



**CZYSTA MOC
ENERGII**



Grade
4
Time
45 min.

LESSON TOPIC

Where does electricity come from?

CONTENT IN LINE WITH THE SCHOOL CURRICULUM:

Geography

- Students discuss the breakdown of energy sources into renewable and non-renewable.
- Students explain the importance of renewable energy sources (e.g. wind energy, solar energy, hydroelectric power) and give example of their use in Poland.
- Students analyse the distribution of power stations in Poland, giving reasons for their location (e.g. energy resources, natural conditions).

TEACHING RESOURCES:

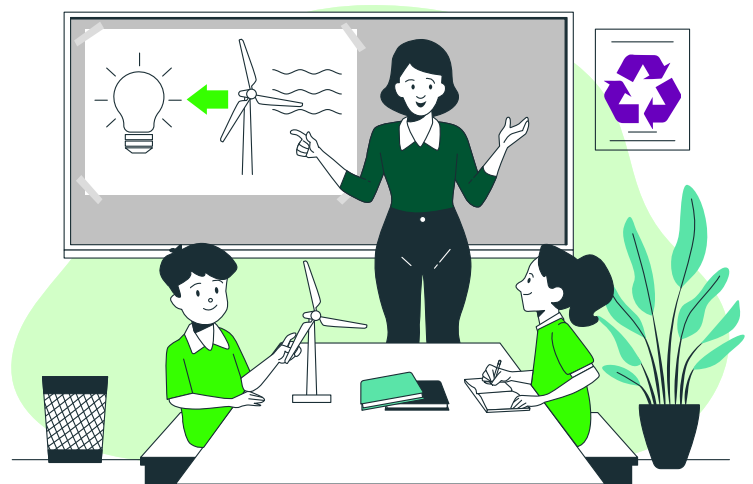
- worksheets
- cards with descriptions of regions of Poland - Appendix 1
- multimedia presentation:
Where does electricity come from?



Lesson plan

INTRODUCTION:

- Present the topic of the lesson to students.
- Hand out the worksheets.



COURSE OF THE LESSON:

- Ask students to get into pairs
-



1. Ask students to complete Task 1 on their worksheets in pairs.

Task 1 is to write down their free associations with electricity and try to define the term electricity. Give them about 5 minutes to complete this task. When the pairs have finished working together, read out the definitions proposed by the groups and create one definition based on all of them. Then ask the students to write down the correct definition.

2. Display the multimedia presentation „Where does electricity come from?”. **Talk briefly about energy sources and their classification into renewable and non-renewable.**

Link to presentation

3. **Hand out the cards containing descriptions of different regions of Poland - one region per group.** Then ask students to paste the descriptions onto their worksheets, and then to complete Task 2, **which involves choosing the energy source they think will work best in that region.** Give the children 10 minutes to complete the task.
4. **You can offer to the students carrying out an experiment.** You will find instructions in Appendix 2.
5. **Suggest that students test their knowledge of energy sources and their use.** On the next slides of the presentation you will find a quiz on, this topic.

SUMMARY

- Sum up the lesson. Emphasise what students should remember



WORKSHEET



Where does electricity come from?



TASK 1

Think about all things that you **associate with the word electricity**. Write down your ideas.

Write your answer

.....

.....

.....


.....

.....

.....

.....

.....



Based on the associations mentioned in subsection (a), try to draw up a definition of what electricity is.

Write your answer

.....

.....


.....

.....

.....

.....

.....



Compare your definition with those drawn up by your colleagues. What do they have in common? Write down a common definition of the term 'electricity'.

Write your answer

.....


.....

.....

.....

.....

.....



WORKSHEET

Where does electricity come from?

TASK 2

In the blank box below, paste the description you received from your teacher of the selected region of Poland. Think about what energy sources could work in this region?



APPENDIX 1

Where does electricity come from?

TASK 2

Ask the students to paste the slips of paper they received with the described regions of Poland on their worksheets and think about what energy sources could work in the area?



Cards with descriptions of Polish regions

Upper Silesia is located in southern Poland and is one of the most urbanised and industrialised regions of the country. The landscape is a mixture of hills, river valleys and urban areas, with numerous coal mines, steelworks and factories. It is home to some of Europe's richest deposits of hard coal, which has been the region's main energy resource for decades. Weather conditions are moderate, with an average temperature of around 20°C in summer and dropping to 0°C in winter. Precipitation is even throughout the year. Although coal has been the dominant source of energy here, more and more is being said about the need to switch to renewable energy sources such as solar power (especially on industrial rooftops) and wind power in open areas.

Masurian Lake District is a land full of lakes, forests and picturesque hills. The region is famous for water tourism, with lakes such as Śniardwy and Mamry attracting sailors and anglers. The soils here are rather poor, so agriculture does not play a big role, but the beauty of the landscape makes this region one of the most attractive for tourists in Poland. The climate is moderately cool, winters can be cold and summers mild. With its open spaces and steady winds, the region has great potential for wind farms. In addition, the sun in summer could be used to produce solar energy.

Podlasie is a region full of unspoilt nature, including the Białowieża Forest and the Narew National Park. There are many marshes and rivers here, making the landscape unique and full of biodiversity. The region is sparsely populated, with agricultural land and pastures dominating. The climate is temperate continental, with cold winters and warm summers. Podlasie has great potential for using biomass as an energy source - biogas plants could be built here for the processing of agricultural waste and wood from forests. Wind energy could also be developed on open land.

Kujawy is a region located in central Poland known for its extensive arable fields, as it is a region with some of the most fertile soils in the country. The landscape here is flat, with small hills and rivers such as the Vistula and Noteć. The climate is temperate, with warm summers and relatively mild winters. Agriculture generates a large amount of organic waste, so biomass can be one of the main sources of energy. Thanks to the flat terrain and steady winds, generation of wind energy is also possible.

The Baltic coast is a region with a unique landscape - it includes sandy beaches, dunes, cliffs and picturesque bays. Weather conditions here are variable, with mild winters and cooler summers than inland, with frequent winds. This location is perfect for building wind farms, both onshore and offshore. Solar energy can also be useful here in the warmer months.

Małopolska has great potential for the development of geothermal energy - especially in the Podhale region, where there are numerous thermal springs. Geothermal waters are already being used in towns such as Zakopane and Białka Tatrzańska to heat buildings and thermal pools. Solar energy can also be developed in the region - the open spaces in the uplands and the roofs of buildings in cities such as Kraków and Tarnów create favourable conditions for the installation of photovoltaic panels.

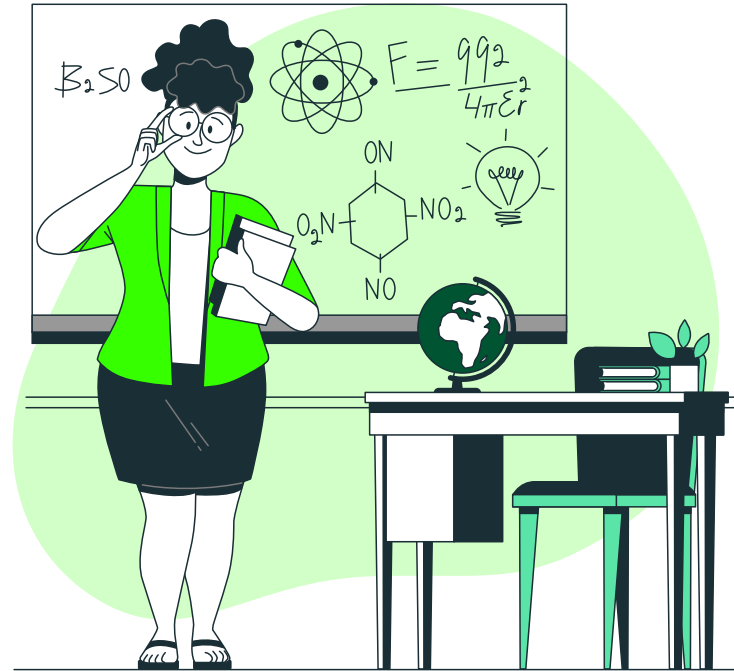
APPENDIX 2

Where does electricity come from?

EXPERIMENT

For the experiment, prepare:

- 2 identical jars,
- water,
- thermometer



1. Fill the jars with water and measure its temperature. Record the result of the measurement
2. Place one jar in a well-lit place, the other in a shady place. Leave them like this for 30 minutes.
3. After that time, measure the temperature in the jars.

Why do you think a jar standing in a sunny spot contains warmer water than the one that stood in the shade?

Write your answer

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

