



## **BATTERY POWER**

### **Your Challenge:**

To see that a battery you create contains stored energy.

### **You Need:**

- ♦ Five dimes
- ♦ Five pennies
- ♦ Thick paper towel  
(blue shop towel works best)
- ♦ Two insulated copper wires  
with ends bared (15 cm)
- ♦ Electrical Tape
- ♦ Lemon juice concentrate
- ♦ Galvanometer
- ♦ White vinegar in a bowl

### **Do This:**

1. Clean the five pennies and the five dimes in concentrated lemon juice.
2. Cut the paper towel into nine one-inch squares.
3. Soak the paper towel squares in the bowl of vinegar.
4. Stack the coins and paper towel squares using the following pattern: dime, paper towel, penny, paper towel, dime, paper towel, penny, paper towel, and so on until you have stacked the 10 coins. When you are finished you should have a dime on the top and a penny on the bottom of your stack.
5. Make terminals for your battery by holding the bared end of one copper wire against the dime and the bared end of the other wire against the penny. Using the electrical tape, tape the wires and the entire battery together lengthwise.
6. Test the battery for potential electrical energy by touching the terminal wires of the battery to the wires on your galvanometer. The needle will move if electricity is present.
7. How many pennies and dimes do you need stacked together to get a small 2.5V light bulb to light?