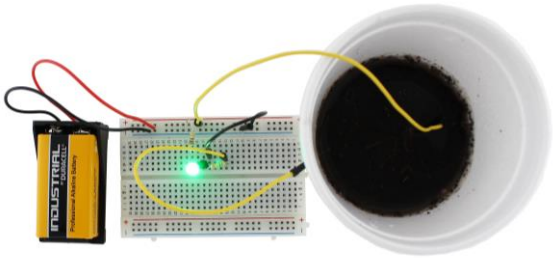
Building a moisture sensor using a transistor

Moisture in soil can easily be detected with only a few components.

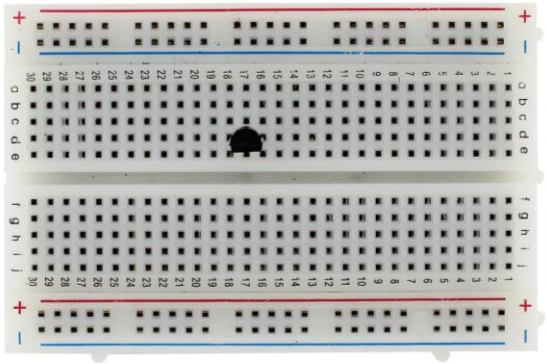
- 1 x 9v Battery & power cable
- 1 x Breadboard
- 1 x 5mm LED
- 3 x Male-male Du Pont Wires
- 1 x 1KΩ and 10KΩ resistors
- 1 x BJT Transistor (NPN BC547)



Instructions

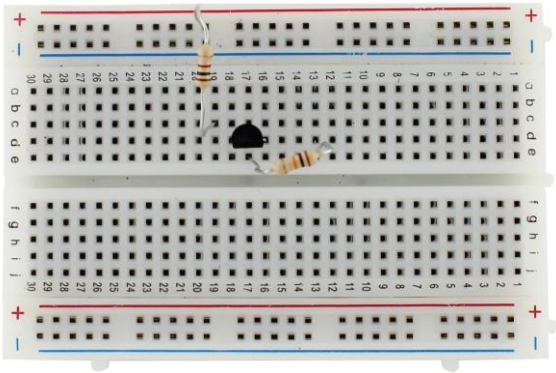
Step 1: Add the transistor to the breadboard.

Each leg of the transistor should fit into a hole on the breadboard. The flat side of the transistor should face you. Then you'll know which leg is where.



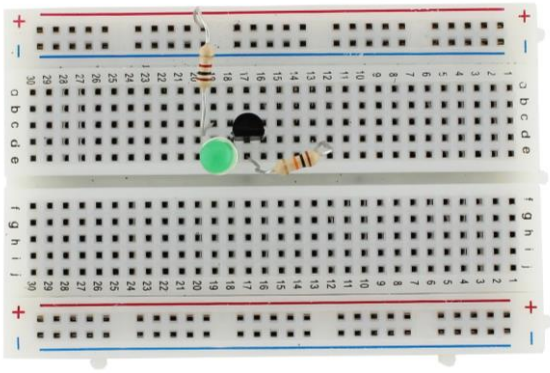
Step 2: Next, connect the resistors to the transistor.

The 1KΩ resistor (red, black and brown) should connect from the power line (red line) to the row on the collector (left) leg of the transistor. The 10KΩ resistor (brown, black and orange) connects from the base leg of the transistor to another row to the emitter (right) leg of the transistor.



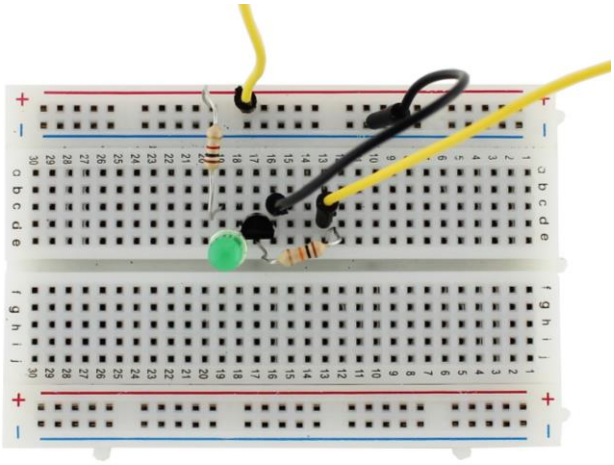
Step 3: Adding the LED

Add the 5mm LED. The long leg of the LED connects to the 1KΩ and the short one to the collector leg of the transistor.



Step 4: Next, we will add the wires.

A black wire goes from the collector leg of the transistor to the ground line of the breadboard. One yellow wire connects from the power line of the breadboard into the soil. Another wire goes from the other end of the 10KΩ resistor also into the soil. The wires running from the two resistors can be any colours.



Step 5: Connecting the battery.

The 9v battery will add power to the circuit. Add the red wire of the battery connector to the power line on the breadboard and the black wire to the ground line.