

# Electrochemistry Grade 4 Lab Practical

## Teacher's Answer Key

This is your chance to see how well your students have picked up on important key concepts, and if there are any holes. Your students also will be working on their homework assignment as you do this test individually with the students.

### Materials:

- AA battery case
- 2 AA batteries
- 2 alligator wires
- Disposable cup
- popsicle stick
- Digital Multimeter

### *Electrolyte Options:*

- Distilled white vinegar
- Salt
- Sugar

### *Electrode options:*

- 2 pennies
- 2 nails
- 2 piece of plastic
- popsicle stick

### **Lab Practical:** Ask the student *Note: Answers given in italics!*

Design and build a battery and show how much voltage it produces. *Student will pour vinegar and salt into a cup, stir, and connect the alligator clips to two dissimilar metals (take away points if they use two of the same materials for electrodes). Students will measure voltage by connecting up the alligator clips to the DMM probes and setting it to 20 VDC and reading the voltage. Expect 0.5 to 1 volt.*

Explain from your experiment above how chemical energy can be converted into electrical energy. *The basic idea of electrochemistry is that charged atoms (ions) can be electrically directed from one place to the other. The NaCl (salt) molecule dissociates in the vinegar into the ions Na<sup>+</sup> and Cl<sup>-</sup>. Na<sup>+</sup> is attracted over to the negative electrode and Cl<sup>-</sup> zips over to the positive. The ions are attracted (directed) to the opposite electrode and there is current in the solution.*

# Electrochemistry Lab Practical

## Student Worksheet

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### **Lab Practical:**

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