

The Big Draw 2019: Drawn to Life

'How To' make a Drawing Machine

THE 2019[®]
**BIG
DRAW
FESTIVAL**

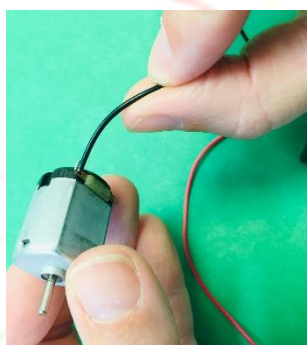
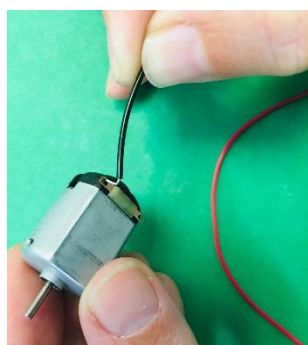


You will need:

- Paper cup
- Motor
- Covered battery holder with switch
- 2 x AA batteries
- Rubber bands
- Plastic milk bottle top
- Felt tip pens
- Sticky tape
- Drawing paper
- Cocktail stick



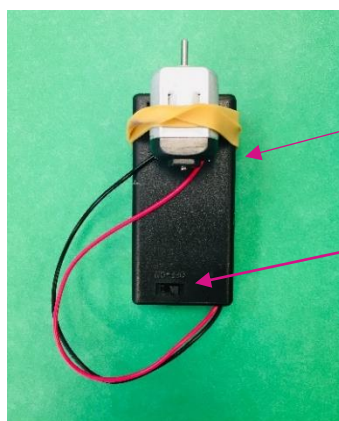
Step 1: Put 2 x AA batteries in the battery holder and close.



Step 2: Attach the battery holder wires to the motor by bending the exposed metal around the D rings on the motor - one wire to each D ring - it doesn't matter which.

Step 3: Switch on to test and check the shaft spins.

Step 4: Position the motor on the battery holder switch side upwards and with the motor at the opposite end to the switch. The D rings face flat against the battery pack and the spinning end of the motor extends past the edge of the holder to ensure it is not obstructed. Secure in place by double wrapping with an elastic band.



The images illustrate the best positioning for these parts:

Wired D rings face down

Battery holder switch side up

Spinning part not obstructed

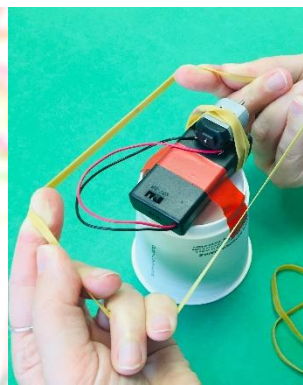
Elastic band



Step 5: Turn the paper cup upside down and tape the battery pack and motor to the base. Ensure the tape is long enough to extend down the sides of the cup to hold the battery pack and motor securely.



Step 6: Stretch 3 elastic bands around the cup, evenly spaced.



Step 7: Use the cocktail stick to make a **very small off-centre** hole in the milk bottle top. Push the milk bottle top onto the part of the motor that spins. Switch on and test again.

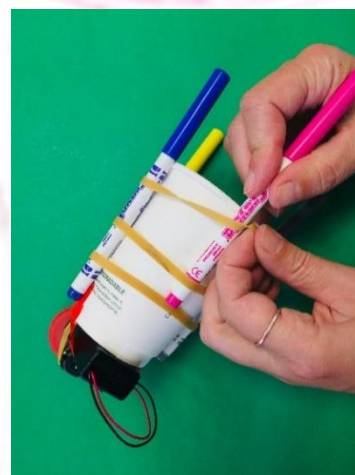


Step 8: Choose 4 felt pens and attach them (pointing down) to the sides of the cup by trapping them underneath the elastic bands. Adjust them so they are all level and don't extend above the cup base, where the motor and battery are sitting.

Step 9: Make sure the pens are held firmly in place then remove the pen lids and place the drawing machine on a sheet of paper.



Step 10: Switch it on and watch it draw!



If the motor doesn't spin, check the wires are connected to the D rings.

If the bottle top catches whilst spinning, move the battery pack further away from the side of the cup.

If the bottle top spins off use some sticky tape to secure it.

If the drawing machine keeps falling over, check the pen legs are level.