

# Who Turned Out the Lights?

## OBJECTIVE

Students will witness a simple phenomenon where the classroom lights are out and all electronic devices/equipment are off. They will ask questions about how this would affect their lives and how it is affecting them right now. Students will build a simple circuit with a battery and light.

## PURPOSE OF ACTIVITY

Read or Listen, Apply Skills

## 21st CENTURY SKILLS

Critical Thinking

## COGNITIVE LEVEL

Strategic Thinking, Extended Thinking, Skills and Concepts

## CLASS TIME

- 50 minutes

## MATERIALS

- Classroom with electric lights
- [Circuit building kit](#)
- Double AA batteries (1 per student group)
- Student Worksheet

## Procedure

1. Turn all of the lights off in the classroom along with all other electronic devices (except for computer carts). Students will come into a dark room. Tell them that we cannot have the lights on today because we are pretending there is no electricity in the room.
2. Ask students for questions that they have about why the room is dark and what it might mean. Once the questions are done, turn the lights back on. Then have the students record the questions on their student worksheet. (Hand them the student sheet upon entering the classroom.)
3. Students will plan and build a simple light circuit using the circuit building kit and will investigate how energy is being transferred from a battery to a wire and can be used to create light.

## CRITICAL THINKING QUESTIONS

### **What must happen to make the circuit work to turn on the lightbulb?**

*The wires must be attached to the top and bottom of the battery. The wires must be attached to the lightbulb.*

### **What are ways we can save energy?**

*Turn off lights when we are not using them. Use energy-efficient lightbulbs, etc.*

*Adapted from: <https://energy.utah.gov/energy-education/curriculum/>*

## STUDENT WORKSHEET

# Who Turned Out the Lights?

Name \_\_\_\_\_

**Phenomenon:** When you walked into the classroom today, you found a dark room with no electricity and no electronic devices working. Write down your observations or questions about this situation below. Write two observations and two questions:

Observations:

1.

2.

Questions:

1.

2.

The lights were off today to help us see how not having electricity would affect our learning environment. What would happen if the lights did not come on for the whole period? Give three ideas:

1.

2.

3.

**Investigation:** Electricity comes to our classroom in wires from a power plant somewhere nearby. Various energy resources like natural gas, wind turbines, solar panels and hydroelectric dams are used to produce electricity. Today our energy will be provided by a battery (chemical energy) and you will investigate how it can be used to turn on a lightbulb. Write a claim (hypothesis) about how the chemical energy in the battery could be changed into electrical energy to light the bulb.

Claim:

**Challenge:** Use the circuit kit to get the light to glow.

**Draw:** Show how the circuit looked when the light was on. Be sure to notice where you placed the wires on the lightbulb:

**Evidence and Reasoning:** Write down at least two evidence statements which show that electrical energy has been changed into light energy in your experiment.

1.

2.

**Explanation:** Now use your claim from above and add reasoning from your experiment to form an explanation for how the chemical energy from a battery might change into electrical energy to light the bulb.

---

---

---

---

---

---