

College Education Related Programs:

The Solar Balloon Energy Kit supplies students with an in-depth manual to guide their projects. The parts are made of high quality durable plastic and are amazingly easy to assemble. Just follow the simple step-by-step instructions.

Young scientists will be provided with everything they need to discover the science of clean solar energy. The multitude of experiments in the Solar Balloon Energy Kit means that it's perfect for both classroom and home use. It's physics, engineering and environmental sciences all in one kit!

What does it teach?

The Solar Balloon Energy Kit is designed to teach not only about using sunlight for cooking, but also about using sunlight for heating, water pasteurization, solar PV charging, and solar water distilling. The kit's experiment manual eases you into the world of solar energy by having you build the system with each component.

The Solar Balloon Energy Kit works without any sort of fossil fuel . . . no oil, no batteries, nothing! It's a completely self-sufficient kit. Experiments that you will be doing with the Solar Balloon Energy Kit include:

A. Optics

- A-1 Non-image optics.
- A-2 Optical concentrator /sunlight solar concentrator.
- A-3 CPV / CSP.
- A-4 Reflection / Transmission / Absorption.
- A-5 Optical Efficiency.
- A-6 Accepting angle.

B. Solar Thermal Energy

- B-1 Solar hot water. Use the solar balloon to heat water. Measure water temperature.
- B-2 Cook rice. Learn how solar energy can be used to replace fuels for cooking.
- B-3 Bake cookies.

C. Solar Concentrator Photovoltaic

- C-1 Use a solar panel to power LED.
- C-2 Use a solar panel to power a small fan.
- C-3 Use a solar balloon to increase the power output of a panel.

D. Heat Transfer and Thermodynamics

- D-1 The P, V, T relationship of gases. Study the gas pressure inside the balloon when temperature changed.
- D-2 Heat transfer and Thermal insulation.
- D-3 Temperature measurement and data acquisition.

E. Water distilling.

- E-1 Latent heat of water.
- E-2 Cold spot temperature and its impact on water distilling efficiency.

F. Engineering project.

- F-1 Design frames to hold the balloon.
- F-2 Improve efficiency.
- F-3 Develop a solar tracker for the balloon and study the impact of solar tracking.

G. Environment and Sustainability

- G-1 Reduce carbon footprint.
- G-2 Reduce pollution.
- G-3 Protect environment.
- G-4 Renewable energy / sustainable development.

H. Entrepreneurship.

- H-1 Sell solar balloon energy system and make a profit.
- H-2 Work with a NGO or agency to bring solar energy technology to people who do not have enough fuels for cooking and heating.