TİTLE: Reduce, reuse, recycle - things that you can do to help the planet

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Description of the STEAM PRACTICE (by the author)

- Subject-Fertilizer making
- Duration-8 weeks*30 minutes
- class -5 years old
- Teacher -Guler BAYRAMOVA

1. Target Gains:

1.1. Cognitive Process Gains:

Achievement related to the discipline in the center:

Achievement 1: Pays attention to the object, situation, event.

Indicators: Focuses on the object, situation, event that needs attention. Explains the object, situation, event that attracts his/her attention in detail.

Achievement 12: Makes a prediction about the object, situation, event.

Indicators: Tells his/her prediction about the object, situation, event.

Achievement 15: Observes objects or entities.

Indicators: Tells the purposes of using the object, entity.

Achievement related to other STEM discipline:

Mathematics-Cognitive Area

Achievement 2: Makes a prediction about the object, situation, event.

Indicators: Makes a prediction about the object, situation, event.

Achievement 4: Counts the objects.

Indicators: Shows the specified number of objects.

Acquisition 8: Compares the features of objects or beings.

Indicators: Distinguishes and compares the shapes of objects. Distinguishes and compares the sizes of objects.

Distinguishes and compares the quantities of objects.

Engineering Motor Area

Acquisition 4: Performs movements that require the use of small muscles.

Indicators: Stacks objects on top of each other. Brings objects together to form new shapes. Makes pictures using different materials.

Technology-Cognitive Area

Acquisition 19: Produces solutions to problem situations.

Indicators: Tells the problem. Suggests creative solutions to the problem.

1.2. Social Product Gains:

Gain 5: Uses language for communication purposes.

Indicators: Participates in conversation. Expresses feelings, thoughts and dreams.

Gain 8: Expresses what he/she listens to and watches in various ways.
Indicators: Asks questions about what he/she listens to and watches. Answers questions about what he/she listens to and watches.
Social Emotional Area
Gain 13: Protects aesthetic values.
Indicators: Tells the beautiful and disturbing situations he/she sees around him/her.
21st century Skills˙ iSocial Emotional Area
Gain 10: Fulfills his/her responsibilities.
Indicators: Shows that he/she is willing to take responsibility. Fulfills the responsibility he/she undertakes.

2. Materials Used:
 Soil
 Vegetable and fruit peels
 Shovel
 Water
 A transparent air-tight box
 Scissors/tool knife
 Thermometer
 Self-assessment observation form
 Group assessment form
 Compost observation form

3. Resources:
 Tema Zero Waste Preschool Education portal - **ÇEVKO Foundation**
 Mars surface video link https://www.youtube.com/watch?v=Z-VtXZqq98s
 Recycling information video link https://www.youtube.com/watch?v=Dn_KJ1sb0LM
 Composting video link https://www.youtube.com/watch?v=UhANutJZhqs
https://www.youtube.com/watch?v=8yATttAmRRM
4. Knowledge-Based Life Problem (BTHP):
4.1. Knowledge-Based Life Problem:
Mupy the rabbit traveled to Mars and had to stay there longer than planned. But he realized that his food was not enough. He started to think about producing his own food, but the soil type on Mars was not suitable for vegetable and fruit production. Mupy needed rich mineral soil to be able to produce food. What can you do for this? The criteria you will pay attention to when preparing the compost are written below.

4.2. Limitations:
 You should use vegetable and fruit peels collected within a week.
 A transparent, airy box.
 You should water, mix and ventilate it every day.

4.3. Profession, Duties and Responsibilities:
 Food Engineer: Provides information about the contents of the food.
 Landscape Architecture: Arranges the surroundings in an aesthetic way.

 Botanical Science Expert: Examines all living beings in the botanical park. Figures out what they are.

 Agricultural Engineer: Tells what plants need.

5. Course Content:

5.1. Information Acquisition:

 A journey to Mars video is watched. Information is obtained about the planet Mars and its soil.

Appendix 1 https://www.youtube.com/watch?v=Z-VtXZqq98s

 What is recycling? Students brainstorm. Then, an educational video about recycling is watched.

Appendix 2 https://www.youtube.com/watch?v=Dn_KJ1sb0LM

 What are its benefits? What can we do for recycling in our homes and classrooms?

The conversation is continued with the question and answer technique under the headings. The activity in the appendix titled 'Waste with Riddles' is performed.

Appendix 3-a-b-c studies are performed on the information acquisition page about recycling.

 We talked about recycling paper, plastic, glass materials to protect the planet we live in, but can we recycle food waste?

 The educational video on compost in Appendix 4 is watched. What is compost? What is it used for? Open-ended questions are discussed.

Appendix 4 https://www.youtube.com/watch?v=UhANutJZhqs

 Which food wastes can have rich content? Which food wastes can we use to enrich the soil in terms of minerals? The transformation process of food wastes thrown into the soil is emphasized.

5.2. Idea Development:

Students are asked to draw the compost designs they imagine in the light of the information they have obtained.

They are asked to form their groups and choose a group name. The selected group name is prepared and decorated as a poster. They share the compost products they individually designed with their group mates. The group decides on a common compost design.

The video below on what to consider when composting is watched.

https://www.youtube.com/watch?v=8yATttAmRRM

5.3. Product Development:

Students take their tools and equipment to their groups according to the product they want to make from the materials shown and make it themselves. The teacher provides support where necessary. Students draw the changes they observe on the three-week compost observation form starting from the week they start composting.

5.4. Testing:
The teacher asks questions about the finished compost. First, she asks them to make observations about whether they used enough materials and to share their observations. What happens during compost transformation, whether the transformed waste resembles soil and the changes that can be made are discussed. The compost observation forms made during the product development phase are examined.

5.5. Sharing and Reflecting:
First, the groups draw attention to the subject with their posters explaining composting. They provide information about what compost is and what it is used for. Then, they explain the materials they used in the product development phase and the production stages with photographs.

Evaluation
Academic Evaluation Evaluation
1- Were the nutrients easily dissolved in the soil in the compost work you designed?

2- What would you like to add to the compost area you prepared? Why?

3- What difficulties did you experience during the product development phase?

Self-Assessment Form
Name-Surname:
Class:
Date:

Evaluations I fulfilled my own responsibilities.	ALWAYS	SOMETIMES	NEVER
I worked in accordance with BTHP.			
I worked in harmony with my group mates.			
I made my poster presentation.			

What I want to say in addition.....