

ED401 Lesson Report

17 April 2003

INTRODUCTION: I taught this lesson with Ann Gardner and Sandra Boyd; the audience was the 4th grade class of Trudi Pitkin from D.J. Montague. The students had very willing attitudes. They were ready to comply to instruction, listen, and answer questions. They are presently studying electricity and circuits; so this lesson was mostly a review, but may have served as an introduction to a few new, advanced concepts.

OBJECTIVES: The students will learn the components of a complete circuit. Students will be able to explain what makes a complete circuit and describe the different parts. (If they have extra time, students will learn about and be able to describe how thickness and length of a wire affect the brightness of the bulb.)

MATERIALS: We used the website <http://electric-circuits.co.uk>. On this website, there are several options for students to look at and interact with in making complete circuits and learning about electricity. There are six sections: “Electricity in the Home,” “Introduction to Circuits,” “Circuit Components,” “Changing Circuits,” “Circuit Diagrams,” and “The Wire Experiment.” We used all the ones involving Circuits, except the “Changing Circuits” section. With these three sections, we composed a worksheet (included at the end of the report) that included space for them to record their answers from the website activities, as well as some other short answer questions we added. If they had time, they could look at the other three sections, and the worksheet had questions for them to answer from “The Wire Experiment.”

DESCRIPTION:

- We asked them to describe what they already knew about circuits.
- We explained the worksheet, then the class moved to the computer lab.

- Students followed the instructions on the worksheet: they entered the website, chose the sections in the order that we instructed on the worksheet, and answered the questions on the worksheet.
- We reviewed with them the different sections on the worksheet to review what they had learned.

EVALUATION: Our evaluation was how they responded on the worksheet and their response to our review of what they had been working on after they finished the worksheet. Some of the questions we asked are as follows:

“If the switch is on, and the battery is missing from the circuit, will the bulb light up? YES ___
No ___”

“Short Answer: Describe how electricity travels in a complete circuit.”

“Correctly complete the circuit test. When finished, have a teacher come and check your work.”

For the Wire Experiment: “Short Answer: How does the thickness affect the brightness of the bulb?”

Using these types of assessment questions, we were able to look back and first see whether they completed the assignment correctly and secondly see if they understood what they had been investigating.

RESULTS: The students’ reactions and attitudes were mostly positive. Some were more excited than others, while some were able to complete the tasks quicker. Most of the students knew what to do with the computers once they were in the website. However, they seemed to have a little confusion when turning on the computers and getting to the website. The teacher was able to help them and give them suggestions for when the first try did not work. Once they were in the website that we were working with, they did not have any difficulty navigating

through it. The host teacher was very supportive and enthusiastic to have us there. She also went around and helped the students with the activity and participated in the discussion. Most students completed the activity and were able to explore the rest of the website.

I felt that the lesson's objectives were achieved. We wanted for them to review what they had been learning about circuits, solidify the understanding of what it is meant to have a complete circuit, and be able to explore different components about electricity and circuits. This website and worksheet allowed for that. When we reviewed with them what they had learned, they seemed to understand the concepts we were trying to get across. I think that our assessment was valid and fair. We had them record the answers to questions that they came across during their time in the website. We also had review questions that they had to answer with short answer to make sure they grasped the concepts. For the circuits test, we came around and initialed their paper when they passed it. Sometimes we had to go over the circuit with them if they had not completed it correctly.

LESSONS LEARNED: One thing that we did not really expect or plan for was that some students would finish early. We had actually planned the extra short answers on the worksheet and we were able to direct their attention to the other tasks they could do on the website; but even some students finished all of that early. So we had to come up with a quick solution. We had students draw a complete circuit on the back of their worksheet. Another thing that I did not really expect was for students to not read thoroughly through the directions. I do not think they are hard to understand; but I think that the students just either did not know to read them, or just did not want or think to. Other than this, the lesson went smoothly and we were able to go over the answers on the worksheets at the end of the lesson.

WORKSHEET

Name _____

Website: **electric-circuits.co.uk**

Click “ENTER”

Choose “1 Learner,” type in your name, and click Enter

First click on the “Introduction to Circuits” box and follow instructions on the webpage. Choose the Torch (Flashlight) or Raygun; read the information for either one and complete the circuit. Answer the questions and mark your answers on this worksheet.

Questions:

Torch

1. If the switch is on, and battery is missing from the circuit, will the bulb light up?
YES _____ NO _____
2. If all the components are in place and the switch is off, does the bulb light up?
YES _____ NO _____
3. If the switch is on, the battery is in place, but the bulb is removed does the light go out? YES _____ NO _____

Raygun

1. If the circuit is complete, and you then remove the buzzer, will the bulb still work? YES _____ NO _____
2. If all the components are in place and the switch is on, does the bulb light up? YES _____ NO _____
3. If the circuit is complete, and you then remove the bulb, will the buzzer still work? YES _____ NO _____

Short Answer: Describe how electricity travels in a complete circuit.

Next click on the “Circuit Component” box, and click and drag the different objects into the scanner. This will teach you which symbols are used for each object.

Next click on the “Circuit Diagrams” box. Correctly complete the circuit test. When finished, have a teacher come and check your work. (If you are having difficulty, return to the “Circuit Component” box and review the symbols.)

Teacher initials _____

If you have finished, click on “The Wire Experiment” box and investigate wire thickness and length. Do the tasks and answer the questions.

When finished answer these questions:

1. How does thickness affect the brightness of the bulb?

2. How does length affect the brightness of the bulb?
