If Life Gives You Fruits... Make a Battery!

Abstract

My research question is can you power a LED light with fruits. My hypothesis is the tomato will power the LED light and not the orange. Once I did the experiment I saw that I was right the orange powered the LED light and the orange did not cause it matters on the amount of voltage in the fruits. Once I did the project I was still shocked that the orange did not power the LED.

Category

My project powering a LED light with fruits fits under the category energy and change

Introduction

How I found out this idea was I first thought about the science project charging a electronic device with a potato so then I just wanted to to something like that but not exactly that so I just twitched it a bit and I got this and I got inspired by it a lot. Can you use fruits to power a led light. The purpose of my project is to see if you can really power a led light. It will impact the people who want to have a similar project to me.

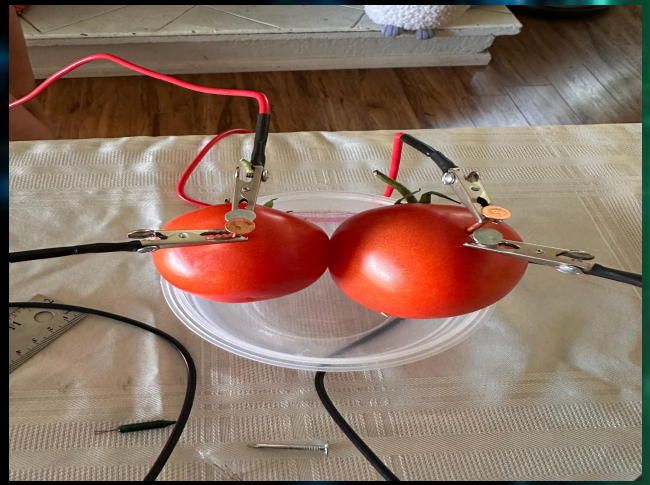
Research

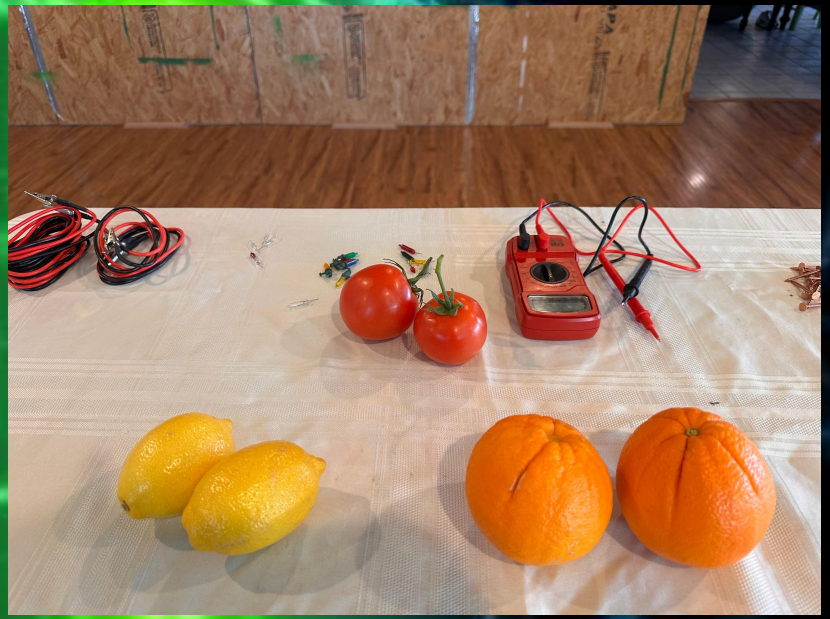
_I researched how much energy did some fruits and veggies have to power a LED light. It would take multiple fruits and/or vegetables to power 1 LED light. How I know it takes multiple fruits and/or vegetables to power a LED is I watched a multiple videos to know that it does not just take 1 to power a LED light bulbs. According to this website (imperial) Batteries contain a negative electrode, a positive electrode and an ion conducting electrolyte that facilitates ion transfer. In the example of a lemon battery setup, the copper metal is the positive terminal, the zinc metal the negative terminal and the juice in the lemons form the electrolyte.The ions in the juices react the zinc metal to form zinc ions which move through the lemon juice to the copper metal. But this can only be seen when the ions are converted to electrons.

Hypothesis (experiment) or Problem/solution (engineering project)

If I put a copper and zinc metal nail into a fruit the it will power a led light. I predict that the lemon and the tomato will power the led light but the orange will not.

1. First grab your supplies like copper nails, zinc metal nails, crocodile clips, LED lights, and voltage multimeter
2. Then stick the copper nail into the fruit or vegetable and it goes in 2cm
3. Then stick the zinc metal nail into the same fruit or vegetable about 1 cm apart or the copper nail





4. Repeat the steps 2 and 3 with the same type of fruit or vegetable

5. Connect the 2 fruit or vegetable to a crocodile clip

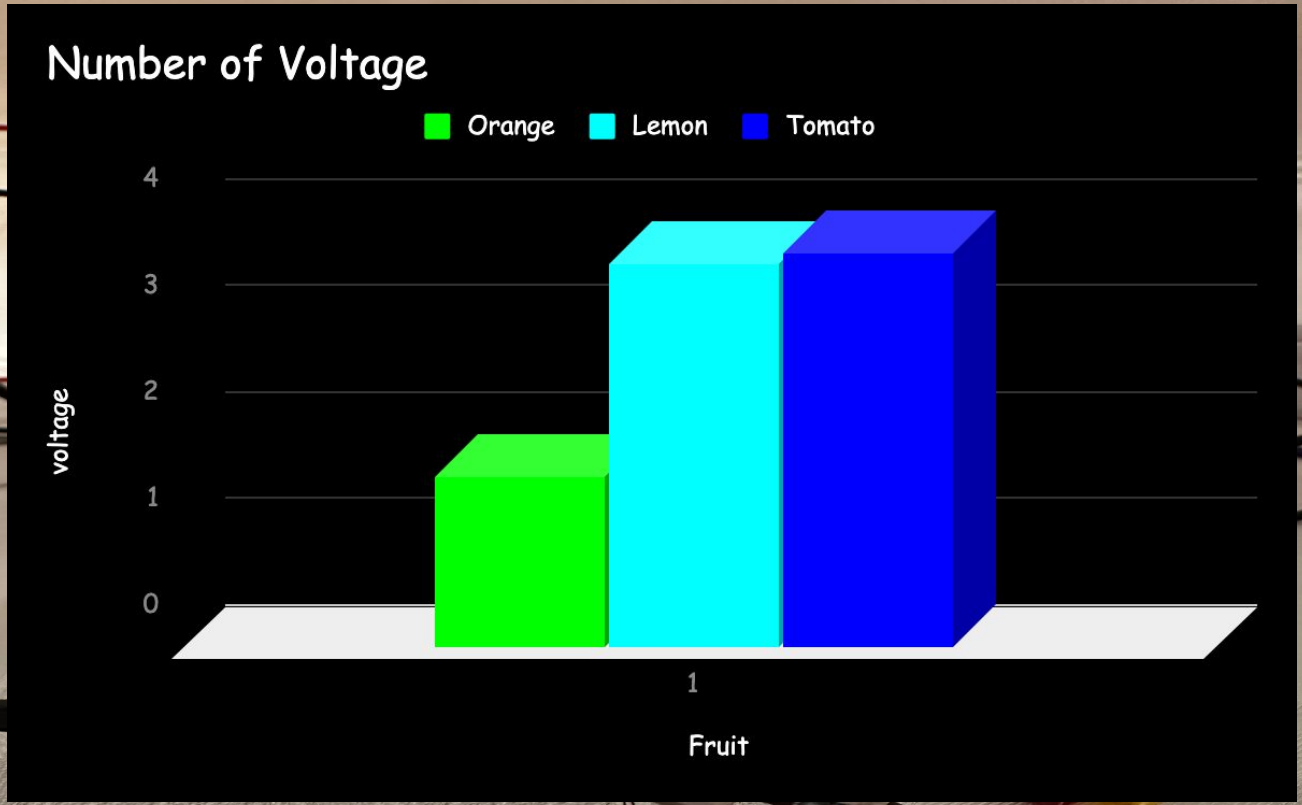
6. Make sure that the copper nail is connected to the zinc nail on the other fruit or vegetable

7. After connecting the 2 you will have 2 extra ends of the crocodile clips and connect it to the LED light

8.Make sure that the clip connected to the copper nail is going to the longer end and the clip connected to the zinc nail is going on the shorter end

9. Connect the 2 same fruit or veggie to the multimeter to see how much voltage it has

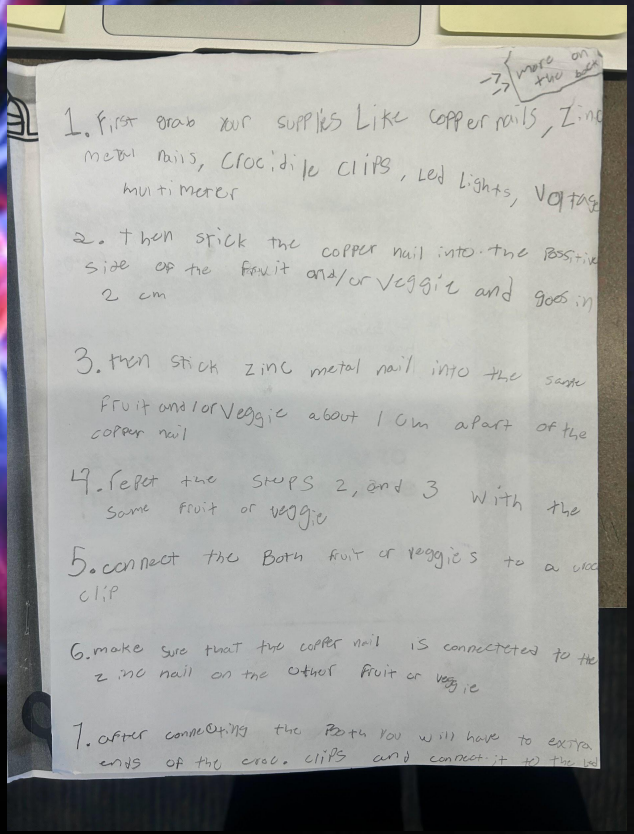
Results


Number of Voltage
Orange
Lemon
Tomato
4
3
2
1
0
voltage
1
Fruit

Conclusion/Discussion

I was CORRECT! The lemon and the tomato powered the LED light and the orange did not. The reason that the orange did not power the LED is because it did not have enough voltage. The tomato and the lemon powered the LED cause they had much more voltage than the orange. The tomato was the most powerful.

Scientific Journal



more on the back

1. First grab your supplies Like copper nails, Zinc metal nails, Crocidile clips, Led Lights, Voltage multimeter

2. then stick the copper nail into the Positive side of the fruit and/or Veggie and goes in 2 cm

3. then stick zinc metal nail into the same fruit and/or Veggie about 1 cm apart of the copper nail

4. repeat the steps 2, and 3 with the same fruit or veggie

5. connect the Both fruit or veggies to a croc clip

6. make sure that the copper nail is connecteted to the zinc nail on the other fruit or veggie

7. after connecting the Both you will have to extra ends of the croc. clips and connect it to the led

References

imperial website

TECH MANAGEMENT

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