CZYSTA MOC ENERGII

younger preschoolers **3-4 years old**
Time **60 min.**

LESSON TOPIC:

Playing with energy

OBJECTIVES IN LINE WITH THE CORE CURRICULUM
in the field of general education:

- the ability to observe facts, natural, social and economic phenomena, carry out experiments and trials, and the ability to formulate conclusions and observations.

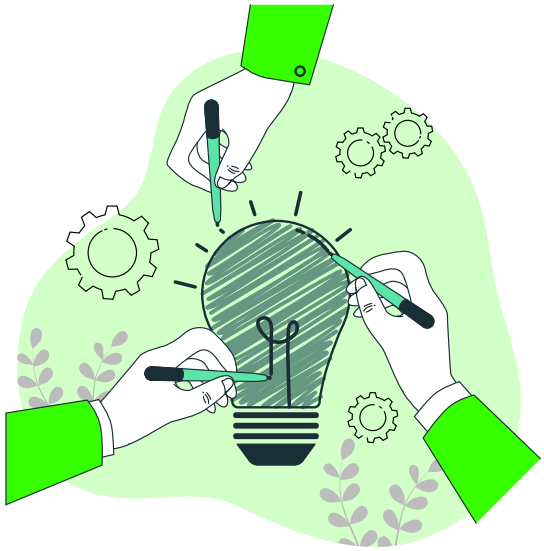
CONTENT IN LINE WITH THE CURRICULUM:

- using acquired skills to solve problems and explore the world, taking care of own development and creating individual learning strategies.

TEACHING AIDS:

- worksheets, pictures showing different forms of energy and examples

Before the lesson

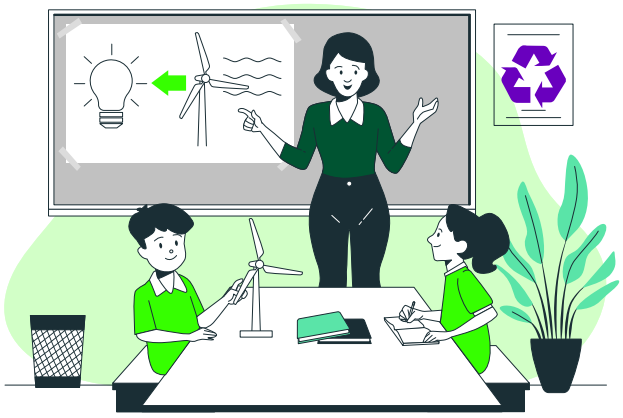


FAZA WSTĘPNA:

- print out the worksheets for the pupils
- print and cut out illustrations and photos showing different forms of energy and their examples.

GENERAL OBJECTIVES:

To explain to the children the concept of energy and its forms (heat, light, electricity, motion)



PART 1

1. Lay out photos showing various forms of energy around the room.
2. Sit with the children in a circle and **ask them if they know what energy is, what types of energy they know and how they are used.**

   Additional questions – You can ask the children if they also have energy, and if so, where it comes from (e.g. whether they have had breakfast).
3. Show the children pictures of various forms of energy and discuss the different types with them – heat (thermal energy), light (light energy), electricity (electrical energy) and movement (mechanical energy). **Ask the pupils if they can see different forms of energy in their classroom** (e.g. light energy in a light bulb, thermal energy in a radiator, electrical energy in a tape recorder).
4. **Ask the children to walk around the classroom and look for pictures showing different types of energy** and, once they have found them, to match the pictures to the illustrations depicting forms of energy (heat, light, electricity, motion).

   Discuss the results of the work with the children.
5. At the end of the lesson, offer the children a trip to a magical land full of energy

In the land of light, when the teacher says „light on" the children run around the room and jump up and down, when the teacher says „light off", the children lie down on the floor and pretend to be asleep.

In the land of movement, when the teacher says „move", the children walk, run and jump, and when the teacher says „freeze", they stand still.

In the land of electricity, children pretend to be electrical appliances named by the teacher, e.g. a mixer, vacuum cleaner, hair dryer, etc.

In the land of heat, when the teacher says „heat," the pupils pretend to bask in the sun and sunbathe, and when the teacher says „cold," they pretend to shiver from the cold.

FORMS OF ENERGY:

Heat (thermal energy) - we feel heat when the sun is shining or the radiator is working. Thermal energy keeps us warm.

Light (light energy) – thanks to light it is not dark and we can see things.

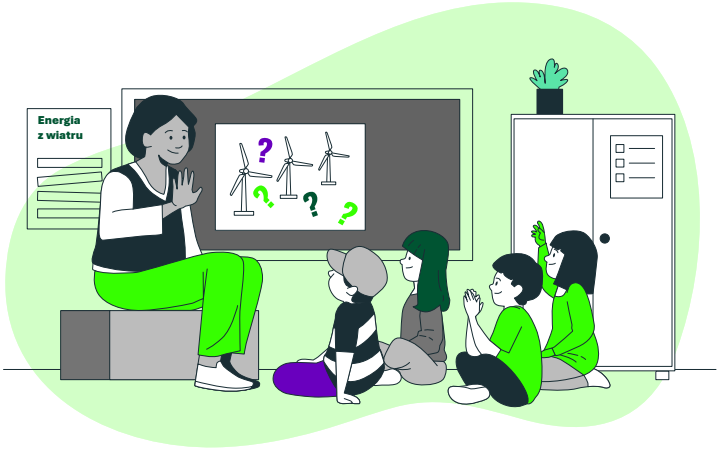
Electricity – this is the energy that flows through cables and powers various devices such as refrigerators, televisions and computers. People often refer to electricity as „power".

Motion (mechanical energy) – when something moves e.g. a car or a bicycle, the energy of motion is at work.

Sources of energy

Playing with energy

PART 2



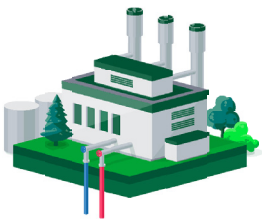
1. Sit with the children in a circle and remind them what you talked about in the previous lesson – different forms of energy. Ask the pupils if they know what gives us energy (what the sources of energy are).
2. Show the children pictures of selected energy sources (sun, water, wind, plants, coal, oil, etc.). Explain that energy sources are divided into those that are inexhaustible and environmentally friendly (renewable sources) and those that are finite and harmful to our planet (non-renewable sources)
3. Print and cut out pictures of renewable and non-renewable energy sources and distribute them in different places around the room. Print enough pictures so that there are 2-3 sources for each child. Ask the children to look for the pictures and stick them on the board according to whether they are renewable or non-renewable energy sources. Discuss the results of the work with the children.
4. Propose a physical activity: the children walk around the room, when you call „sun" the children stand still and stretch their arms up/to the sides imitating rays, when you call „wind" the children run, make whistling sounds and wave their arms, and when the children hear the word „water" they pretend to flow like a river.
5. Ask the children if they know where energy is produced (power plants). Show them printed photos of various power stations, discuss them together, and point out the main differences between renewable and non-renewable power plants.

Solar power plant

Wind power plant

Hydroelectric power plant

Geothermal power plant



Biogas plant

Gasworks

Coal-fired power plant

Artwork

Teaching aids: sheets of paper, scissors, glue, coloured paper, thick straws, pins or needles, crayons

PART 3

Before the lesson:

Prepare the materials needed for the lesson,

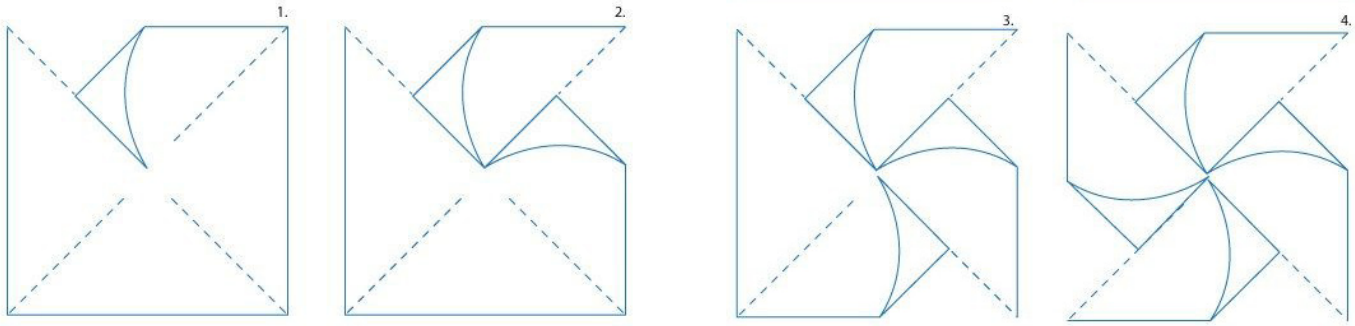
- print out the templates for making the pinwheel

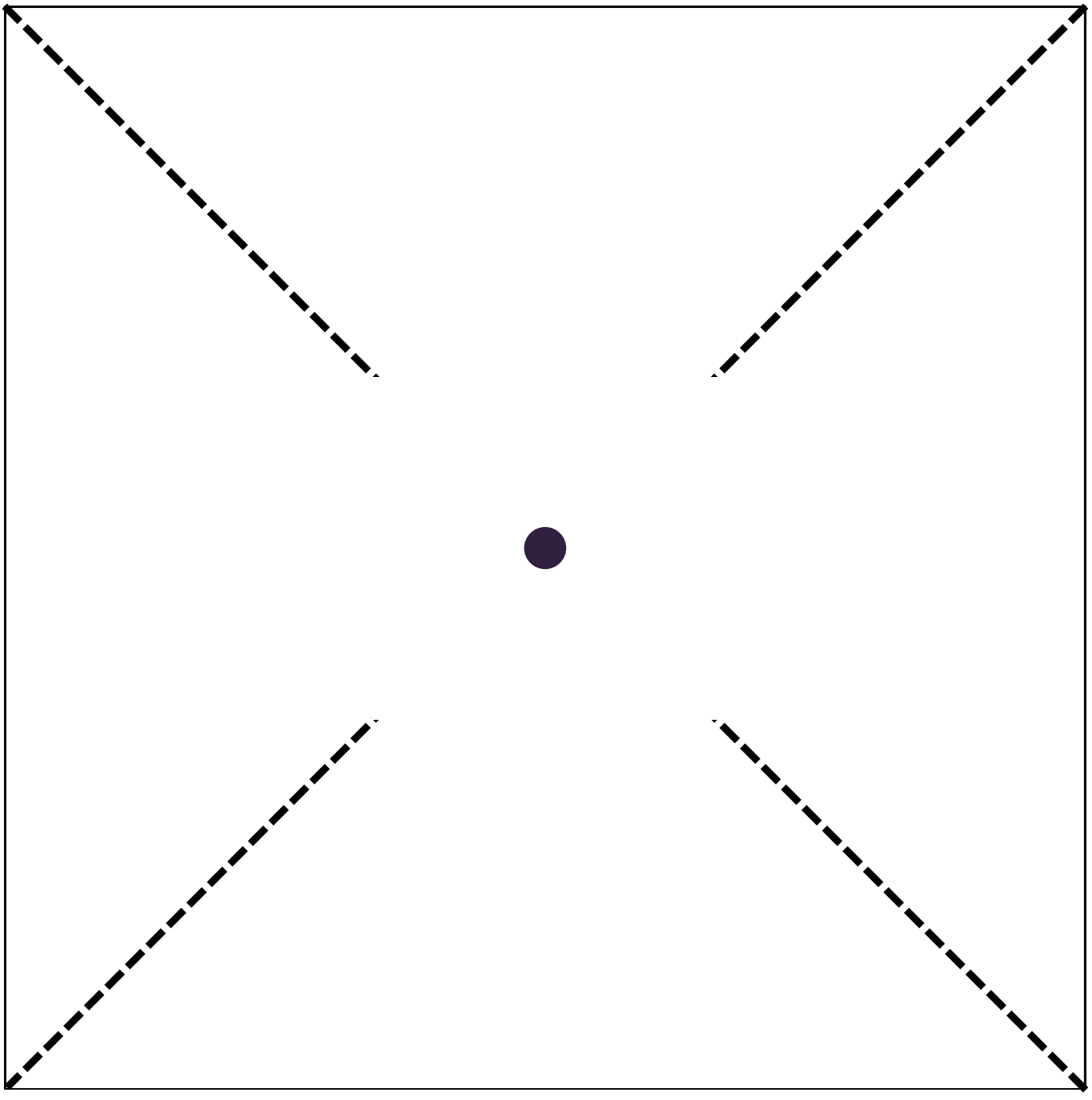
Sit with the children in a circle and tell them that today is the last day of their energy adventures and that each child will make a pinwheel as a souvenir.

Ask the children to sit at the tables and cut out the pinwheel from the template - first the square and then cut along the dotted line. Then ask the children to decorate their pinwheels – they can colour them, paint them, stick coloured paper or other decorations on them.

Once the pinwheels are decorated, show the children how to fold the paper to make a pinwheel and help them glue the corners of the pinwheel together.

Once the pinwheels are glued together, help the children attach a straw using a pin. Ask the children to set the finished pinwheels in motion by waving them, running with them, or blowing on them.


1.
2.
3.
4.



Playing with energy

SUMMARY

Sit with the children in a circle and discuss what they learned during the energy lesson. If you want to test their knowledge, read the definitions you have chosen from the glossary of terms and ask the children to name the defined term.

A simple glossary of terms:

Energy

Something that gives us power. Thanks to energy, lights shine, televisions work, and we can keep warm in winter.

Solar energy

this is energy from the sun. The sun shines and gives us heat. Thanks to the sun we can have electricity and feel warm.

Wind energy

thanks to the wind blowing and setting in motion wind turbines, electricity can be generated!

Hydro energy

this is generated when water flows and moves special wheels. In this way, electricity is produced.

Energy from plants and wood (biomass)

plants and wood can be burned to produce heat and electricity. Plants can grow back, so there is no shortage of them in nature, and in order not to harm the environment, they must be burned in special furnaces that do not produce smoke.

Energy from coal and oil

coal and oil come from deep within the earth and are gradually running out, and when we burn them, they produce smoke and dirty air.

Heat

(thermal energy) – we feel heat when the sun is shining or the radiator is on. Thermal energy keeps us warm.

Light

(light energy) – when the sun shines or a lamp is on, light energy is produced. It helps us see things when it is dark.

Electricity

his is the energy that flows through cables and powers various devices such as refrigerators, televisions and computers. People often refer to it as „power”.

Motion

(mechanical energy) – is created when something moves, e.g. a car or a bicycle.

Renewable sources

are those that do not run out. Examples: sun, wind, water, wood. They are environmentally friendly

Non-renewable sources

are those that run out. Examples: coal, oil, gas. They are harmful to the air and the planet.

A solar panel

is a flat plate on the roof that collects light from the sun and converts it into electricity.

Wind turbine

(windmill) - has large blades. When the wind blows, it spins and generates electricity.

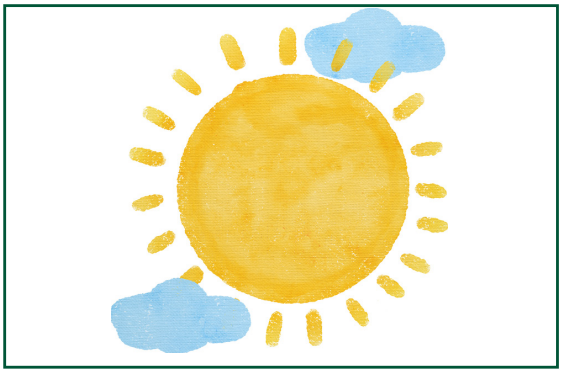
A hydroelectric power station

is a place by a river where water helps to generate electricity.

Worksheet

Playing with energy

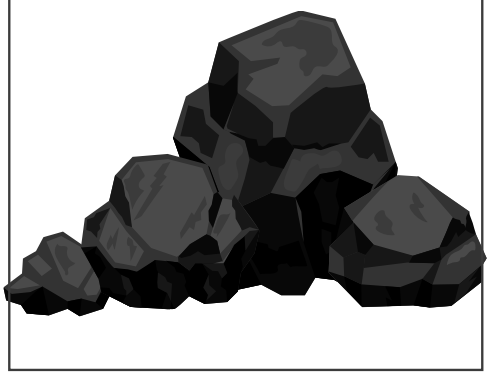
Match the energy source with the power plant.



Worksheet

Playing with energy

Colour the frame green for renewable energy and red for non-renewable energy.



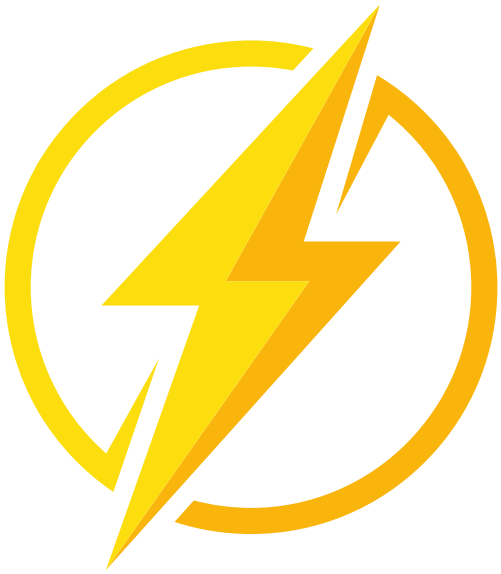
Worksheet

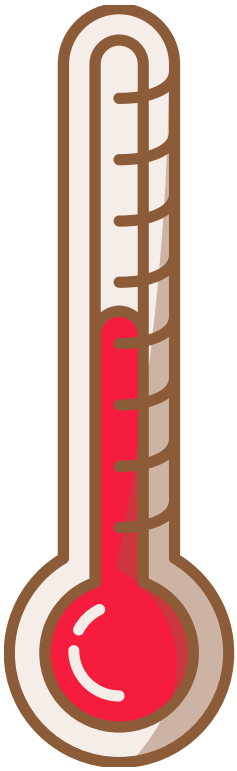
Playing with energy

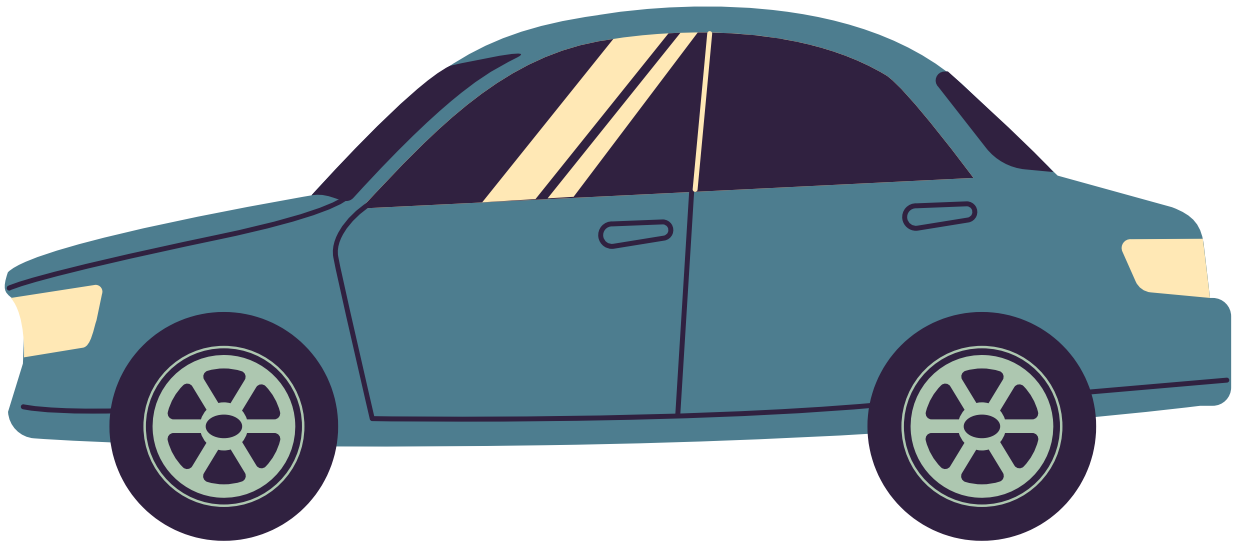
Spread out the pictures from pages 10–16 on the carpet (e.g., sun, light bulb, bicycle, radiator, computer). Prepare four large cardboard boxes/posters with inscriptions and drawings:

- Heat (e.g., sun, radiator),
- Light (e.g., light bulb, lamp),
- Electricity (e.g., computer, refrigerator),
- Movement (e.g., bicycle, car).

Ask the children to pick up one picture and try to guess which group it belongs to.







Worksheet

Zabawa z energią

Pokoloruj ramkę na zielono, przy energii odnawialnej, a na czerwono przy energii nie-odnawialnej.


Power
Time
Start / Stop