PhyzJob:
Be Franklin For a Day!

Name_____ Per____ Date:_____

On the other side of this sheet there is an excerpt from a letter that Benjamin Franklin wrote to a colleague. It is important to note that Franklin's kite was never hit by a bolt of lightning (as the popular story goes), for he would not have written this letter if it had been. The letter describes the details of Franklin's famous 1752 kite experiment. After reading the passage, answer the following questions.

1. Did Franklin fly the kite before or during an electrical storm? Quote the evidence for your answer.

2. Did Franklin get wet during this experiment? Quote the evidence for your answer.

3. Draw a complete diagram of the kite experiment.

4. Why did Franklin attach a wire to the kite?

5. What was the purpose of the silk ribbon?

6. Why did the loose filaments of the twine stand out every way?

7. What was the purpose of the key?

KIDS—DON'T TRY THIS AT HOME!
Franklin took many precautions while performing the kite experiment. Still, it was an extremely dangerous experiment and he was very lucky not to have been seriously injured. In Europe, G. W. Richmann attempted to repeat the Franklin experiment. While doing so, a pale blue fireball about the size of a fist ("ball lightning") left the lightning rod in his lab, floated quietly to Richmann's face, and exploded with a pop. Richmann was left dead on the floor with a red spot on his forehead and two holes in the bottom of one of his shoes.

Source: *The Flying Circus of Physics* by Jearl Walker, ©1977 by John Wiley and Sons

To the top of the upright stick of the kite's cross is to be fixed a very sharp pointed wire, rising a foot or more above the wood. To the end of the twine, next the hand, is to be tied a silk ribbon, and where the silk and twine join, a key may be fastened.

This kite is to be raised when a thunder gust appears to be coming on, and the person who holds the string must stand within a door or window or under some cover, so that the silk ribbon may not be wet; and care must be taken that the twine does not touch the frame of the door or window.

As soon as any of the thunder clouds come over the kite, the pointed wire will draw the electric fire from them, and the kite, with all the twine, will be electrified, and the loose filaments of the twine will stand out every way, and be attracted by an approaching finger. And when the rain has wet the kite and twine, so that it can conduct the electric fire freely, you will find it stream out plentifully from the key on the approach of your knuckle.

At the key the phial may be charged, and from electric fire thus obtained, spirits may be kindled, and all other electric experiments may be performed, which are usually done by the help of the rubbed globe or tube, and thereby the sameness of the electric matter with that of lightning completely demonstrated.