

# BLOOM Stories

## Title of your Story of Adaptation

Stay home and learn bioeconomy

## Name of the author(s)

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## Category

Please indicate with an "X" which prize category you wish to enter. Note that each category is judged according to specific criteria (to be found on the competition page and in Terms and Conditions). Only one category should be selected.

1. Teaching with bioeconomy in primary schools (individual work)	
2. Teaching with bioeconomy in secondary schools' STEM classes (individual work)	
3. Integrated STEM teaching with bioeconomy – collaborative teaching (teams of two STEM teachers of different subjects)	X
4. Integrated STEAM teaching with bioeconomy – collaborative teaching (teams of up to three teachers of different subjects, including at least one STEM teacher and at least one non-STEM teacher)	

## The BLOOM resource used

Please indicate with an "X" which BLOOM School Box resource you adapted.

Bloom your school with your biofuel and soap lab	
Examining the thermal properties of bio-based building materials	
Building a new environmental Future	
Growing plastic and new life for plastic	
How poop will change the world	
<a href="#">Don't waste your waste! - Raising Bioeconomy awareness</a>	X
Yeast, biofuels and novel biotechnology techniques'	



Please indicate with an "X" which BLOOM School Box resource you adapted.	X
Let's talk about bioenergy and our lives!	
The benefits of composting – How we can produce organic fertilizer in our school garden	
Biofuel production from fruit waste	
Back to the Future	

## Abstract

**Please briefly summarise your adaptation (maximum 200 words).** Note that this summary will be used to disseminate your work, so it should be concise and appropriately reflecting the content. Make sure to add up to 5 keywords that you think best describe your adaptation.

The resource "Don't waste your waste!" was adapted to be implemented with online tools, incorporating blended learning, face to face online meetings and distance learning.

We used Microsoft teams and OneNote class notebook to communicate and collaborate with the student and padlets for discussion.

We started with conference call where we introduced the students with the activities plan and what was expected from them. Then we trained them to use Teams, One Note and padlet.

We explained that every week on the Notebook students would receive the plan for that week, and every lesson would be delivered to them online. The lesson started with conference call and ended with conference call for discussion and reflection.

The aim was for students to learn about bioeconomy and how organic waste can be used to create new products. Every student should make their cleaning product from organic waste at home. Then should also fill in their online journal on OneNote: they took photos and reflect on the padlet.

Then the students were introduced to different career opportunities in bioeconomy.

At the end, students created online presentation about how they produced their cleaning product. To raise public awareness about the bioeconomy students and teachers organized online campaign through social media about bioeconomy, that ended with an online seminar carried by the students for other students, teachers, and local community.

**Keywords: bioeconomy, blended learning, online campaign, online seminar**

## The adaptation context

**Please briefly describe the context of your adaptation,** specifying: what subject(s) you chose to adapt the resource in, what are the students' ages, the size of the group, previous familiarity with bioeconomy activities etc. (maximum 200 words).

Please note that the competition looks to collect stories of adaptation, so the context must appropriately reflect this.

The resource was adapted for Chemistry and Computer Science.

Students were between 12-14 years old. The size of the group – 20 students. Because we are using online tools for distance learning the teacher can work with more groups, but we suggest

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that a group should not exceed 20 students. Students do not need to have previous knowledge of bioeconomy.

## Your story

**What would you do?** Please describe how you would use the BLOOM School Box in your online classroom/teaching. For example, what would be the structure of the session(s); how would you adapt the resource?

*If you are entering the competition in categories 3 or 4 (collaborative teaching), describe how you would work together with your colleagues to carry out the online lesson. (maximum 400 words).*

As a tool for creating our online classroom we used Microsoft Teams. Which provides safety of the students, the tool is very versatile and allow implementing different teaching methods. We created [OneNote Class Notebook](#) where every lesson was delivered. The class notebook has one collaboration section where all students can discuss, a 'content Library' where all the materials and lessons are published (students cannot edit this part), and section for every student where they can work on their own pace. For every lesson we created a different section to insert worksheets into the notebook so that students can fill them online.

Every Lesson started with a conference call and ends up with a conference call for discussion and feedback. The teachers only should also have online meetings to plan the lessons. Both have access to the Class Notebook.

We started with conference call using Teams video meetings where students were introduced about the activity and we discussed about bioeconomy. We also explained to the students the lessons and worksheets.

### Lesson 1:

- We started with Step1: We talked to the students about the current situation with Covid-19 and what we can do to strengthen our immune system. We got to the discussion that healthy food, fruits, and vegetables, are important. It was highlighted by the teacher that we should eat fruits like oranges. Then teacher asks: what can we do with the leftover peels of the oranges? We leave the students to think and research. The findings are shared on a padlet- see [Annex 1](#).
- Step 2 and step 3 are delivered on the Class notebook. Students watch the videos and fill the worksheets in the notebook.
- Step 4: Kahoot quiz given to the students as challenge they can do at home.

**Lesson 2:** During a conference call student were introduced to the procedure of making a cleaning product and how to design and conduct a scientific experiment, following the scientific method, how to keep the diary in the Class Notebook. Every student makes a bioproduct (See [Annex 2](#)) in their home.

Lesson 3: Step 1 and Step 2 should be done together during a conference call. Students would watch the BioBased Economy [video](#) and discuss about it. The teacher would ask the question from the Worksheet 4 and students will answer them. Then the teacher would present them the [Career Map online tool](#) in which they will get the opportunity to find out about specific jobs

in the bioeconomy sector. They will also see that no matter which career cluster they choose, and whatever their interests, there is always a way to work with bioeconomy. Students should come up with two possible careers.

**Lesson 4:** Step 1 would be done by online conference call. The students would create bio cleaners in different solutions. The teacher will show them how to do it and they should make their solutions.

Step 2: they will test the effectiveness of the bio – cleaner.

Step 3: By using online tools for collaboration – sway students would create a presentation about bio - economy and about their scientific experiment.

**Lesson 5:** Through the social media a campaign will be organized for raising awareness about bioeconomy. Online seminar for students, teachers and local authorities using Teams will be carried by the students – they will present the project, their experiment and present their bio-cleaner.

## Learning outcomes

**What would you like to achieve?** Please describe the main learning outcomes you would like to achieve with the adaptation of the selected School Box resource. Tell us about anything that supports your case for achieving these learning outcomes. For example, student comments from previous activities, or any other evidence that illustrates that using and adapting one of the School Box resources would be beneficial and impactful for your students.

Note that you MUST have permission to include any photographs or screenshots especially parental permission in the case of young people. Any pictures you include should be added directly in the entry form.

- Students learn what bioeconomy means.
- Students get an insight in different bioeconomy careers opportunity
- Students investigate about the huge opportunities that bioeconomy has for products making
- They perform a scientific experiment at home
- Increasing students' self-confidence in applying experimenting at home
- Increasing confidence in public speaking and raising awareness about bioeconomy and its importance in the future of the Earth

## Teaching outcomes

**What would you, as a teacher (or a group of teachers) get out of teaching online with the BLOOM School Box?** What would you say to other people thinking about using bioeconomy in their teaching?

*If you are entering the competition in categories 3 or 4 (collaborative teaching), please also describe your experience in collaborating with teachers of other subjects in your classroom. What is different from traditional teaching? (maximum 200 words).*

This specific SchoolBox resource we chose was very adaptive to online teaching. All the materials, videos, worksheets were easy translated and adapted for using and filling online. The experiment was safe for making at home so we encourage teachers to use this SchoolBox resource even in case they must do it online.

Collaboration among teachers is also online and that is the challenge here. Teachers must work more when adapting something online then when working traditionally in school. When teachers from different subjects collaborate, they must think first: what part of the curriculum in their subjects they will adapt the resource, what are previous students' knowledge in both subjects. They must coordinate here when they are planning activities.

## About the BLOOM project

[BLOOM](#) is an EU Coordination and Support Action implemented from 2017 to 2020. The project aims at bringing together partners from across Europe to debate, communicate, and engage the public in the potential of bioeconomy. An economy based on biomass promises to foster a circular economy and to enhance climate change mitigation, while reducing dependence on fossil fuels. Bioeconomy covers a broad range of sectors, from agriculture and the agrifood industry, to fisheries, forestry, biorefineries, chemistry and (bio) energy – but despite its many applications, it has yet to enter into the public consciousness as an exciting solution to societal challenges.

## Annex 1

padlet

padlet.com/zim\_negotino/5w3w462f3shq

## Дискусија

За што може да се искористат лушпите од портокали и лимони

ZIMCE FEB 13, 2015 11:12AM

## Елена Јосифоска

Лушпите од портокал и лимон може да бидат од помош во секојдневието:

1. Излупете еден лимон, ставете ја кората во сад, додадете 150 мл оцет и оставете да отстои преку ноќ. Утредента, додадете 150 мл вода и тоа е сè! Ставете ја течноста во празно спреј-шише и користете ја како повеќенаменско средство за чистење на домот.
2. Лимоните исто така можат да ви помогнат при побрз раст на нитукулците на растенијата. Исцедете го сокот и ставете ги семињата во половината лимон. Потоа засадете ја садницата во земја заедно со лимон-саксијата.

## Стефанија Насова

Лушпите од портокали и лимони се многу корисни и можат да бидат од помош во секојдневието. Еве неколку примери за нивна употреба:

1. Со лушпите од лимон може да се исчисти даската за сечење во кујна, но и други површини.
2. Лушпите од лимон исто така помагаат за белеење на забите.
3. Лушпите од портокал се многу корисни кога станува збор за мравки. Нивниот мирис ги брка мравките од било која површина.

## Горана Петрова

Лушпите од портокали и лимони можат да се користат за многу интересни работи.

1. Лушпите од портокал можат да се искористат против саккви инсекти.
2. Кога е ладно, кората од портокал може да предизвика оган

во пеќката.

3. Лушпите и мандарините може да се искористат како сретства за ѓистење во домот.
4. Лушпата од мандарина може да ви послужи да направите свеќа.

## Тодор Тодоровски

Секој органски материјал може да се искористи на повеќе начини како и лушпите од портокал и лимон. Еве некои начини:

- а) Тие можат да се искористат како органско ѓубриво и бидејќи овошјето брзо се распаѓа тие би биле одлични за садење на нови растенија.
- б) Со кората од лимонот можете да го збогатите и маслиновото масло.
- в) Исто така тие можат да се искористат како сретства за чистење во домот.

## Ангела Лазова

Лушпите од портокали и лимони можат да се искористат за повеќе работи:

1. Кафениот шеќер по некое време може да се стврдне па доколку ставиме лушпа од лимон тој нема да се стврдне.
2. Лушпите од портокал можат да се искористат и како не-отровен спреј за чистење.
3. Тие исто може да се искористат и како средство за мравки и комарци бидејќи не им се допаѓа мирисот и ги одалечува.

Браво Ангела, ти го скриши мразот прва. — ZIMCE



## Annex 2

See the bioproducts created by students in the following pages



# Органско средство за чистење

ZIMCE MAY 04, 2015 11:20AM

Димитар Стојановски-Резултати



**Димитар Стојановски**

2 недела-Има многу кисел мирис и е жолта боја.



## Седмица 2

Има киселкаст мирис, а оцетот флуоресцентна жолта боја



### Стефанија Насова - Резултати



### Стефанија Насова - после 2 недели

Има мирис на портокал и бојата на оцетот е темно жолта (портокалова)

### Ангела Лазова- Резултати



### Ангела Лазова

После две недели





**Ангела Лазова - Ден 1**

Има кисел мирис, а бојата на оцетот е жолта



**Стефанија Насова - после 1 недела**

Posle 10 dena ima kisel miris  
Marija Stanojkovic





## Димитар Стојановски

1 недела-има кисел мирис и просирно портокалова боја.



Горана Петрова- после една недела

Има киселкаст мирис

## Тодор Тодоровски - ден 1



## Вера Најдовска Седмица 1



Марија Станојковиќ ден 1





**Стефанија Насова - Ден 1**



Ивана Тимова- ден 1

**Елена Јосифоска**

Ден 1



**Вера Најдовска - Ден 1**





Димитар Стојановски-Ден 1



Горана Петрова- ден 1



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