PH106 Investigation: Homopolar Motors

You will need:

1 battery
1-3” deck screw
1 “button” magnet
1 wire

1) With the assembled materials, how can you build a motor? The motor should make the screw spin on its axis. Sketch your motor configuration below.

2) Does the operation of your motor depend on the relationship between the direction of current flow and the polarity of the magnet? Can you change the direction of rotation? Prove this experimentally, and describe how you have done so below.

3) How does your motor work? What forces are responsible? Make a sketch, including the role of the current and magnetic field.

4) How could you use a setup similar to this to generate direct currents?