

# POTATO POWERED LIGHT BULB STEM ACTIVITY



## MATERIALS

- Potato
- Light bulb
- 2 pennies
- 3 small pieces of copper wire
- 2 zinc-plated nails

## LEARNING OUTCOMES

- Students reinforce their knowledge about chemical reactions.
- Students will be introduced electrical engineering and electrical currents (positive and negative charge).

## PROCEDURE

1. Cut the potato in half then cut a small slit into each half big enough to slide a penny inside.
2. Wrap one copper wire around each penny a few times, leaving loose ends on both.
3. Stick the pennies in the slits you cut with the loose ends sticking out.
4. Wrap the third copper wire around one zinc-plated nail, leaving a loose end, and stick the nail into one of the potato halves.
5. Take the loose end of the wire connected to the penny in the potato half with the nail and wrap some of it around the second nail. Stick the second nail into the other potato half.
6. Connect the two loose ends of the copper wire to the light bulb and it will light up!



Pictures from: <https://www.youtube.com/watch?v=CHNrsBJQcFE>

## WHAT THIS MEANS

The reason potato batteries work is because chemical reactions are taking place, and changing chemical energy into electric energy. Potatoes create an electrolyte solution. This means they provide electrons with a place to move to copper and zinc (and back to copper) to complete circuits. The potato itself acts as a buffer between the copper and zinc during electron transfers.

So now you've made your potato battery, but what should you do with it? Use your potato to power something. You can use LED lights, a light bulb, a simple clock, or anything else small that requires a battery. Keep in mind a potato battery isn't strong enough to power anything large.

## GLOSSARY

- Chemical reaction: a process in which one or more substances are converted to one or more different substances
- Electrons: a very small particle that has a negative charge of electricity
- Electrolyte: a substance that when dissolved (as in water) conducts an electric current

## RELATED VIDEOS

### English

- <https://youtu.be/CHNrsBJQcFE>

### Spanish

- <https://youtu.be/cxUQBXzCK-I>