

Electrical Wizard

HOW NIKOLA TESLA LIT UP THE WORLD

RIF EXTENSION ACTIVITIES FOR EDUCATORS

STEAM-THEMED: SCIENCE, TECHNOLOGY, ENGINEERING, ART, MATH

SCIENCE

FOLLOW ME

Materials: balloon, empty soda can

Blow up a balloon and tie it off at the end. Place an empty soda can on its side on a flat surface. Rub the balloon against your hair or a fuzzy surface. Hold the balloon about an inch from the can. Slowly move the balloon away from the can. Will the can follow the balloon? Move the balloon to the other side. What happens? How fast can the can roll? How far will it roll before it stops? Can it roll on an incline? Experiment to answer all of these questions; record your observations and draw conclusions.

TECHNOLOGY, ART LIGHTS OUT!

Have each student or pairs of students brainstorm what they would need if the power went out. Have them list all the items they can think of for survival and/or entertainment without electricity. Have them create a wordle with their list at <https://wordart.com/create>. When finished, wordles can be shared with the class.

ENGINEERING, SCIENCE, TECHNOLOGY DIY FLASHLIGHT

Materials: 2 D batteries, copper wire, toilet paper tube, 3 volt bulb, 2 brass fasteners, cardboard, paper clip, tape, small paper cup

Preparation: Tape the batteries together (+ to - ends). Cut wire into two 5" pieces and strip each end. Cut a 1" x 3" strip from cardboard and create a hole in the center for the bulb. Create a hole in the bottom of the cup for the top of the bulb to fit through.

Assembly: Attach one piece of wire to each brass fastener. Punch each fastener through the toilet paper tube so that the prongs are on the outside about the same distance apart as the size of the

paper clip. Slide batteries into tube.

Tape one free end of wire onto the flat (-) side of the battery. Thread the other wire end through the cardboard strip and wind firmly around the bulb. Tape the cardboard strip to the tube so that the bulb makes contact with the top (+) side of the battery. Push the bulb through the paper cup. When the paper clip touches both ends of the fasteners, the flashlight should turn on!

Need a Visual?

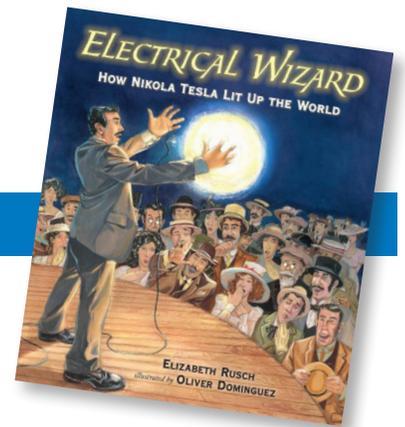
There are several videos on www.youtube.com that show similar experiments, such as this one: www.youtube.com/watch?v=tpdOgf7i5Xg.

ART, SCIENCE, TECHNOLOGY INNOVATIVE INVENTIONS

From toilet paper to light bulbs, bubble gum to blue jeans, everywhere you look you see an invention. Choose the one invention you think is the most innovative. Prepare a presentation of your choice to show why you think this invention is tops! Make sure your presentation is creative and artistic, and include a little about the invention's history and its inventor.

MATH, SCIENCE, TECHNOLOGY EXPENSIVE ENERGY?

How much does it cost to power the electrical items in your bedroom? Den? Kitchen? Have students choose a room and make a list of items that need electricity to operate. Have them calculate the cost per day of those items by going to www.energy.gov and clicking on the appliance energy calculator. Which items cost the most? The least? Students should share their findings in a chart or graph.



Reading Is
Fundamental