Test Format:

- 15 Multiple Choice/Matching
- 7 Problems (some with multiple parts)
    - Resistance calculation using the formula involving resistivity
    - Understand and be able to apply all of the formulas and rules in Mr. Pennington's 4 minute drill (but you don't really need 3 formulas for Power)
    - Find individual and total (source) voltages, currents, resistances, and powers.
        - In a parallel circuit
        - In a series circuit
        - In a complex circuit with series and parallel components
    - One problem requiring Kirchoff's rules. Determine the magnitude and directions of three unique currents within one circuit.

General Concepts:

- Know the units for resistance, energy, current, charge, drift velocity, potential difference, resistivity, and power.
- Know what current is, and what is actually happening when current flows (i.e. electrons are moving), and be able to contrast this with the idea of conventional current.
- Be able to apply Ohm's law and the rules for voltage, current, and equivalent resistance in series and parallel circuits (or in branches of complex circuits).
- Understand all of the rules and trends in Mr. Pennington's 4 minute drill. But he left one out… you should know that, in **any** circuit, $P_{total} = P_1 + P_2 + P_3$…
- Know what kinds of changes in a circuit would make a bulb become brighter or dimmer.
- Be able to predict how making various changes in a circuit (e.g. adding or subtracting a resistor in parallel or series) would affect individual and/or total currents, voltages, resistances, and/or powers.