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Hand Held DC Generator, Part#: SS4444

These are designed with economy in mind, and operators should turn the device with care, as the gears are made of plastic and will break if abused.

This simple device demonstrates energy conversion from mechanical to electrical and vice versa. Made with a clear plastic casing, students can clearly see the motor, gears and wiring.
Maximum Voltage: 6.5 Volts
Read the customer review pasted below for a helpful tip…

★★★★★ Good Value/Performance

October 1, 2015

Reviewer: Mark Stephens from Binghamton Univ., NY
United States
I've used these economical generators for some time now, in our K-5 outreach programs (very rough service!), and they perform very well.

The clear body makes explanations simple, and they can be used as a stand-alone demo, with the built-in bulb, or it can be removed and connected to other devices with the included alligator wires.

One tip: With repeated cranking, the screw that holds the crank knob usually comes off. To prevent this, I remove this screw, put a small drop of super glue in the screw hole, and reinsert the screw before the glue sets. Now they don't fall off!

Update, 10/01/15. Sci-Supply took my suggestion and now offers the replacement gears for this generator (SS4444A), and at a reasonable price! I fixed several of my units that had been damaged by frenzied crankers, and now they're good as new! A great product is now even better!

(OVER)

Demonstration 1:
By doing work and turning the handle, students can convert their mechanical energy into a DC power supply of up to 6.5 Volts. The bulb on the device will light up when the handle is turned, demonstrating the electrical energy production.

Demonstration 2:
The clear plastic construction allows students to see the small motor that is used to generate the electrical energy. Many students do not realize that a DC motor can:

A. Generate electrical energy by using mechanical energy (an alternator on a car is an example of a practical application).
B. Use electrical energy to produce mechanical energy (a simple electric fan is an example of a practical application).

Demonstrate the production of mechanical energy by connecting the red and black wires to a dc power supply (like D batteries in series) of up to 6 volts. **Make sure that the crank handle is free to spin when attached to the power supply.**

Demonstration 3 (multi-person, requires 2 generators):
If you have 2 people and 2 hand generators available, you can connect the alligator clips of both generators together (black to black, red to red). **Remove the light bulbs when connecting the generators together in this configuration**. While one student holds a generator with the crank handle free to move, the other student will (**carefully – don't break the gears!**) turn the crank handle of their generator. Students should first observe the difficulty of turning the handle. This is due to the additional "load" on the system created by the additional work required to move the other generator. Students will be able to observe first hand the transfer of energy from mechanical to electrical and back to mechanical. Did anyone notice that the freely spinning handle moves at a slower pace? This is a good time to discuss efficiencies and energy loss in electrical transmission systems.