Soil Moisture Indicator
Model GSK-908

This circuit utilizes four LED's to indicate the level of moisture in the soil. An increase in the number of LED's on indicates an increase in the amount of moister present.

Technical Specifications
■ Power source: 9 V DC
■ Power consumption: 20 mA max.
■ Moister measurement: 4 levels
■ PCB dimensions: 1.59 x 0.84 inches

Operating Principles
Current through resistor 1 to the moister in the soil and received at transistor 1 when probes "P" and "I" are inserted into the soil. Emitter and collector current of transistor 1 display results through a series of 4 LED's. The greater the moisture at "I" the more voltage will pass through transistor 1 and more LED's will be lit. If there is low moister little or no current will pass through transistor 1 and few or none of the LED's will be on.

PCB Assembly
Please refer to Figures 1, 2, and 3 for aid in component placement. It is recommended to start with lower components i.e. diodes, resisters, capacitors, and transistors. Be careful to check polarity with Figure 3 before soldering. If a problem is detected it is best to use a desoldering pump or desoldering braids to remove component. This will minimize potential damage to the printed circuit board.

Testing
Make to probes out of hard wire and connect at "P." Connect 9 V DC battery and submerge probes into water, all LED's should turn on.

Troubleshooting
The main cause of problems will come from misplaced components or faulty soldering. Utilize Figures 1, 2 and 3 to ensure proper placement, polarity and then check solder points for connectivity.

Accessories
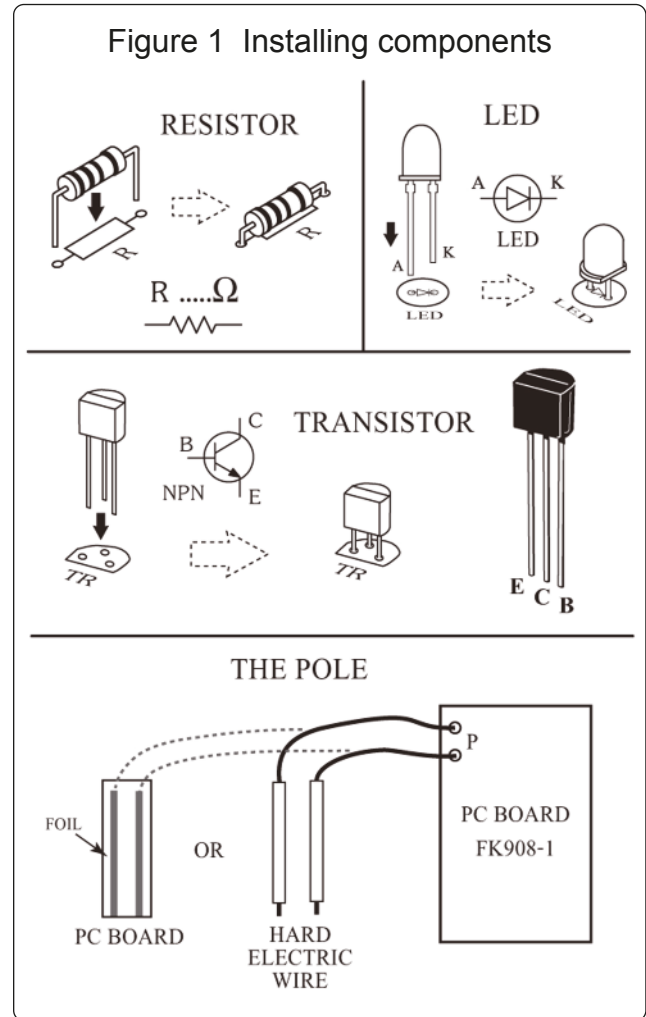Use GSB-01 (sold separately) to house the PCB and batteries.

Figure 1 Installing components

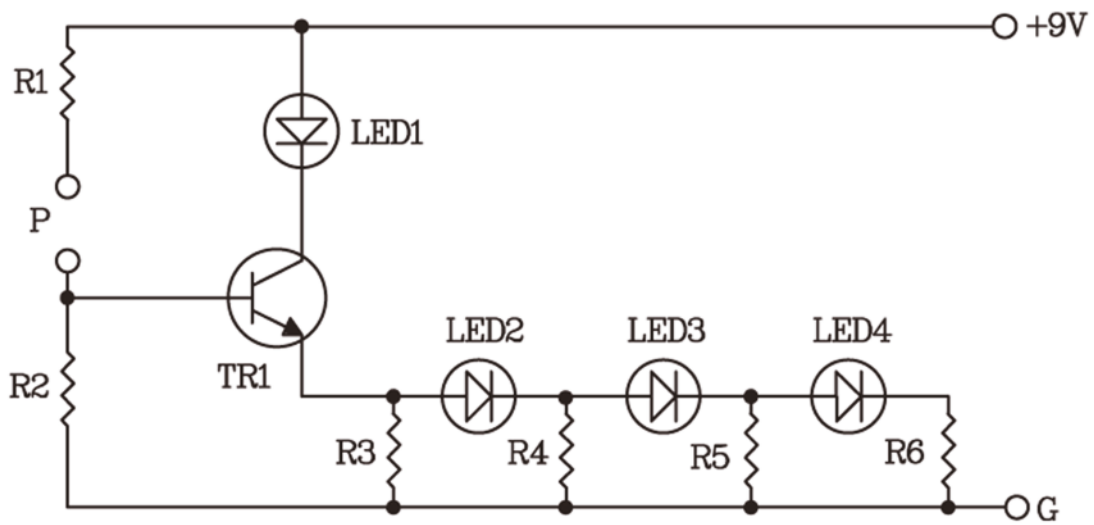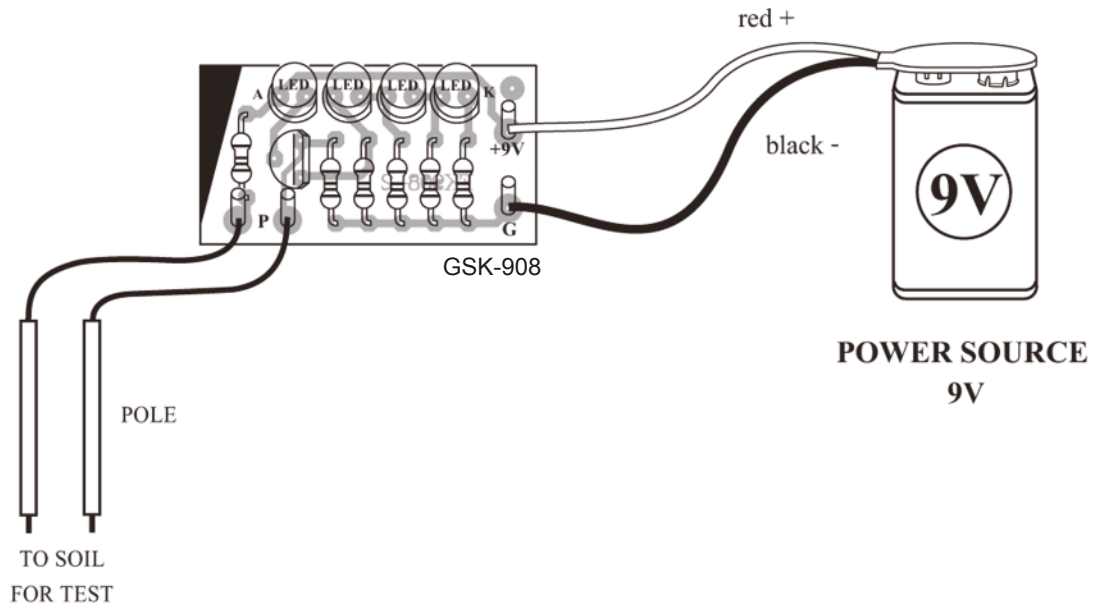**Electronic Kit Set for Hobby & Education**

Figure 2 Soil moisture indicator circuit

Figure 3 Connecting Circuits

GSK-908

red +

black -

POWER SOURCE
9V

POLE

TO SOIL
FOR TEST

Resisters

R1, R4	1 kΩ	brown-black-red-gold
R2	120 kΩ	brown-red-yellow-gold
R3	2 kΩ	red-black-red-gold
R5	680 Ω	blue-gray-brown-gold
R6	470 Ω	yellow-violet-brown-gold

Transistors

TRI = C458, C828, C945, C1815