



DEPARTMENT OF
Biomedical Engineering
UNIVERSITY OF WISCONSIN-MADISON

Introductions



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What is Biomedical Engineering?



Activity Overview: Electricity from a Potato

- Believe it or not...potatoes can serve as a source of electricity!
- They create a certain amount of energy known as voltage, which can be used to power devices



Key Terms

Current: The movement, or flow, of electrons.

Conductor: An object that allows the transfer of electrons.

Electrical energy: Energy produced through the movement of electrons (voltage x current).

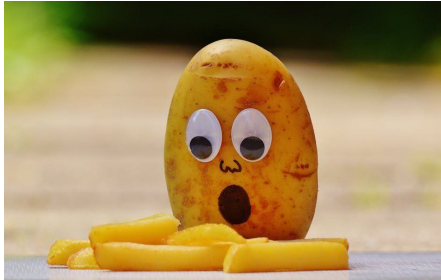
Voltage: The pressure that pushes electrons.



Objective and Materials

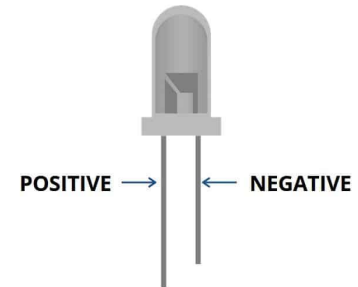
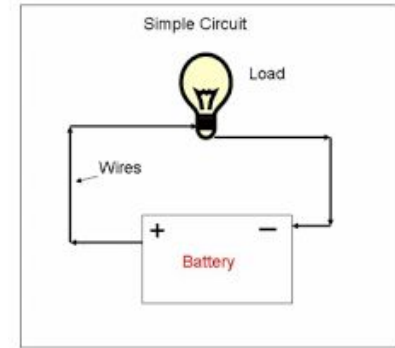
Objective: Learn circuit basics by lighting up an LED using electrical current from the energy stored in potatoes

Materials: potatoes, nails, pennies, LED, alligator clips, multimeter



Activity Steps

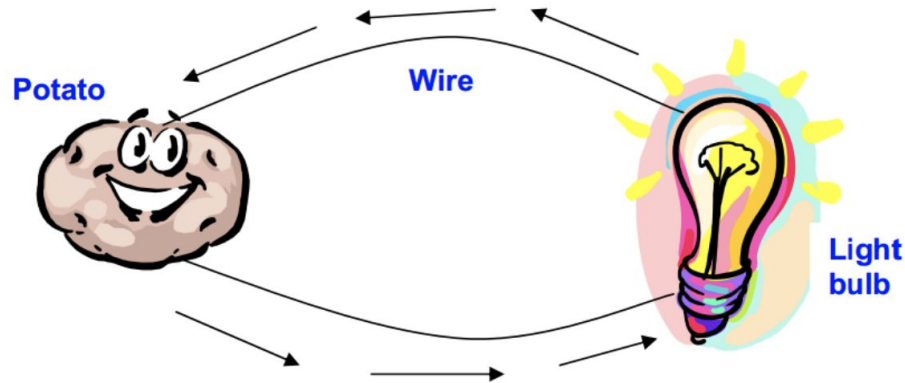
1. Gather all materials listed in the handout
2. Pierce the potato with nail and penny. Make sure the nail and penny aren't touching
3. Turn on multimeter to the 20V DC Volts setting
4. Measure voltage of one potato
 - a. Red (positive) to wire touching nail, black (negative) to wire touching penny
5. Determine how many potatoes it will take to turn on a 1.9V LED
6. Try to connect potatoes in a way that they can turn on the LED
 - a. Hint: think of the different ways we can attach potatoes to increase voltage



Reflection Questions

Question 1: Draw a picture of the potato battery setup. Label the potato, wire, and light bulb parts. Draw arrows to show the direction of the current.

Answer:



Reflection Questions

Question 2: How does the potato help the circuit to work?

Answer:

Potatoes give the electrons a solution to help them move to the copper from the zinc, and complete the circuit.

Question 3: Why must engineers understand circuits when making electrical appliances?

Answer:

Engineers need to understand circuits in order to force electrical energy flow through the right resistors in technologies that run off electricity.



Questions for us?



Thank you for having us!
We hope you enjoyed it!



Assignments

- What is BME? (Annabel)
- Activity Overview (Roxi)
- Key term (Tim)
- objectives and materials (Josh)
- activity steps (Sam)

