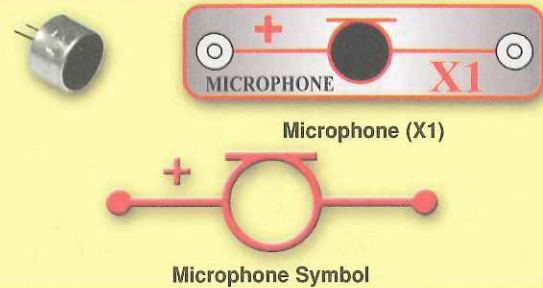


5-7 Microphone

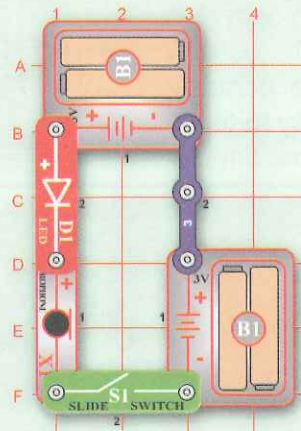
Introducing New Parts



This part acts like a resistor that changes when exposed to sound waves. This change in resistance will change the current through a circuit when sound waves apply pressure to its surface. This action is similar to squeezing a garden hose and watching the water through it decrease. The side with a "+" mark should always be placed toward the higher voltage.

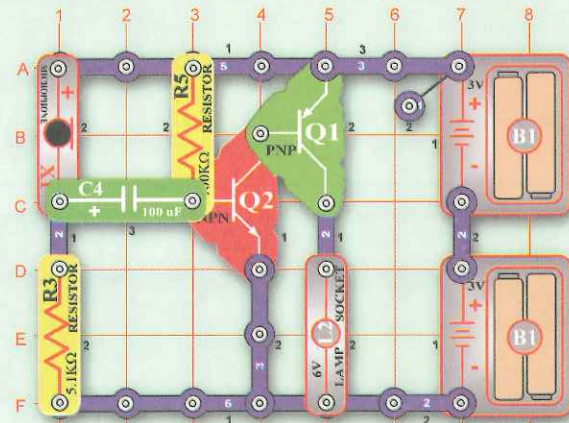
Experiments

Consider this circuit (which is project 273):



If you blow on the microphone, the LED brightness changes.

Consider this circuit (which is project 109):



Current flows through the 100K resistor to turn on the transistors and lamp. Blowing on the microphone diverts current away from the transistors and the lamp shuts off briefly.

Summary

Summary of Chapter 5:

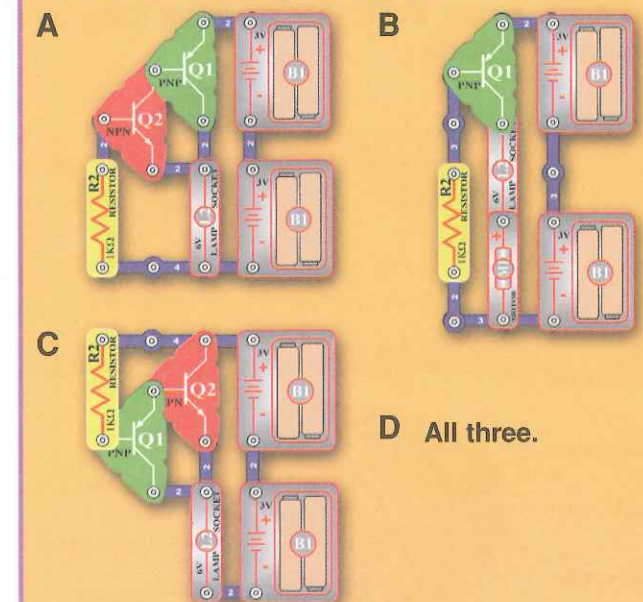
- The resistance of semiconductors may be controlled by their operating conditions.
- Semiconductors have a turn-on level (0.7V for silicon), after which the resistance becomes very low in one direction.
- Transistors have three connection points, called the emitter, base, and collector.
- The transistor is a current amplifier, it uses a small amount of current to control a large amount of current.
- When a small current flows into the base and out of the emitter in an NPN transistor, a larger current flows into the collector and out of the emitter. In a PNP transistor, current flows into the emitter and out of the base and collector.
- A microphone is a resistor that changes when exposed to sound. This change in resistance will change the current through a circuit when sound waves apply pressure to its surface.

Quiz

Chapter 5 Practice Problems

- In a transistor, the _____ will have the most current flowing through it.
 - Emitter
 - Base
 - Collector
 - Vacuum tube
- The following are advantages of transistors except . . .
 - they can be miniaturized.
 - they can amplify signals.
 - their resistance can be changed by adjusting the voltage in the circuit.
 - it has tiny resistance under certain operating conditions.
- Which circuit will light the LED?
 -
 -
 -
 - All three.

4. Which circuit will light the lamp?



D All three.

Answers: 1. A, 2. D, 3. B, 4. B