

Science Lesson

Instructor:

Time: 45-60 Minutes

Making Batteries

Lesson Goal: Students will be able to identify and understand how electricity is made. Using fruits and vegetables, students will create direct current batteries capable of powering DC powered devices.

Materials:

1. Fresh lemons and potatoes
2. 14 ga. or larger copper wire
3. 16 penny steel nail or screw, non-coated
4. Digital or analog multimeter to measure voltage and current
5. Alligator clips as leads
6. Any 12 VDC device: test bulb, radio, Walkman or similar device.

Performance Objectives:

1. Understand how electricity is produced.
2. Distinguish between Direct Current (DC) and Alternating Current (AC).
3. Understand what series and parallel circuitry is.
4. Produce a battery with enough power to make a 12VDC device run.

Teaching Activities:

1. Explain the fundamentals of electricity.
2. Set up experiment to allow students to make lemon and potato batteries.
3. Discuss why you need several potatoes and lemons to make the 12VDC device work.
4. Have fun with the experiment

Student Activities:

1. Understand electricity and its complexities.
2. Participate in class discussion.
3. Do class experiment.
4. Ask questions as needed.

Reflections on the Lesson:

Science Lesson

Making Batteries

Directions:

1. Take a potato or a lemon.
2. Place a copper wire at one end of the potato or lemon and place the steel nail or screw at the other end.
3. Place one lead on the copper wire.
4. Place another lead on the nail.
5. Take the multimeter and set the meter to read up to 12 volts.
6. Place the red lead on the copper wire.
7. Place the black lead on the nail.
8. Record the volts _____
9. Hint: if the volts read negative, switch the leads.
10. Make enough batteries to power the 12VDC Device.

Questions

1. Who invented batteries?
2. What is happening between the copper wire and the nail/screw?
3. What happens as you connect the batteries together?
4. What types of circuit are you making, and why?
5. Which do you think is better as a battery: the potato or the lemon? Why?