Name _____ Date _____ Class _____

Enrichment **LESSON 1**

The Inventor and Lightning

Some people believe that Ben Franklin "invented" electricity. That's not true. In 900 B.C. a man in ancient Greece rubbed a piece of amber with cat fur. The amber picked up feathers!

By the 1700s, electricity was still just an interesting oddity. People used electricity for magic tricks by creating sparks and shocks. Scientists conducted experiments with electricity, but they didn't see how it could be useful. Enter Ben Franklin!

Franklin's Theory

Ben Franklin was interested in what scientists had learned about electricity. He set up a laboratory in his home and used common household objects to experiment. During his experiments with electric charges, he noticed that electric charges and lightning had many things in common. Both produced light and sound. Both were attracted to metal. Both gave off a peculiar smell. Franklin believed that lightning was a form of electricity.

Making It Useful

In 1752, Franklin figured out how to test his hypothesis. He had noticed that an electric charge was attracted to the point of a metal needle. He built a kite to get closer to storm clouds. A metal wire attached to the kite would, he believed, attract the lightning. During his experiment, the lightning struck the wire and traveled down the wet kite string to a metal key. Franklin showed that the sparks from the key were the same as the sparks produced in experiments with electric charges.

Franklin wanted to use his discovery to protect people and buildings from lightning strikes. He reasoned that a sharp iron pole attached to the highest part of a building would attract the lightning bolt. He attached a wire to the base of the pole, ran the insulated wire down the side of the building, and attached it to a metal stake driven into the ground. The electric charge from the lightning would travel down the wire and be safely conducted into the ground. The lightning rod was born!

A New Language

Franklin showed that electricity passed from one body to another, but was never destroyed. He developed many of the terms that we still use today when we talk about electricity: battery, conductor, charge, discharge, uncharged, negative, minus, plus, electric shock, and electrician.

Applying Critical-Thinking Skills

Directions: *Answer each question or respond to each statement.*

1. **Summarize** the contributions of Ben Franklin in the field of electricity.
2. **Analyze** To fly the kite in his experiment, Benjamin Franklin had to hold onto it in some way. What kind of material might he have used between the key and his hand to keep lightning from reaching him? What makes this experiment dangerous?