



## Reddy Kilowatt STEAM Activity



**History** – The flash of inspiration for Reddy Kilowatt literally came from a bolt of lightning. Ashton B. Collins, Sr. of Alabama Power created Reddy in 1926 after seeing a bolt of lightning that resembled a little man. Dan Clinton, Collins co-worker, was the first to sketch the character with a lightning bolt body, a round head with outlets for ears and a lightbulb nose and wearing safety gloves and boots.



The use of electricity in the mid-1920s was still considered a novelty, especially in rural areas so Reddy was used to promote the use of electricity, focusing on its safety and reliability. Later his focus shifted to powerline safety (kids flying kites), education and conserving energy.

Reddy was licensed to electric companies and his image would be used in print advertising and on promotional items. He appeared on a variety of objects including: buttons, figurines, lighters, ashtrays, kitchenware, recipe books, pens and pencils, charms and lapel pins, coloring books and comic books. He also adorned power company vehicles and businesses. At his height, he was licensed to an estimated 300 power companies globally.



In 1946, Reddy made his debut on the big screen in a movie short called “Reddy Made Magic.” The animation was provided by cartoonist Walter Lantz, whom is best known for his Woody Woodpecker character. The following link: <https://www.youtube.com/watch?v=nLcAzYCueAY> gives an example of the Reddy Kilowatt theme song.

By the 1970s, Reddy was on the decline and only a handful of power companies still use the sparky little mascot today.

**The Artifact** – The lighted Reddy Kilowatt sign on display at the York County History Center stands 18’ tall and contains 256 lightbulbs.



Its origin is a bit of a mystery. The sign, or one similar to it was displayed on the front of the Edison building on the first block of West Market Street in the 1940s.



Posted to the Retro York Facebook page by Daphne Lyn Fuller.

Others have shared seeing a similar sign at the Met-Ed facility on Parkway Blvd during the 1960s and 1970s. Additionally, there are reports of Reddy being on the York Haven hydroelectric dam. We are not sure if it's the same sign at all three locations or if there was more than one of them. Regardless, it's a historic piece with a lot of personality.

Watch a time lapse video showing the assembly of the Reddy Kilowatt sign.

[https://www.youtube.com/watch?v=biBU12n63v0&fbclid=IwAR1cdcKCRooVnf\\_gyxtkfc85FsBJueuRxvf-KijlOK\\_rXQ4XgrrAdc\\_bt\\_c](https://www.youtube.com/watch?v=biBU12n63v0&fbclid=IwAR1cdcKCRooVnf_gyxtkfc85FsBJueuRxvf-KijlOK_rXQ4XgrrAdc_bt_c)

### **STEAM Activity** – Circuit Tiles

Demonstrate how electrical energy is transmitted and used once created.



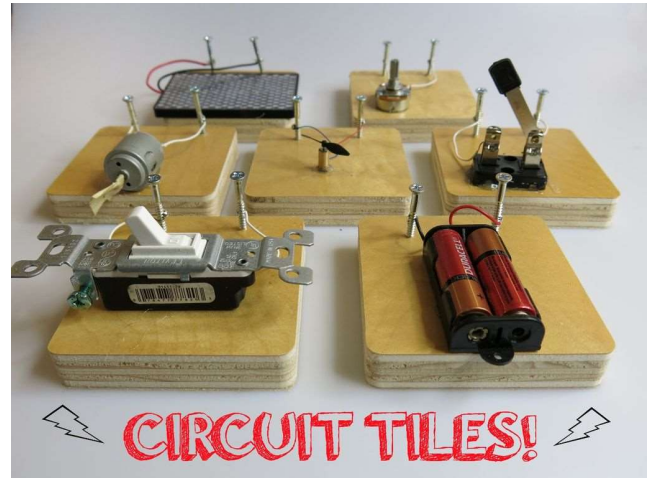
# Circuit Tiles

## Energizing Wall Exhibit

Demonstrations of how electrical energy is transmitted and used once created

### Project Link:

<https://www.instructables.com/id/Circuit-Tiles/>



**Educational Concepts:** Circuitry, current, voltage, parallel vs. series, resistance

**Standards:** 3.2.A(1-5), 3.2.B4, 3.4.A(1-3), 3.4.B(3-4), 3.4.C(1-3), 3.4.E3

**3-5 grade:** Energy properties and presence in everyday objects, energy transfer, energy as a property of objects, conductors vs. insulators, subsystems as part of a larger system, parts and components make up a system, machines use energy to do work

**6-8 grade:** Energy in a system, potential to kinetic energy, Ohm's Law, how electric current produces magnetic forces, flow of electrons, processes as part of a system, power systems

### Demonstration Methods/Ideas:

- Connect various elements to power to show the different ways energy can be used i.e. heat, light, work, motion
- To demonstrate series vs. parallel circuits, connect two or more of the same or similar elements in series and parallel to show the differences
- Use potentiometer elements in series with lights or motors to show Ohm's Law and changing voltage effects
- Give students basic schematics and have them recreate them using corresponding tiles and elements
- Open vs. closed circuits demonstrated using switches ideally both SPST (single pull single throw) and SPDT (single pull double throw)
- Demonstrate basic household electronics using household elements like light switches, light bulbs (will be dim on 9V), transformers, and dimmers
- Let students create their own unique circuits and troubleshoot their problems

## CIRCUIT TILES (Cont.)

### Tools:

- Saw (power saw ideally)
- Hot glue gun/hot glue
- Pliers
- Sandpaper
- Soldering iron/solder
- Aluminum Foil
- Drill
- Wire strippers

### Materials: Per Tile (1 electronic element per tile)

- Square Wood Tile (4x4")
- 2-4x 2" steel screws
- Copper Wire

### Electronic elements

- Gator Clips/Connectors
- Battery pack (AA or 9V)
- Switches
- Electro-magnets
- LED lights
- DC brushless motors
- Resistors
- Hand Crank/Generator
- Potentiometers
- Solar Panel
- Buzzers

### Assembly:

1. Drill 1 screw per electronic part lead into a wood tile
2. Solder or connect each lead to a screw (if the element doesn't have a lead wire solder copper wire to each contact point as needed)

### Additional Educational Resources:

<https://makerpromise.org/circuit-arcade/challenge-1-connect-pre-built-tiles-to-create-a-circuit/>

<https://www.instructables.com/id/Basic-Electronics/>

<https://learn.sparkfun.com/tutorials/switch-basics/all>

<https://www.build-electronic-circuits.com/electronics-for-beginners/>

<https://www.makerspaces.com/basic-electronics/>