

## ***After completing Level 3, students will be able to:***

- Identify the diagram symbols for capacitor, speaker, diode, 555 Timer, 4017 Decade Counter, 4511 BCD-to-7 Segment Decoder, and 7 Segment Display.
- Understand how to find pin 1 on an integrated circuit (IC) by locating the notch or the dot on the top of the chip.
- Find any pin number on any chip.
- Connect chips on the breadboard to ensure all pins plugged in to their own rows (are isolated).
- Differentiate between schematic diagrams and pictures of chips/ICs.
- Tell the difference between the two similar looking capacitors in the kit.
- Describe the basic functions of the following ICs:
  - 555 Timer
  - 4017 Decade Counter
  - 4511 BCD to 7 Segment Display
- Explain the differences between a speaker and buzzer.
- Flash an LED using a 555 Timer circuit.
- Utilize a 4017 chip to turn on and off 10 LEDs.
- Turn 4-bit inputs into decimal output (0-9 digits on display) using a 4511 chip.

