

TECHNOLOGY



Solar energy

BOX NOTICE

Name of the activity	Solar oven
Activity duration	1h30
Material needed	Solar oven box,
Number of pupils involved (per box)	All class for the storytelling part 4-5 pupils for the construction of the solar oven

Note: This experiment is performed on a sunny day when the temperature is relatively high.

Step 1: Preparation

You may start by collecting initial perceptions of "renewable energy": what does it evoke for the pupils, where have they heard about it, what areas does it refer to, etc.?

Step 2: Storytelling material

Using the storytelling material in the box, ask them if they can name the different types of renewable energy.

As the pupils name the renewable energies they know, display the corresponding illustrations on the board.

Make the pupils aware that human beings need energy at all times. "What types of energy do you need in a day and why?"--> by retracing their day.

Read the story "An Energy Gift".



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Step 3: Experience – solar oven

After discovering the greenhouse effect and the Albedo effect during the sequence, the pupils should be able to build a solar oven.

The pupils must solve the following problem: "How fast can you melt a piece of chocolate using the sun?"

Therefore, they would have to build a small solar oven using the materials (Cardboard box, aluminium foil, black sheet or black paint) and their knowledge of solar energy (greenhouse effect, albedo effect, mirror reflection). The teacher can also show an example of an oven (**Odeillo oven**).

Before construction, the pupils are placed in groups of 4-5 and work out a construction plan. The teacher validates the different protocols individually and guides the pupils through the construction.

The teacher goes through the different groups, reminding them, if necessary, of the different principles they discovered at the start of the lesson to make the oven as efficient as possible.

When the groups have finished their construction, they can place it in full sunlight, place the piece of chocolate in the centre and time how long it takes for the chocolate to melt completely.

Safety reminder: Do not touch the centre of the oven when it is outside and in direct sunlight. When the chocolate has melted, the teacher can put the oven in the shade and let it cool completely before handling it.

For younger students, the teacher can provide a detailed protocol for building the oven.