

Case Details

Case Title:

Crisis in the ATL!

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Date Published:

10/7/2011

Grade Level(s):

Middle School

Subject(s):

Physical Science

Summary:

It's a steamy summer day in Atlanta when suddenly the power blinks out over the entire city! To make matters worse, all of the electricians in the area are out of town at a conference. Mayor Shirley Franklin is offering a \$20,000 reward to anyone who can put together a proposal that details what probably went wrong and how to fix it. Since you are in a suburb that still has power, help your Atlanta friends put together a presentation for the mayor so the problem can be fixed and you can win the reward.

Suggested Citation:

Turner, B. L., & Shamsid-Deen, K. K. (2011). *Crisis in the ATL!*. Retrieved June 03, 2012 from Emory University, CASES Online Web site:
http://www.cse.emory.edu/cases/casedisplay.cfm?case_id=167

Learning Objectives:

1. Define "power-out" and explain what can cause one.
2. Describe the properties of electricity, including types of currents & how electricity travels.
3. Explain how electricity is produced and distributed, and types of resources that are commonly used.
4. Diagram the way that electricity works, from a simple household circuit to a power plant.
5. Identify what could have caused a power-out that is at the city-wide level, especially during the summer, and show how it could have happened.
6. Define key terms including direct vs. alternating currents, fuses, circuits, wattage, voltage, transformer and power plant.

National/State Standards:

Georgia Performance Standards

SCSh3. Students will identify and investigate problems scientifically. (NSES Content Standard A).

S8P5. Students will recognize characteristics of gravity, electricity, and magnetism as major kinds of forces acting in nature. (NSES Content Standard B) b. Demonstrate the advantages and disadvantages of series and parallel circuits and how they transfer energy.