

How can solar power help those in Zambia light their homes?

St Patrick's College, Dungannon.

NIE Networks

Overview and Aims -

Following the Principal of St Patrick's College, sharing her experience and images from her visit to the parish of St Teresa's in Lusaka in Zambia, the pupils of St Patrick's College identified the opportunity to help pupils of a similar age to them. The pupils aimed to design and create a solar lantern that would be made and shipped to Zambia to allow the pupils of Zambia to have light to help them complete their homework.

Background information -

We identified that the following factors would be important to research to ensure the lantern we created would be suitable to the climate and conditions in Zambia;

- Climate in Lusaka in Zambia - focusing on the hours of sunlight and the quality of natural light.
- Investigate the storage of solar energy and how it can be used when needed.
- The efficiency of the energy collected.
- Most suitable and economically viable components to use for making the lanterns.
- Solar lantern design, focusing on materials used to bear in mind health and safety and transportation.

Methodology -

We investigated;

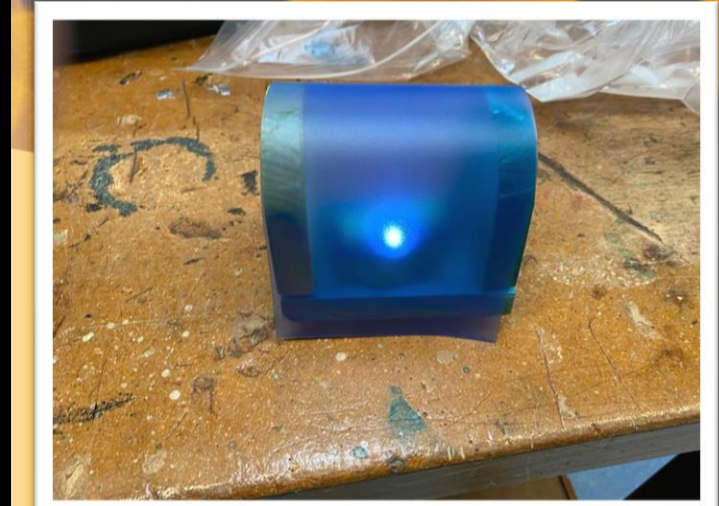
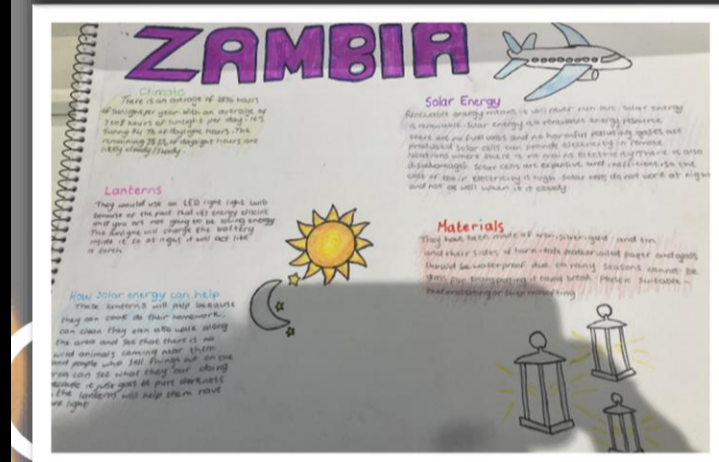
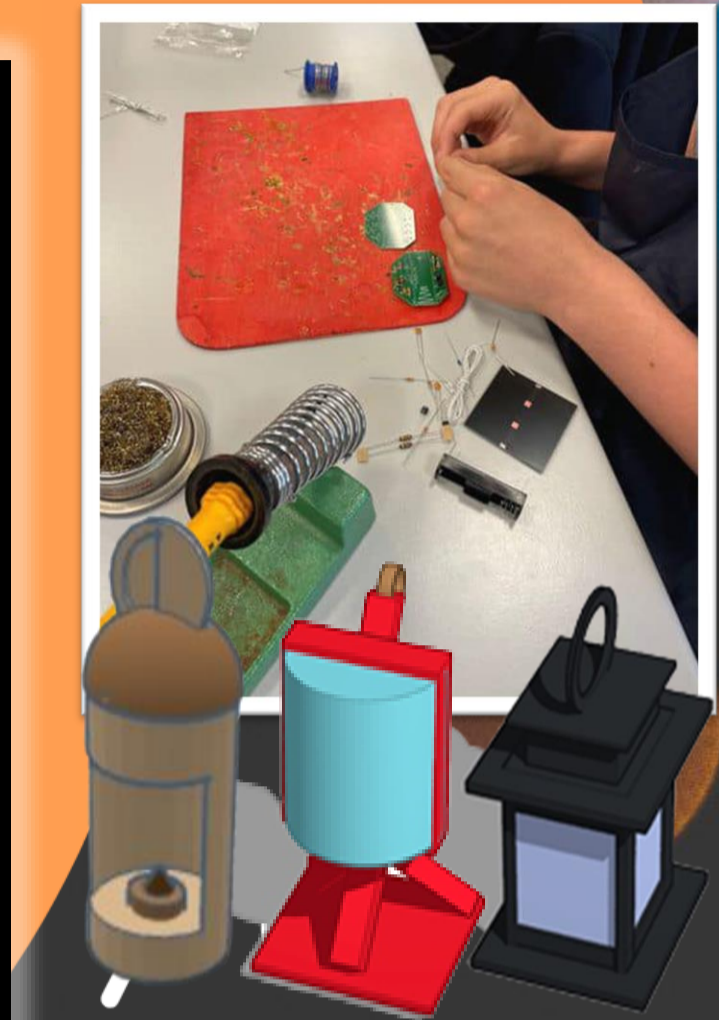
- The most suitable battery pack and solar light to use.
- The thickness of plastic that we should use.
- The type of wood and the finish we wanted for our wooden base.
- The joining methods and adhesive we would use.

From our research we decided to use;

- Solar cell and battery pack with an LED.
- 1mm polypropylene, translucent coloured plastic which was aesthetically pleasing.
- Pine wood for our base which was inexpensive and easy to work with.
- Dowel joints to allow for the lantern to be flat packed and wood glue as our adhesive.

Next time we would;

- Redesign the lantern as flat packing is not necessary.
- Use different plastic to ensure more transparency.
- Use a brighter LED.



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