

Yale Physics Olympics

Team Name: _____

A Salt and Battery

MATERIAL: 20 pennies

1 penny with attached wire

1 coffee filter

1 beaker of salt water

1 piece of aluminum foil

1 aluminum base plate with attached wire and 100 Ohm resistor

2 pairs of scissors

1 multimeter

OBJECT: To create a battery with the materials provided that produces the greatest open circuit voltage and largest closed circuit voltage measured across a 100 Ohm resistor.

METHOD: Create a battery by stacking the materials in the following order:
Aluminum:paper:Copper:Aluminum:paper:Copper, etc.

Tips and tricks: make sure the paper is slightly larger than the penny, and that the aluminum foil is slightly smaller than the penny. The paper should be damp, not soaked. Remember also that batteries can be arranged in series or parallel.

SCORING: Your score (larger is better) will be the product of the open circuit voltage times the voltage when the battery is placed across a 100 Ohm resistor.

Open circuit voltage (volts)

Voltage (across 100 Ohms) (volts)

Product
