

The Invention of the Television Reading Comprehension

Name _____

The very first televisions were distinctly different from the thin screens we turn on and off with a click today. Initial models of the television used in the late 1800s were called facsimile transmission systems and were mechanical rather than electrical.

Mechanical televisions operated by scanning still photos and transmitting them onto a screen using two rotating disks with holes spaced around them. One disk functioned as a transmitter, and the other worked as a receiver. A camera was placed in a dark room with a bright light behind it while the disk turned once for each frame of the television program. The light patterns were then reflected to a photoelectric cell which converted them to electrical impulses. These impulses were then transmitted to the receiver—the second rotating disk—which also included a radio receiver connected to a neon lamp. When the electrical impulses arrived at the receiver, they were converted to light energy and shown visually via the neon lamp. Viewers could see the final image on the other side of the disk, by using a magnifying glass.

While these mechanical televisions worked, they were complicated and inconvenient. In 1907, Boris Rosing and A. A. Campbell-Swinton laid the groundwork for the first electrical television, resulting in new innovations for television construction. Rosing and Campbell-Swinton used a cathode-ray tube: a heated filament called a cathode sealed inside a glass tube. When the cathode released electrons, or, negatively-charged particles into the vacuum created by the sealed tube, the electrons moved towards the negatively-charged anode on the other side of the tube—meaning that the electrons navigated towards the television screen at the end of the tube. The inside of the screen was lined with phosphorus, so as the electrons reached the end of the tube, it caused the screen to glow. Magnetic technology helped to control the movement of the electrons and ensure that they fired onto the right section of the screen, resulting in well-produced, clear final image.

Rosing and Campbell-Swinton's cathode-ray television technology resulted in a shift in the evolution of television construction from mechanical to electrical. The first live television transmission demonstration took place in 1909, courtesy of Georges Rignoux and A. Fournier, using a matrix of highly conductive selenium cells. In 1927, Philo Taylor Farnsworth developed the first electrical television by using electron beams to capture moving images. By 1934, all new televisions were electric, eventually giving rise to television programs, television stations, and televisions in homes.

- 1. Which of the following parts of a mechanical television converted patterns of light to electric impulses?**
 - A. Neon light
 - B. Photoelectric cell
 - C. Receiver
 - D. Transmitter

- 2. In a mechanical television, when could light energy be shown visually?**
 - A. When the electric impulses arrived at the receiver
 - B. When light patterns were reflected to a photoelectric cell
 - C. When viewers used their magnifying glass
 - D. When the disk that functioned as a transmitter turned

- 3. What does the first sentence in the third paragraph suggest?**
 - A. It suggests that televisions of the future would be less complicated
 - B. It suggests that mechanical televisions were just as useful as electric televisions
 - C. It suggests that electric televisions would revolutionize the television industry
 - D. It suggested that people would eventually have televisions in their homes

- 4. Why was phosphorus used to coat screens in electric televisions?**
 - A. The passage doesn't tell
 - B. It reacted with magnets to ensure the electrons fired in the correct positions on the screen
 - C. It resulted in a well-formed image
 - D. When electrons interacted with phosphorus on the screen, it caused the screen to glow

- 5. What happened last?**
 - A. The first live television transmission was made
 - B. Electrical televisions that used electron beams to capture moving images were invented
 - C. 1926
 - D. Rosing and Swinton laid the groundwork for electrical televisions

- 6. The history of the television dates back to the...**
 - A. 1910s.
 - B. 1920s.
 - C. late 1800s.
 - D. 1930s.

7. What phrase or word could replace “giving rise to” in the following sentence?

By 1934, all new televisions were electric, eventually giving rise to television programs, television stations, and televisions in homes.

- A. resulting in
- B. resorting to
- C. accompanying
- D. effecting