Classroom Resource Packet

Technology and the White House

THE WHITE HOUSE HISTORICAL ASSOCIATION

INTRODUCTION

Smartphones, social media, and self-driving cars are examples of today's monumental technological advancements. But less modern technologies like running water, electricity, and word processors transformed life in the United States and the White House. At its simplest, technology is the application of scientific knowledge for a practical purpose. The White House has been a testing ground for many of these technologies, as occupants and staff have continually sought innovative technologies to improve working and living conditions. From the beginning of its construction in 1792 to present day, the White House has been a site of technological innovation. Explore two centuries of technological advancement at the White House.

CONTEXTUAL ESSAY

Early Technological Improvements

When construction on the White House began in 1792, free and enslaved laborers used an innovative technology to cut the stone used for the walls. The stone was sawed to produce two stones, each with a smooth face. View **Image 1**, to the right, to see a photograph of marks made by the stonemasons who constructed the White House. These marks are still visible in the old Kitchen and on the Ground Floor of the White House. After initial construction was completed, early presidents started incorporating advancements to the White House's interior. President Thomas Jefferson had two water closets, or bathrooms, installed on the Second Floor. The White House's first gravity-based heating system, using naturally rising hot air, was installed when President James Madison took office in 1809. These early improvements, however, were destroyed when the British burned the White House during the War of 1812.

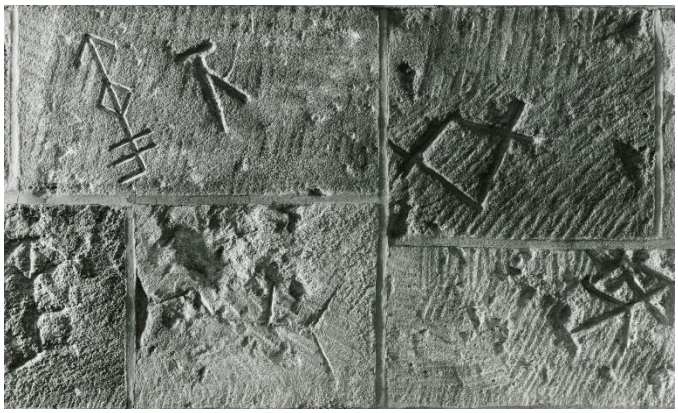

Image 1. Photograph depicting the banker marks of the stonemasons who constructed the original White House. These markers served as personal identifiers of particular stonemasons.

Image 2. 1827 watercolor painting depicting the White House and its grounds from the southwest. The watercolor also shows the recently built South Portico, Thomas Jefferson's stone walls, workers' cottages, an orchard, and President John Quincy Adams' tree nursery.

Following the White House's three-year reconstruction after it was burned by the British, (1814-1817), presidents continued to enhance the building with comforts and conveniences. President John Quincy Adams expanded the White House Garden to two acres and attached a garden pump to a well at the Treasury building to provide water for the grounds. View **Image 2**, to the left, to see an 1827 watercolor painting of the White House and surrounding grounds. In 1833, during Andrew Jackson's presidency, running water was installed inside the White House for drinking purposes and to fill reservoirs for protection against fire. In 1853, President Franklin Pierce saw the first permanent private bath in the White House.

Heating & Cooling

Installation of a new hot-air heating system began in the spring of 1840. President Martin Van Buren hired a live-in fireman to manage the boilers for the new furnace. Five years later, President James K. Polk had a furnace and duct system built to warm the State and Second Floors. Heating at the White House continued to improve as new advancements developed over the next one hundred years. View **Image 3**, in the chart below, to see a photograph of workers digging a trench on the White House Grounds preparing for the installation of a heating plant in 1923.

Seeking relief from the sweltering summer nights of Washington, D.C., the White House tested experimental cooling systems under Presidents Ulysses S. Grant and President James Garfield in the early 1870s and 1880s. However, the systems were not effective long-term. In the early 1900s, President William Howard Taft tried an early version of air conditioning with little success. In 1910, President

Taft had an outdoor sleeping porch built on the roof of the White House so his family could escape the sweltering heat. To see a photograph of the White House sleeping porch in 1920 view **Image 4,** to the right. Finally, in 1929, the West Wing became the first area of the White House to receive central-air conditioning from the Carrier Engineering Company. President Franklin D. Roosevelt further expanded central air into the main residence by installing it on the Second Floor in 1933. Modern air conditioning would not fully cool the White House and its wings until after the 1948-1952 Truman Renovation.

Image 4. Photograph of the White House sleeping porch taken in 1920 during the Woodrow Wilson administration.

President Jimmy Carter installed solar heating panels on the roof of the West Wing in 1979 to promote the use of renewable energy sources amidst an energy crisis in the United States. Refer to **Image 5**, in the chart, to see a photograph of the solar panel dedication ceremony on June 20, 1979. President Ronald Reagan had the solar panels removed in 1986 but they soon returned under Presidents George W. Bush and Barack Obama. Bush and Obama restored the panels in an effort to refocus on climate change. In 2002, three solar energy systems were installed on the White House grounds and solar panels were installed on the White House residence between 2013 and 2014.

Illuminating the White House

In 1800, the White House was lit by natural light during the day and by candles and oil lamps in the evening. In 1848, President James K. Polk replaced many candles by outfitting the chandeliers and wall fixtures to use gas. The Edison Company first installed electric lighting in the White House during the Benjamin Harrison administration in 1891. Because electricity was a fairly new invention, President Harrison and First Lady Caroline Harrison refused to touch the light switches for fear of

being shocked. They left the operation of the electric lights to domestic staff. **Image 6**, in the chart, pictures the President's bedroom, dated between 1885 and 1890. If you look closely at the center table, you can see an electric lamp attached to the chandelier on the ceiling. During extensive renovations in 1902, the White House's entire electrical wiring system was replaced. The White House continued to use this technology and its related inventions. By the 1920s, the White House was equipped with electric vacuum cleaners and an electric refrigerator.

The Telephone & Communications

Image 7. Black and white photograph of President William Howard Taft using the telephone in 1908.

Technology also revolutionized communication at the White House. In the 1850s, the telegraph was a popular and efficient form of communication over long distances. While President Abraham Lincoln frequently used the device at the War Department building next door to the White House, it was President Andrew Johnson who installed the first telegraph room in the White House in 1866.

The first White House telephone was installed for President Rutherford B. Hayes in 1879, but it was used rarely since phones could only make local calls and there weren't many other homes and businesses with telephones in Washington at the time. As the telephone became more popular, it was used more regularly for presidential communications and special calls. See President William Howard Taft using the telephone in **Image 7**, above. President Woodrow Wilson participated in the first transcontinental telephone call from New York to San Francisco in 1915. Apollo 11 astronauts Neil Armstrong and Edwin "Buzz" Aldrin were on the moon when President Richard Nixon called them from the Oval Office phone in 1969.

Radio, Film & Television

Radio, film, and television further transformed communication at the White House. President Warren G. Harding installed the White House's first radio set in his study in 1922. President Calvin Coolidge's inauguration was the first to be broadcast by radio in 1925. President Franklin D. Roosevelt, however, is the president most associated with radio technology. Between 1933 and 1944, President Roosevelt delivered 30 radio broadcasts, known as "Fireside Chats," in which he gave updates during crises like the Great Depression and World War II. Fireside Chats connected the White House to the American public and are one of the most well-remembered features of FDR's presidency. Refer to **Image 8**, in the chart, to see President Franklin D. Roosevelt delivering a Fireside Chat in 1938.

In the 1920s, the emergence of cinema gave the public extraordinary access to the White House. **Image 9**, to the right, is a photograph of movie trucks and photographers at the White House north entrance during President Herbert Hoover's administration. Photographers captured events and visitors at the White House during the Great Depression. President Franklin Roosevelt installed the White House movie theater in 1942, primarily to review World War II newsreels. In the following years, television provided both audio and visual coverage of the president. President Harry Truman gave the first televised speech from the White House in 1947 and invited ABC, NBC, and CBS news stations to accompany him on a tour of the newly renovated White House in 1952. Presidents Dwight Eisenhower and John F. Kennedy held televised news conferences, firmly establishing television as the preferred means of presidential communication. View **Image 10,** in the chart, to see a photograph of President Eisenhower listening to instructions as he prepares to announce his run for a second term during a televised speech in 1956.

Image 9. Photograph of movie trucks and photographers at the White House north entrance in December 1929.

The Digital Age

Image 11. Photograph of President Jimmy Carter reviewing a proposed White House computer system with members of his staff (1978).

Written communication significantly improved with the arrival of the first White House typewriter in 1880, during the Rutherford B. Hayes administration. The typewriter was frequently used for drafting presidential letters and staff correspondence. Nearly a century later, President Jimmy Carter introduced computers to the West Wing offices. White House staff used computers for data entry and to track correspondence, develop press release systems, and compile issues and concerns of Congress. **Image 11**, to the left, is a photograph of President Jimmy Carter reviewing a proposed White House computer system with members of his staff. In the 1980s, during the Ronald Reagan administration, personal computers became popular. In 1992, President George W. Bush became the first president to use email. The first White House website was developed during President Bill Clinton's administration and debuted in 1994.

Conclusion

The White House has continued to adopt new technologies into the 21st century. Cell phones, internet, and social media are crucial communication tools for the president and staff. The White House created its first Twitter account in 2009 during the Barack Obama administration. From running water in 1833 to electricity in 1891 to solar panels in 1979 and email in 1992, the introduction of innovative technologies has improved living and working conditions at the White House, advanced the scope and reach of the presidency, and will continue to evolve and change.

IMAGES

Click on web link to access online and for larger viewing

Source	Title	Date	Created By	Courtesy Of	Thumbnail	Web Link
1	Stonemason Mark	Unknown	Erik Kvalsvik	White House Collection/ White House Historical Association		https://library.whitehousehistory.org/fotoweb/archives/5017-Digital%20Library/Main%20Index/Rooms/439.tif.info
2	Watercolor of the White House's South Grounds	1827	Unknown	Huntington Library		https://library.whitehousehistory.org/fotoweb/archives/5017-Digital%20Library/Main%20Index/Views/1315.tif.info
3	Work on the installation of a new heating plant at the White House was started today	1923	Unknown	Library of Congress		https://www.loc.gov/item/2002712377/
4	Sleeping Porch prior to Solarium	1920	Unknown	Library of Congress		https://library.whitehousehistory.org/fotoweb/archives/5017-Digital%20Library/Main%20Index/Rooms/9911.tif.info
5	Jimmy Carter's Solar Panel Dedication Ceremony	1979	Billy Shaddix	Jimmy Carter Presidential Library & Museum/NARA		https://library.whitehousehistory.org/fotoweb/archives/5006-Digital-Library-WHHA/Main%20Index/Presidents/Jimmy%20Carter/2052.tif.info
6	President's Bedroom	1885-1890	B. L. Lingley	White House Historical Association		https://library.whitehousehistory.org/fotoweb/archives/5017-Digital%20Library/Main%20Ind

						ex/Rooms/8093.tif.info
7	Taft at the Phone	Ca. 1908	Unknown	Library of Congress		https://library.whitehousehistory.org/fotoweb/archives/5017-Digital%20Library/Main%20Index/Presidents/William%20H%20Taft/1164.tif.info
8	Franklin Roosevelt Broadcasting a Fireside Chat	1938	Harris & Ewing	National Archives and Records Administration		https://library.whitehousehistory.org/fotoweb/archives/5017-Digital%20Library/Main%20Index/Presidents/Franklin%20D%20Roosevelt/1649.tif.info
9	Sound Movie Trucks at the Front Door of the White House	1929	Herbert E. French	Library of Congress		https://library.whitehousehistory.org/fotoweb/archives/5017-Digital%20Library/Main%20Index/Views/2672.tif.info
10	President Dwight D. Eisenhower Before Announcing Reelection Campaign	1956	Abbie Rowe	National Archives and Records Administration		https://library.whitehousehistory.org/fotoweb/archives/5017-Digital%20Library/Main%20Index/Presidents/Dwight%20D%20Eisenhower/5090.tif.info
11	President Jimmy Carter Observes Operation of a Proposed Computer System	1978	Unknown	Jimmy Carter Presidential Library and Museum/ NARA		https://library.whitehousehistory.org/fotoweb/archives/5017-Digital%20Library/Main%20Index/Presidents/Jimmy%20Carter/8270.tif.info

ADDITIONAL RESOURCES

Collection

- "Intrepid Innovation" by the White House Historical Association. Click here.

Essays

- "Lighting the White House" by William Bushong for the White House Historical Association. Click here.
- "Motor Cars Come to the White House" by Hillary Manion for the White House Historical Association. Click here.
- "The Fireside Chats: Roosevelt's Radio Talks" by Margaret Biser for the White House Historical Association. Click here.

Timeline

- "From Running Water to the Internet: A Timeline of Technology at the White House" by the White House Historical Association. Click here.

Video

- "The Moscow-Washington Hotline: Avoiding Nuclear War with Russia" by Untold History. Watch here.

SUGGESTED ACTIVITIES

For all learners:

- President Roosevelt's "Fireside Chats" expanded the use of radio technology. He delivered 30 broadcasts between 1933 and 1944 to connect the president with the American public. Listen to clips from President Roosevelt's famous Fireside Chats. Click here.
- Go inside the White House and learn about the installation of solar panels on the roof of the White House. Click here.

For older learners:

- The story of technology at the White House continues as innovative ideas emerge. Write a persuasive essay on what recent technology you would like to see added to the White House and provide reasons why the government should fund this improvement.
    - Optional extension: Investigate the cost of adding the technology and provide a budget within your essay.
- Choose one of the communication technologies mentioned in the contextual essay—the telegraph, telephone, radio, television, typewriter, computer, etc. Create an exhibit or presentation that considers the impact of that technology in the White House and the United States.
    - Optional extension: Which technology had the greatest impact historically? Share your thoughts with a classmate, family member, or friend.

For younger learners:

- Complete the "White House Brochure" Anywhere Activity. Click here.
- Rank the White House technologies mentioned in the Contextual Essay or from your own research based on significance and impact. Be prepared to discuss your reasoning for each technology's ranking.