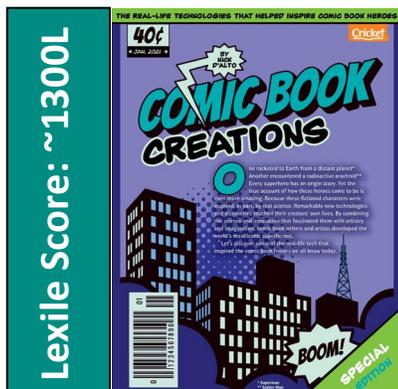
- **Comic Book Creations**  
Expository Nonfiction, ~1300L
- **It's A...Bird**  
Expository Nonfiction, ~700L
- **Amazing Powers of the Mind**  
Expository Nonfiction, ~900L

# Muse® Teacher Guide: January 2021

## Comic Book Creations

pp. 14-17, Expository Nonfiction

This high-interest article will teach students that the origin story of their favorite superhero was likely inspired by real-life events, people, and technology.



## RESOURCES

- **Compare and Contrast**

## OBJECTIVES

- Students will learn how comic book superheroes were inspired by real people and real science.
- Students will compare and contrast the origin stories of comic book creations.
- Students will use specific interrogative words to practice critical thinking skills.

## KEY VOCABULARY

- **iconic (p. 14)** relating to, or having the characteristics of an object or person who is widely recognized and an influential figure
- **deflect (p. 15)** to cause to move in a direction that is different from the course it had been on
- **hologram (p. 17)** a three-dimensional image reproduced from a pattern of interference produced by split beams of laser light

## ENGAGE

**Conversation Question:** Why are superheroes a necessary part of our world?

Tell students that the article they will be reading states that the fictional characters being discussed were inspired by real-life people. Have the class brainstorm a list of fictional characters and plots from books and movies that have a base in reality.

## INTRODUCE VOCABULARY

Post and discuss the key vocabulary words and definitions on the board. Then display the following cloze sentences and have students supply the correct word: The Science convention projected a \_\_\_\_\_ of famous dead inventors giving speeches. / The crazed fan hoped he would get a glimpse of the \_\_\_\_\_ star. / The goalie used his stick to \_\_\_\_\_ pucks away from the net.

## READ & DISCUSS

Post and discuss the questions prior to reading. Direct students to notice that these questions all begin with the interrogative word HOW. ('How' questions focus on method.) Read the article aloud with the class and then have students meet in small groups to answer the questions.

1. How was the idea for the comic book character, Superman, born?
2. How do bullet proof vests deflect bullets?
3. How can real airplanes become invisible to radar?
4. How do modern polygraph machines detect lies?
5. How is graphene currently being used?
6. How do magnetic levitation trains function?

## SKILL FOCUS: Compare and Contrast

**INSTRUCT:** Elicit from the students that the main idea of the article is to explore how the people, gadgets and ideas in comic books are often based in reality. Allow students to work with a partner to complete the graphic organizer, *Superhero Science*, which compares real-life events and technology with comic book interpretations. Encourage the pairs to share their finished work, instructing them to amend their own charts if necessary.

**ASSESS:** Collect and review the *Superhero Science* organizers.

## EXTEND

**Logic** Critical thinking skills help students to analyze information and to evaluate claims. In the READ & DISCUSS section of this guide, the interrogative word 'how' was used to expand student's thinking. Instruct students to use the question word WHAT to create ten questions based on information from the article. ('What' questions focus on meaning and purpose.) Have them switch papers with a partner and answer each other's questions in complete sentences. Remind students that writing questions, as well as answering them, strengthen critical thinking skills.

## Superhero Science

**Compare and Contrast:** Use information from the article to record examples of how real life inspired comic books.

<b>Superhero</b>	<b>Real life event/technology</b>	<b>Comic book interpretation</b>
<b>Superman</b>		
<b>Wonderwoman</b>		
<b>Black Panther</b>		

## It's A...Bird

pp. 34-36, Expository Nonfiction

Take flight with this article that aims to convince readers that birds are nature's superheroes. Different varieties of these amazing animals can fly at incredible speeds...sometimes even backwards, silently, or in total darkness!



## RESOURCES

- **Sequential Order**

## OBJECTIVES

- Students will learn that birds are the unsung superheroes of the animal kingdom.
- Students will sequence quantifying measurements in a directed order.
- Students will use information from the article to create and solve mathematical word problems.

## KEY VOCABULARY

- **zigzagging (p. 34)** veering alternately to the right and left
- **flits (p. 35)** moves swiftly and lightly
- **circling (p. 35)** enclosing in a circle; surrounding
- **free-fall (p. 35)** downward movement under the force of gravity

## ENGAGE

**Conversation Question:** Why are superheroes a necessary part of our world?

Comic books use strong descriptive language to capture an event or character and to paint a picture in the reader's mind (blazing speed, lethal kick, superior hearing). Give the class three minutes to write graphic phrases about themselves and invite students to share. Direct students to notice the use of descriptive phrases in the article.

## INTRODUCE VOCABULARY

Post the key terms and discuss the definitions. Inform students that these words will appear in the article and challenge them to predict the topic. Then display the title, "It's A...Bird", and guide students to notice that the vocabulary words all describe the way birds fly/move. As a post-reading activity, have them review the article and highlight other words that belong in this category.

## READ & DISCUSS

Read the article aloud with the class. Have students reread the article in small groups to answer the questions below. Share responses.

1. What evidence supports the statement, "The ostrich rules the African savanna"?
2. How can the turkey vulture help to stop a gas explosion?
3. Why does the peregrine falcon dive with its claws balled into fists?
4. Explain the mating dance of the bald eagle.
5. What happens to the female emperor penguin's egg when she has to leave for two months to hunt for food?

## SKILL FOCUS: Sequential Order

**INSTRUCT:** Students will use quantifying measurement data to arrange the list items in a directed order. Instruct pairs of students to revisit the text and to underline information that will be helpful for this purpose. Introduce the graphic organizer, *Wings of Wonder*, and have the partners record the data on their charts. Direct students to complete the 'Superhero Stats' section of the organizer independently.

**ASSESS:** Review worksheets to see that students have correctly listed the birds in the indicated order. Assess students' ability to apply knowledge by evaluating the answers on the independent section.

## EXTEND

**Mathematics** The article states on page 34 that the arctic tern flies 44,000 miles (70,800 km) each year from Greenland to Antarctica and back again. How far would it fly in 3 years? 5 years? 15 years? Have students use the R-D-W to express the answers in miles and kilometers. Challenge students to use the multitude of measurement information in this article to create two word-problems for a partner to solve.

# Wings of Wonder

**Sequential Order:** Use information from the article to arrange the birds in the correct order according to the directions. Be sure to include the numerical data next to the bird's name.

<p><b>Height:</b> Order from shortest to tallest (ostrich, emperor penguin)</p> <p>_____</p> <p>_____</p> <p>What is the difference in height between the ostrich and the penguin? _____</p>	<p><b>Lifespan in the wild:</b> Order from longest to shortest (arctic tern, peregrine falcon)</p> <p>_____</p> <p>_____</p> <p>What is the difference in lifespan between the tern and the falcon? _____</p>
<p><b>Wingspan:</b> Order from largest to smallest (peregrine falcon, arctic tern, barn owl)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>What is the difference in wingspan between the owl and the falcon? _____</p>	<p><b>Weight:</b> Order from heaviest to lightest (hummingbird, ostrich, emperor penguin)</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>What is the difference in height between the penguin and the hummingbird? _____</p>

## Superhero Stats

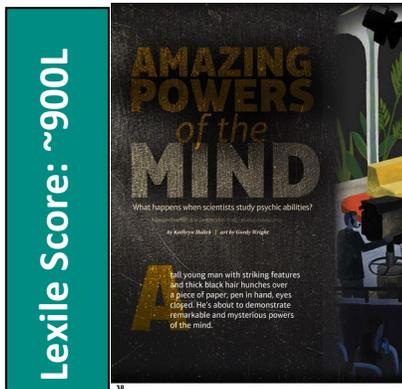
- How fast can a peregrine falcon dive? \_\_\_\_\_
- How fast can an ostrich run? \_\_\_\_\_
- How fast can a hummingbird beat its wings? \_\_\_\_\_
- Which bird can imitate any sound? \_\_\_\_\_
- Which bird has the best color vision? \_\_\_\_\_
- Which bird hunts in total darkness? \_\_\_\_\_

# Muse® Teacher Guide: January 2021

## Amazing Powers of the Mind

pp. 38-43, Expository Nonfiction

There is no doubt that the mind harnesses incredible powers. Students will read this article and decide if Uri Geller's psychic abilities are indeed a mysterious power, or simply well-orchestrated magic.



## RESOURCES

- **Constructing Explanations**

## OBJECTIVES

- Students will learn about the famous psychic entertainer, Uri Geller.
- Students will construct explanations from an expository text.
- Students will write a properly formatted resume for Uri Geller.

## KEY VOCABULARY

- **telepathy (p. 40)** communication between minds by some means other than sensory perception
- **clairvoyance (p. 40)** able to see beyond the range of normal perception; intuitive knowledge
- **telekinesis (p. 40)** the ability to move objects by mental power

## ENGAGE

**Conversation Question:** Why are superheroes a necessary part of our world?

Show students a video clip of spoon bending. ('YouTube' is a good source; be sure to preview.) Students will discover that this is a simple trick that anyone can learn. Ask students why they think that people are so eager to believe that this is 'magic', rather than a learned skill.

## INTRODUCE VOCABULARY

Post and discuss the vocabulary terms and definitions. Then have students classify the following psychic events under the correct term.

- 'seeing' yourself score a goal in tomorrow's game
- 'moving' a penny across the table without physical touch
- visualizing the animal your friend is thinking of

## READ & DISCUSS

Reinforce comprehension of the concepts in the article by using the following prompts to direct discussion.

1. What abilities did Uri Geller claim to have?
2. Explain what occurred during the series of experiments at the Stamford Research Institute?
3. Why is having a well-controlled experiment critical for producing valid results?
4. What happened during Geller's 'Tonight Show Performance' in 1973? How did his fans react?
5. How does confirmation bias affect a person's belief system?

## SKILL FOCUS: Constructing Explanations

**INSTRUCT:** Advise students to review the article and to study three different psychic events that Uri Geller performed. Distribute the graphic organizer, *Mind Over Matter*, and tell the class that they will use information directly from the text to complete the organizer. Students should focus on the possible, although never proven, methods that Geller utilized to convince audiences that he had genuine supernatural abilities.

**ASSESS:** Collect and analyze the *Mind Over Matter* worksheet to further evaluate the students' ability to construct explanations from the text.

## EXTEND

**Language Arts** Review the article with students and instruct them to highlight Uri Geller's various abilities and performances. Show students an example of a simple resume and assign them the task of creating a properly formatted resume detailing Geller's accomplishments and skills. Be sure that students include the following: professional summary, skills, education, and work experience. Provide class time for use of the internet so that students can gather additional information.

## Mind Over Matter

Refer to the article to provide explanations of how the events in Uri Geller's performances could have occurred. Include your own theories, as well.

Event	Possible Explanations
<b>Geller appears to break a fork.</b>	
<b>Geller appears to reproduce hidden drawings.</b>	
<b>Geller appears to start/stop wristwatches.</b>	

Do you believe that psychic abilities actually exist? Explain.

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