

## TRB 5:4 - Activity 3: Lights On!

### Summary

Through hands-on experiments and class discussions, students will create definitions for a complete circuit and an incomplete circuit.

### Materials

- 1 D--size battery, one flashlight size bulb, 1 12-inch length of bare copper wire
- 1 flashlight--size bulb
- 12 inches of bare copper wire

### Additional Resources:

Discovering Electricity

Newbridge

P.O. Box 1270

Littleton, MA, 01460

(800) 067-0307 FAX (800) 456-2419

[www.newbridgeonline.com](http://www.newbridgeonline.com)

Electricity Files: Shock

Discovery Channel School

P.O. Box 6027

Florence, KY

41022-6027

(888) 892-3484

(859) 727-8918

DiscoverySchool.com

Teachers A-Z Resource Guide: Electricity

Discovery Channel School

### Background for Teachers

Wire can be substituted with sections of wire cut from holiday lights or strips of aluminum foil.

Sections of holiday lights that include bulbs can be used instead of flashlight size bulbs. A switch can be made from a small square of cardboard, two paper fasteners (brads), and a small paper clip. Make a small hole in the cardboard, slip the paper clip over the end of the brad, and fasten the brad to the cardboard. Insert the other brad close enough to the first brad that the paper clip can touch it. To use as a switch, attach one wire to each of the brads. The swinging paper clip will open and close the circuit.

Ideally, students should work in pairs, but if supplies are limited, make the groups as small as possible.

"Light and Sound Globes " or "Happy Balls " are small balls with 2 contacts on the bottom. When we hold the ball, our skin conducts enough electricity to complete the circuit. Music plays and/or the ball lights up. These can be purchased through many of the large science supply companies.

### Intended Learning Outcomes

1-Use science process and thinking skills.

### Instructional Procedures

Invitation to Learn:

Use "Light and Sound Globe " or "Happy Ball." Ask questions like: "What makes the globe light? Why

can't I use two pencils to push the contacts and make it light?" Or tell students they will get to make an improvised flashlight.

#### Instructional Procedures:

Give each student or pair of students the battery, bulb, and wire. Instruct students to find a way to light the bulb using only those three items.

As groups find ways to light the bulbs, give them further instructions to find four ways to light the bulb. Have them record each of the ways on the journal sheet. Remind students that good technical drawings will be as realistic as possible. The drawings should show important details and include word labels.

After allowing time for students to discover the four ways to light the bulb, have students put aside the materials. As a group, discuss the ways to light the bulb.

Discuss as a class why some methods did not work and why others did. Through this discussion, lead students to come up with definitions for a complete circuit and an incomplete circuit. Record these definitions in science journals.

This step can be done on a separate day as a complete lesson. Create another circuit using a bulb or motor, battery, wires, and a switch. Discuss how using the switch changes the circuit from complete to incomplete very quickly.

Have students complete the "Light a Bulb" worksheet.

#### Extensions

##### Language:

Write five fact sentences and five opinion sentences about your circuit.

Create a Venn Diagram comparing complete and incomplete circuits.

##### Journal Writing:

What is a switch's job?

#### Assessment Plan

##### Performance assessment

Ask students to create a complete circuit and an incomplete circuit. Describe the difference between a complete and an incomplete circuit. Create a Venn Diagram.

#### Bibliography

This lesson is part of the Fifth Grade Science Teacher Resource Book (TRB3)

<http://www.usoe.org/curr/science/core/5th/TRB5/>. The TRB3 is designed to be your textbook in teaching science curriculum to your students. This book covers all the objectives of each standard and benchmark. If taught efficiently, a student should do well on the End-of-Level (CRT) tests. The TRB3 is designed for teachers who know very little about science, as well as for teachers who have a broad understanding of science.

#### Authors

[Utah LessonPlans](#)