

# Electricity Grade 4 Evaluation

## Teacher Section

**Overview:** Kids will demonstrate how well they understand important key concepts from this section.

**Suggested Time:** 45-60 minutes

**Objectives:** Students will be tested on the key concepts of electricity:

1. When electric current passes through a material, it does so by electrical conduction.
2. Metals are conductors not because electricity passes through them, but because they contain electrons that can move.
3. There are different kinds of conduction, such as metallic conduction, where electrons flow through a conductor (like metal) and electrolysis, where charged atoms (called ions) flow through liquids.

Students will also demonstrate these principles:

4. Design and build simple series and parallel circuits by using components such as wires, batteries, switches, and LEDs.
5. Know electrical energy can be converted to heat, light, and motion.

### Materials (one set for entire class)

AA battery case  
2 AA batteries 4  
alligator wires  
switch  
LED  
1.5-3VDC motor

### Lab Preparation

1. Print out copies of the student worksheets, lab practical, and quiz.
2. Have a tub of the materials in front of you at your desk. Kids will come up when called and demonstrate their knowledge using these materials.

### Lesson

The students are taking two tests today: the quiz and the lab practical. The quiz takes about 20 minutes, and you'll find the answer key to make it easy to grade.

### Lab Practical

Students will demonstrate individually that they know how to wire up a circuit and explain how electrical energy can be converted to heat, light, and/or motion. While other kids are waiting for their turn, they have a choice of three different homework assignments to get started on.

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## Student Worksheet

**Overview:** Today you're going to take two different tests: the quiz and the lab practical. You're going to take the written quiz first, and the lab practical at the end of this lab. The lab practical isn't a paper test – it's where you get to show your teacher that you know how to do something.

### Lab Test & Homework

1. Your teacher will call you up so you can share how much you understand about electricity and how it works. Since science is so much more than just reading a book or circling the right answer, this is an important part of the test to find out what you really understand.
2. While you are waiting for your turn to show your teacher how much of this stuff you already know, you get to choose which homework assignment you want to complete. The assignment is due tomorrow, and half the credit is for creativity and the other half is for content, so really let your imagination fly as you work through it. Choose one that you didn't choose from the Static Electricity homework assignment last time:
  - a. Write a short story or skit about electricity from the perspective of the wire or the electrical component. You'll read this aloud to your class.
  - b. Make a poster that teaches the main concepts to electricity. When you're finished, you'll use it to teach to a class in the younger grades and demonstrate each of the principles that you've learned.
  - c. Write and perform a poem or song about electricity. This will be performed to your class.