Short Read 2

Remember to annotate as you read.

Notes

Ben proved that lightning was electricityby tying a key to a kite.

Benjamin Franklin: The Dawn of Electrical Technology

by Laura McDonald

1 Benjamin Franklin was one of the most influential thinkers of the eighteenth century. He was one of our country's founding fathers, who helped to draft the Declaration of Independence and the United States Constitution. But he was also an inventor and scientist. He made some of the most important contributions to the history of science

2 One of Franklin's ideas changed the course of scientific history. One stormy day in June 1752, Franklin stood in the doorway of a shed with his son William. They were flying a kite. Franklin wanted to show that lightning was a type of electric current.

3 Many people at the time believed lightning was a form of magic. But Franklin's observations had led him to conclude that lightning was a natural form of electricity. He learned through his work and the work of other scientists that electric energy was conducted through metal. So, he wanted to find out if lightning would pass through a metal object. To do this, Franklin tied a metal key to a kite and went out to test his hypothesis.

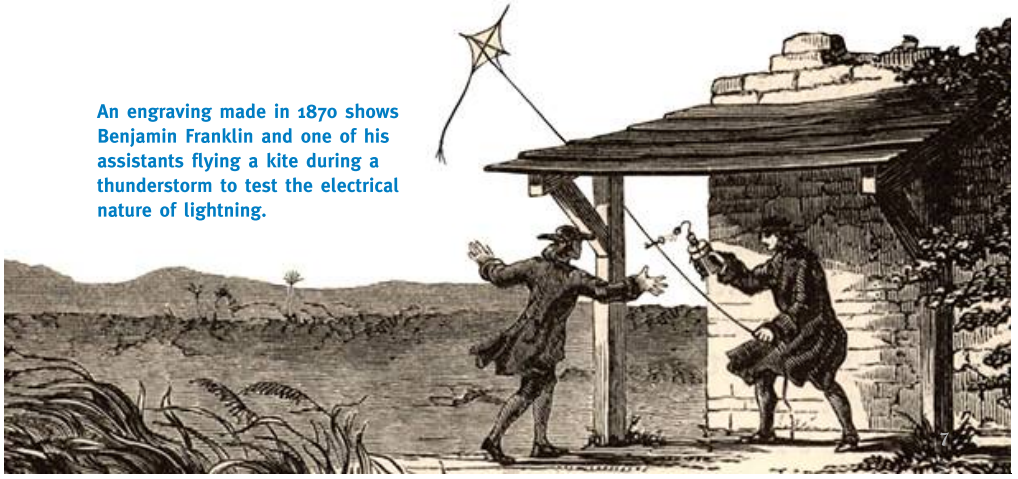
A Man of Science and Letters

4 An account of this famous event was written by scientist Joseph Priestley many years later:

5 "The kite being raised . . . he observed some loose threads of the hempen string to stand erect, and to avoid one another, just as if they had been suspended on a common conductor . . . he immediately presented his knuckle to the key, and . . . he perceived a very evident electric spark ...."

6 *Franklin collected "electric fire" in a Leyden (LY-den) jar. A Leyden jar is a glass jar with a glass layer sandwiched between two metal layers. Electrons build up on the metal layers. When a conductor connects the two metal layers, the jar produces an electric spark. Franklin used a Leyden jar to conduct experiments with lightning. He proved that it was a form of electricity.*

Notes



An engraving made in 1870 shows Benjamin Franklin and one of his assistants flying a kite during a thunderstorm to test the electrical nature of lightning.

Discovering Electricity

600 B.C.E. Thales of Miletus describes how amber can become charged by rubbing—what we now call static electricity.

1600 C.E. William Gilbert coins term *electricity,* which comes from Greek word for amber.

1751 Franklin's letters are published as *Experiments and Observations on Electricity.*

1752 Franklin conducts kite experiment, invents lightning rod, and proves lightning has electrical charges.

1767 Joseph Priestley finds that electricity follows Newton's law of gravity.

1800 First electric battery invented by Alessandro Volta.

Notes

He told other people how to build kites to 'collect' lightning and electricity.

7 Franklin also shared his work and techniques with others. He wrote to scientist Peter Collinson to tell him how to build a kite and draw "electric fire" from lightning.:

8 *. . . As soon as any of the thunder clouds come over the kite, the pointed wire will draw the electric fire from them . . . and from electric fire thus obtained, spirits may be kindled, and all the other electric experiments be performed, which are usually done by the help of a rubbed glass globe or tube, and thereby the sameness of the electric matter with that of lightning completely demonstrated.*

"Would not these pointed Rods probably draw the Electrical Fire silently out of a Cloud before it came nigh enough to strike, and thereby secure us from that most sudden and terrible Mischief!"

Notes

Franklin accomplished many great things" but "he was most famous around the world as the man who discovered the nature of lightning."

9 Franklin went on to make other important inventions and discoveries. By connecting Leyden jars together, he invented an early type of battery. Franklin also invented the lightning rod.

10 Franklin's studies of lightning helped people understand electricity. Lightning rods have saved many people's homes and lives. Franklin also coined many of the words we still use to describe electricity. Battery, charge, and conductor are just some of the terms Franklin invented.

11 Franklin was a curious and intelligent man. He helped to form the first public library and the first fire department in Pennsylvania. Franklin also helped to write the Declaration of Independence and the U.S. Constitution. Franklin accomplished many great things. But he was most famous around the world as the man who discovered the nature of lightning.

When lightning strikes a building, it is conducted through the lightning rod harmlessly into the ground.