





STEM from Home

Renewable Energy

We use different modes of transport such as a car, bus or motorcycle to go from one place to another. They run on petrol or diesel. Petrol and diesel are obtained from crude oil, which is a non-renewable energy source because we cannot produce more of it once we run out of it. So, we need to be careful while using such sources of energy. Are there other sources of energy which are not limited in supply?

Renewable energy, often referred to as clean energy, comes from natural sources or processes that are constantly replenished. For example, sunlight or wind.

This week, your tasks include creating an environment awareness e-magazine and a solar water heater. You will also design a working model of a wind turbine.

Main Activity: Create Your Own Environment **Awareness Magazine**

Introduction

In this project, you'll learn how to use HTML and CSS to create a multi-page magazine website with a two-page layout.

Your task is to create a two-page magazine, which shares tips and advice on how people in your city can help to save the environment by using renewable energy and conserving the available natural resources. Aim for at least 5 top tips and include images/graphics wherever possible.

Read about Renewable Energy here

Let's get started!

What You Will Need

A PC/tablet capable of accessing trinket.io.

What You Will Learn

- 1. How to use basic programming to create a multi-page magazine website
- 2. How to utilise intermediate HTML & CSS skills



Bonus Activities

Activity 1: Feel The Heat! (A Nasa/ Design Squad Challenge)

Introduction

You will design and build a solar hot water heater and understand the temperature change brought about by the heater.

What You Will Need

- Aluminium foil
- Large sheet of cardboard (e.g., 11 x 17 inches / 28 x 43 cm)
- Table lamp with an indoor 100-watt floodlight light bulb (optional; to be used only if you are not using sunlight)
- Black marker
- Black paper
- 2 paper cups (medium-sized)
- 3 feet (0.9 m) clear plastic tubing (Outside diameter: ¼ inch /6 mm)
- Pitcher of water
- Ruler
- Scissors
- Duct tape
- An indoor-outdoor digital thermometer that can read tenths of a degree

What you will learn

- 1. Simple ways to harness the power of solar energy.
- 2. Building a Prototype
- 3. Testing and Evaluating the Design
- 4. Optimising the Design

Access the activity sheet here



Challenge Activity: Wind Whirl!

William Kamkwamba grew up in a small village in Malawi, Africa, which was devastated by famine and drought. Forced to leave school, he used donated books in the village library to teach himself how to build a windmill to generate electricity. This would be the first time electricity would be seen in his village. He didn't speak English and had to use a translation dictionary the whole time he was reading. At the time, he was only 14 years old! His story is published in a set of books called 'The Boy Who Harnessed the Wind.' You can also watch a movie based on the book on Netflix.

Your Challenge:

Harnessing the power of wind energy, you need to design and build a working model of a simple wind turbine capable of lifting a cup off the floor up to bench/table height. Next, add coins to the cup, one at a time, to see how much weight your design can hold. The most effective design will be the one that is able to lift the maximum weight off the ground.

Click here to access important information about the project

Use HTML and CSS to create a single-page magazine website. Upload a short video of your working model with a description of how you designed and built it.



