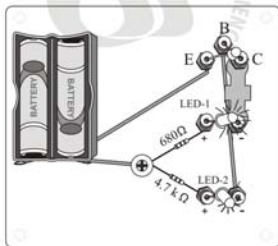


Step 5 : Insert another LED in aluminum sockets marked as LED 2 with proper polarity. Now you will observe that both LED's glow. Note that LED1 will be brighter than LED2.



What is going on : Here a dc voltage is applied in the input circuit between emitter and base. It is called bias voltage and it keeps input circuit forward biased. For using transistor as amplifier input junction (B-E junction) must be forward biased. It is in our case. Input resistor is high. Therefore current on input side is low. Therefore LED 2 glows dim.

The output junction is reversed biased. It is seen in circuit. The resistance in output circuit is comparatively low. Therefore the current is high. Therefore LED1 glows brighter. This is common emitter mode (CE mode). It functions as current amplifier



John Bardeen, William Shockley and Walter Brattain at Bell Labs, 1948.



BIASING OF A TRANSISTOR

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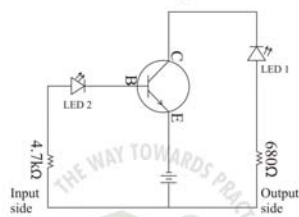
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BIASING OF A TRANSISTOR

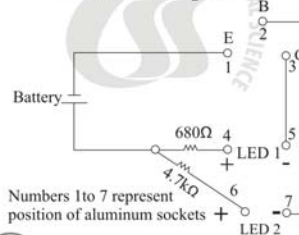
For a transistor to function it needs proper biasing.

Assembly : Consists of double cell holder, two resistors of 680 Ω and 4.7 kΩ and 7 aluminium sockets fixed and connected as per schematic diagram on a 3 mm clear acrylic plate. Two LED's and an npn transistor are part of the kit.

Circuit diagram

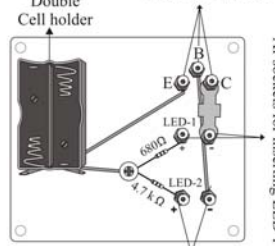


Schematic diagram

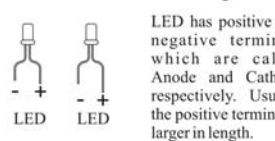


Numbers 1 to 7 represent position of aluminum sockets

AI-sockets for inserting Transistor



AI-sockets for inserting LED 2

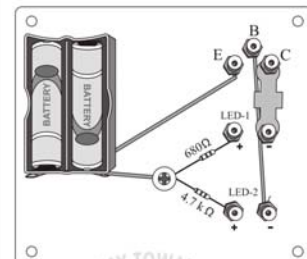


To do and observe :

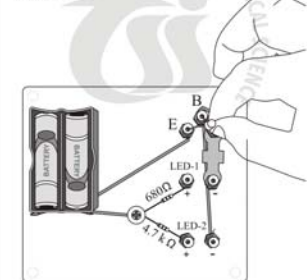
Step 1 : Insert two pencil cells in the cell holder

Step 2 : Identify E,B,C of a transistor from the base diagram.

E : Emitter
B : Base
C : Collector



Step 3 : Insert the transistor in the aluminum sockets provided for it with markings as E,B&C.



Step 4 : Insert one LED in the aluminum sockets marked as LED1 with proper polarity.