



#8756

HEROES OF SCIENCE

Grade Levels: 7-12

26 minutes

AIMS MULTIMEDIA 1998

1 Instructional Graphic Enclosed

DESCRIPTION

The four-part interactive presentation uses archival footage to relay the accomplishments of four well-known scientists of the early 20th century. Covers Marie Curie, discoverer of radium and 1903 Nobel Prize recipient; Albert Einstein, a genius whose revolutionary mathematical theories reshaped science; Jonas Salk, a scientist who developed the polio vaccine in 1955; and Guglielmo Marconi, inventor of the wireless telegraph. Pretests encourage viewer participation.



ACADEMIC STANDARDS

Subject Area: Historical Understanding

- ◆ Standard: Understands the historical perspective
 - Benchmark: Analyzes the values held by specific people who influenced history and the role their values played in influencing history
 - Benchmark: Analyzes the influence specific ideas and beliefs had on a period of history



Subject Area: Science

- ◆ Standard: Understands the scientific enterprise
 - Benchmark: Knows that, throughout history, diverse cultures have developed scientific ideas and solved human problems through technology
 - Benchmark: Understands that science involves different types of work in many different disciplines (e.g., scientists in different disciplines ask different questions, use different methods of investigation, and accept different types of evidence to support their explanations; many scientific investigations require the contributions of individuals from different disciplines; new disciplines of science, such as geophysics and biochemistry, often emerge at the interface of older disciplines)

INSTRUCTIONAL GOALS

1. To explore the contributions of Marie Curie, Albert Einstein, Jonas Salk and Guglielmo Marconi to the field of science.

2. To provide factual information about the discoveries of Curie, Einstein, Salk and Marconi.
3. To identify the impact of the contributions of Curie, Einstein, Salk and Marconi to future generations.

VOCABULARY

- | | |
|----------------|----------------|
| 1. atomic bomb | 5. radioactive |
| 2. Morse code | 6. radium |
| 3. Nobel prize | 7. telegraph |
| 4. polio | |

BEFORE SHOWING

1. Prepare students for their role in playing a history game.
 - a. Determine if students will play on an individual or team basis.
 - b. Provide each student or team with a "History Game Worksheet." (See INSTRUCTIONAL GRAPHICS.)
 - c. Begin the video and allow the program to play until the narrator completes question #3. Stop the tape each time the star symbol (accompanied by an audible beep) appears on the screen. This will occur after every third question. Allow the student or team time to answer the three questions before continuing. In the segment following the three questions, the video presents historical footage to provide the answers for each question.
 - d. After each set there will be a bonus question. The answers will appear at the end of the video.
2. Discuss vocabulary words used in the video.

AFTER SHOWING

Discussion Items and Questions

1. Discuss the impact of the discoveries of Curie, Einstein, Salk and Marconi.
 - a. How have their contributions affected modern-day living?
 - b. How would life be different without their discoveries?
 - c. What is the importance of each of the discoveries?
2. Discuss the importance of science.

Applications and Activities

1. Assemble a bulletin board displaying Curie, Einstein, Salk and Marconi and their contributions.
2. Create a time line presenting the highlights of Dr. Curie's career.
3. Design a poster displaying Einstein's theories and how they influenced the foundations of science.
4. Research the Manhattan Project.
 - a. What were Einstein's feelings toward the project?
 - b. How did the invention of the atomic bomb affect the world?

- c. Obtain pictures of Hiroshima and Nagasaki.
- d. Lead a class discussion on the pros and cons of such a discovery.
5. Investigate the history of immunization.
 - a. What is the importance of immunizing children?
 - b. Create a list of the different types of vaccines and the diseases they were designed to prevent.
 - c. Design posters to educate young parents of the importance of immunizing their children.
6. Explore how the wireless telegraph works. Discuss the importance of this invention in your life.
7. Visit and report on one of the following virtual exhibits on the Internet:
 - a. Marie Curie and the science of radioactivity: <http://www.aip.org/history/curie/>
 - b. Albert Einstein: Impact and Image: <http://www.aip.org/history/einstein/>
 - c. A Paralyzing Fear: The Story of Polio in America: <http://www.pbs.org/storyofpolio/polio/index>

RELATED RESOURCES



Captioned Media Program

- Albert Einstein #2249
- Viruses #3417

World Wide Web



The following Web sites complement the contents of this guide; they were selected by professionals who have experience in teaching deaf and hard of hearing students. Every effort was made to select accurate, educationally relevant, and "kid-safe" sites. However, teachers should preview them before use. The U.S. Department of Education, the National Association of the Deaf, and the Captioned Media Program do not endorse the sites and are not responsible for their content.

- **A SCIENCE ODYSSEY: PEOPLE AND DISCOVERIES**
<http://www.pbs.org/wgbh/aso/databank/index.html>
- **NOVA: EINSTEIN REVEALED**
<http://www.pbs.org/wgbh/nova/einstein/>
- **NOBEL E-MUSEUM**
<http://www.nobel.se/>

INSTRUCTIONAL GRAPHICS

- HISTORY GAME WORKSHEET

History Game Worksheet

Student/Team Name: _____

Directions: Place the letter of the correct answer on the line provided. Answers will be revealed at the end of each round. Answers for the bonus questions will be revealed at the end of the video.

Pretest	Posttest
a) _____	a) _____
b) _____	b) _____
c) _____	c) _____

Round One

- 1) _____ (5 points)
- 2) _____ (10 points)
- 3) _____ (15 points)
- Bonus Question: _____ (10 points)

Round Two

- 4) _____ (5 points)
- 5) _____ (10 points)
- 6) _____ (15 points)
- Bonus Question: _____ (10 points)

Round Three

- 7) _____ (5 points)
- 8) _____ (10 points)
- 9) _____ (15 points)
- Bonus Question: _____ (5 points)

Round Four

- 10) _____ (5 points)
- 11) _____ (10 points)
- 12) _____ (15 points)

