

High-Tech Heroes

Story Reference: *Chicken Soup for the Soul: Humane Heroes Volume II*, Story 8, "How a Middle School Helped a Penguin"

Lesson Description: Students learn about an innovative, high-tech animal care solution that was developed by veterinarians at an aquarium who worked in collaboration with their community. In reading the story, students discover how a Connecticut middle school used 3D printing technology to help a popular African penguin at the American Humane Conservation-certified Mystic Aquarium walk and swim again. This example prompts students to identify issues threatening various wildlife species and brainstorm ways to use technology to address these threats.

ELA Alignment:

- Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.

Lesson Objectives:

- Explore technological solutions to issues affecting animal care, conservation efforts, habitat, and rehabilitation.
- Demonstrate cooperation and teamwork when solving a problem faced by one or more animals.

Vocabulary:

- 3D printing technology
- Geolocation
- Live-streaming video
- Time-lapse photography
- Drones
- Virtual Reality

Materials:

- Chart paper or whiteboard
- Finding the Central Idea handout (one per student)

Introduction: Brainstorm threats to local wildlife (8 minutes)

- Have students refer to a two-column chart that is drawn on chart paper or projected on the board. In the left column, ask students to identify examples of various wildlife. In the right column, ask students to identify threats to these animals. Encourage students to

consider environmental hazards, human hazards, threats to habitats, and problems with food sources.

Read and Analyze: Identify the main idea and summarize the story (12 minutes)

- Prior to reading, pass out the “Finding the Central Idea” handout and ask students to keep an eye out for the most important points made in the text.
- Direct students to read “How a Middle School Helped a Penguin.”
- After reading, ask students to identify the three most important points made in the story and complete the “Finding the Central Idea” handout. Prompt students with the following questions:
 - *What concern or issue affected the penguin? Cite examples from the text that explain the issue.*
 - *What solutions were proposed to help the penguin?*
 - *What solution was most successful?*
 - *How do you know? Cite examples from the text.*
- Ask students to find a partner and take turns summarizing the story. Encourage students to listen actively to their partner and to provide feedback on his or her partner’s summary. Instruct the students to consider what information could be added to make the summary more thorough or omitted to make the summary more succinct. Give each partner 2–3 minutes to share their summaries.

Guided Practice: Apply technology to help threatened animals (20 minutes)

- Divide the class into groups of four. Explain to students that each group will select a threat to an animal and use technology to create a solution to that threat. Direct each group to appoint a recorder to take notes and a reporter to relay the solution to the class.
- Instruct each group think about how one of the following technologies might be applied to the issue their chosen animal faces:
 - 3D printing technology (used as described in the story)
 - Geolocation applications (used to document the locations of rare species)
 - Time-lapse photography (used to monitor activity, track movement, and detect threats)
 - Drones (used to monitor activity, map populations, and monitor habitats)
 - Virtual reality technology (used in simulations to educate people about animals, their habitats, and their behavior)
 - Social media (used to encourage others to keep habitats safe)
 - Alternatively, students may select a technology not listed here.
- Ask each group to identify the problem facing their animal, describe their technology solution, and provide at least three key reasons why the technology they have selected will support the welfare of their animal.

Closing: Reflect on technology solutions (5 minutes)

- Ask students to reflect (as a class or individually) on why it might be important to consider ways that technology can support the well-being of animals. Use the following questions to prompt their thinking:
 - *How can innovative technology benefit animals in new ways?*
 - *How could this innovative technology benefit humans in new ways?*
 - *How can technology enhance our efforts to safeguard animals?*
 - *How can we use technology individually to support the well-being of animals?*
 - *Are there examples of technology that have had detrimental impacts on animals?*
When is use of technology not okay?

Finding the Central Idea

What is the **PURPOSE** of the text? (Is it to inform, persuade, entertain, or a combination? Explain your answer.)

What are the three **MOST** important points being made in the text?

Key Point 1

Key Point 2

Key Point 3

What is the **CENTRAL** idea of the text? (Consolidate your three main points into one complete, concise sentence.)