

To our teachers:

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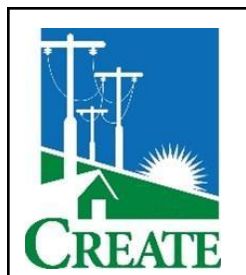
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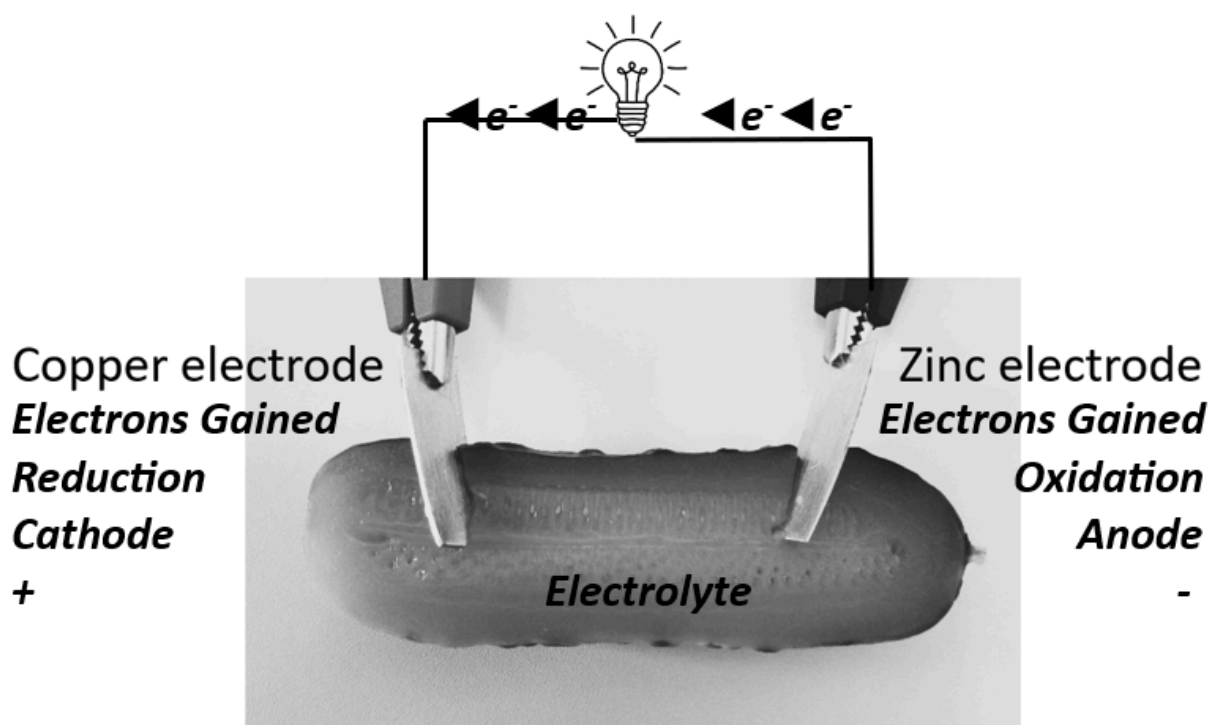


Wisconsin Public Service
SolarWise for Schools
and the
The CREATE Energy Center

BATTERY BASICS:

CHAPTER ONE – THE PICKLE BATTERY

INSTRUCTOR ANSWER KEY



Write and draw on the picture from the preceding page according to the directions that follow. For digital submission, take a cell photo of your completed picture, delete our picture, and paste your photo in its place.

1. Draw a **wired electrical circuit** connecting the zinc electrode to the copper electrode through a **small light bulb load**.
2. Write **Electrolyte** where it is likely to be found.
3. Write **Electrons Lost** at the electrode where electrons are lost.
4. Write **Electrons Gained** at the electrode where electrons are gained.
5. Draw several e^- (electrons) flowing through your electrical circuit. Indicate the direction of their flow with $\rightarrow$ (an arrow).
6. Write **Oxidation** at the electrode where oxidation takes place.
7. Write **Anode** at the electrode that is called the anode.
8. Write $-$ (a negative sign) at the electrode that is negative.
9. Write **Reduction** at the electrode where reduction takes place.
10. Write **Cathode** at the electrode that is called the cathode.
11. Write $+$ (a positive sign) at the electrode that is negative.
12. **2.71 Volts** Calculate the electrical potential of a battery with a copper cathode and a *magnesium* anode. Place your answer above, and show your math work below. If you answer this question on paper and you are required to submit this digitally, follow the same directions given at the top of the page.

(+0.34 V) [copper] – (-2.37 V) [magnesium] = 2.71 Volts
13. **3.37 Volts** Calculate the electrical potential of a battery with a copper cathode and a *lithium* anode. Place your answer above, and show your math work below. If you answer this question on paper and you are required to submit this digitally, follow the same directions given at the top of the page.

$$(+0.34 \text{ V}) [\text{copper}] - (-3.03 \text{ V}) [\text{lithium}] = 3.37 \text{ Volts}$$