Preparations for Class Session 1

The student is given the introduction and first chapter. He will read it out loud.

After that the instructor demonstrates the following functions of a multimeter in this order and have the student repeat what we do:

1. Probes and proper placement into the multimeter. We will be using two kinds of probes both the sharp tipped (pencil pointed) probes and probes adapted with alligator clips.

2. Volt measurements on various kinds of batteries AAA to DD, 9V, and 7.2 Volt RC car rechargeable batteries.

3. Continuity testing

4. Resistance measurements, using resistors from a Radio Shack 300 1/4 W multipack.

We will also use a thermocouple to measure the temperature of the fingers, palms and elbows of both the student and a volunteer(you).

We will also demonstrate and talk about static electricity using an a/c outlet tester from the multimeter pack.

Keep talking to a minimum.

Demonstrate how to measure voltage, resistance and continuity. Then lead the student through each type of measurement, having him repeat what you have done. Do one type of measurement at a time and ask the student to repeat what you have done.

Explain the color codes of the resistors. A good explanation can be found at http://hyperphysics.phy-astr.gsu.edu/hbase/electronic/rescarb.html

After you are satisfied that the student understands and can repeat the measurements, and color coding, have your student read the following homework assignment and get the student started, leaving most of the work to be done as a homework assignment without supervision:

1. The student will collect all of the batteries in the house that are not being used. Once collected, the student will make a voltage measurement and put a label on each battery consisting of the date and the voltage measurement.

2. The student will label envelops with the color code and corresponding

resistor value for all of the different resistors in the multipack and he will place the envelops in order from lowest value to highest value. There is a list of resistors in the multipack bag.

(Note: When Nathan and I did this, we sometimes looked at the colors using a magnifying glass and got the colors wrong:) The list in the multipack and the actual measured values smoothed everything out:)