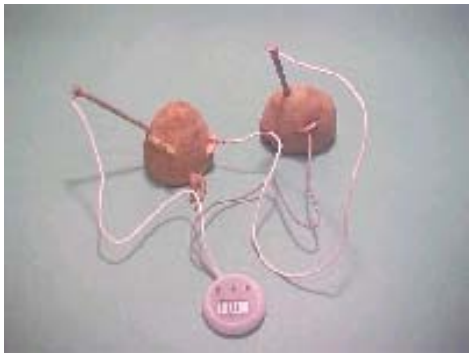
BIOMASS: POTATO POWER



Curriculum: Biomass Power (organic chemistry, chemical/carbon cycles, plants, energy resources/transformations)

Grade Level: Grades 2 to 3

Small groups (3 to 4)

Time: 30 to 40 minutes

Summary: Students assemble a potato battery that will power a digital clock. This shows the connection between renewable energy from biomass and its application.

Provided by the Department of Energy's National Renewable Energy Laboratory and BP America Inc.

BIOPOWER - POTATO POWER

Purpose: Can a potato power a clock?

Materials:

- A potato
- A paper plate
- Two pennies
- Two galvanized nails
- Three 8 inch insulated copper wire, with 2 inches of the insulation removed from the ends
- A digital clock (with places for wire attachment)

Procedure:

- Cut the potato in half and put the halves on the plate cut side down.
- Wrap one end of wire around the nail; wrap a second wire around a penny.
- Now place the nail and the penny into the same potato half. Make sure the penny and the nail do not touch.
- Wrap the third wire around the penny, put this penny in to the other potato half.
- Put the last nail into the second potato half, this nail should not have a wire connected to it.
- Now connect the wire from the penny in the first potato half to the nail in the second potato half.
- You should now have two free ends of wire, one from nail in the first potato half and one from the penny in the second potato half.
- Now touch the free ends of wire to the clock.
- Does the clock work?
- You may need to change the connection at the clock if it does not work

Questions:

1. Is the clock running?
2. What is making the clock run?
3. Could you connect many more potato halves together to make a radio work?
4. How many potatoes would it take to power your home?
5. Would using a lot of potatoes make good sense to power your home? Why or why not?