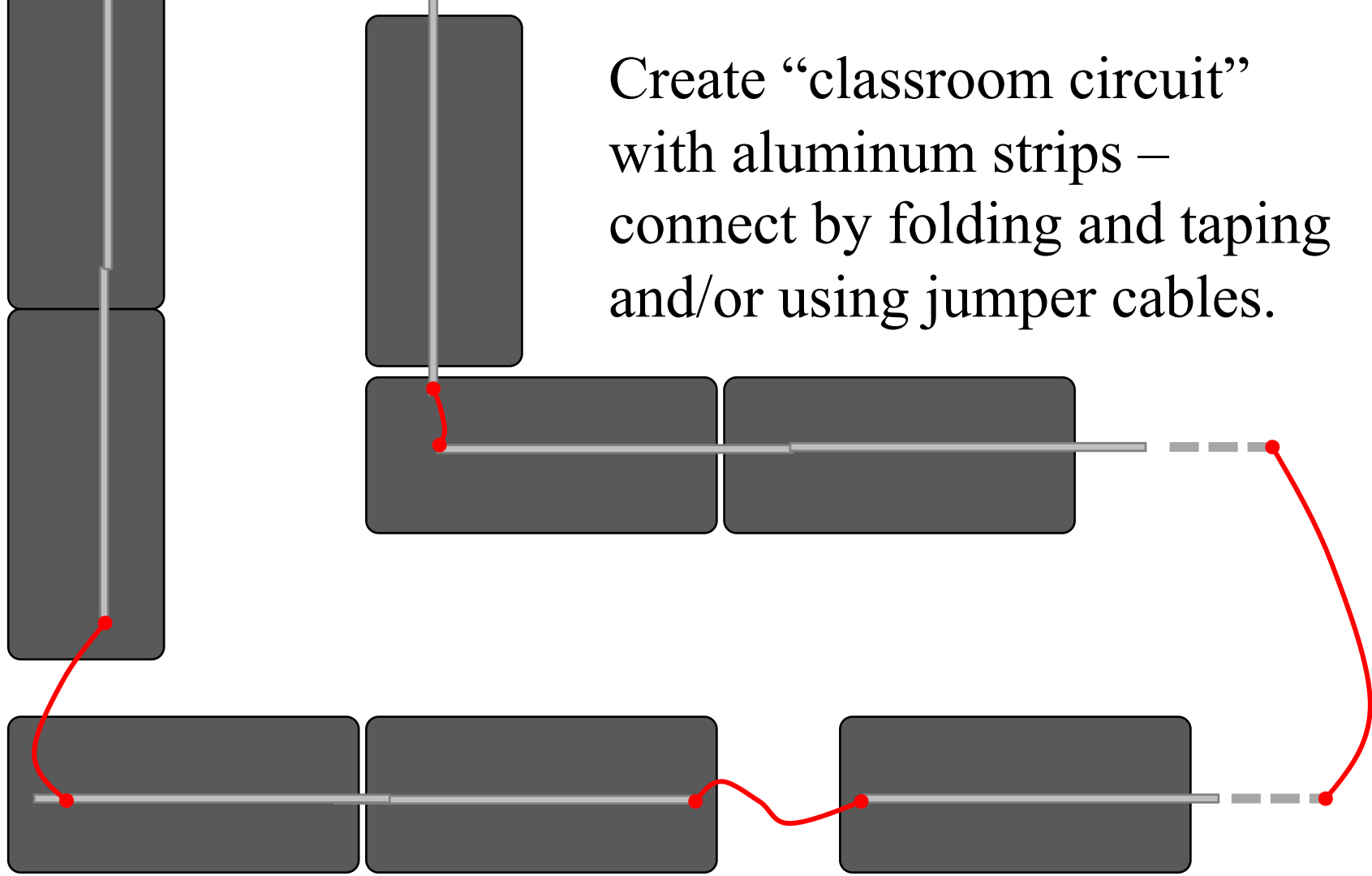


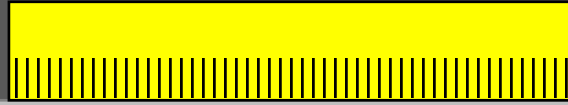
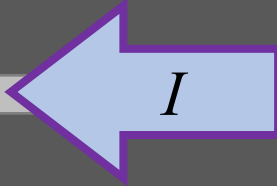
Resistivity Mini-Lab

Fun with Foil

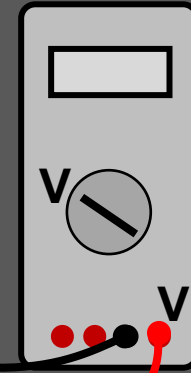
Create “classroom circuit”
with aluminum strips –
connect by folding and taping
and/or using jumper cables.



Ruler



Hold probes firm against the foil to measure voltage difference. If ΔV is positive which direction is current?



Selector on **V** to measure voltage. Probes connect to **COM** and **V** plugs.

1. Hold the two probes a fixed distance, 25.0 cm apart, as the current is doubled and then tripled. Is the material ohmic? Use Ohm's Law and determine the resistance $R = ?$
2. With the current at a fixed value, measure the potential difference as a function of length of "wire" (separation between the two probes). Hold one probe at 0 cm and measure voltage at distances: 25, 20, 15, 10, 5 cm away.
3. Using your laptop create a graph of voltage vs. length and determine the best fit.
4. Use coefficient(s) from best fit to determine the resistivity of aluminum, given current, and cross sectional area of the strip. Note: find area using density = 2.70 g/cm^3 and total length = 30.5 cm.