

Make Your Own Flashing LED Fridge Magnet

Tech Resort Mini-Makers Session #1101



Skills involved: Making ✓

Electronics ✓

Suitable for ages: 8-11 (6+ with adult supervision)

You will need: Two LEDs (automatically flashing type)

Four lengths of wire (two black or grey, two of a different colour)

Some air drying modelling clay

A lolly stick

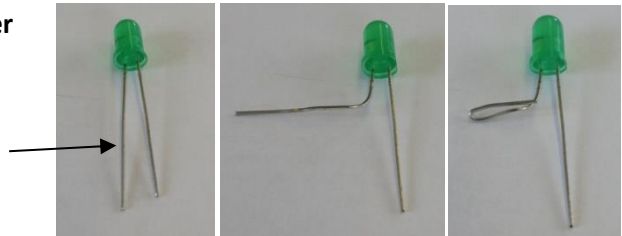
Some masking tape or insulation tape

A double-sided sticky pad

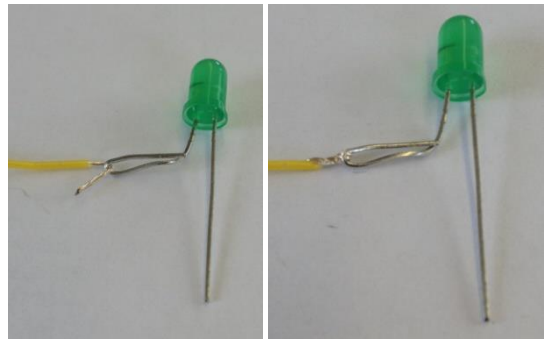
A 3V coin cell battery

A small piece of self adhesive magnetic tape

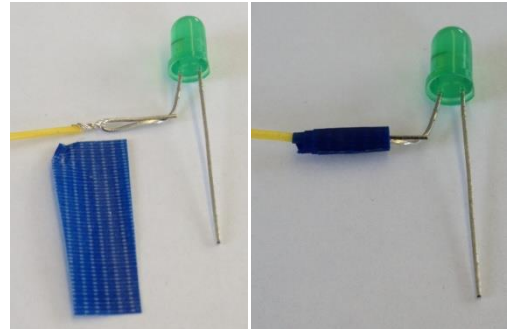
- Take one of your LEDs and locate the **longer** leg.
- Bend this leg in half in a right angle away from the other one.
- Now bend the lower half back in on itself.



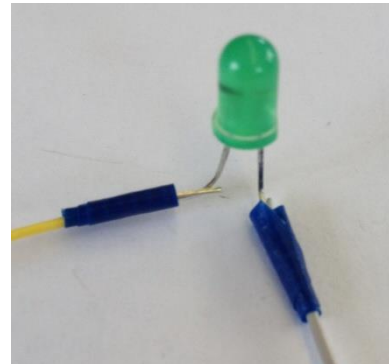
- Strip about 1cm of plastic from both ends of one of the **coloured** wires exposing the metal wires inside.
- Loop one end around the LED leg you've just bent and twist it tightly together: the metal wire must be tightly wound around the metal leg so they are in electrical contact.



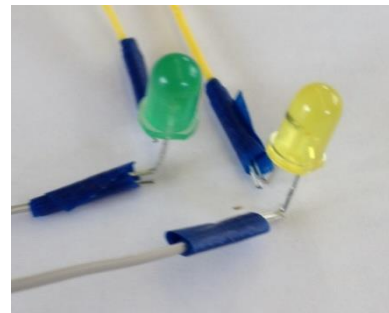
- Now take a short piece of insulation tape and wrap it around your link so it keeps the wire and leg together.



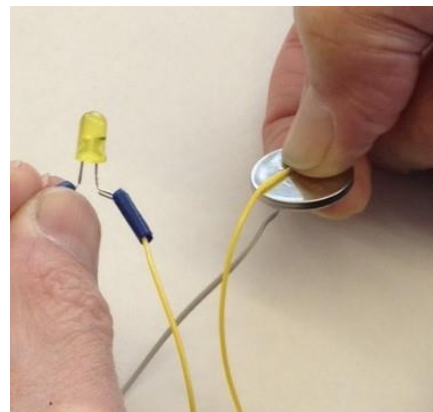
- Now repeat this with the shorter leg of the LED, this time using grey or black wire, being sure to bend it in a different direction so that the two legs don't touch each other.



- Do the same with your other LED, making sure you obey the rules about leg length and wire colour.



- Check your LEDs work by holding the wires against a button cell battery: the coloured wire must go on the + side of the battery (the top!) and the black/grey wire must go on the bottom. The LED will flash if you've done everything correctly so far.



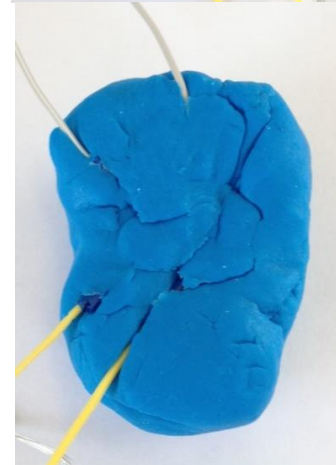
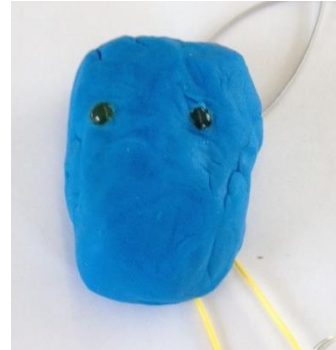
- This is the TOP (+) side of the battery!



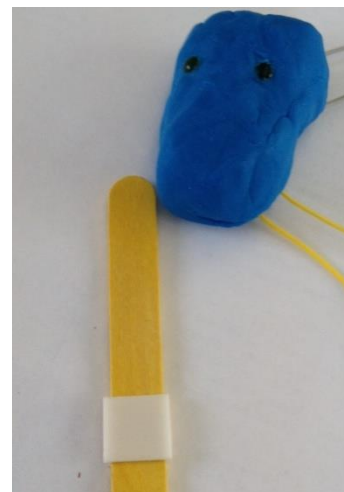
- And this is the BOTTOM (-) side of the battery!



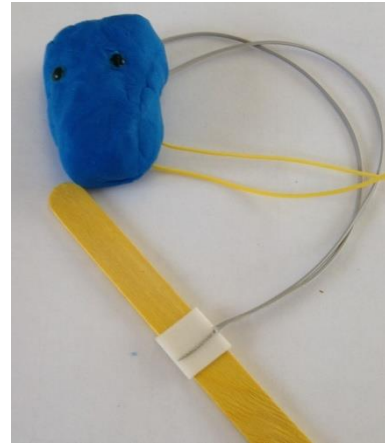
- Now take a reasonably large piece of self hardening modelling clay and bury your two LEDs in it so that the bulbs are where you want them and only the wires are protruding out of the back.
- After you've done this, you'll twist the two black/grey wires together and also twist the two coloured wires together. Bear this in mind when you're arranging your LEDs.
- It's also important that none of the LED legs touch each other inside the clay.



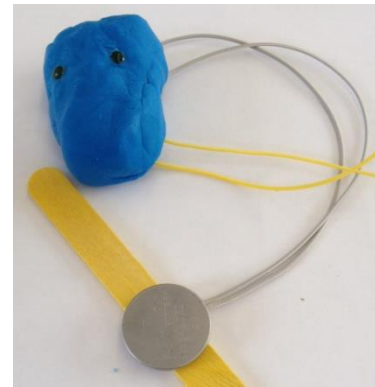
- We need something firm to stick our battery onto. A lolly stick would be useful for this. Place a double sided sticky pad on your lolly stick where your battery will go.



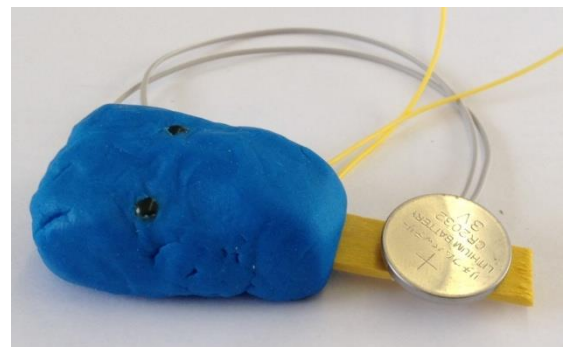
- Twist your grey/black wires together and stick them to the pad.



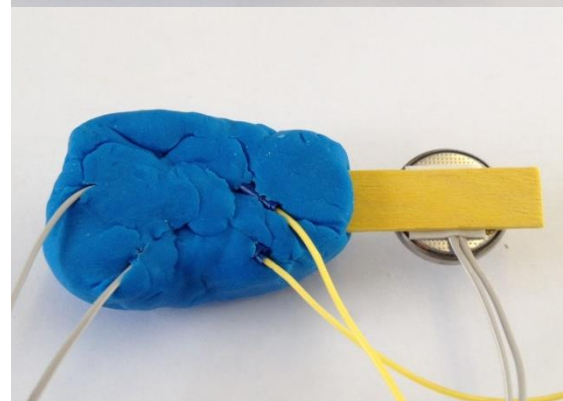
- Now stick your battery on top of that with the Negative (bottom!) side downwards.



- Now you also need to attach your piece modelling clay with the LEDs in to the lolly stick. Sticky tape is not very good for this so we'll insert the stick into the clay or use more clay to wrap round the stick.
- You can also cut your lolly stick to make it smaller if you wish. Ask an adult to help you with this.



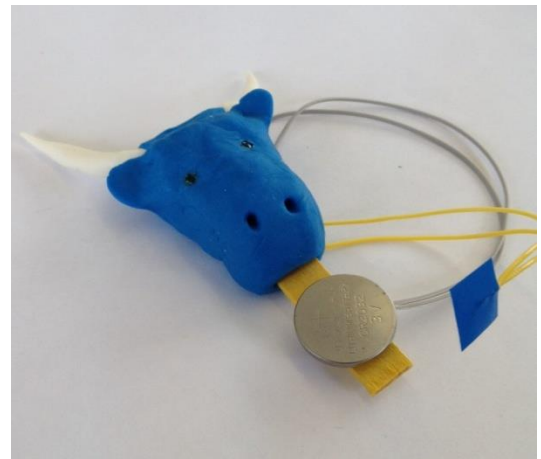
- Check that your LEDs still work by touching the two coloured wires onto the top of the battery.



- Now build the rest of your fridge magnet with more clay. Be creative but also remember: you'll need a flat area on the back to attach your magnet to and, if you use too much clay, your magnet might not be strong enough to hold it onto the fridge!



- Finally twist your two coloured wires together and stick a flat piece of sticky tape to them. You'll use this tape to attach the wires to the battery when you want the LEDs to flash. Take the wire away from the battery to avoid running the battery down too quickly!



- The modelling clay will take about 24 hours to dry, be gentle with your model and keep it safe until it is dry. When it's fully dry, the magnet can be stuck to the flat area at the back.

