1. Attach the two small gears and one large gear to the gearbox cover with the center ridge facing up, as shown. Note: Apply appropriate grease where marks are indicated.

2. Insert the shaft into the large gear. Insert the gear joint and secure it with the hexagonal socket set bolt using the hexagonal wrench.

3. Attach the gearbox lower case. Make sure the center axle of each gear fits into each hole of the lower case.

4. Fasten the base to the panel with the supplied four short tapping screws. Insert the two spring terminals into the holes on the panel. Insert the LED into the hole between the two spring terminals, and connect the longer lead to the "+" terminal, the other lead to the "-" terminal.

5. Place the motor as shown at right and insert the motor's wires through the holes in the base.

6. Attach the assembled gear set done in steps 1-3 to the base/motor assembly. Fasten it with the remaining four short tapping screws.

7. Connect the wires from the motor to the backs of the spring terminals.

8. Attach the handle knob to the handle's edge using the long tapping screw, taking care not to over tighten the knob to the handle.
9. Install the handle on the shaft’s end and secure the handle with the nut.

**NOW, YOUR GENERATOR IS READY TO WORK!**

**EXPERIMENT 1: Operating the Generator**

You need:
- Generator

Turn the generator’s handle clockwise and you will see the LED lights up. Turning the motor by hand generates electricity!

**EXPERIMENT 2: Operating the Motor using the Generator**

You need:
- Generator
- Motor
- Wires

After wiring the experiment as shown below, turning the handle and you will see the LED lights up and the motor starts to spin. The faster you turn the handle the faster the motor spins. You might need to turn the handle rapidly, as the motor requires much electricity to work.

**EXPERIMENT 3: Operating the Bell using the Generator without Battery**

You need:
- Generator
- Bell
- Wires

After wiring the experiment as shown below, turning the handle either clockwise or counterclockwise. *How does the bell sound?* When you turn the handle quickly, the bell sounds louder because more electricity is generated. The large amount of electricity makes the electromagnet stronger and makes the bell sounds louder.

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