



CHANNEY ELECTRONICS, INC.
Educational & Affordable Electronic Kits for All Skill Levels

54 IN 1 SOLAR HOUSE GREEN ENERGY LAB

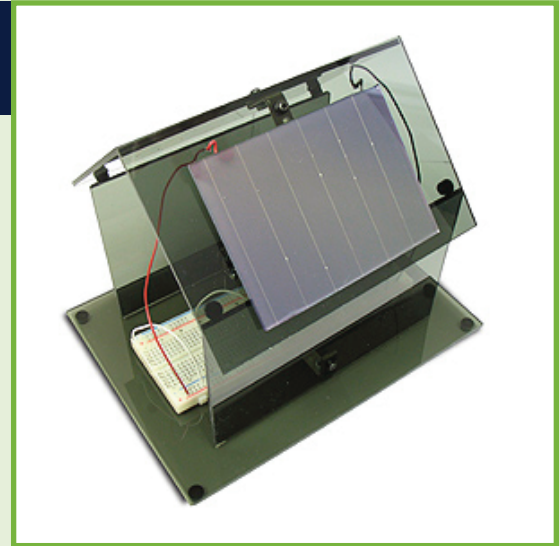
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Detailed Description

Have you seen a house with a solar panel on the roof and wondered how it produces electricity? In response to increasingly high electricity costs and the overall well being of our environment, advanced technologies in solar energy has made it possible for home owners and businesses to install Photovoltaic Solar Panels to convert sunlight to usable electricity and heat. With this in mind, we have designed this course for the inquisitive student that wants to gain an understanding of how different technologies using green or alternate energy can be used in the home.

In this course, we will create our own model house made of Plexiglas and install an amorphous silicon glass solar panel to simulate how we can harness the sun's energy into one's house. The solar panel that we will be using will provide the energy used for all of our experiments. We will perform most experiments with solar energy stored in a battery that has been charged from our solar



panel along with a re-useable solderless breadboard.

The fully illustrated and detailed manual included in this course will introduce the student to some basic technology and fundamental concepts used in common house hold devices such as lighting, thermostats, fire alarms, and burglar alarms. In order to study these technologies, we are going to study solar panels, motors, fans, resistors, diodes, LEDs, switches, lamps and batteries. The easy-to-follow pictorial diagrams will guide the student through 26 chapters containing a variety of activities and useful experiments along with fun and interesting facts relating to solar energy.

This course offers a hand on approach that is applicable for use in grades junior high up through college. All parts to create the model house, along with the necessary components, wires, breadboard, solar panel, and de-

tailed instruction manual are included. No soldering or additional batteries required. Reusable and safe to use. Skill Level 1

Lab Contents:

Chapter 1 Energy Sources

Chapter 2 Constructing the Solar House

Chapter 3 Solar Systems

Chapter 4 Solar Cells

Chapter 5 Solar Panels

Chapter 6 Inverters

Chapter 7 Grid-Tied vs Off-Grid

Chapter 8 Batteries

Chapter 9 Metering

Chapter 10 Disconnect

Chapter 11 Charging Batteries with Solar Power

Chapter 12 Resistors

Chapter 13 Switches

Chapter 14 Ceiling Fans

Chapter 15 Diodes

Chapter 16 LEDs

Chapter 17 Lighting

Chapter 18 Series Circuit vs Parallel Circuits

Chapter 19 Outdoor Lighting

Chapter 20 Transistors

Chapter 21 Conductors

Chapter 22 Water Flood Alarm

Chapter 23 Doorbell

Chapter 24 Thermostats

Chapter 25 Burglar Alarm

Chapter 26 Fire Alarm

Experiment 1 Battery Charging with solar Power

Experiment 2 Switches

Experiment 3 Fans

Experiment 4 Diodes

Experiment 5 LEDs

Experiment 6 LED Lighting Color Temperature

Experiment 7 Incandescent Lamps vs LEDs

Experiment 8 Parallel Circuits

Experiment 9 Series Circuits

Experiment 10 Automatic Outdoor Lighting

Experiment 11 Transistors

Experiment 12 Conductors

Experiment 13 Water Flood Alarm

Experiment 14 Doorbell

Experiment 15 Thermostat

Experiment 16 Burglar Alarm

Experiment 17 Fire Alarm

Experiment 18 Electronic Candle

Activity 1 Energy Activity

Activity 2 Solar Systems Activity

Activity 3 Solar Cells Activity

Activity 4 Solar Panels Activity

Activity 5 Batteries Activity

Activity 6 Resistors Activity

Activity 7 Ceiling Fans Activity

Activity 8 Diodes Activity

Activity 9 LEDs Activity

Activity 10 Conductors Activity