Flying a Kite and Electricity

Benjamin Franklin was one of the seven key founding fathers of the United States of America. This group of men (along with many others) lead the American Revolution against the rule of the British and created the United States of America. He is described as a 'polymath' as he was knowledgeable and revolutionary in many areas including: writing, publishing, science, politics and inventing.

He invented many things but never patented them, which meant he didn't make any money from his inventions as he believed that all people should be able to benefit from new innovations. He is credited with creating the lightning rod, a glass instrument called a glass harmonica, the Franklin stove (which produced more heat and less smoke through its unique design), bifocal glasses and even some social innovations such as 'paying it forward' (doing a good deed for someone after a good deed has been done for you but not to the person who did the nice thing to you, it is really just passing on the kindness to others). He is also thought to be the first person to have used a pro and con list to decide something. In the area of the sciences, he studied human populations, ocean currents, light, weather, kites, refrigeration, the effect of temperature on conduction and of course electricity.

It is widely (but wrongly) believed that Benjamin Franklin discovered electricity by flying a kite in a lightning storm. It has long been thought that he set up a kite with a small, thin pointed piece of wire attached (that acted as a lightning rod) and a key hung from the end of the string. When the kite was flown in a storm cloud, lightning was expected to strike the metal wire on the kite and travel down the wet string to charge the key with electricity. It was thought that when Franklin touched the key he received a small shock, which proved electricity existed. However, this experiment seems unlikely as the current produced by a bolt of lightning could kill a person. In fact, several scientists were electrocuted attempting this experiment after reading about it! It is now believed that Benjamin Franklin actually wrote about the experiment as a possible but theoretical method for proving the existence of electricity inside lightning. If he did the experiment, it is likely that he created the contraption described above but flew it in the lower region of a storm cloud where negative charges collect. These charges would have charged up the rod and key and given him a small static electrical shock, no more than when you get a shock from a car door. What he did learn from this idea was that a conductive material such as metal in a long thin shape with a pointed end, will collect and discharge electricity from lightning in a 'safe', silent manner. This then lead to the idea of the lightning rods.

A lightning rod is a tall pointed metal rod that is attached to the top of a tall building and wired to the ground. When lightning strikes it, it carries the electrical energy (often several million volts worth) into the Earth where it dissipates without causing damage or harm.

He also established that all electricity was the same type of energy and that it had a positive to negative flow. (We now know that this is the opposite of actual electron flow.) This led to convention for the direction of current flow, which we use today in his honour. Another idea Benjamin Franklin established was that electrical charge can't be created or destroyed but can only be transferred (much like energy in general).

Benjamin Franklin truly was a man of many talents. He not only had a hand in shaping modern day USA but he also left his mark with the scientific discoveries and social changes he introduced. After his death in 1790 from a lung infection, 20 000 people attended his funeral which shows how important and respected he truly was. Due to his various successes he has been honoured in many ways including having his face on American bank notes, statues throughout Philadelphia, postage stamps of his face, as well as his name on numerous buildings and roadways. He also gave £1000 (around $4,400 USD) to a trust on the condition that it was not used but allowed to gain interest for 200 years. Over time, it has become worth $5 million (USD) and has been used for mortgage loans, scholarships and the formation of a trade school called the Franklin Institute of Boston. Benjamin Franklin was an amazing man who left behind an amazing legacy.