



Källhagens skola

Sustainable Energy - Experiment with ecological energy sources

Materials and equipments: manual generator (by cranking), solar panel, different lamps (diode, disco ball), cellphone, wires, voltmeter and amperemeter.

Procedure:

1. Connect your manual generator to an amperemeter and from there to the diode/disco ball/cellphone.
2. Parallel connect the voltmeter and start cranking. The harder you crank, the more voltage you get and also current.
3. Change the manual generator to a solar panel and compare your results.

An additional task is to measure the voltage you get by a solar panel depending on which angle the radiation from sun is hitting the panel and also if you have venetian blinds in the window or not.

Hint: If the weather allows, do the experiments outdoors.

Conclusions: You don't need to crank the generator much to get the diode lighted, to get the disco ball turning and illuminated you need to crank much harder, the voltage needed is 6,7 V. To charge a cellphone you need a voltage over 8,3 and the current that flows is around 0,1 A.

The angle in which the radiation hits the solar panel makes a great difference, we got results from 0-25 V. Also venetian blinds, even if they are turned open, "steal" almost half of the voltage compared to not having them at all.