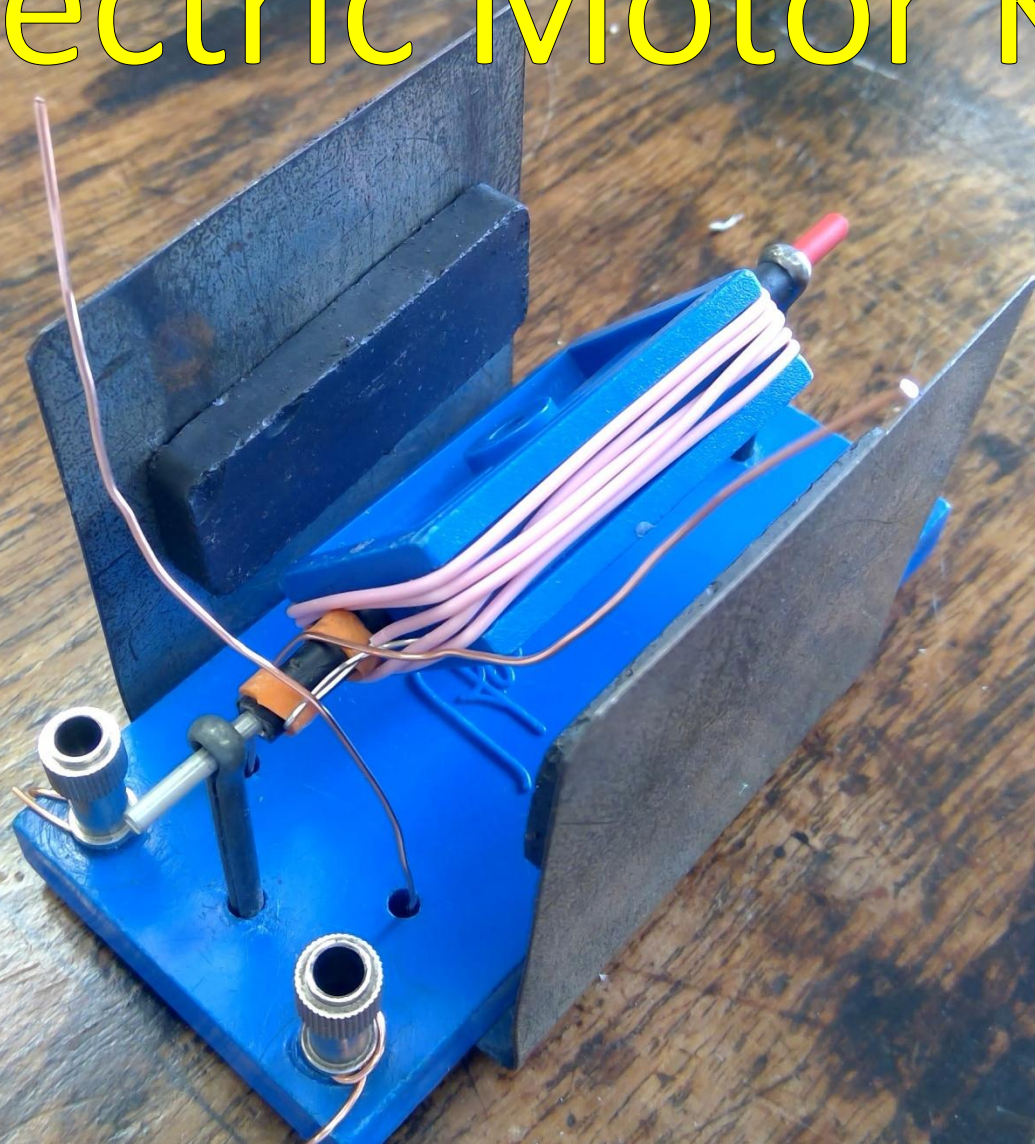


DIY Electric Motor Kit

AF 5/2/2020



<https://www.youtube.com/watch?v=QOkSEtE07Gg>

Kit list

Spindle + peg #1



85cm of insulated wire. 0.51 mm diameter stripped, 1.10mm unstripped. Strip 3cm on both ends



Metal C plate + 2 x magnadur magnets + blu-tac

Plastic baseplate



Peg #2

Screw terminals

2 x 15cm of Cu bare wire 22 SWG



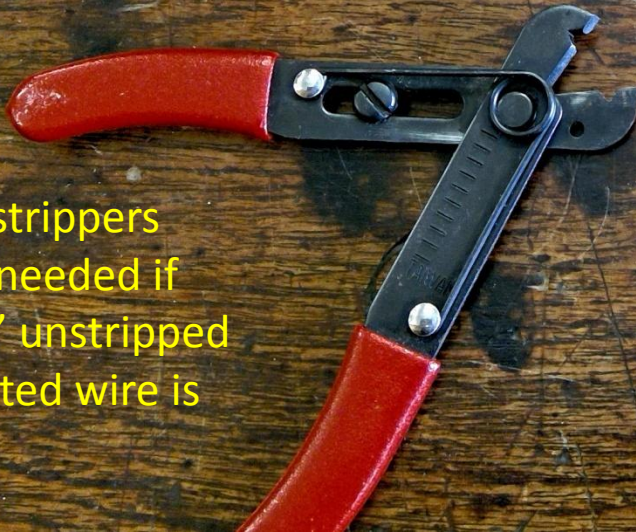
Armature (make sure ends are wrapped in insulated tape)

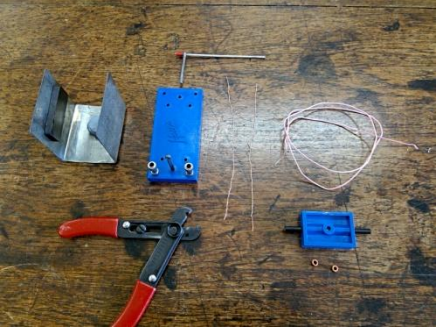


Rubber rings

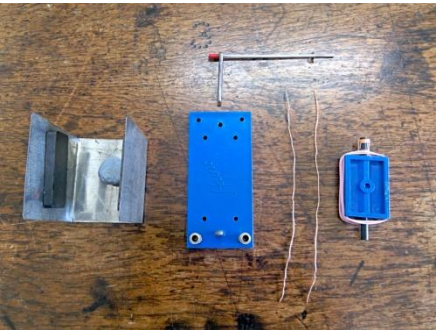


Wire strippers (only needed if 'fresh' unstripped insulated wire is used)

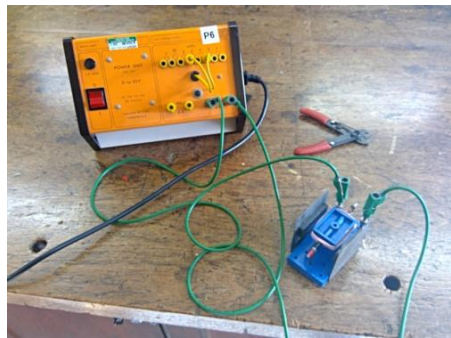
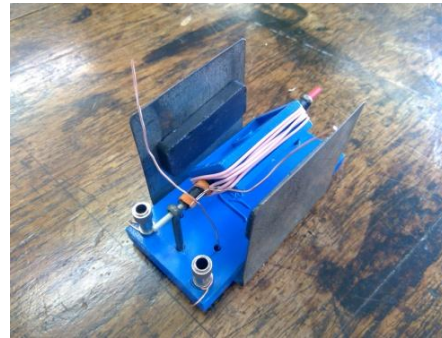




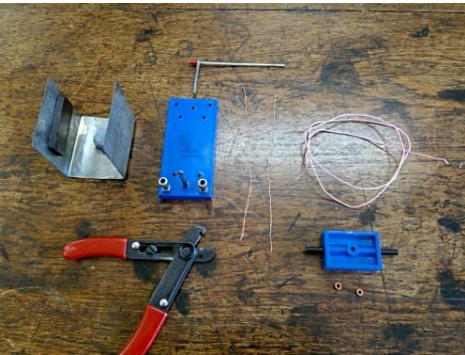
[Instructional video on YouTube \(6min\)](#)




<https://www.youtube.com/watch?v=QOkSEtEO7Gg>



DIY Electric motor kit assembly instructions



1. **Check kit.** Make sure 85cm insulated wire has 3cm stripped ends. I recommend 2 x 15cm bare Cu SWG22 for the brushes. Check magnets have **opposing poles**. Check armature ends are insulated.
2. **Construct armature.** Bend stripped wire to insulated spindle end. It will overlap by about a 1.5cm. Secure in place with rubber ring. Wind wire until other stripped end reaches insulated spindle. Secure at diametric opposite. Bend down exposed wires to improve contacts. Secure at edge of insulated spindle with a second rubber ring.

3. **Make a crook in the Cu wires and secure firmly to terminals.** Screw finger tight. Thread through to interior holes and pull upwards.
4. **Construct a 'dome' shape with the wires,** just below the hole in the peg. 
5. **Attach the armature and spindle** and push upwards towards the apex of the 'wire dome' until the wires separate, forming a springy contact. Carefully inspect this **commutator** to make sure of no shorts, and that alternate contacts are made as the armature rotates.
6. **Place baseplate into C shaped bracket** with magnadurs. Push down to secure on blu-tak.
7. **Connect standard lab wires to terminals and connect up to the lab DC supplies.** **About 4V** is required. 2V might *just* be enough. Give the motor a flick to start. ***Don't apply more than 4V to avoid drawing excess current This may be a burn/fire/electrocution risk, and may cause the power supply (>6A) fuse to blow.***

