

SUBJECT AREAS:

Technology and the environment

ACTIVITY DESCRIPTION:

Technology, environment,
energy, nature

OBJECTIVES:

Students will understand the concept of renewable energy and its importance for environmental sustainability.

MATERIALS:

Pictures of renewable energy sources, Videos about renewable energy and its benefits, Materials for hands-on activities, Drawing paper, crayons, markers for students

GRADE/LEVEL:

Primary school (Grade 4-6);

DURATION:

90 minutes

Preparation time: 1 hour

Activity time: 40- 60 minutes

PLACE:

Classroom, outdoors

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Exploring Renewable Energy

INTRODUCTION:

Start the lesson by discussing the concept of energy and its importance for everyday activities.

Introduce the idea of renewable energy and explain its significance for protecting the environment and reducing carbon emissions.

Show pictures or illustrations of different renewable energy sources and briefly explain how they work.

BACKGROUND:

Understanding renewable energy is crucial for primary school students as they develop an awareness of environmental issues. Renewable energy sources such as solar, wind, and hydroelectric power offer sustainable alternatives to fossil fuels, reducing carbon emissions and mitigating climate change. Introducing renewable energy concepts at an early age fosters environmental literacy and empowers students to advocate for a cleaner, more sustainable future.

Procedure:

1. Brainstorming Activity (15 minutes): Engage students in a brainstorming session about renewable energy sources. Ask questions such as: What are some examples of renewable energy sources? How do renewable energy sources differ from non-renewable ones? Why is it important to use renewable energy?

2. Storytelling and Discussion (20 minutes): Read a story or show a video about renewable energy and its benefits for the environment and society. Facilitate a discussion about the story/video, asking students to share their thoughts on renewable energy and its potential to address environmental challenges.

3. Hands-on Activities (30 minutes): Divide students into small groups and provide them with materials for hands-on activities related to renewable energy. Students can work on building simple models or conducting experiments to demonstrate how renewable energy sources such as solar power, wind energy, or hydroelectricity work. Encourage students to observe, experiment, and discuss their findings with their peers.

4. Illustration Activity (15 minutes): Ask students to create illustrations or diagrams showing how renewable energy sources work. Students can draw scenes depicting solar panels absorbing sunlight, wind turbines generating electricity, or water wheels harnessing the power of flowing water. Display the students' artwork in the classroom to reinforce their understanding of renewable energy concepts.

FUN FACTS:

- *The world's largest solar power plant, located in the Mojave Desert in California, covers 5 square miles and generates enough electricity to power over 250,000 homes.*
- *Wind turbines can range in size from small residential turbines that generate enough electricity to power a single home to large offshore turbines with blades longer than a football field.*
- *Hydroelectric power, generated by flowing water, is one of the oldest and most widely used renewable energy sources. The Hoover Dam in the United States, completed in 1936, is one of the largest hydroelectric power plants in the world.*
- *Geothermal energy, derived from heat within the Earth's crust, is used for heating and electricity generation. Iceland is a global leader in geothermal energy, with nearly 90% of its homes heated by geothermal power.*
- *Biomass, including organic materials such as wood, crop residues, and animal waste, can be converted into biofuels or burned directly for heat and electricity. Some vehicles run on biofuels made from crops like corn or sugarcane.*

ASSESSMENT:

1. Observation of students' participation and engagement during discussions and hands-on activities.
2. Evaluation of students' understanding through their contributions to brainstorming sessions and illustrations of renewable energy sources.
3. Reflection on students' ability to apply their knowledge of renewable energy concepts in creating models or conducting experiments.

EVALUATION:

Observation, written assessments, project tasks, peer evaluations, and reflective discussions will assess students' engagement, comprehension, and application of renewable energy concepts.