**Title of Investigation**: Chemical Batteries **Grade**: 6 **Kit**: SEPUP Physical Kit, 65

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**Key Question**: What materials make the best battery?

**Objectives:** Given materials needed, students will be able to create a wet cell battery and measure voltage output of various metals.

**Summary of Activity**: Determine the best combination of metals to use in a wet cell battery.

**Science Standards**:

6.1.7: Explain that energy may be manifested as heat, light, electricity, mechanical motion, and sound and is often associated with chemical reactions.

**Equipment**:

* Copper Magnesium Zinc Iron
* Labquest and Vernier voltage probe
* Table salt Hydrogen peroxide Distilled Water
* Wet cell chamber ( two graduated cylinders, 100ml solution of electrolyte with 50 drops of hydrogen peroxide, 20 ml of table salt)
* 2 wire leads (1 red, 1 black)
* 1 electric motor
* Paper towel twisted lengthwise (soaked in electrolyte solution and used as “salt bridge”)
* Plastic spoon to stir solution

**Description of procedures**:

Students fill each of the cylinders with half of the electrolyte solution. Place one end of the “salt bridge” into each cylinder to connect the two. Choose a combination of pieces of copper, magnesium, zinc, or iron and place one sample into each cylinder to test. Attach the voltage meter to the different combinations of metals and measure voltage. Create a table illustrating the readings for the differing combinations. Present findings to the class explaining which combination of metals creates the most voltage, therefore making the best battery. If there were no Labquest available, students could still determine the best combination of metals in the battery by counting the rotations of the tape-flag on the motor.

**Scientific questions**:

What combination of metals produces the most voltage?

Why do the differing materials react as they do?

What could cause the motor to speed up or slow down?