

Energizer lab

Find the teacher version at: <http://www.gvsu.edu/targetinquiry/tidocuments-home.htm>
Target Inquiry Program, GVSU

GUIDED INQUIRY – Students proceed through a prior knowledge activity, practice creating and using a voltaic cell and use of a model designed to simulate the particulate level activity within a voltaic cell. The teacher checks for student understanding at specific points as groups work together. A discussion follows to help clarify ideas.

CONCEPTS ADDRESSED

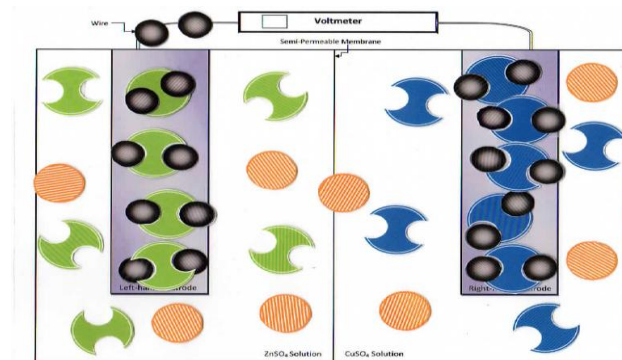
- Oxidation and reduction reactions of a voltaic cell
- Electron transfer within a voltaic cell
- Ion movement at the electrode and through a salt bridge in a voltaic cell
- Practice drawing & labeling parts of electrochemical cell

KNOWN MISCONCEPTIONS ADDRESSED IN LAB

- Current is believed to always involve movement of electrons, even in solution and through the salt bridge.
- In an electrochemical cell, anions and cations move either until their concentration in both half-cells is equal or until one half-cell is strongly negatively charged and the other is strongly positively charged.
- A lack of understanding of the significance of the signs of the anode and the cathode and what happens to these signs when changing from an electrochemical to an electrolytic cell.

The model in this lab is adapted from the following article.

Huddle, Penelope Ann and White, Margaret Dawn, Using a Teaching Model to Correct Known Misconceptions in Electrochemistry, *Journal of Chemical Education*, Vol. 77, No. 1, January 2000 p. 104- 110.



The pieces that represent the atoms, ions and electrons are available on the teacher version at the Target Inquiry Web site.

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