MAKING A PINWHEEL

Purpose of the Activity:
The activity aims to help students discover how wind energy is formed and how it can create motion. Through this experiment, students learn about the importance of renewable energy sources and observe how wind can be used in daily life.

Learning Area/Theme:
April 23 — Energy

CURIOUS BOX

MAKING A PINWHEEL

Let's Spark Curiosity

The following questions are asked to the students:

- What sources o we use to meet our energy needs?
- You have probably seen windmills. Based on this, can you guess how windmills work?
- Would you like to design a bag to carry the products you buy from the market or a store?

The questions; "Today, I will talk to you about a very important topic: energy and energy saving. So, you might ask "what is energy", energy is the ability to make something work. Lamps giving light, televisions working, computer screens turning on occurs thanks to the energy.

However, you should know that energy sources are limited and as the amount of energy we use increases, these energy resources decrease. In this case, the balance of nature can be disturbed. However, us, being the scientists of the future, can do something about this! Shall we discover what we can do together?" are asked. Students are asked to take out and axamine the activity materials.

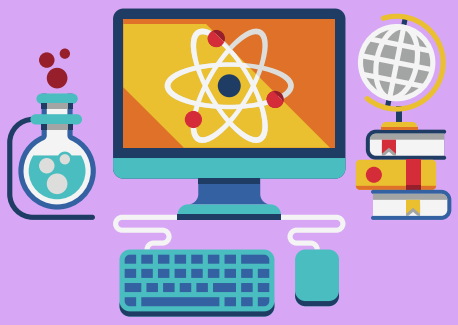
Let's start exploring!

The activity video is watched by pausing necessary. The contents of the set are checked before starting the activity. All lids and and packages are opened together with the students.

Set Content

- [ ] Windmill template
- [ ] Round stabilizer piece
- [ ] Lock
- [ ] Screw rod
- [ ] Plastic stick

Watch the video by pausing it!



How do we do it?

- The windmill template is placed on the table.
- The closed holes on the template are carefully opened.
- The screw rod is taken.
- While forming the windmill, attention is paid to make sure that the logo parts of the template face the student.
- The holes on the template are threaded onto the screw rod one by one.
- The template is gently bent to shape the windmill.
- The round stabilizer piece is threaded onto the screw rod.
- The windmill is tightly secured using the locking piece.
- The prepared windmill is placed onto the end of the plastic stick.
- The windmill is held towards a windy place..
- When the wind blows, the spinning movement of the windmill is observed.

What Are The Things That Little Scientists Should Discover?

The following questions are asked to the students:

- How is energy created and how is it used?
- What can be the features of renewable energy sources?

How is energy created and how is it used?
Energy is, actually, something that is with us every moment of our life and gives us power. Think about it: getting out of bed in the morning, eating breakfast, going to school or the park, playing games... All of this happens because of energy! We get energy from food and sleep.
Energy can be in many different types. Electrical energy helps us turn on our lamps and use our computers. Whereas solar energy comes from the sun and gives us warmth and light. Now, let's explore these types of energy:
Our Energy Sources

There are many alternatives in our world to meet our energy needs. Energy sources are generally divided into 2 main groups: renewable and non-renewable energy sources. If energy comes from natural resources or continuously renewed processes, it is called renewable. It is harmless compared to other energy sources, does not pollute nature by leaving waste, and does not increase carbon dioxide in the air too much, not speeding up the global warming. It is harmless compared to other energy sources, does not pollute nature by leaving waste, and does not increase carbon dioxide in the air too much, so it does not speed up global warming. The most used energy type in the world, which is quickly consumed and harms nature, is non-renewable energy. It is called this because it cannot be replaced or renewed. The most common non-renewable energy sources are oil, coal, and natural gas.

The sun does not heat the Earth evenly. While some places get hotter, some places get cooler. Warm air becomes light and rises up. Cooler air moves in to fill this empty space. It is this movement of air is what we call the wind. The power of wind to move something is called wind energy. Wind energy is an energy source that does not harm nature and does not run out. This is why it is called renewable energy.

Wind energy is used in daily life for producing electricity, turning weather vanes, and moving water. A windmill is a simple model that helps us understand how wind energy creates movement.

For The Inquisitive Minds, Scientific Explanation!

The following questions are asked to the students:

- Are there vehicles that work with energy that comes from nature?
- Do you think there can be machines that work with wind, sun, or water?

Energy sources that are naturally found in nature and can occur again and again are called renewable energy. Wind, sun, and water are examples of these energy sources. These types of energy do not pollute nature and do not run out. That is why they are environmental friendly.
Renewable energies do not create gases that pollute the air. These gases warm the air and disturb the balance of our Earth. When we use renewable energy, we protect nature and take an important step for a clean future.
There are many vehicles in daily life that work with renewable energy.
For example:

- Lamps that work with solar energy,
- Watermills powered by water,
- Windmills and wind turbines that work with wind.
-

Windmills turn by using the energy carried by the wind. When the wind blows, it hits the blades of the mill and creates movement. Big windmills can even use this movement to create electricity. So, windmills are tools that turn wind energy into work.
The windmill we made today is also a small model that helps us understand how wind energy can create movement.

Neler Keşfettik?

"Bugün rüzgârın görünmeyen ama hareket ettiren bir gücü olduğunu keşfettik. Rüzgâr estiğinde rüzgâr gülümüz döndü ve enerji oluştuğunu gözlemledik."

Öğrencilere şu soru yöneltilir:
Bu etkinlikte nasıl hissettin?

What Have We Discovered?

Dear Teacher,

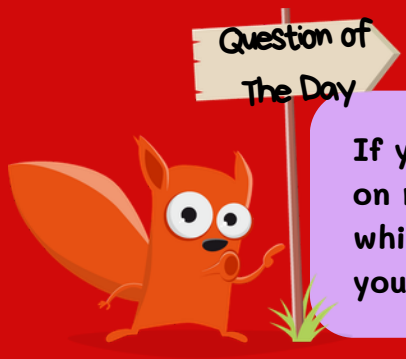
You discovered the wind energy, talked about energy saving and created your own windmill with the little scientists of the future. You can make waste bins in your classroom to help your students learn about saving energy and take part in recycling.

Recycling Bins

Materials;

- 4 used boxes
- A picture of glass
- A picture of plastic
- A picture of paper
- A picture of battery
- Glue

1. The used boxes are strengthened.
2. A waste picture is glued on each box.
3. It is highlighted that the waste put in each box should match the picture on it.
4. When the waste boxes are full, the school or the local government can be asked to take the waste for recycling



If you were to design a city that runs on renewable energy in the future, which renewable energy sources would you use?

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