



PROJECT
on technology
«Ecologically friendly packaging»

Municipal educational institution "Lyceum №1" the town of Vsevolozhsk

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on technology

"Ecologically friendly packaging»

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In the 21st century, the problem of environmental pollution is truly important and relevant . Heavy production is a threat to the environment, as it causes air, water and soil pollution and has a direct impact on human, animal and plant health.



Various wastes produced by humans are one of the main causes of environmental degradation , since they are most often the result of intensive production based on chemicals. Indeed, these wastes often come from industrial plants, factories, and hospitals and are sources of toxic gases that can reduce the state of ecosystems..

But this is not the only cause of pollution . The person himself often throws out seemingly non-hazardous waste along with household items, such as plastic bags, a thing that is not subject to decomposition in the soil. We are very concerned about this issue, so we decided that the most effective way to solve this problem could be to create an environmental package that would not only decompose, but also bring benefits. We are increasingly concerned about the environment, as we understand that we must preserve the planet and its natural resources . That's why we have created eco-friendly packaging .





The aim of the study is to find one of the many solutions to the problem of environmental pollution by creating an ecological package that not only decomposes in the soil if it is thrown out, but also benefits, since it originally contains grains for birds.

To achieve this goal, you need **to solve the following tasks:**

1) Select the material for the package that would be biodegradable.

2) Create a package design so that the grains do not interfere with the transfer of products .

3) Select grains that are not whimsical to the storage conditions in the package.

4) Find a way to distribute information about the existence of such a package .

5) Consider the cost of materials needed to create this item.

The planned result: each person has a bio – package instead of polyethylene, after throwing it out, he gives food to birds.

Problems you may encounter :

1. Search for a store that sells this material.
2. Search for the grains that can be stored for a long time.

This project is **intended for** everyone who is not indifferent to the problems of the Earth.

The **novelty** of the project is that we create a unique way to do 2 things in one . Feed the birds and don't litter . After all, if you accidentally threw this thing-it will undergo decomposition and it will later crumble grains that will be eaten by birds.

Identification of the main parameters and limitations

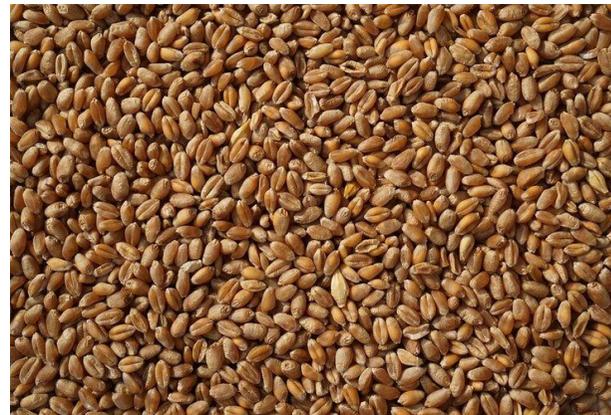
The product must meet the following requirements:

The product must be made of a biodegradable material

The product must be made carefully.

The product should not be overfilled with grains.

The product must be durable.



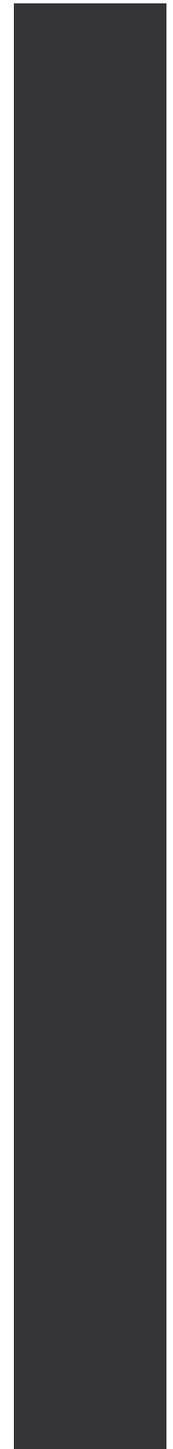
History and modernity.

The problem of environmental pollution has always worried people. However, earlier people, trying to change the environment in which they lived, did not break the ecological chains with harmful production waste. Indeed, only in our time, this problem has acquired a huge meaning! The degradation of the ozone layer and the loss of biological diversity are among the victims of pollution and environmental destruction . The modern generation should think about this.



Bank of ideas.

Options Evaluation criterion			
The presence on the market	+	+	+
Availability of biomaterials	+	+	+
Amount of space for the products	-	-	+
The number of grains that can fit in the product	-	-	+
Possibility of use in everyday life	-	+	+



Conclusion: based on the evaluation results, choice 3 is optimal. The product is multi-functional, it fits the largest number of products and grains.





Preliminary study of the basic version

The product is made of **bio-product**, it is 29 cm long and 13.5 cm wide . On the sides of the product are sewn "pockets" that serve to store and secure the grains.

Tools and materials:

1. A package of biodegradable material

2. Grains

3. Scissors



Manufacturing technology.

1. Take the package you bought in advance.
2. Make preforms of the same material that will cover the bottom. (Cut a shape similar to the size of the bottom in length and width. Leave notched edges on each side of the preform).
3. Make slits on the face of the package near the bottom on all sides.
4. Pour enough seeds on the bottom.
5. Attach the prepared preform to the bottom and insert the notched edges into the holes.



Quality control.

The finished product meets the following requirements:

- 1.The product is easily decomposed
- 2.All elements of the product are made exactly in accordance with the technology.
- 3.The work is designed as a finished product.



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Ecological justification

It all comes down to considering the possibility of reusing or recycling the product or, ultimately, the rate of decomposition in a landfill. For example, a polyethylene bag can be reused, but it will eventually be torn apart and thrown in the trash. We present to your attention a package that instead of becoming poisonous waste, will give food to birds.





Business proof.

To perform this work, it took: Package of environmental materials - 10 rubles, threads and needles – 20 rubles, scissors – 45 rubles, feed for birds (grain) -15 rubles

Project advertising



Project self-assessment

We are happy with the result of our work, as we achieved the desired result-we created a package that gives food to birds!





Terms dictionary.

Ecology is the science that studies the relationship of humans, animals, plants, and microorganisms to each other and to the environment.

Pollution is the introduction of new physical, chemical or biological agents into the environment.