

Exploring Circuits

Lesson Overview: Students will learn about circuits and simple electronics as they build an alarm. The activity can be expanded by doing the Lunchbox alarm during the next session.

Suggested Time: 30-45 minutes

Learning Objectives:

- To learn about simple circuits
- To incorporate circuits into a design

Materials: This activity will work with different electronic kits and with basic electronic pieces if they include:

- 1.5-volt light bulbs
- Buzzers
- AA Batteries
- AA Battery Holders with leads
- Aluminum Foil
- Non-conductive ribbon, fabric, or paper

Directions:

1. Introduce students to materials (Except for buzzer)
2. Launching Question:
 - a. How can we use this battery to light up this bulb?
3. Encourage students to find different ways to make the bulb light up
4. Document students' successful and unsuccessful attempts on chart paper or in slide show
5. Lead a discussion interpreting the results - What do we need to light up the bulb?
 - a. Focus on circuit ideas –
 - i. A complete path
 - ii. conductive materials (using aluminum foil, using battery holder)
6. Introduce vocabulary and diagrams relevant to your goals (e.g. electricity, electrons, etc.)
7. Introduce Buzzer and discuss how it might work like bulbs
8. Introduce challenge -Students that will create a circuit that is part of an alarm system.
9. Have students draw their plan.
10. As students build their circuits, they will likely vary from what they drew.
11. Students can test each other's alarms
12. When students finish, have them share what they learned about how to work with the buzzer.
13. Final discussions can also focus on what they think they will need to incorporate the materials as a lunch box alarm.

