Pre lab for Electronic Trainer: Combined Series and Parallel Circuits

Objective: To demonstrate the usefulness of a breadboard by having students first work without one. Have students practice designing circuits on a breadboard, including the circuit that they will need to design for the lab.

Activity: Build a circuit (pictured below) with just wires, alligator clips, resistors and a battery.

This should demonstrate that designing circuits with these materials is laborious, awkward, and often confusing.

It’s much easier when we use a breadboard. However, we first need to learn some vocabulary and how breadboards are put together.

Vocabulary:

Each group of sockets contained in a circle is electrically connected. We refer to an individual socket by its letter and number (ex: h3)

Examples:
  a) A simple series circuit

b) A simple parallel circuit

Activity: With colored pencils, trace the path(s) of the current in each of the above circuits.
Activity: For each of the circuits given below, draw where the jumpers and resistors would go on the breadboard.

a) 3 resistors in series

b) 3 resistors in parallel

c) Complex 3-resistor circuit

d) Complex 4-resistor circuit
   (This is the one we did in the beginning activity)

e) Complex 6-resistor circuit