

GREEN-EDU Learning Activity

Title: The Importance of Recycling

Writer(s):

Summary:

Recycling is the tool to reuse wastes that have the possibility of reuse through some processes. Recycling is important to protect the environment and leave the planet better than we found it. Did you know that on an average day in Turkey out of the trash can be controlled to 1.2 kg?

The purpose of recycling; to prevent unnecessary usage of resources and to reduce the amount of waste garbage with the separation of waste at the source. Recycling and reuse of materials such as iron, steel, copper, lead, paper, plastic, rubber, glass, electronic waste will prevent the depletion of natural resources. As we know the importance of recycling, we should also learn about reuse. Re-use is to combine unused materials and make them reusable. Reusing means less pollution and less waste. By reusing materials most of our valuable natural resources remain intact. One of the objectives of recycling is to prevent environmental pollution by reducing the amount of solid waste to be disposed of.

Summary of Lesson Plan

Main Subject	Green Engineering and Robotics
Subtitle	F.4.6.1.2. Realize the importance of resources and recycling that are necessary for life.
Age of Students	PRIMARY SCHOOL , 8 – 10 age
Preparation Time	30 Minutes
Teaching Time	40 Minutes
Online Teaching Material (Online Material Link)	** ÇEVKO Çocuk ** https://rec.org.tr/projearsivi/vesilkutu/ ** www.wwf.org.tr
Offline Teaching Material	WeDo 2.0. Seti TABLET

The Aim of Lesson:

At the end of this course, students will be able to:

- 1) understand the importance of recycling by considering the pollution in their environment.
- 2) design products related to recycling.
- 3) learn how to use sensors by coding on the WeDo 2.0 program.
- 4) create solutions with recycling products by using STEM steps against a pollution they detect around them and model this solution.

Trends

STE (A) M Learning / Cooperative learning / Problem based learning

Activities

Describe here in detail all the activities during the lesson and the time they require. Remember, that your lesson plan needs to revolve around the topic of Green education and Robotics.

Name of Activity	Process	Time
INTRODUCTION - 1	<p>Please, Don't think "The environment cannot be cleaned only by my efforts". 'Even one person's effort to clean the environment will produce visible results'. After the introduction speech, "The text "Human and Environment Interaction" is taught to students and interpretation is provided.</p> <p style="text-align: center;">HUMAN AND ENVIRONMENTAL INTERACTION</p> <p>We have been in many different environments from the day we were born to this day. These environments also form our environment. When it comes to our environment, do we think of our school, our houses, our classes, the city or shopping malls we are located? So what is the environment? Living and inanimate beings around us are always in relationship. For example, soil, water and air are non-living assets. But humans and other living things depend on soil, water and air. The pollution of air, water and soil means that all other living things, including us, are damaged. Dirty water causes us to have problems in finding water. Soil pollution causes unhealthy products. Soil pollution causes other creatures in the soil to be damaged and the soil to be inefficient. As you can see, living and inanimate beings must coexist. Living beings cannot survive without inanimate beings.</p> <p>The clean environment that is our living space means that we are healthy. It is our right to live in healthy environment. We must protect this right. For this we must protect our environment.</p>	5 MIN
KEŞFETME -1	<p>In order for students to establish a sense of empathy, the problem scenario called "If You Become a Mayor" is read and students are provided to conduct ideas and make decisions by empathizing.</p> <p style="text-align: center;">IF YOU ARE A MAYOR</p> <p>There is a mayor election. The place where you will put your candidacy has serious environmental problems. In this settlement, the factory wastes that pour into the river without being treated pollute the water of the river and harm people who drink it. In addition, toxic gases coming out of the chimneys of the houses and the pipes of the vehicles cause various diseases such as asthma, respiratory infection in those who breathe this air. City-dwellers tell you about all these problems and say that they will give you their votes in return for finding a solution to this situation.</p> <p>** After students read the problem scenario, questions are asked to the students.</p> <p style="text-align: center;">QUESTIONS</p> <ol style="list-style-type: none"> 1. Do you accept this condition of the neighborhood residents? 2. If your answer is yes, let's put the problems that the public offers you first. 3. Let's now identify the factors that led to these problems. 4. To which or which of these problems can you bring a faster and easier solution? 5. Let's investigate about the volunteer environmental organizations operating in our country which can give us an idea and be an example by using newspapers and benefiting from their activities. 6. What can you take as an example from the activities of volunteer environmental organizations to solve the problem in your neighborhood? 	10 MIN

<p>EXPLANATION -1</p>	<p>In this section, students are asked to design a recycling vehicle with the WeDo 2.0 set. Students design the recycling tool;</p> <ul style="list-style-type: none"> - Motion sensor must be used. - Distance sensor must be used. - Smart brick must be used. - The vehicle they designed should be able to move and stop and send a signal to the recycling center when a waste comes out. The vehicle should continue to move after the waste is get out of the way of it. <p>Students design a recycling tool in accordance with the given limitations. They can get help from the teacher in the process.</p>	<p>10 MIN</p>
<p>DERÎNLEȘTİRME - 1</p>	<p>Students are given time to move their products by coding. They can get help from the teacher in the process. The motor should move forward in the coding scheme that students will create. Then, when it detects a waste of about 5 units, it should stop the engine and start signaling. When the obstacle is withdrawn, it must continue its movement. This situation must be repeated continuously.</p> <div data-bbox="395 999 1265 1361" style="text-align: center;"> </div> <p>NOTE: The coding scheme that students should obtain with simple lines is as shown in the figure.</p> <p>NOTE: The subject below is deepened by sharing the information below with the students.</p> <p>Why Recycling is Important for Our Environment?</p> <p>We protect both nature and our resources through recycling.</p> <p>Due to our crowded world, we can use our natural resources such as water, forest, mines, and oil, which are consumed more every day, for a longer period of time with recycling. By recycling wastes that can be recycled, we can obtain new products without consuming our natural resources. For</p>	<p>15 MIN</p>

example; cutting of 17 trees can be prevented by recycling a ton of paper. As a result of recycling plastic packaging waste, oil can be saved. For every ton of glass recycled, 100 liters of oil is saved. By recycling metal and wooden packaging, we can protect our nature.

We can save energy

Energy saving is achieved by reducing the number of processes in production with the recycling method. For example, 20 metal boxes can be made using the energy with the recycling method, instead of a metal box produced by mining with the same energy. Similarly, the energy required to recycle and reproduce paper and cardboard waste is about half that required for normal processes. As such, significant energy savings are achieved by recycling glass and plastic waste.

We contribute to the development of our country

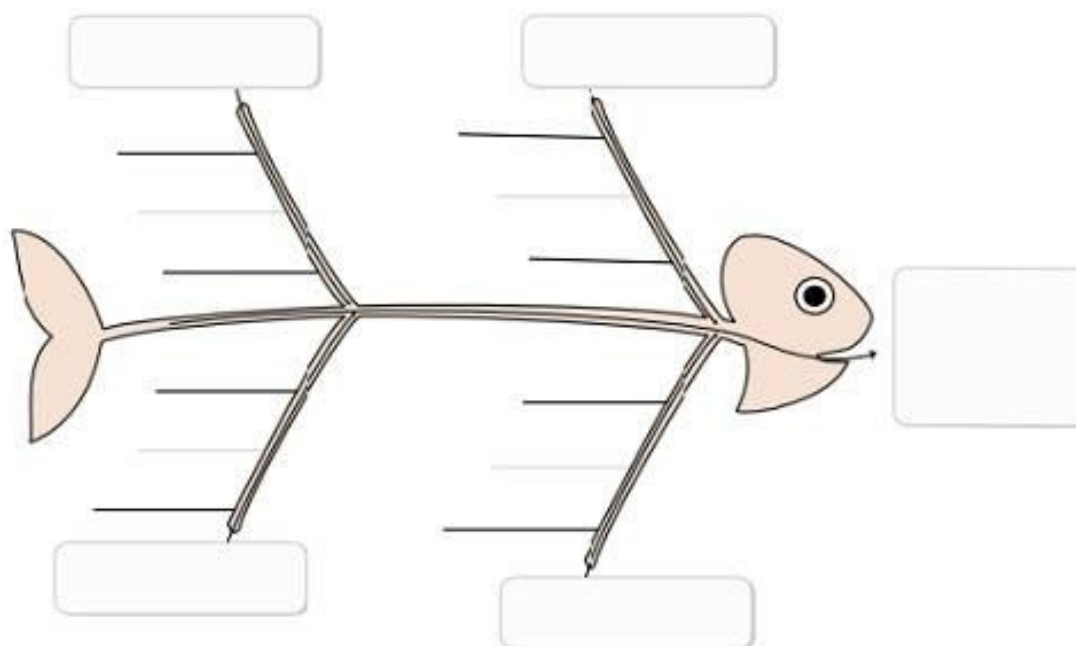
Recycling contributes to the development of our country by reducing the use of natural resources, saving energy, creating jobs and reducing the cost of raw materials. In addition, as a result of the decrease in the consumption of raw materials such as petroleum we depend on abroad, our money stays in the country. foreign currency inflow is provided to our country by selling our products that are formed as a result of recycling abroad.

Assessment

I Have The Solution (Fishbone)

Fish bones are applied in order to observe what students learn during the lesson.

What is the reason for the
pollution caused by
garbage in our school?



HOMEWORK ASSESSMENT (PROJECT)

Materials Used:

Materials: Pet bottle, napkin, coal powder, sand, glue, scissors, pebble, felt, colored pencil ,A4 paper

Knowledge Based Life Problem

That day, Enes went for a walk with his cat by the river near their home. He had fun running with his cat and playing games, but he was disturbed by the smell in the river and the smoke from the chimney of a factory. He fell asleep when they came home. He heard his cat moan when he got up. He took his cat to the veterinary immediately. The vet asked what his cat ate and drank. Enes said that he ate only the usual cat food and also drank water by the river. The situation of his cat had Enes worried and very upset. The vet could guess what the problem was.

1. Well, can you guess what the problem is?
2. What do you think is the reason that the cat got sick?

3. Can you find a solution so that other creatures do not face the same problem?

Limitations:

- 5 of the above materials should be selected. 3 other materials not included in the list should be used.
- The size of your model should be minimum 10 cm maximum 30 cm.
- Your model must have an advertisement and price.
- Your model should be applicable.

Evaluation of the Product Created:

	WELL	MIDDLE	GELIŞTİRİLMELİ
Is the number of materials complied with?			
Has the size limitation been complied with?			
Is the problem scenario understood?			
Is the product applicable?			
Is the ad and price of the product consistent?			