

Objective

Construct a motor

There are two parts to this project:

Part 1: The Motor

- The motor may not be pre-manufactured.
- The motor should start upon request (within 10 seconds). Ideally, the motor will be started with an electrical switch but this is not mandatory.
- Once spinning, the motor should maintain a stable rotational speed without any additional human assistance (e.g. holding the motor up).
- Ensure you have proper wire for your motor. If the wire is not insulated, the current will not differentiate between the different turns in the coil. Magnet wire may be used which is a type of wire coated with a thin layer of insulation.

Part 2: Video Guide and Explanation

- Create a short video which has two parts:
 1. a guide to build your motor and
 2. an explanation of how your motor works
- Each step in constructing the motor should be modelled in the video.
- A full explanation of magnetic force and torque should be included along with labelled diagrams.
Diagrams may not be copied from the internet or any other source.
- Upload the video to YouTube and email me the link.

Bonus: Application

- A bonus of up to five marks may be awarded for an interesting application of your motor. For the full five marks, the application should be inventive and complex whereas a simple application may only receive one.

Safety

- Do not exceed 12 volts to power the motors.
- Do not allow the battery to be shorted for a long period of time (e.g. motor is connected but not spinning).

Component	Criterion	Weight	Mark
Motor	<i>It works</i>	10	
Video - Construction	<i>List of Materials, Procedure, Visuals</i>	5	
Video - Theory	<i>Explanation, Visuals</i>	5	
TOTAL		20	