



HOW CAN POTATOS ENLIGHTEN US ?

Physics | Chemistry | Technology



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ENERGY :
PRODUCTION AND
RESOURCES

PEDAGOGIC CONTENT:

- Sustainable development
- Biomass energy
- Energy chain

PRE-REQUISITES:

Students should know that most batteries are composed of two different metals that react with an acid to produce electricity.

NEW COMPETENCIES TARGETED/LEARNING OUTCOMES:

STUDENTS WILL BE ABLE TO:

- Mobilize reasoning about sources of energy
- Understand how energy transmission work








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DESCRIPTION:

PREPARATION

Teacher will prepare the necessary technical equipment (to be found in the DIY shop): electric wires, copper coins, sandpaper, zinc nails, LED bulb, and potatoes.

IMPLEMENTATION

-  #1: Lightly sand coins and nails with sandpaper. Students must ensure that the equipment is clean so as not to interfere with electrical traffic.
-  #2: Then, they place a coin and a nail in each potato (in half only). Connect by means of a clamp cable the piece and the nail of two different potatoes.
-  #3: Connect the two ends of the cable to the bulb. Bind the potatoes to each other using electric wires, passing from the tips (zinc) to the coin (copper) When the copper parts (positive pole) and zinc nails (negative pole) are placed in the potato, a chemical reaction in the juice of the potato produces electricity.
-  #4: Throw the potato at the end of the experiment.
-  #5: Let's the teacher conclude about biomass energy.

Type of activity	✎	Experimental activity
Target audience	👤	From 11 years old
Place	📖	Lab room, classroom
Material needed	✎	Potatoes, electric wires, copper coins, sandpaper, zinc nails, LED bulb.
Duration of activity	🕒	Implementation : 1-2 hours
Authorship	✎	PANDA-club; Fonds National de la Recherche Luxembourg www.science.lu No authorization or registration required
Links	🌐	https://youtu.be/kt1kLE_advA
Notes by author	✎	The connection of the light emitting diode to a single potato will not allow it to be started because a single potato does not have the electrical power to operate the diode. Be careful to respect polarity. This experiment is also possible with other vegetables or fruits and some sparkling drinks. An acid liquid is necessary to pass the current (from positive pole to negative pole).



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