

Legal Notice

- This project is for ages 10 and up only -

Make-a-Thing Build Project: Mini ORMaC

This product contains small, sharp objects which could be choking and eye hazards. Parent and Maker agree to take responsibility for safety and the safe use of this device.

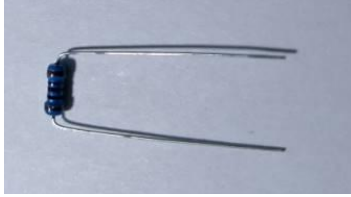
Printed name of Maker:

Signature of Maker:

Printed name of parent if Maker is under 18 years old:

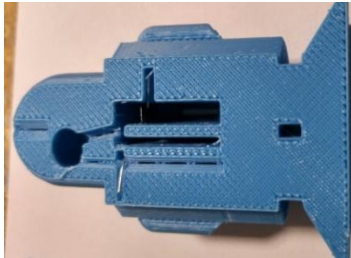
Signature of parent if Maker is under 18 years old:

Mini ORMaC is a 3D printed robot with a green LED eye that lights up. No soldering is required



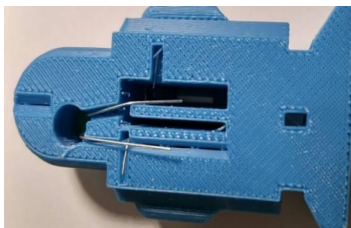
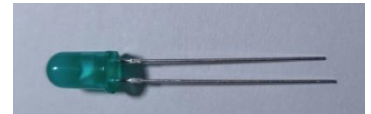
Step 1: Identify the blue resistor and bend the leads into a shape of a U as shown

Step 2: Insert the resistor into the slot in the front of ORMaC until it is fully seated in the slot



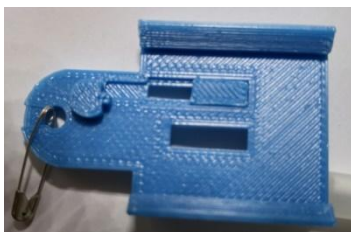
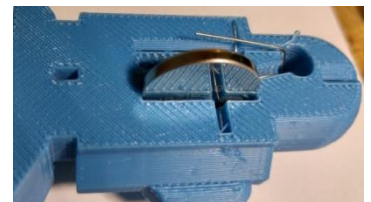
Step 3: Bend each lead into the horizontal slots as shown while holding the resistor in the slot

Step 4: Identify the green LED. Look closely and determine which lead is longer



Step 5: With the longer lead on the bottom as shown, push the LED into the back side of ORMaC's head. Bend the long LED lead as shown and the short lead into the large slot

Step 6: Insert the battery with the marked side as shown. If you then press the long lead against the folded resistor lead, the LED should light up



Step 7: Insert the slide switch into the back of ORMaC as shown

Step 8: After aligning the round boss of the back into the LED hole, snap the back of ORMaC onto the body

Step 9: Slide the switch toward the top of ORMaC to light up the LED



Step 10: Hang ORMaC from your Halloween costume. Make sure he is secure so he does not get lost!

Mini ORMaC's Electrical Circuit

An electrical circuit that powers a Light Emitting Diode (LED) is a lot like water being channeled over a water wheel.

The battery potential, or voltage, is represented by a tank of water high above a reservoir. The higher the tank the greater the water pressure, or voltage, and the larger the tank the longer the battery will last.

If you cut a large hole in the tank, all the water will rush out quickly. To slow the water and make it last longer, you might install a valve or run the water through a hose. A resistor acts like a valve or hose to keep the electrical current from flowing out too fast, or your light from going out too quickly.

The Light Emitting Diode (LED) is like a water wheel that turns the energy of the flowing water into motion, or in this case light. It will only work in one direction. If you put it in backwards no energy will flow and nothing happens.

The switch is like a dam or faucet valve, cutting off the flow of water and keeping the wheel from spinning, or LED from lighting.

