

Didactic Scenario

1. Title

Wind power

2. Keywords

wind power, measurement, design

3. Basic Information

STEAM Subject: engineering, math, arts

Typical interaction time with the instructional scenario in teaching hours for in-school work:
45 minutes

General description of the scenario:

<u>Phases</u>	<u>Stage</u>	<u>Time</u>
Introduction	Preparation	7 minutes
Main part	Implementation	33 minutes
Conclusions	Evaluation	5 minutes

Age group: 9-10 years old

Estimated difficulty level:

Very Easy	Easy	Moderate	Challenging	Very Challenging
			X	

Teaching resources

Material: slides, worksheet, hot glue guns and glue sticks, bottles' caps, paper straws, colorful pencils or markers, wooden sticks, white A4 format paper, paper tape, ice cream sticks, small

wooden cubes, air conditioner, meter

School infrastructure: Media, Computer

Additional material from external sources/online tools: N/A

Differentiated Instruction for students of differing abilities and learning styles in the same class: N/A

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4. Educational Problem

Wind power is vital for ecological and sustainable energy solutions. As a renewable resource, it reduces greenhouse gas emissions, mitigates climate change, and contributes to energy independence. With its low environmental impact, cost competitiveness, and ability to resist climatic variations like droughts, wind power stands as a crucial component in the global transition towards cleaner and more sustainable energy systems. Teaching children about the importance of wind power is crucial for fostering environmental awareness and sustainability.

5. Learning Objective (-s)

1. Design the sail (arts);
2. Create a wind-powered sail's car (engineering);
3. Measure the distance (math);
4. Documenting their own learning process;

6. Phases of the Scenario

Phase 1

Title: Introduction

Indoor	Outdoor	Mixed
X		

Phase duration in minutes: 7 minutes

Detailed description of the scenario phase:

Teacher shows slides to the children - explaining about wind power.

Teacher discusses with children - what is a wind power? Why is wind power important? Which country has the most of the wind power?

Teacher shows a video of wind power, showing that the shape of wind power' blades are important.

Teacher tells children the task - to create a wind-powered sail's car in the groups (2-4 children)

- Choose the size and shape of the sail using white paper;
- Draw a sail's design;

Build a design of the wind-powered car by instructions;

Activity sheets: N/A

Phase 2

Title: Main part

Indoor	Outdoor	Mixed
X		

Phase duration in minutes: 33 minutes

Detailed description of the scenario phase:

Children do the practical part in the groups by drawing design or the sail and choose sail's shape and size;

Children do step by step the basic car's shape in the groups.

Children add sail to their built car.

Use air conditioner to try wind-powered sail's car (better to do one or two groups at the time).

After the first test, the teacher checks which car reached the longest distance.

Activity sheets: In the worksheets children write measurements of the distance they reached.

Phase 3

Title: Conclusions

Indoor	Outdoor	Mixed
X		

Phase duration in minutes: 5 minutes

Detailed description of the scenario phase:

Teacher asks the children - what you like about this activity. What was the hardest part? What can be done better next time?

Teams reflect how they did overall and evaluate themselves.

Activity sheets: N/A

7. Evaluation Methodology

The most important part of the evaluation process is children's overall participation and being active by solving problems and trying to do their best in this activity, asking questions and looking for the answers.

8. Additional Resources for the teacher

Attached slides and an example of the worksheet.

*For longer activity can be done a second and third test by adding LEGO blocks, one block and more (to see if anything is changing - is wind car going slower, faster or goes a shorter or longer distance).