

David Cutcher -

Learning Outcomes:

Electronic Circuits for the Evil Genius – Electronics for the Complete Beginner.

Chapter	Objective
1	Become familiar with the components
1	Recognize and Group components (resistors, diodes, caps, inductors and transistors) into categories
2	recognize the terms - Insulator, Conductor, Resistance, Voltage, Current
2	Demonstrate Explain the operation of a simple practical circuit.
2	Demonstrate through use the application of the Solderless Bread Board
2	Understand and physically demonstrate the layout of a solderless breadboard
2	Use a multi-meter as a continuity tester to classify materials as conductor or insulator
2	Use the DMM to measure Voltage
2	Use the Digital Multi meter to test continuity
3	Preview the Relative values and prefixes of common components.
3	explain the use of a diode as a protection device in a circuit.
3	recognize that each load in a circuit uses only part of that load.
3	measure voltage drops
3	Demonstrate an understanding that current flows only in a closed circuit.
3	Use a Multi-meter to measure DC voltage
3	Begin to visualize how a schematic is related to a picture of the circuit
3	Build simple circuits to demonstrate the application of Solderless bread board, resistors, diode and LED
3, 5	Measure voltage and resistance in any part of a DC circuit using digital meter.
4	Learn the to read the values of 4 band resistors using color codes
5	Demonstrate understanding of effects how resistor sizes effect circuit
5	Understand that the voltage available to a circuit is the amount used in a circuit.
5	Learn to read resistor value using Digital Multi-meter
5	That voltage drop is proportional to size of the load
6	recognize that certain components use very low voltage, and can be destroyed by moderate moderate voltages.
6	Understand how resistors are manufactured.
6	Describe how a variable resistor works.
6, 7	Demonstrate and apply two common types of variable resistors
7	modify circuit layout by reading a schematic.
7	Recognize how a light dependent resistor works.
7	Understand the suffix k and M when working with resistors.
8	Describe the physical difference between low and high voltage.
8	Demonstrate understanding of relative sizes of capacitors.
8	Explain the purpose of a push button (normally open and normally closed)
8	Demonstrate the charge storing capability a capacitor
8	Understand the function of a capacitor and how it works.
8	Recognize the measure used for capacitance: micro Farads (uF)
8	Introduced to the terms micro (millionth) and nano (billionth)
9, 10	compare & contrast npn transistor action to pnp transistor action
9, 10	describe the action of each type of transistor
9, 10	Recognize & identify the two major categories of transistors
9, 10	Use a multi-meter to check for "blown" components.
9, 10	Use a multi-meter to identify specific transistors as npn or pnp.
9, 10	Explain the action of a transistor (NPN and PNP) in terms of current flow
9, 10	Test transistors for polarity and condition using a multi-meter.
9, 10	Recognize transistor types and identify leads (actual components and depicted symbols)
9, 10, 12	Recognize that electronic components can be packaged in a variety of ways
10	Introducing the analogy Sink & Drain for RC timing circuit.
11	Explain that any Load is a device that converts electrical energy into some other form.