

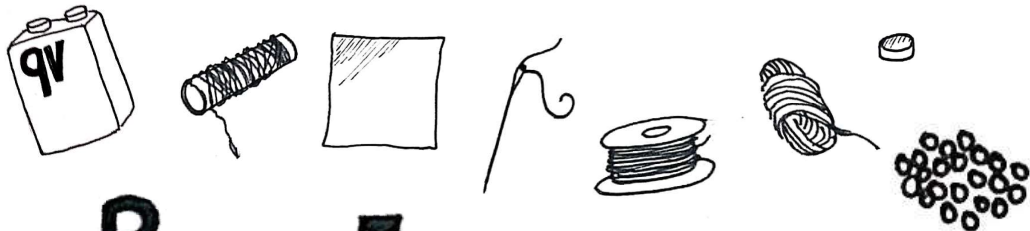
Flip dot eye



This is an eye which flips when attached to a 9V battery. Thanks to creating an electromagnet, when electricity flows through the circuit, the eye either flips open or closed!

What you need:

**NORMAL FABRIC
NEEDLE AND THREAD
THICK THREAD OR WOOL
INSULATED WIRE
POLYMORPH
STRONG CIRCULAR TINY
MAGNET (5MM DIAMETER)**



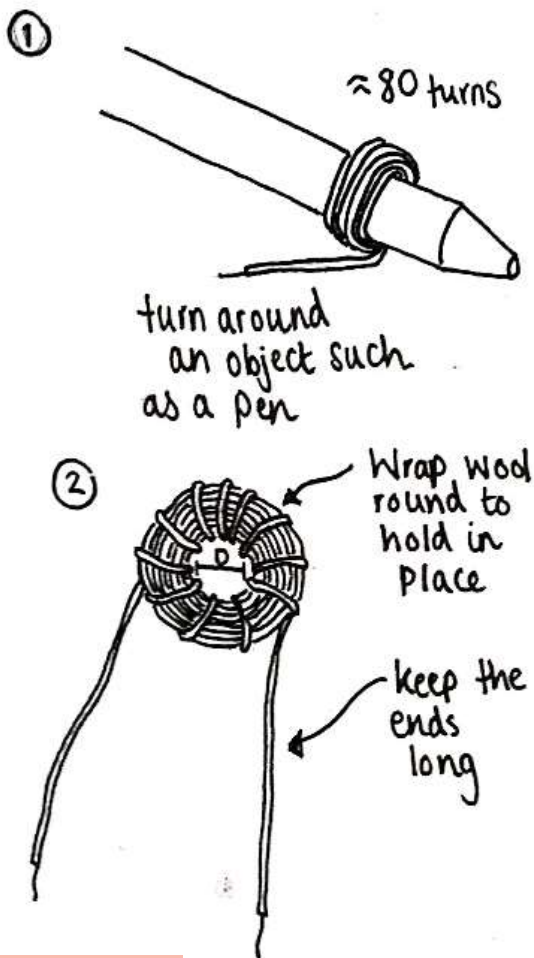
BUILD ILLUSTRATION

STEP 1

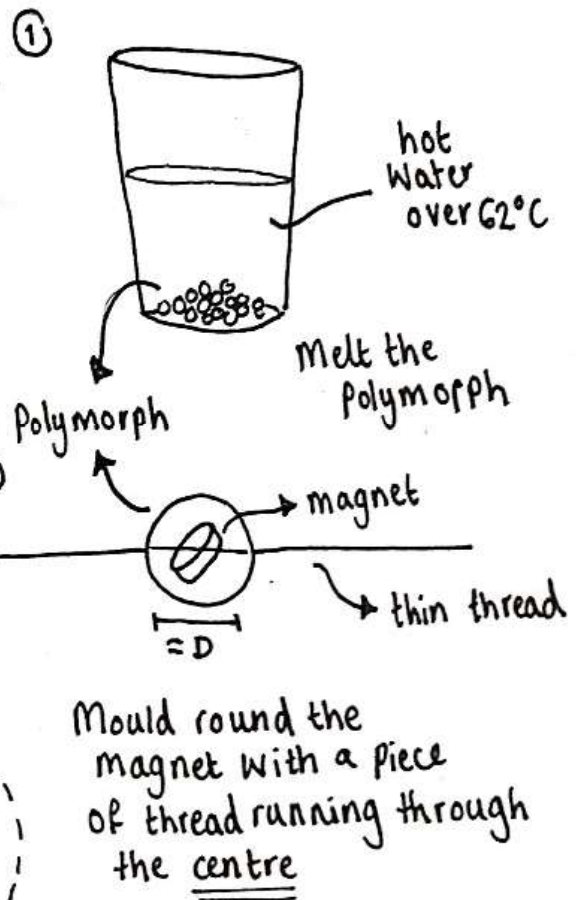
To create the electromagnet, you need a coil out of the insulated wire. The central hole of the coil needs to be around the same size as the eye you want. Here, we have used a pen. Wrap the wire around about 80 times, then hold in place by wrapping it in wool or thick thread. Make sure to leave excess wire at the beginning and end for connections.

To create the eye, melt polymorph in a small cup of water. It must be above 62 degrees celcius. Once melted, form the polymorph around the magnet into a sphere. Add a thin peice of thread cross the centre.

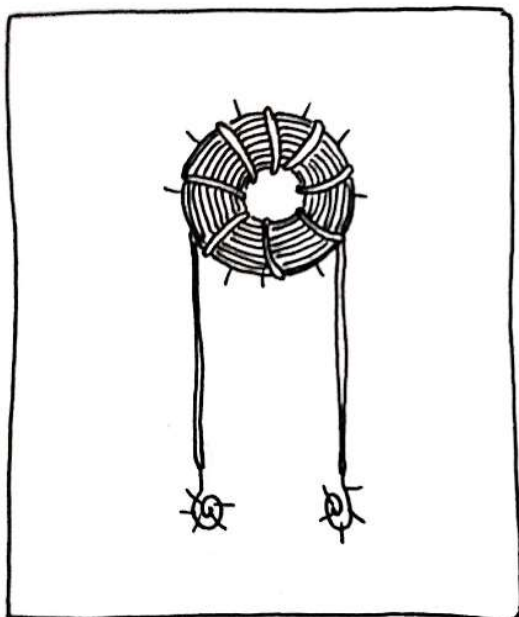
CREATE THE ELECTROMAGNET



CREATE THE EYE



STEP 2



Once you have created the electromagnet, strip the two ends of the insulated wire and coil up the ends.

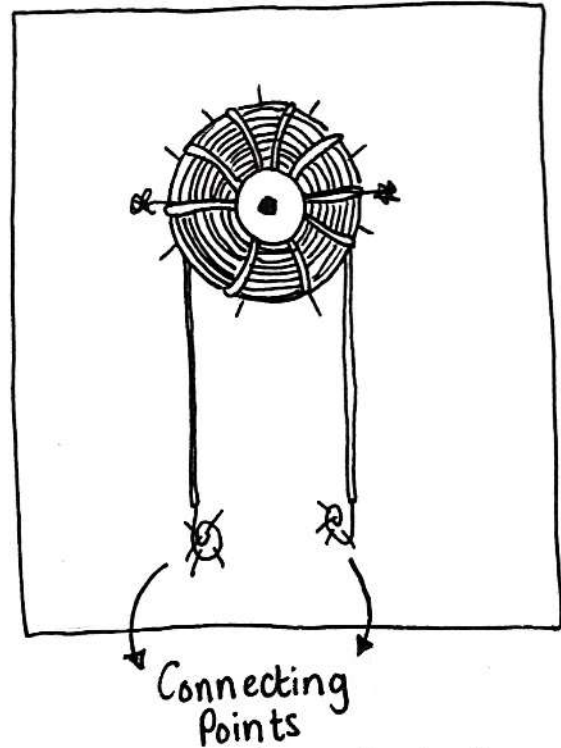
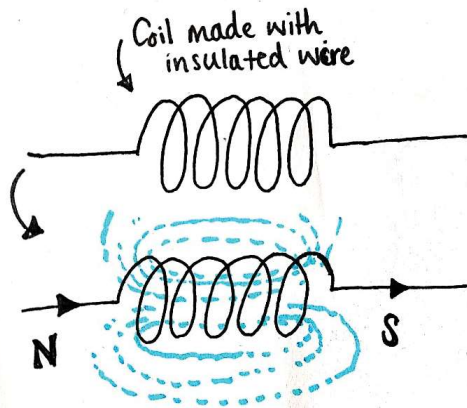
Now attach the electromagnet coil to the base piece of fabric. Sew it into place, making sure that it is secure.

Then, attach each of the legs of the electromagnet to the base fabric, sewing each coil of exposed wire.

STEP 3

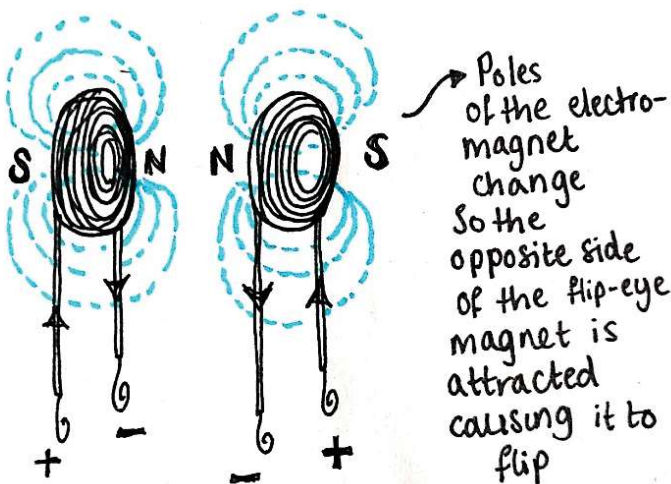
Attach the eye into position by placing it in the centre of the electromagnet. Sew it into place by sewing the ends of the thin thread into the base fabric. Make sure that the thread is tight enough that the eye will remain in place, but is slightly slack to allow the eye to rotate.

How it Works



Connect one end to the +ve of the 9V battery and the other to -ve. Then swap to make the eye flip!

An electromagnet is created when current runs through a coiled wire. This forms an electromagnetic field around the coil as shown above, with north and south poles. The more turns the coil has, the stronger the electromagnetic field and the electromagnet is. This is why around 80 turns of wire are needed.



When you swap the connection of the battery, the current flows in the opposite direction and the electromagnetic field flips. This causes the polarisation of the electromagnet (the sides of the magnet which are north and south poles) to switch. When the polarisation of the electro-magnet swaps, the opposite side of the magnet (in the eye) is attracted, causing it to flip.