Erasmus+ KA3 – Support for policy reform

SPEM – Schools Plastic FreE Movement

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D 6.4 Lesson plans and other Open Educational Resources

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0.0	01/03/2023	Reda Makneviciene (PRSC)	First draft of the lesson plan template
0.1	31/05/2023	All partners	First collection of lesson plans
0.2	16/10/2023	Reda Makneviciene (PRSC)	Systematization of the contents
0.3	31/10/2023	Elena Milli (Europole)	Review and finalization
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Index

Executive summary....5
Introduction....6
Lesson plans about Plastics....10
Causes and consequences of plastic “soup”....10
Plastic-No (Saint Plastic Day)....14
Water and microplastics....20
What's in the belly of the fish?....23
The amount of plastic....26
Lesson plans about Recycling....28
"Trash will not be waste if we know how to deal with it" - Measures to protect natural wealth....28
Quantifying plastics and plastics recycling in Europe with real data....31
Reuse and recycling....33
Plastic free life....37
Lesson plans with Educational robotics and programming....39
5 R`s policy....39
Earth guardians....43
SDGs game (Sustainable Development Goals)....48
Let`s protect the Oceans....51
Eco-bot....55
Life in water....59
Lesson plans for the whole school year or a long term project....61
How does plastic become 'evil'?....61
A healthy school breakfast....69
Plastic free school....71
Too much is not always good....74
Life around us....77
Lesson plans about sustainability....78
Become a consumeless traveler....78
Conserving water doesn't do much to alleviate the climate crisis, but it can help us deal with the impact by diverting less water, saving water solutions....80

Designing fabric pen holders without using plastics....84
Unusual inventions that come from recyclables / Inventing beyond recycling....86
Study of the stream....89
Replacing plastic bags....90
Environmental issues. Recycle. Reduce. Reuse....92
More sustainable school material....94
Lesson plans based on Art and Language....98
Ecomusic Day....98
The plastic around us....100
The voice of the plants....110
The importance of soil....113
Nature and Universe....115
Digital books....117
Out into nature....118
Lesson plans for activities for high cognitive potential students....120
Detectives for sustainability (escape room)....120
Mr. Plastic's Store....123
Animated sustainability....126
Leave your footprint....128

Executive summary

Schools Plastic freE Movement – SPEM is a co-financed project within the Erasmus + program (KA3 - Social inclusion and common values) with the grant agreement number 621506-EPP-1-2020-1-IT-EPPKA3-IPI-SOC-IN. SPEM project aims at answer to the priorities of the European Commission to develop and implementing innovative methods and practices to foster inclusive education and promote common values, in particular enhancing the acquisition of social and civic competences, fostering knowledge, understanding and ownership of values and fundamental rights.

To address these priorities, the project has developed and implemented, through the creation of a movement of educational organizations, a new inclusive pedagogical model addressed to children aged 5 to 13 in particular to those at risk of marginalization and underachievement (migrant, disable, high potential and gifted pupils). The project will has developed this educational strategy to prevent early school leaving and to improve the motivation to approach the studies of STEM subjects and the scientific careers as a paradigm and tool for a social change to a sustainable future.

This document collects the experiences and the lesson plans created by teachers trained in the use of the SPEM teaching methodology and is addressed to all the educators interested in applying an engaging strategy to include students at risk, to promote environmental awareness and to improve STEM competences in a participative way.

Introduction

This collection of comprehensive lesson plans designed to educate students on the importance of reducing plastic waste and promoting a plastic-free environment within the school setting aims to empower students with the knowledge and skills needed to make a positive contribution to this global cause.

Through the implementation of these lesson plans, students are expected to develop – in an inclusive environment - a deeper understanding of the STEM contribution to the sustainability, cultivate eco-friendly habits, and become advocates for sustainable living both within and beyond the school. By equipping students with the necessary knowledge and skills, the lesson plans aim to foster a culture of environmental consciousness and responsibility among the younger generation.

In conclusion, this collection of lesson plans serves as a valuable resource for educators seeking to integrate environmental education and sustainability principles into their curriculum. By engaging students in meaningful discussions and hands-on activities, these lesson plans have the potential to drive positive change and contribute to a greener, more sustainable future.

The collection of good practices is summarized in the table below, divided by main topics addressed or their contents: Plastic, Recycling, Educational robotics & programming, Whole school year/long term projects, Sustainability, Art & Language, Activities for high cognitive potential students. The good practices , here described by name, age group, school subject and duration, are thoroughly described in the following chapters and can be find translated at https://schoolplasticfreemovement.org/lesson-plans .

Topic	Title of the activity	Age group	School subject	Duration
Plastic	Causes and consequences of plastic soup	7 - 9	Language/Science/Art/ ICT and Music	2 hours
	Plastic - no (Saint Plastic day)	10 - 14	Arts/ Physics and Chemistry/ Biology/ Technology/ English/ Music/ Mathematics	5 lessons
	Water and microplastics	6 - 18	Natural Sciences/ Technology/ Civic Education/ Human Sciences/ Economic Sciences	90 minutes (no less)
	What's in the belly of the fish?	9 - 11	Science/Art/ Technology	4 hours at school + teamwork at home
	The Amount of Plastic	14 - 17	Science/ Information Technologies/ English/ Art	Two months
Recycling	Trash will not be waste if we know how to deal with	9 - 10	Natural Sciences/ Language/Art Education	Integrated Day, 3 classes of 40

	it - Measures to protect natural wealth			minutes
	Quantifying plastics and plastics recycling in Europe with real data	9 - 10	Natural Sciences/ Mathematics/ Computer Science	1 hour and 45 minutes
	Reuse and recycling	11 - 13	Science/ Art/ Technology	6 hours
	Plastic free life	10	Science	3 hours
Educational robotics and programming	5 R`s Policy	8 - 13	Natural Sciences/ Physical Chemistry/ Educational Robotics / ICT	45 minutes/1 hour
	Earth guardians	5	Civics/Citizenship	30/ 45 minutes
	SDGS Game (Sustainable Development Goals)	10 - 13	Civics/Citizenship	40 minutes
	Let's protect the Oceans	6 - 10	Civics/Citizenship	45 minutes
	Eco-Bot	8 - 12	Science/ Technology/ Robotics/ Math and Statistics	5 lessons, about 45/ 60 minutes each lesson
	Life in water	11 - 12	Technology and Design/ Engineering / Science/ Coding	40+40 minutes
Whole school year / long term projects	How does plastic become 'evil'?	7 - 10	Knowledge of the World / Art and Technology/ Language/ ICT/Mathematics/ Physical Education	9 months
	A healthy school breakfast	6 - 7	Life Skills/ Biology	30 min every morning
	Plastic free school	3 - 12	Natural Sciences/ Plastic Arts/ Language/ Educational Attention and Physical Education	Throughout the school year
	Too much is not always good	7 - 9	Life Knowledge	40-minutes session
	Life around us	7	Life Knowledge	80 minutes, (2

				lectures), 1 week of implementation
Sustainability	Conserving water doesn't do much to alleviate the climate crisis, but it can help us deal with the impact by diverting less water, saving Water Solutions	7 - 9	Science/ Math/ ICT/Language/ Art	3 hours
	Become a consumeless traveler	6 - 15	Civics/Citizenship	30 minutes
	Designing fabric pen holders without using plastics	9 - 10	Life Knowledge	5 working days
	Unusual inventions that come from recyclables / Inventing beyond recycling	9 - 10	Science/ Engineering/ Technology//CTE/ Social Studies/ English	80 minutes
	Study of the stream	12 - 13	Geography/ Biology/ Mathematics	45 minutes field practical work (lesson 1) 45 min reflection
	Replacing plastic bags	10 - 11	Natural Science/ ICT/ Mathematics /Technologies	4-5 lessons or 1 project day
	Environmental Issues. Recycle. Reduce. Reuse	8 - 9	Science / Art	90 minutes.
	More sustainable school material	12 - 13	Plastic and Visual Education subjects/ Tutorial hours	About 4 hours
Art & Language	Ecomusic day	3 - 12	Language/Music/ Plastic Arts/Physical Education	4 hours
	The plastic around us	10 - 14	Arts/Physics and Chemistry/Biology/ Technology/ English	10 lessons
	The Voice of the plants	6 - 13	Natural Sciences/ Technology/ Civic Education/ Human Sciences/ Philosophy/	90 minutes (no less)

			Language/ Art	
	The importance of soil	7 - 9	Native language	6 lesson hours
	Nature and Universe	9 - 10	Language / Science	3 hours
	Digital Books	11 - 12	Language	4 lesson hours
	Out into nature	14	Foreign language (German)	40 minutes
Activities for high cognitive potential students	Detectives for sustainability (Escape Room)	[12 - 13]	Social Sciences (History)/Literature/ Geography	1 hour 45 minutes
	Mr. Plastic's store	[9 – 10]	Physics/Chemistry/ Social Sciences/ Languages	2-2.5 hours
	Animated sustainability	[10 – 12]	Plastic and Visual Education/Social Sciences/Natural Sciences	1 hour and 45 minutes
	Leave your footprint	[9 - 10]	Technology and Arts and Crafts	2-2.5 hours

Lesson plans about Plastics

Causes and consequences of plastic "soup"	
Subjects	Language, Science, Art, ICT and Music
General objectives	Plastic pollution, water contamination, climate change, CO_2 emissions, and deforestation are all interconnected issues impacting our planet. In our daily lives, we constantly encounter news about these environmental problems, underscoring the urgent need for awareness. This Learning Scenario aims to empower students by fostering discussions, investigations, and active participation, reinforcing the belief that their actions can make a significant difference. By engaging in these activities, students develop a deeper understanding of how these issues are interrelated and how their individual and collective efforts can contribute to meaningful change. Water pollution, to know what the terms overfishing and dead zones mean, to find solutions to reduce plastic waste in the waters and plastic soup. Students come into daily life with news about climate change and environmental problems. This lesson scenario helps each student individually develop and advance Eco skills and awareness to reduce plastic waste. It also allows students to take responsibility for an aspect of school and community life. They will use and develop important interpersonal and workplace skills as they work together to plan their activities and products and encourage other students to take positive action. Some students will be able to develop their leadership skills, and all students will enjoy the chance to boost their confidence. Students with special needs will be more active in making plastic soup in an aquarium as proof of water pollution from plastic waste.
Specific and Interdisciplinary Objectives	• Involve students in multidisciplinary activities • Represent information in different ways: representing data with mathematics, creatively representing information found with art, language, etc. • Enrich students' vocabulary with words relevant to water saving and climate change • Develop critical thinking and problem solving • Work together and communicate appropriately • Develop ecological skills and awareness
Target group	7-9 years old students

Duration/ Time Necessary for the Activity	• Integrated multiple classes during the week not in the same day. • Introductory lesson – 40 minutes (to prepare the materials and read the lesson) • Language – 15 minutes (to read the lesson) • Science – 1h (to arrange the visit and read the lesson) • ICT – 20 minutes (to prepare the materials and read the lesson) • Arts– 20 minutes (to prepare the materials and read the lesson) • Music – 15 minutes (to prepare the materials and read the lesson)
Learning Environment/Place	Outdoors and indoors/ During the lesson, there will be an outdoor experience of making a model of plastic "soup", in the classroom and they will investigate. The school's awareness event introduces parents to the STEM subject and learning strategies.
Expected learning outcomes	This lesson is intended to address the different learning needs and interests of students. Through a way of teaching that meets the individual needs of each student. Students are able to recognize the specifics of mastering knowledge and they will learn how to cope with the challenge of personalized learning in the classroom and how to encourage the acquisition of new knowledge in different knowledge styles (teamwork, use of presentations, interactive lectures, use of presentations, exercises, use of computer equipment.)
Teaching Strategies	Students are encouraged to support each other and work together, having space and time for it. Collaboration and communication are valued and encouraged through community partners as peers in the learning process, teamwork opportunities for authentic presentations. Effective communication is vital to a teacher's success. An outdoor experience will take place during the lesson. A school awareness event introduces parents to the subject and learning strategies.
Tools / Materials / Resources	• Papers, pencils, Notebook, Cardboard, Whiteboard/smartboard, Projector, Mobile phone/tablet/computer, Camera, Internet to watch the film: https://www.youtube.com/watch?v=IA9O9YUbQew • Canva for e-posters • Liveworksheet for assessment • Mentimeter for student feedback
	Introductory lesson – 40 minutes Ask the students what we call plastic waste that is in the ocean. Plastic soup is everywhere in the ocean. https://www.youtube.com/watch?v=l_bntX5rAZ8 We are not talking about a kind of floating plastic island. Rather, it is all about the very small particles of plastic (microplastics).

- Are the pupils aware that humans also ingest these microplastics?
- Small marine animals ingest microplastics (they mistake them for food).
- Larger animals in turn eat the small animals and these animals are in turn eaten by fish. And what about us? We eat fish and therefore also get plastic into our bodies. Many people rely on fishing as their means of income. People who frequently eat fish from non-sustainable resources are also contributing to the overfishing effects we see today.

Science – 1h / ICT – 20 min.

https://www.plasticsoupfoundation.org/en/plastic-problem/plastic-soup/

- Research on polluted waters and what plastic soup means
- Overfishing is catching too many fish at once, so the breeding population becomes too depleted to recover.
- Another problem is that human activities increase CO2 emissions.

Dead zones occur when the water gets too many nutrients such as nitrogen. Because of this the oxygen levels in some areas in the ocean drops. In the dead zones, the oxygen level is so low that many animals suffocate and die. Plants in the sea also die.

Arts– 20 minutes

In a 20-minute activity, students, especially those with special needs, create a “plastic soup” by adding various plastic items to water-filled aquariums, simulating the pollution of aquatic environments by plastic waste. This hands-on exercise vividly demonstrates the impact of plastic pollution, fostering discussion on its effects on marine life and inspiring students to think about ways to reduce plastic waste.

	 Language – 15 minutes Students create messages for a clean environment and make a poster **Music – 15 minutes** they listen to music about free plastic https://www.youtube.com/watch?v=zNtaarHS5UA
Feedback & assessment	Students assess their peers by giving feedback from the activity to each other from the feed-forward perspective, with a focus on the promise of the future rather than the mistakes of the past. How could the experiments be improved? They discuss this during the presentations in the classroom. We can use Mentimeter for that.
Evaluation (for purposes of grading)	To evaluate the students, we will be carrying out both summative and formative evaluation methods. That allows a broad approach to the learning process useful for the continuous improvement of the teaching – learning process, as well as personalizing the learning of each student, guiding them, and making them aware of their learning process. Online research assignment, creations of visual elements that will make up the poster, oral presentation of the research and posters, answers and visualizations of worksheets and online tools Canva, Liveworksheet, Mentimeter

Plastic-No (Saint Plastic Day)	
Subjects	Departments of English, Art, Music, Physics and Chemistry, Biology, Technology, Mathematics (Bilingual section).
General objectives	Minimize the amount of plastic in school material (pencil cases and backpacks).
Specific and Interdisciplinary Objectives	Be able to make the analysis of the situation: • Impact of plastics on the environment (geography and history). • Plastics in food (biology, physics and chemistry) • Plastics in the immediate environment (technology) • Amount of plastic generated in the school environment. Make these quantities visible in the educational environment (technology, language, mathematics, English). • Plastics that are dispensable and can be replaced by eco-tools (art, technology). Celebrate St. Patrick's Day with an eco-friendly activity.
Target group	11 to 14 years old students [or older] It was initially planned for gifted pupils, although it has gradually been opened up to pupils with ecological concerns. The final activity is open to all pupils.
Duration/ Time Necessary for the Activity	4 sessions in different subjects: - Two sessions for case analysis in English. - Two sessions in music as a rehearsal. - One session for the final performance.
Duration/ Time Necessary for the Activity	Indoor and outdoor • Counting pens and markers (or other plastic made things) in pupils' pencil cases (indoor). • Rehearsal of the Molly Malone tune (indoor, at music class). • Collection of solidarity caps to stick on a mural (outdoor, in the school • playground for the final activity.
Expected learning outcomes	Through this activity, students become aware of the importance of working as a team to reach a common goal and promoting learning in a playful way without contaminating the planet. They are also expected to get awareness of and take responsibility for change regarding: • The exaggerated amount of plastic material brought to school that is not necessary for daily use. • Care and respect for the environment at celebrations and parties. • Solidarity, recycling as a contribution to solidarity

Teaching Strategies	Multidisciplinary work implying different subjects: • Analysis of the classroom situation by counting materials among the students. Creation of graphs. Mathematical counting. • In English and music: Adaptation of lyrics and music for an ecological purpose (transformation of Molly Malone's lyrics). • In plastic arts and technology: Collaboration in the creation of a mural of bottle tops, which will be collected for charitable purposes. Design of the mural, placement of caps according to colors and sizes...
Tools / Materials / Resources	Cardboard, scissors, silicone and glue guns, computers, internet connection. Videos with Molly Malone's music and lyrics.
Detailed step-by-step description of the activity / sequences of the units	**Preparation phase:** Planning and coordination: The organizing team meets to plan the activity "San Plastic Week". The objective of raising awareness about the use of plastic among 1st grade of Secondary School students is determined and the different activities to be carried out are established. Collection of materials: The necessary materials are prepared for the counting of plastic material in the students' pencil cases, as well as for the collection of bottle caps. Preparation of eco-friendly lyrics: The music department works on adapting the lyrics of the song "Molly Malone" to reflect issues related to the environment and the reduction of plastic use. **Implementation phase:** Counting plastic material in pencil cases: During a lesson, students from 1st ESO bring their pencil cases into the classroom. A count is made of the plastic material present in each pencil case, including pens, pencils, erasers, etc. This activity takes approximately 30 minutes. Presentation of the challenge: After the count, students are challenged to carry their pencil case with as little plastic as possible for a whole day. The importance of reducing the use of plastic is explained to them and they are encouraged to look for more sustainable alternatives. Collection of bottle tops: A container for the collection of bottle tops is placed in a visible place in the school. Throughout the week, students and staff can deposit their bottle tops in the bin. This activity takes place throughout the week. Rehearsals of the environmental song: For two days, music students rehearse the environmental lyrics of the song "Molly Malone". The musical arrangements are practiced and the presentation is prepared for the day of the performance. Recess performance: On the scheduled day, the music students perform the environmental song "Molly Malone" during recess. Other students are

encouraged to join in and sing the modified lyrics. This activity takes place for approximately 15 minutes.

Conclusions:

Awareness of plastic use: Students become aware of the amount of plastic they use on a daily basis and the impact it has on the environment.

Active participation: Students actively participate in the different activities of the "San Plastic Week", showing interest and commitment to reduce the use of plastic.

Solidarity: The collection of bottle tops for a charitable cause promotes solidarity and teamwork among students and staff.

Creativity: Adapting the lyrics of the song "Molly Malone" demonstrates the students' creativity and ability to address environmental issues in an original and creative way.

Molly Malone

SING ALONG

PLASTIC NO

In Arroyo's fair city
There's litter, such a pity!
We're doing a project
'Plastic NO' is called.

We're collecting caps
in houses and bars
Singing plastic, no plastic
alive alive oh!

Alive, alive oh, alive alive oh!
Crying plastic, no plastic
alive alive oh!

From bottles to pens,
we'll clean this, my friends
pencil case by pencil case,
we'll cean up this place

collecting our plastic
our task is fanta
ing plastic

ST. PLASTIC'S WEEK
MARCH 18-21
OUR ALTERNATIVE TO ST PATRICK'S DAY.

IESO

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Tecno@rroyo (tecnoarroyo.blogspot.com)

IESO Arroyo de la Encomienda | Cabrerizos | Facebook
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<td>Feedback & assessment</td>
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Satisfaction surveys: anonymous surveys to students to collect their opinions on the San Plastic Week activity. Ask about their level of participation, interest, understanding of the objectives of the activity and suggestions for future improvements.
Individual or group interviews: Conduct individual or group tutorial interviews with students to gain a deeper understanding of their experience during the activity.
Open-ended questions about what they learned, how they felt about the activities they did and what changes they suggest for future similar activities.
Class discussion: Organize a class discussion for students to share their opinions and reflections on the activity. Encourage all students to participate and share their views. Ask targeted questions about what they liked best, what they found most challenging and what they learned from the experience.
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<td>Evaluation (for purposes of grading)</td>
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Clear assessment rubrics or evaluation criteria have been used to determine whether students have achieved the stated learning objectives.
<table>
<tr><th>Aspects to be evaluated</th><th>Level 4</th><th>Level 3</th><th>Level 2</th><th>Level 1</th></tr>
<tr><td>Participation and engagement</td><td>Active participation in all activities, showing</td><td>Participation in most activities with moderate</td><td>Participation in some activities with little interest or</td><td>Minimal or no participation in activities</td></tr>
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		high interest and commitment.	interest.	commitment.	
	Understanding of the objectives	Deep understanding of the objectives of the activity and its importance.	Clear understanding of the objectives and their relation to plastic reduction.	Basic understanding of the objectives, with difficulties in relating them to the plastic issue.	Limited or incorrect understanding of the objectives
	Student feedback	Provided detailed and constructive feedback during class discussion or interview	Provided limited or superficial feedback during class discussion or interview.	Provided limited or superficial feedback during class discussion or interview.	Did not provide meaningful feedback during discussion or interview.
	Quality of the work done	Exceptional work in all activities, showing creativity, accuracy and originality.	Solid work in most activities meeting the requirements and demonstrating appropriate skills.	Basic work in some activities, showing deficiencies in other areas.	Poor work in most activities, with significant problems.

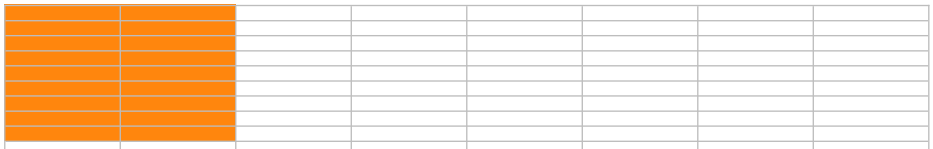
Water and microplastics	
Subjects	Natural sciences, Technology, Civic education, Human sciences, Economic sciences
General objectives	• Increase knowledge and respect for the world we inhabit. • Understand the great responsibility each person has when deciding whether to place waste in the correct bins and understand the consequences of abandonment in the environment.
Specific and Interdisciplinary Objectives	• Learn to work in a team • Improve communication skills • Develop critical thinking • Improve divergent thinking • Learning from peers • Foster a caring attitude toward living beings • Understand and be able to correctly use technical terms such as: recycling, reuse; water footprint; littering; circular and linear economy.
Target group	6 to 18 years old students. The workshop can be adapted to any of the children's needs.
Duration/ Time Necessary for the Activity	Workshops of approximately 90 min (no less) are recommended. The rest of the activities continue for the whole school year.
Learning Environment/Place	The workshops can take place either in the classroom or with an outing to the school garden. In the classroom, it would be better to have the possibility to carry out online research or suitable teaching material.
Expected learning outcomes	• Development of awareness of the consequences of one's actions or non-actions • Development of self-learning skills - peer to peer • Development of collaboration skills • Reflection on anthropocentrism • Learning the importance of recycling, reuse and choosing alternative materials to plastic
Teaching Strategies	Teachers have the task of facilitating debate among pupils by providing for the viewing of videos that can stimulate new reflections by pupils. Children work in small groups, promoting peer mentoring and collaborative learning.
Tools / Materials / Resources	Interactive blackboard with internet connection or the possibility of watching videos previously downloaded by teachers. Example: Un mare di plastica – 05/06/2022 https://www.raiplay.it/video/2022/06/Un-mare-di-

	plastica---Mi-Manda-RaiTre---05062022-63d5f294-d1cb-4dd2-85c3-52db078dcf9b.html or What are microplastics? | Environment | CSR EDU https://www.youtube.com/watch?v=R0MSZPJpSI0 Paper, coloured pencils and other things will depend on the individual choices of the teachers.
Detailed step-by-step description of the activity / sequences of the units	**A) Initial workshops** **Introduction**: 10 min initial presentation - reflection on our world and the variety of beings that inhabit it. The teacher begins the activity with an open question, leaving the main discussion to the children, marking hypotheses, observations and reflections that will then be verified together using all research possibilities e.g. paper and interactive whiteboard. Example of leading questions: what are microplastics and nano plastics? How can they be found in the air we breathe and the water we drink? How did they get there? What can we do on a daily basis to prevent their spread? Who produces Microplastics? **Implementation**: • 10-15 minutes video viewing to introduce discussion. Example of video to start the debate: Let's learn what the water footprint is! https://www.youtube.com/watch?v=D1Wqk75Yh_Y • 20 minutes for general debate • 20 minutes for group research. Division into groups each with an initial sentence to stimulate discussion and research. Examples: First group: What are microplastics and nano plastics? Second group: Are there microplastics in the bodies of humans? Third group: What is the water footprint? Fourth group: What causes Littering? And so on … • 15 minutes for sharing research results - To hear the conclusions reached by the various groups. • 10-15 minutes for conclusions: the final points of the various groups will be specified and clarified by the teacher. **B) Long term activities:** Choice of a place to take care of by collecting waste during the year, e.g. school garden, river bank, park path, etc. Creating an online diary with photos and videos, posters to hang at school, comics, rap music lyrics and whatever else the children's imagination creates to spread the experience of the year. The different languages used for the reporting will help the students with learning difficulties, migrant background, disabilities, … to express themselves better than with the

	scientific terms.
Feedback & assessment	The teacher can discuss with the pupil at the end of the initial workshops about the emotions felt and the collaboration dynamics developed in the group. To disseminate the activity in the school, the groups can create posters to be displayed on the walls of the common areas so that the reflections of the various groups can then be shared with the other classes in a peer-to-peer exchange.
Evaluation (for purposes of grading)	The teacher can assess the participation in the debates and the collaboration in the group activities. Reports can be assessed both in scientific and humanistic subjects according to the expressive language used by the pupils

What's in the belly of the fish?	
Subjects	Science, Art, Technology
General objectives	• Make children understand the damage plastic causes in the seas • Raising interest in the aquatic world from the point of view of pollution • Create awareness of plastic pollution in the seas and oceans • Making children aware that we can all contribute to the reduction of plastic waste
Specific and Interdisciplinary Objectives	• Develop analytical and critical thinking • Identify edible and non-edible materials for fishes • Analyse the functioning and efficiency of technical solutions for the water pollution • Use of digital tools for presentation • Public speaking • Improve the competences in statistics
Target group	9 to 11 years old students
Duration/ Time Necessary for the Activity	4 hours at school + teamwork at home Feedback phase for the whole school year
Learning Environment/Place	The lesson takes place in a classroom equipped with an interactive whiteboard and the children are arranged in groups of 5-6 children
Expected learning outcomes	• Develop a greater awareness that the use of plastic is harmful, not only to the soil but also to the seas. • Realise that if everyone used less plastic the terrestrial and marine environment would benefit • Commit to using less plastic at school and at home
Teaching Strategies	• Cooperative learning (teamwork divided into 5-6 children per group, proposals and discussion) • Class debate • Flipped classroom
Tools / Materials / Resources	Interactive whiteboard, paper, pen, cloth fish with plastic content
Detailed step-by-step description of the activity / sequences of the units	**<u>Preparation phase:</u>** Introductory video explaining the degradation of our seas and the impact it has on its inhabitants. Reflection on the video through some questions: What do we find in the sea? Is it inhabited only by flora and fauna? How are marine flora and fauna? What do fish eat in a polluted sea? Pupils can present their own experiences.

	Implementation phase: The teacher hands each group a cloth fish in whose belly there is a bag, representing the stomach, inside which is the ingested food (plastic bags, pieces of fishermen's nets, edible food, bottle caps). The pupils have to check what the fish can eat and what it should not eat and draw up a report. Then, children in groups discuss and try to find ways to prevent plastic elements from being dispersed in the sea. The teacher then shows videos about solutions to collect the plastic from the see (e.g. https://www.youtube.com/watch?v=FdZXRZ3-zZs). Each group select a technological solution and analyse its construction (principals of functioning) and efficiency. At the end of the analysis one representative per group presents the solution to the classmates with interactive presentations (e.g. on Canva). **Conclusion:** The teacher reflects together with the pupils on how to consume less plastic, how to differentiate it and how to choose alternative products to plastic.
Feedback & assessment	The teacher asks the children what solutions they propose for a decrease in the use of plastic. Answers are collected and listed on a poster to be hung in the classroom. Once a month, feedback are collected from the children on how they have used less plastic by replacing plastic objects with those made of other materials: e.g. metal water bottles and not plastic bottles, cloth cases and not plastic, homemade and not packaged snacks. (Many other plastic objects in use in the school can be added and replaced with non-plastic materials). The children compare the data collected each month and evaluate whether there has been an actual decrease in the use of plastic objects compared to the previous month. This process can last until the end of the school year to encourage children to improve week after week.

	 OCTOBER | NOVEMBER | DECEMBER | JANUARY | FEBRUARY | MARCH | APRIL | MAY NON-PACKAGED SNACK METAL WATER-BOTTLE CLOTH PENCIL CASE
Evaluation (for purposes of grading)	The analysis of the groups about the water-cleaning technologies can be assessed as a normal school task: ability to analyse, describe, present to the class. Recording every month how many children use non-plastic objects can encourage them to do better the following month, it can become a small challenge to improve their behaviour. The teacher can evaluate learning through the poster where the diagram is represented and see how much effort the children have put into using less and less plastic.

The amount of plastic	
Subjects	Science, Information Technologies, English, Art
General objectives	• Raising awareness about plastic use and its effects on nature in the world • Becoming aware of how much plastic is used at school and at home • Reduce use of plastic at school and at home
Specific and Interdisciplinary Objectives	• Learn about different cultures • Improving digital competencies • Development of artistic and manual skills
Target group	10 to 14 years old students
Duration/ Time Necessary for the Activity	Two months
Learning Environment/ Place	Indoor – school environment
Expected learning outcomes	Students will learn: • How much plastic is used at school? • How to reuse plastic? • Produce materials alternative to plastic
Teaching Strategies	Brainstorming, question-answer, group work, games
Tools / Materials / Resources	• A big basket to collect plastic bottles at school • Fabric, button, paper, scissors, plastics to make reuse materials • Milk, lentil, flour, gelatin, glycerin materials to produce alternative to plastic
Detailed step-by-step description of the activity / sequences of the units	**Preparation phase:** First, a big basket will be put in the corner of a corridor of the school. Students will throw their plastic waste into it. We will see how much plastic we use at school. And we will conduct pre surveys to students and parents. **Implementation phase:** Then students will prepare a presentation for parents about the overuse of plastic, its dangers to nature and how to reduce the use of plastic. We will take the plastic waste at school to a recycling facility. After that, we will plan activities to reuse the plastic like workshop and exhibition. We will make new materials using cultural patterns. (As we will do the activities with Romania and Greece.) For example, cultural

	artwork will be drawn to the new materials. After that, students will learn that we can produce alternative to plastic by using organic materials. These materials are milk, lentil, flour, gelatine, glycerine. Students will be taught how make organic plastic by using the ingredients (The lentil is boiled. After that, lentils are separated from the water. Therefore, the water is with starch. Other ingredients are added, and it will be organic plastic dough. At the end, the dough is shaped like plate, glass or etc.) Next, students will make new materials by using the organic plastic they made. Our students will make a glass, students from Greece will make a plate and students from Romania will make spoon and knife. **Conclusion:** Finally, we will put the basket again and see if the use of plastic is reduced. And we will conduct after surveys to see the effect of activities.
Feedback & assessment	Pre surveys and after surveys will be conducted to students and parents There will be a big basket to collect plastics at school. The quantity of plastics before and after the activities it will give us idea to evaluate if our school reduced the use of plastic
Evaluation (for purposes of grading)	Kahoot (to evaluate the outcomes of seminars and the outcomes of activities)

Lesson plans about Recycling

"Trash will not be waste if we know how to deal with it" - Measures to protect natural wealth	
Subjects	Natural Sciences, Language, Art Education
General objectives	Develop awareness of the preservation of nature to have a healthy future
Specific and Interdisciplinary Objectives	• Identify measures to protect natural wealth (factory chimney filters, wastewater purification, afforestation, use of renewable energy sources, selection and waste processing/recycling). • Prepares an eco-message poster that will be an impetus for further care for nature and health • Correctly select and recycle • Compile oral and written text according to heard content in which it uses appropriate language forms • Contribution to forming interpersonal relationships in a group, building a team • Students explore the subject of bad and good influence of man on nature
Target group	9-10 years old students
Duration/ Time Necessary for the Activity	Integrated Day, 3 classes of 40 minutes
Learning Environment/ Place	Classroom with teaching materials and resources
Expected learning outcomes	• Understand how recycling prevents the loss of materials, reduces energy use, reduces air and water pollution… and therefore it is important to select and recycle properly • Understand the need to protect the environment from further destruction, to timely locate the problem in the environment and to think creatively about its solution
Teaching Strategies	**Verbal methods:** - Monological method of exposure to content (explanation, explanation, oral exposure) - Dialogical or method of conversation (discussion) - Documentation method

	Demonstration methods: - The presentation, showing processes, phenomena, events - Teaching and aids (pictures, film ...) **Practical application.** **Research activities:** - common form of work, the cooperative form of a team of work
Tools / Materials / Resources	Books, internet, computer, links, paper, markers, illustrated material, internet printed materials, scissors, coloring pencils, crayons ... https://www.euyc.green/en (each student's using own account)
Detailed step-by-step description of the activity / sequences of the units	**Introductory activity**: a) Through the "Storm of Ideas" technique, students are encouraged to express their thoughts on the subject of bad and good influences of man on nature. Following a directional conversation and discussion -we live at a time when we use the natural treasures made daily for our needs, not thinking enough about the future and generations after us. To protect the natural wealth of planet Earth, we must take measures (such as: not to produce waste; to purify wastewater; to plant trees; to use renewable energy sources; to make a selection and processing of waste (recycling) ... b) Form the groups (randomly) and give instructions to work **Main Activity**: Making posters Group1: Environmental Travel (Finding Important Environmental Dates aimed at emphasizing and attracting the wider public's attention on ecology -related problems) Group 2: Pollution (Consider how our activities can stop pollution and supplement the list, T -Table, with your suggestions -water pollution/ pollution) Group 3: Recycling (Making a Poster for Proper Waste Selection with Information on the Time to Departure, The Materials They Search on The Internet) Group 4: Measures to Protect Natural Treasures (explores non-renewable and renewable energy sources, then make posters or stickers to protect natural wealth) Students have a user account at https://www.euyc.green/en where they can get additional information **Final activity**: a) Presenting posters, drawing conclusion and playing a quiz on the subject of ecology b) Reflection (Summary and Connection of Learning with Everyday Life): Filling a Self-Assessment List-Technique

Feedback & assessment	Students follow the verbal questions asked by the teacher or by classmates, the answers from the quiz, the contribution to the conclusions, practical work and participation in group work, works directly related to standards.
Evaluation (for purposes of grading)	Reflection with Bono's hats. https://www.groupmap.com/portfolio/six-thinking-hats - Red Hat-Feelings: How do you feel today? - Yellow hat: What did you like? - Black hat: what you didn't like? - Green hat: where can be applied in everyday life?

Quantifying plastics and plastics recycling in Europe with real data	
Subjects	Natural sciences, mathematics, computer science, graphic representation.
General objectives	This activity is delivered as the second session of the workshop "Detectives for sustainability", which deals with the use of plastics and the mismanagement of waste.
Specific and Interdisciplinary Objectives	• Find information on the use of plastics • Interpret graphs of different types • Store and manage data in Excel • Create and edit graphs with data • Drawing conclusions from data and your charts
Target group	9-11 years old students with high cognitive potential / gifted [or older] The maximum number to carry out the activity is 10 students.
Duration/ Time Necessary for the Activity	1 hour and 45 minutes.
Learning Environment/Place	It should be done in a room which has electronic devices and the correct environment to work with them.
Expected learning outcomes	• Awareness about the use of plastic • Better comprehension for reading graphs • Improve ability in using Excel program
Teaching Strategies	Inquiry based methodology. It is recommended that the educator's guidance be as limited as possible, allowing ownership of the outcome by the learners
Tools / Materials / Resources	URL to online resources; for example: https://www.eumonitor.eu/9353000/1/j9vvik7m1c3gyxp/vknekgghpfwm?ctx=vhsjgh0wpcp9#:~:text=Recycling%2C%20composting%20and%20incineration%20trends,of%20municipal%20waste%20by%202030. Teachers can extract from these pages the information needed to do the task.
Detailed step-by-step description of the activity / sequences of the units	**Preparation phase:** • Let's start by stating the problem. Plastics have improved our quality of life (bone prostheses, kitchen utensils, medical utensils, tools, machinery and all kinds of utensils that are within the economic reach of almost anyone). It is not about plastics being bad, it is about making good use of them. • Can we quantify the amount of plastics generated and their impact?

	How much do we recycle? How much do we reuse? How can we improve? Are we doing better or worse than other countries in Spain? Do we recycle more or less than we did years ago? **<u>Implementation phase:</u>** **ACTIVITY 1** Enquiry: Can we live without plastics? When did the first plastic appear? Has the advent of plastics improved the quality of people's lives? In what way has it improved them? Hypotheses about whether, how, to whom etc., hypotheses about how plastics have improved our lives. Information gathering/Experimentation: We collect information. Conclusions: We make a table, share the information and draw conclusions. **ACTIVITY 2** Enquiry: If we are going to continue to use plastics, what can we do to reduce the impact on the ecology? Hypotheses about possible solutions Information gathering/experimentation: examples of how to avoid buying plastics, examples of reuse and examples of recycling. Conclusions: We make a table, share the information and draw conclusions. **ACTIVITY 3** Enquiry: What is the most common packaging material used in Europe? Hypothesis on: List of different types of materials used for packaging. Information gathering/experimentation: Gathering of information and elaboration of a table and a disc chart with titles and colours. Analysis of the chart. Conclusions: Drawing conclusions from the chart. **ACTIVITY 4** Enquiry: Do we recycle more or less in Spain than in other countries? Hypotheses about: Countries that we think do it better and countries that do it worse than us. Information gathering/experimentation: Gathering of information and elaboration of a table and a bar chart with the following hypotheses. **<u>Conclusions</u>**: We draw conclusions from the graph.
Feedback & assessment	The activity is evaluated in two main ways: 1.Through a pre- and post-survey of the students. 2.Through the individual completion of an Excel file
Evaluation (for purposes of grading)	It was an extracurricular activity; no formal evaluation was done

Reuse and recycling	
Subjects	Science, Art, Technology
General objectives	• Make pupils aware that the immoderate use of objects causes a lot of pollution • Reduce, even eliminate, the consumption of plastic bottles, replacing them with aluminum flasks. • Promote and respect separate waste collection within all the Institute's premises. • Promote the recycling and reuse of everyday materials. Encourage the use of biodegradable cleaning products. • Involve pupils in caring for the school's green spaces
Specific and Interdisciplinary Objectives	• Know how to work in groups, exchange information and cooperate • Do research on recyclable materials • Recognize different types of materials and know how to recycle them • Know how to evaluate the environmental impact of an object • Perceive and discriminate different materials • Verbalize experiences • Acquire the concept of material transformation • Formulate hypotheses and make predictions • Develop autonomy in the management of spaces and materials
Target group	11 to 13 years old students
Duration/ Time Necessary for the Activity	Three lessons of 2 hours each + Swap market (no time set for the activity) + weekly teamwork in the supermarket to analyse the products (the duration depends on the number of students)
Learning Environment/Place	The first lesson will be held in the school garden or in neighbouring parks: pupils are divided into 2 groups The second and third lessons will be held in the classroom: the class is divided into groups of 5 - 6 children
Expected learning outcomes	• Know how to separate waste, focus on the problem of waste, understand the mechanisms of communication and develop creativity. • To acquire conscious behaviours of respect for the environmental heritage. • Memorising and internalising behaviours regarding norms and rules of civil and ecological coexistence. • Maturing attitudes of respect for the environment by limiting waste and contributing to separate waste collection. • Understand the importance of producing less waste

Teaching Strategies	The teacher fosters the development of an 'environmental awareness' for the protection of the territory and in particular in particular to make students understand how good waste management can prevent harmful environmental consequences. This aim will be pursued through: • educational games / game-based teaching-learning • exploration, • peer learning, • cooperative learning.
Tools / Materials / Resources	Cardboard boxes, glue, scissors, markers, supermarket flyers, objects of various materials
Detailed step-by-step description of the activity / sequences of the units	**A) LESSON IN THE GARDEN:** **<u>Preparation stage:</u>** The teacher sits the pupils in the lawn and introduces the topic by explaining a game they will then play. **<u>Implementation Phase:</u>** • Two teams are created, and a student is appointed in each team to be blindfolded. • Objects/waste of various kinds and materials are placed on a small table and the blindfolded student stands next to it. • Buckets for recycling collection are placed in the garden: one for paper, one for glass, one for plastic, one for mixed waste and one for wet waste. In the small path separating the items/waste and the recycling buckets, there may be some small obstacles to overcome. • Each blindfolded student will have to take turns picking up an object/waste and recognize by touch what material it is. • The team will have to verbally guide the blindfolded student to the correct waste collection bucket. • Teams take turns in this game until all materials are thrown into the correct containers. **<u>Conclusion:</u>** The two teams together with the teacher analyze the correct waste management **B) CLASSROOM LESSON:** **1) Recycle** The teacher introduces the topic through some questions such as: what makes you think of the word "reuse"? What about the word "recycling"? Do you differentiate correctly the waste at home and at school? He / She also introduces the concept of the 5 Rs (Refuse, Reduce, Reuse, Repurpose, Recycle) with a focus on the quality of recycling collection. Flyers from the municipality or local waste management company can be used to support and guide the discussion about recycling. Recycling means

	a process of truly transforming to give a second life to objects or products that have become waste and discarded materials. The class is divided into groups of 4/6 students, each of them select a waste material (plastic, glass, paper, wood, food, metal) and make a group research on how these material are recycled, what are the new products can be created. The students will be motivated to find new and innovative ideas (that is to say, not the usual recycled paper for newspapers, but, for example, furniture made of cardboard). In the following lesson they present their work to their peers also providing them the instructions on how to recycle properly certain materials. **2) Reuse** In a following lesson the teacher, together with the pupils, defines reuse. Reuse is an immediate action and consists of reusing for the same purpose or, through creativity, for other purposes, an object that is not yet to be considered "waste". Swap market: The purpose is to make children understand that items we no longer need can have a new life. Waste becomes harmful to the environment, while reuse allows people to not have waste and not buy that product. The teacher invites each student to bring to school one or two items that they no longer want/need (games, books, comics, clothing) and a small market is organized in which they exchange their items for those of others. The students can also consider donating part of the items to charity (promoting in this way also a prosocial attitude) **C) OUT OF THE CLASS ACTIVITY:** "Conscious shopping": while we are shopping, we are already filling our bag with waste. Each container carries its own story: the raw materials used to produce it, who worked to produce it, the journey of transport to get it to us...Sometimes this story is short, sometimes very long and leaves behind waste and pollution. This is why it becomes important to make our shopping lighter and more sustainable. An activity can be proposed to be done outside of school. Each week, the students, divided into groups supported by an adult (possibly a parent to create an educational alliance and disseminate awareness), are invited to go on a supermarket, paying close attention to the type of products, packaging and label indications. Their task will be to identify the products with the least environmental impact and to make their shopping as sustainable as possible.
Feedback & assessment	Once a month, each group will analyse the shopping they have done each week and explain to their peers, through the use of interactive presentations (e.g. Canva), the choices they have made and the reasons

	why they made them, showing the care they took in buying, for example, fruit in bulk and not packaged. For example, choosing bread in paper bags and not in plastic bags. Etc.
Evaluation (for purposes of grading)	The group activities can be assessed as a normal school assignment: ability to learn about waste materials, ability to expose their ideas, ability to plan for conscious use and zero waste. The final evaluation, carried out through constant observation and the creation of specific forms, will highlight: (a) pupils • a greater sensitivity to the problem of separate waste collection • the awareness that by separating waste, new resources can be obtained • the acquisition and observance of rules not to pollute • the importance of not wasting • a greater awareness that prudent spending helps produce less waste) (b) parents • the awareness of the educational value of the school • active involvement in the proposals made c) teachers • living and experiencing directly with pupils will allow them to always be an active and integral part of their growth • the contribution of experts will be a stimulus toward new knowledge and paths for us teachers as well.

Plastic free life	
Subjects	Natural Sciences
General objectives	• Understanding the recycling of waste materials in nature. • Be aware of the waste materials we see in our home and school in our daily lives. • Know which materials compose the waste. • Observe the decomposition process of waste materials in nature. • Learn which of the waste materials are biodegradable. • Learn which of the waste materials do not dissolve by observation. • Estimate the reasons why some of the waste material is not biodegradable
Specific and Interdisciplinary Objectives	• Learn types of materials such as metal, wood, plastic and glass. • Explain the properties of soluble/insoluble substances in nature. • Search for alternative packaging materials that can be dissolved in nature. • Use English in the presentations.
Target group	10 years old students
Duration/ Time Necessary for the Activity	3 lesson hours (40 minutes each).
Learning Environment/Place	Classroom environment. Schoolyard
Expected learning outcomes	• Recognize waste materials. • Tell what materials the waste includes. • Explain the properties of waste that can be dissolved in nature. • Explain the properties of wastes that cannot be dissolved in nature.
Teaching Strategies	Team working Question and answer technique Brainstorming technique Observation technique
Tools / Materials / Resources	• Smart board, mobile phone/camera • paper, plastic, glass and plant waste • Powder-free glove, hoe
Detailed step-by-step description of the activity / sequences of the units	The teacher comes to class with glass jars containing different wastes. The following sentences are read by the teacher: “People in the world used to produce goods by themselves for their own needs. But today there are about 8 billion people in the world and goods are produced

	mainly in factories. There is mass production and mass consumption. And waste is generated everywhere. People dispose of waste at home, at work and in public places. We will observe the decomposition process of these wastes in nature. We will make two observations one month apart. I want you to take a picture of every universe" Then the students make circles in the school garden. The teacher asks them to count by counting from 1 to 4. Those who say 1,2,3,4 form separate groups. The groups are asked to choose the type of waste (glass, plastic, paper and plant waste). Each group is asked to dig a hole to put waste in the school garden by using a hoe. Each group puts waste material in the holes. It is requested that the holes to be covered by soil. Groups are asked to write their names and the name of the material and dates in English. **1st Observation (after 30 days)** Each group is asked to indicate what they observed at their waste buried site. Groups are asked to explain why their waste dissolved or not. **2nd Observation (after 60 days)** Each group is asked to indicate what they observed at their waste buried site. Groups are asked to explain why their waste dissolved or not. Each group makes their presentations in the classroom, using the photographs they have taken. They can use images about the harms of the waste in nature in their presentations
Feedback & assessment	The teacher can use the following questions: • In which of our consumptions do we generate waste the most? • Which waste materials are biodegradable? • Which wastes are insoluble in nature? • Do wastes that do not dissolve in nature harm the lives of living things? • Can biodegradable packaging be possible?
Evaluation (for purposes of grading)	Peer assessment will be done for the presentations.

Lesson plans with Educational robotics and programming

5 R`s policy	
Subjects	Sustainability and Environment / Recycling, Natural Sciences, Physical Chemistry, Educational Robotics / ICT / Computational Thinking
General objectives	• Learn about the 5R's Policy • To know the eco-points for separating waste • Understand the importance of recycling for the Earth's sustainability
Specific and Interdisciplinary Objectives	• Identify eco-points for separating waste and understand and apply their meaning • Identify the attitudes associated with the 5R's Policy
Target group	8 – 13 years old students
Duration/ Time Necessary for the Activity	45 min/1 hour each session
Learning Environment/Place	In a classroom or outdoor
Expected learning outcomes	• Learn about the 5R's Policy • Know the eco-points for separating waste • Understand the importance of recycling for the Earth's sustainability
Teaching Strategies	The teacher explains how the game works. During the game, the teacher only intervenes in the reading of the questions.
Tools / Materials / Resources	• Game board • Educational robots like Clementoni Super Doc • Question cards
Detailed step-by-step description of the activity / sequences of the units	The game board, presented in a reduced size, is made up of 8 columns and 6 rows, with each square measuring 15 cm x 15 cm to respect the movement step of Clementoni's Super Doc robots. The images of each square visually help to recognise the type of square to be reached and the written words make it possible to become familiar with their meaning, as they are similar words with similar sounds but different meanings, thus making it possible for the students to become more familiar with their graphics and at the same time gradually assimilate the recycling theme.

	The game is played in pairs or in groups of 3/4 students One of the members of the group chooses a question at random. After the teacher reads the question, the group members must confer to arrive at the correct answer. The group spokesperson must indicate the correct answer. One of the members of the group has to program the robot so that it moves to the box that contains the eco-point/attitude of the 5R's policy that answers the question. The other elements of the group can help in programming the robot When the robot arrives at the correct box, the group members must know how to identify the name of the eco-point/attitude (the name of the eco-point/attitude must be indicated by the spokesperson, after the group has decided) If they manage to carry out the two tasks correctly (robot programming and identification of the eco-point/attitude) they receive 2 points If they only perform one of the tasks correctly (they succeed in programming the robot but fail to identify the eco-point/attitude or vice versa) they only receive 1 point If they do not correctly fulfill any of the tasks, they do not receive points. *Possible questions cards:*(Questions and answers created by the students for the game) • Which “R” is related to the following sentence...? "Make the decision to say no to products that pollute the environment!" Answer: REFUSE • Which recycling point should wristwatch batteries be put in? Answer: RED BIN (BATTERY) • Which “R” relates to the following sentence...? "I must say no to products that pollute the environment!" Answer: REFUSE • Which recycling point should use cooking oil be put in? Answer: ORANGE BIN (OIL) • Which “R” is related to the following sentence...? "For the environment not to be polluted, the amount of plastic I use must decrease!" Answer: REDUCE • What is the “R” in the following sentence...? "Think twice before you act!" Answer: RETHINK • Which “R” is related to the following sentence...? "Analyzing the need for a particular product several times!"

	Answer: RETHINK • What is the “R” in the following sentence...? "In order to reduce the amount of waste, we must limit consumption!" Answer: REDUCE • Where should be the clothes that are still in good condition put to be reused? Answer: CLOTHES AND SHOES COLLECTION CONTAINER ("CUSTOM") • Which “R” is related to the following sentence...? "We must say no to the use of non-renewable and environmentally unfriendly energies!" Answer: REFUSE • What is the “R” in the following sentence...? "We should reflect on our consumption habits!" Answer: Rethink • Which recycling point should you put glass bottles and jars in? Answer: GREEN ECOPOINT (GLASS) • Which recycling point should glass bottles and jars be put in? Answer: GREEN ECOPOINT (GLASS) • Which bin should you put batteries from controllers and toys in? Answer: RED BIN (BATTERY) • Which recycling point should you put cans in? Answer: YELLOW ECOPOINT (PACKAGE) • Where should be the bed sheets and blankets that are still in good condition put to be reused? Answer: CLOTHES AND SHOES COLLECTION CONTAINER ("CUSTOM") • What is the “R” in the following sentence...? "Some trousers that no longer fit me I'm going to give to someone who needs them!" Answer: REUSE • Which recycling point should you put household appliance batteries in? Answer: RED BIN (BATTERY) • Which recycling point should newspapers be put in? Answer: BLUE BIN ("cardboard")

Feedback & assessment	Teacher organizes a recycling activity with pictures of some of the materials that can be recycled in the recycling bins and runs the activity to see if the students can identify the recycling bins and the materials for each bin.
Evaluation (for purposes of grading)	• Group discussions on the topic among the students • Individual or group quizzes on the topic

Earth guardians	
Subjects	Civics /Citizenship
General objectives	• Protection of the environment • Raising awareness of environmental issues
Specific and Interdisciplinary Objectives	• Adopt behaviors to reduce waste production • Simple actions to improve and preserve the environment • Learn in a playful way • Positive citizenship
Target group	+ 5 years old pupils
Duration/ Time Necessary for the Activity	30/ 45 Minutes each session
Learning Environment/Place	Indoor / outdoor At school or at home with the families
Expected learning outcomes	• Promote best practices for saving energy and minimizing waste production. • Raising awareness of environmental protection
Teaching Strategies	Teacher adopts a mediating role, only explains the game, and can help to read the cards and the rules of the game
Tools / Materials / Resources	• Educational robots like Clementoni Superdoc • One dice • Game board created by the teacher by printing and pasting the picture of the “guardians” • Cards with questions that can be created by the teachers or with the students (examples of the questions are below)
Detailed step-by-step description of the activity	**<u>The game board:</u>** The game board, presented in a reduced size, is made up of 6 columns and 5 rows, with each square measuring 15 cm x 15 cm to respect the movement step of the Super Doc Clementoni robots. The images shown represent some of the planet's elements (planet, water, fire, nature, sun, plants) and define the squares in the game. There are also "Sustainability" and "Pollution Alert" squares that define consequences during the game **<u>Names and Explanation of Cards/ Squares:</u>** **“Earth elements" squares**: Planet Earth, Droplets, Flora, Solis, Flames, Bia; These cards have different questions about the environment written on the back; The questions on each element of the cards can be created by the teacher according to the curriculum content to be covered or use those

from the game. A correct answer in each square gives you one point.

"Home" square: The game must start from this square

"Sustainability" square: You win a turn

"Pollution Alert" square: You lose a turn

<u>Possible questions for the playing cards:</u>

Planet Earth cards

- Planet Earth is also called the Blue Planet because it has so much...?

Answer: ...WATER. Two thirds of the Earth's surface is made up of water.

- What do you call all the different living beings, species and ecosystems on Planet Earth?

Answer: BIODIVERSITY

- What do you call the changes that are happening to the climate?

Answer: CLIMATE CHANGE.

- Renewable energy, which is obtained from the heat of Planet Earth, is called ...? a) ...fossil energy; b) ...geothermal energy.

Answer: ...B) ...GEOTHERMAL ENERGY. Generating energy using heat from inside the Earth is a cleaner way of producing electricity.

Droplet cards

- What is the name of the water we can drink?

Answer: POTABLE WATER

- Atmospheric pollution does not harm the oceans or their living creatures. True or false?

Answer: FALSE. The oceans absorb around half of the carbon dioxide (CO2) that enters the atmosphere.

- The resources of fresh water are infinite. True or false?

Answer: FALSE. We must preserve freshwater resources because they could end.

- To be sustainable fishing, should fishing nets have large or small holes?

Answer: LARGE. Fishing nets must have large meshes so that smaller fish can escape through the open spaces.

Flora cards

- Deforestation is one of the causes of global warming. True or false?

Answer: TRUE. As there are no trees, carbon dioxide (CO2) remains in the atmosphere, increasing the greenhouse effect and the temperature of Planet Earth.

- To save trees you should... a) ...reuse used sheets of paper for drafts; b) ...throw the paper in the blue recycling bin; c) ...both.

Answer: ...BOTH.

- When it is carrying pollen grains from one flower to another, the bee is ... a) flowering; b) ...pollination.

Answer: ...POLLINISATION. Pollination helps plants to reproduce and maintains biodiversity.

- What is the largest forest in the world?

Answer: AMAZON. It covers 7 million square kilometers, of which 5.5 million are covered by rainforest. It includes territories belonging to 9 countries. Brazil (with 60% of the forest), followed by Peru, Colombia, Venezuela, Ecuador, Bolivia, Guyana, Suriname and French Guiana.

Solis cards

- The plastic we leave on beaches can end up in the ocean and endanger the lives of animals. True or false?

Answer: TRUE. Plastic that ends up in the oceans can suffocate fish and other animals in the sea, among other dangers.

- You're walking along the beach, and you find a plastic bottle. What should you do? a) ...put it in the nearest yellow recycling point; b) ...leave it where it is.

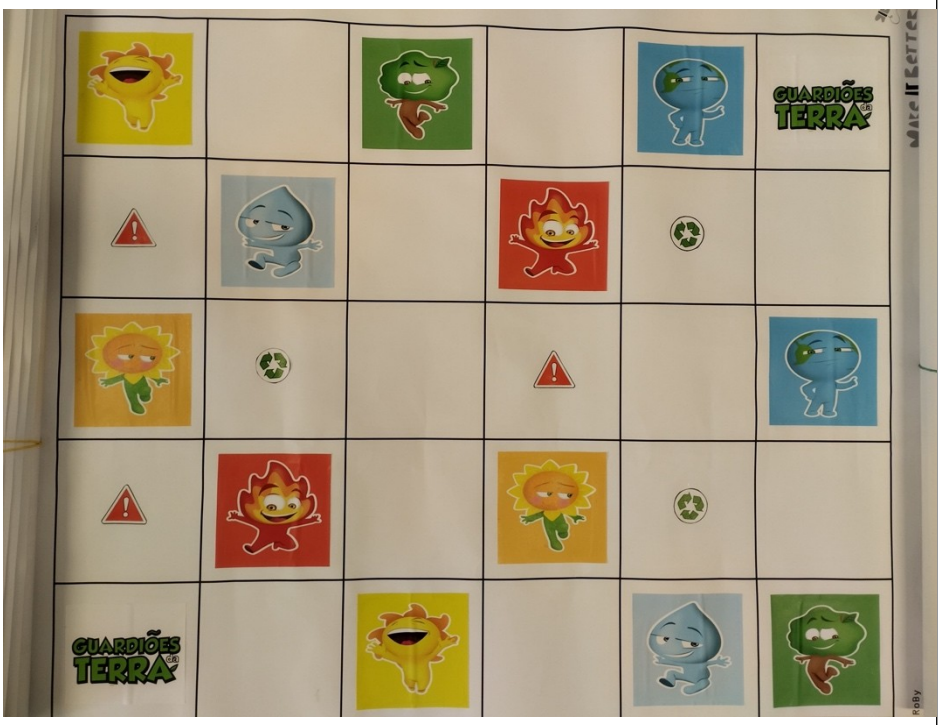
Answer: a) PUT IT IN THE NEAREST YELLOW RECYCLING POINT.

- What are the 3 R's that help reduce waste consumption?

Answer: REDUCE, REUSE, RECYCLE.

- Is the intensification of the greenhouse effect increasing or

	decreasing the temperature of Planet Earth? Answer: INCREASING. **Flames cards** • Wind, solar and hydroelectric power are examples of what type of energy? Answer: RENEWABLE ENERGY. These energies are environmentally friendly. • To save energy we should use lamps that use less energy. What are they called? Answer: ENERGY SAVING LIGHTS. For example, LED lamps are a more environmentally friendly option • The light bulb in the lamp holder has stopped working. Where should you put it? Answer: At an ELECTRICAL AND ELECTRONIC EQUIPMENT WASTE COLLECTION POINT such as the ELECTRON POINT. • When you switch off the TV's standby button, you're saving energy. True or false? Answer: TRUE. We should switch off electronic devices when we're not using them. **Bia cards** • What is environmentally friendly agriculture called? Answer: BIOLOGICAL AGRICULTURE. Organic farming is a form of production that doesn't use pesticides, helps preserve the soil and protects the ecosystem. Organic fruit and vegetables have lots of nutrients and are very tasty. • In a balanced diet you should... a) ...Favor seasonal fruit and vegetables; b) ...prefer processed foods. Answer: A) ...PREFER SEASONAL FRUIT AND VEGETABLE • Ladybirds are a natural way of combating a plague of insects that harm crops. What are these insects called? a) ...aphids; b) ...butterflies. Answer: a) ...aphids; Ladybirds can eat around 100 aphids a day! • Sustainable agriculture helps farmers make a better job of life. True or false? Answer: TRUE. Sustainable agriculture cares about the environment and is fair to farmers, because everyone gets what they deserve for their work **How to play**: • In teams or individually, the first player rolls the dice and programs the robot to move the number of squares on the dice. You can choose the direction of travel. • Correctly answer a question on a card chosen at random, according

	to what you get on the roll of the dice. • The aim of the game is to win points and the winner will be whoever/the team that collects the most points in the stipulated game time or when answering a question from each element on the game board. **<u>Introduction of the game:</u>** The teacher introduces the game: “Pollution is increasing, and planet earth is getting sicker and sicker. In this game, the planet with your help invites the guardians of the earth on an urgent mission to raise awareness and protect the environment. Learn how to clean the beaches and seas with Solis and Droplets, discover "magical" foods with Bia, protect the forests with Flora and become an energy-saving expert with Flames.” 
Feedback & assessment	The game has an inclusive aspect, as playing in teams allows the team to include all the students in the discussion and in deciding on answers or moves. The rules of the game can be changed if the students agree that certain rules should be implemented or altered.
Evaluation (for purposes of grading)	Teacher should promote group discussions on the various topics involving environmental protection, discussed/questioned in the game, so that all students can give their opinion and express the knowledge acquired during the various sessions of the game

SDGs game (Sustainable Development Goals)	
Subjects	Civics /citizenship
General objectives	Identification and recognition of sustainable development goals SDGs
Specific and Interdisciplinary Objectives	• Identify the symbols/images of some SDGs • Recognize some of the SDGs • Answering and giving an opinion on the themes covering the SDGs
Target group	10 – 13 years old students
Duration/ Time Necessary for the Activity	Lessons (about 40 minutes) repeated during the school year
Learning Environment/Place	Classroom / outside / in a garden The game can be played around a table in the classroom or in a garden, or anywhere that is comfortable and pleasant, as long as the game board can be laid out flat.
Expected learning outcomes	• Identify symbols/images of some SDGs • Recognize some of the SDGs • To learn about the SDGs
Teaching Strategies	The teacher only explains how the game works. During the game, the teacher only intervenes to read out the questions or to explain the words or rules of the game.
Tools / Materials / Resources	• Game board, • Dice, • Educational robots like Clementoni Superdoc
Detailed step-by-step description of the activity / sequences of the units	Sustainable Development Goals 1 - Eradicate Poverty 2 - Eradicate Hunger 3 - Quality Health 4 - Quality Education 5 - Gender Equality 6 - Clean Water and Sanitation 7 - Renewable and Affordable Energy 8 - Decent Work and Economic Growth 9 - Industry, Innovation and Infrastructure 10 - Reducing Inequalities 11 - Sustainable Cities and Communities 12 - Sustainable production and consumption

13 - Climate Action
14 - Protecting Marine Life
15 - Protecting Life on Land
16 - Peace, Justice and Effective Institutions
17 - Partnerships for the Implementation of the Goals

How is the game board prepared:

The game board, presented in a reduced size, is made up of 12 columns and 5 rows, with each square measuring 15 cm. x 15 cm. to respect the movement pace of the Super Doc Clementoni robots;

The images on the game's squares are those of the 17 SDGs. The game cards have questions about each of the goals and according to the square where the robot is placed, the team responds according to the goal on that square

How to play:

- The game begins in the square "2030". The first team rolls the dice and programmed the robot to reach the sustainable goal they have chosen. Then it has to answer a question correctly about the goal of the house it arrived at; Correct answers earn each team points. You can create your own search questions about go goals or play with the ones you can download here: https://schoolplasticfreemovement.org/wp-content/uploads/2024/08/SDGs-game_Question_cards.pdf

	 • Each team that arrives on the box "2030" will have a challenge to overcome. The challenges will be on cards and can be suggested, one by each student, before the game begins. Teachers can create the challenges together with the students so that everyone participates and defines which challenges to overcome. The students create the cards with the challenges. E.g., "imitate the sound of rain on the roof". • The team that answers the most questions about the various SDGs and do the challenges, wins.
Feedback & assessment	The game has an inclusive aspect, as playing in teams allows the team to include all the students in the discussion and in deciding on answers or moves. The rules of the game can be changed if the students agree that certain rules should be implemented or altered.
Evaluation (for purposes of grading)	Quizzes for students on the theme to see what has been retained/learned. Grids for filling in correct and incorrect answers after the game and repeated after a few repetitions of the game.

Let`s protect the Oceans	
Subjects	Study of the environment, Civics, Citizenship
General objectives	• Protection of the Ocean • Raising awareness of environmental issues about ocean life
Specific and Interdisciplinary Objectives	• Adopt behaviors to protect the oceans • Simple actions to preserve the ocean life • Learn in a playful way • Positive citizenship
Target group	6-10 years old students
Duration/ Time Necessary for the Activity	45 Minutes / Play several times during the school period
Learning Environment/Place	In a classroom
Expected learning outcomes	• Promote ocean-friendly practices. • Raising awareness of how to protect life in the oceans with less pollution • Learning the program contents about study of the environment
Teaching Strategies	The teacher is only the mediator in the game. He reads out the questions and only facilitates the development of the game between the teams
Tools / Materials / Resources	Game board, cards with questions, a dice, educational robot(s) like Clementoni SuperDoc
Detailed step-by-step description of the activity / sequences of the units	**<u>The game board</u>** The game board is made up of 4 columns and 6 rows, each square is 15 cm x 15 cm to respect the movement pace of the SuperDoc Clementoni robots. The images are illustrations by the students about pollution and/or the preservation of the oceans. The game symbols, placed on each square, define how to play. The game has an ascending orientation, a path to follow until you reach the end of the journey across the oceans. Follow the direction indicated by the arrows.

The teacher create / choose questions and trivia according to the curricular program. The cards can also be illustrated by the students.
Examples of questions:
The ocean produces most of the oxygen we breathe. ***True*** *or False?*
The oceans are fundamental to life on our planet. ***True*** *or False?*
The ocean is home to many species of life. ***True*** *or False?*
The oceans do not interfere with air quality because most of the oxygen is produced by trees. True or ***False****?*
Sea salt is obtained from salt pans and is used in human food as a condiment and to preserve food. ***True*** *or False?*
There are no living beings in the oceans. True or ***False****?*
The oceans help regulate the planet's temperature. ***True*** *or False?*
Give 2 examples of what we can extract from the ocean for our food? (e.g. fish, shellfish, salt)
The oceans contain seaweeds and marine animals that are used for medicinal purposes. ***True*** *or False?*
The oceans serve as a communication route for the transport of people and

*products. **True** or False?*
*Seaweeds are important for oxygen. **True** or False?*
*There is a lot of plastic in the sea. **True** or False?*
*Many jobs depend on the oceans. Fishing and the canning industry employ many people. **True** or False?*
*The ocean helps regulate the planet's climate and allows most clouds to form. **True** or False?*
*Humans are not responsible for the plastic island in the ocean because they don't use it. True or **False**?*
*Various mineral resources, such as oil, are extracted from the ocean floor. **True** or False?*
*The ocean is a source of food for many species. **True** or False?*
*Plastic floating in the ocean is rubbish and therefore pollutes the environment. **True** or false?*
*Scientists aren't worried about the size of the plastic island, because it's not as big as they thought. True or **False**?*
*The oceans cover half of the Earth's surface. **True** or False?*
*The oceans are a fundamental element for the survival of the human species. **True** or false?*
Name 2 professions that are practised on the sea/ocean coast? (eg. Fisherman and Shellfisherman, sailor, diver)
*Ocean pollution only harms marine animals. True or **False**?*

Instructions and game elements:

The game is played in pairs or in groups of 3/4 students
One of the members of each team start to play programming the robot so that it moves according to the lines and the indications of the symbols.

Start of the ocean voyage

Answer a question from the quiz deck

Continue your journey... across the oceans

Did you know? ... take out a trivia card to learn more about the oceans and environmental conservation!

	Take 3 steps forwards Continue your journey ... of discovery! Take 3 steps back You've found the lucky clover... play again Don't play once You're the big winner of this game!
Feedback & assessment	Teacher repeats the game periodically until he realizes that all the students have learned the contents.
Evaluation (for purposes of grading)	Teacher includes the content of the game in the formative assessment and is able to see from the results if the game has enabled the expected learning to take place

Eco-bot	
Subjects	Science, Technology / Robotics, Math and statistics
General objectives	The main objective of the activity is to increase children's awareness of environmental care especially the impact of daily actions
Specific and Interdisciplinary Objectives	Improve: • computational thinking and use of robots • cooperation and teamwork • Maths and statistics • public speaking skills • art skills • the understanding of the use of citizen science
Target group	8 to 12 years old students
Duration/ Time Necessary for the Activity	5 lessons, about 45/ 60 minutes each lesson (depends on the age of the children)
Learning Environment/Place	Children can play in a classroom, on the tables or on the floor
Expected learning outcomes	• Awareness about behaviours that can protect or damage the environment • Understanding the concept of sustainability in practical terms • Increased teamwork skills • Improved computational thinking skills
Teaching Strategies	• Educational robotics • Game-based learning • Brainstorming and class discussions • Work in team • Participative research – citizen science
Tools / Materials / Resources	Paper, glue, pencils and colors (to create cards and pictures of the game-board and the poster) Educational Robots, like Clementoni Superdoc Game-boards and cards drawn by the children
Detailed step-by-step description of the activity / sequences of the units	**Preparatory activities:** This lesson plan is based on the use of educational programmable robots. It has been developed for Clementoni SuperDoc / Doc/ Mind Designer/ Mio Robot. Anyway it can be used also with educational robots with fixed steps that can be programmed by pupils (like BeeBots). This lesson plan is structured for children that have already competences in

	using robots. In case the pupils do not have this previous experience, it is recommended to have introductory activities to let them familiarize with the programming and the use of the robot. The robots move on a gridded game-board (in the case of Clementoni robots it is made by 15x15 cm squared tiles) whose structure can be prepared in advance by the teacher. The measures of the game-board can be freely decided by the teacher according to the space available and the number of children that will play. **Step 1:** The teacher introduces the dangers of pollution and climate change according to the age of the pupils and the subjects of the curricula they are working on. Then each child is invited to suggest a daily situation that can have an impact on the planet: washing teeth, go somewhere, throw away the garbage, etc. Through brainstorming the class select 2 possible behaviours to implement this activity. The general idea is not to clearly identify ahead the positive or the negative actions for the environment, but to leave the children to discuss it in the following lessons. In case the children are already aware or informed about conscious ecological behaviour, the teacher should lead a little the discussion order to have implementation actions that are more effective to protect the environment and those that are positive, but less effective actions. The behaviours are listed and when possible, gathered in general topics (e.g. garbage, use of resources, use of plastic, daily habits, transportation, etc.) The list will be visible in class up to the next lesson, the teacher stimulates the children to add or improve the proposals in the meantime. **Step 2:** The teacher prepares squared papers as big as the tiles of the game-board (about 15x15cm. or according to the robot's step) and smaller papers that will be used as deck of situation cards in which the different actions are described (about 12x8 cm. or as they prefer). The children are invited to choose one situation (or they are randomly assigned to it) and to draw on 2 squared papers the behaviours connected to the activity. The children have also to draw or describe the activity in the smaller cards (situation cards). **Step 3** Time to play. The game-board is prepared, and the children surround it. The teacher explains the rules. • The objective of the game is to program the robot in order to guide it toward the most environmentally positive behaviour in a certain situation.

	• 5 pairs of behaviour cards are placed on the game-board and the connected situation cards are shuffled. [note: since the situations proposed by the children are many, is not possible to put all of them on the game-board. The teacher selects some of the cards /situations. Once the board is "free" other cards can be added to let the other children to play] • In turn each child draws a situation card and programs the robot to reach the behaviours he/she thinks is the most positive for the environment. Once the card is reached he/she takes it, explain why he/she thinks it is a good thing for the environment and keeps the card. For example, if the situation card says, "Doc takes out the rubbish", the child will have to decide whether program the robot to go to the box where there is only one rubbish bin or to the one representing the recycling bins. • Variation: for older children or for those with previous experience with robotics the teacher can include the rule that the robot has to be programmed to reach the behaviour card without passing over the other ones placed on the grid – they are seen as obstacles. In this case the placement of the cards on the game-board should be supervised in order to avoid any blockage. **Step 4** At the end of the game each pupil has their own behaviour card. The teacher creates groups of children/actions according to the general topics identified in the first step. Each group has to research quantitative information about the positive impact that each of their behaviours has for the planet, for example: quantity of CO2 saved, reduction of landfill, quantity of water saved, etc. According to the age of the children the teacher can also ask for a comparison with the second implementation actions identified by the class or with the usual behaviors. In case the identified behaviours are not the most ecologically sustainable, the pupils present the most effective solutions. In the following lesson, each group presents their quantitative results to the class (they can use interactive digital presentations). **Step 5** The teacher supports the children in creating a poster with the different situations and ecologically aware behaviours in daily life. In the poster there will be a table in which the child reports every time they have chosen to do an ecologically aware action when in those situations (e.g. go to school on foot / riding a bike instead with the parents' car). After a month (or a longer period) the class calculates the quantitative positive impact of all their actions. In this way the children will have a clear understanding on how each single daily action can have a greater impact for

	the whole planet.
Feedback & assessment	The activity is presented through the active participation of the pupils and a game. Robotics is an inclusive tool and children learn while having fun. This plan allows several adjustments both for the different ages of children and for the different competences in a class. Free observation can be used to collect data on the objectives planned at the beginning of the activity.
Evaluation (for purposes of grading)	There are many different academic subjects involved in this lesson plan so the teacher can assess each different activity (discussion and divergent thinking, art, robotics and computational thinking, teamwork, public speaking, math and statistics) During the game a score can be given for each action that protects the environment and a negative score for all pictures that represent an action that damages it. The total score is a useful tool for collecting evidence of what children are learning.

Life in water	
Subjects	Technology and Design, Engineering Design Field, Science, Coding, sustainable development goals
General objectives	• Know the environment in which the students live • Express the importance of the interaction between humans and the environment • Conduct research and suggest solutions to protect the natural environment. • Recognize the importance of recycling and resources necessary for life.
Specific and Interdisciplinary Objectives	The aim of this course is to question how plastic waste can be removed from water.
Target group	11-12 years old students
Duration/ Time Necessary for the Activity	2 lessons of 40 minutes
Learning Environment/Place	Classroom
Expected learning outcomes	• Understand that the design process is a process of defining a problem and proposing a solution. It refers to a problem, need or dream that can be realized in daily life as a "design problem". • Share the solutions developed for the problem the student has identified. • Tell the research steps of the design process. • Tell the design development criteria. • Explain the importance of user, material, application and environmental factors when creating a design. • Explain the steps required to create the design. • Explain the security measures that should be taken in technology and design applications. • Explain the concepts of draft, model, mock-up and prototype. • After evaluating the design, reconstruct its design based on the data obtained. • Explain technologies for obtaining clean and sustainable energy by using natural resources such as water, wind and sun. • Design a product that can obtain energy through natural resources.
Teaching Strategies	Problem-based learning, learning by doing, experiencing, project-based

<table>
<tr><td></td><td>learning, brain-based learning, learning through presentation, brainstorming, lifelong learning, question answer, coding, STEAM</td></tr>
<tr><td>Tools / Materials / Resources</td><td>Pen, background cardboard, paper, glue, paper tape, micro:bit, battery slot, waste plastics, magnet, colored pencils.
How do marine plastics threaten aquatic life? - https://www.youtube.com/watch?v=amBYmGiszT0</td></tr>
<tr><td>Detailed step-by-step description of the activity / sequences of the units</td><td>• At the beginning of the lesson, students are shown videos about life in water and life-threatening plastic waste in water. This section will last 10 minutes.
• They are then asked to think about how they can collect waste from the water with their favorite game character. This section will last 5 minutes.
• Students are divided into 2 teams and their chosen game characters are determined. This section will last 5 minutes.
• Then the 2 teams are asked to model underwater in 3D. This section will last 20 minutes.
• Students are asked to discover how they can collect waste on the model with the game character they have chosen. This section will last 10 minutes.
• After completing these tasks, students are asked to design a micro:bit game that collects waste in the water with the game character of their choice. This section will last 20 minutes.
• Teams who complete the activity share their 3D models and micro:bit game with the class. The differences of the code blocks used in micro:bits are evaluated and different coding methods are emphasized.
• In addition, the techniques of using magnets in collecting waste through the 3D model are compared. In this section, the peer evaluation form is applied and the group leader with the highest score is selected. This section will last 10 minutes.</td></tr>
<tr><td>Feedback & assessment</td><td>The group leaders with the highest scores play the game designed by both teams and their total points are evaluated. The leading team selected according to the team leader with the highest score is rewarded.</td></tr>
<tr><td>Evaluation (for purposes of grading)</td><td>
<table>
<tr><th>TASKS</th><th>1 POINT</th><th>2 POINTS</th><th>3 POINTS</th></tr>
<tr><td>It fulfills the responsibility it has undertaken in a timely manner.</td><td></td><td></td><td></td></tr>
<tr><td>It has been seen that he is voluntary in the studies.</td><td></td><td></td><td></td></tr>
<tr><td>He exhibited a harmonious attitude in group work.</td><td></td><td></td><td></td></tr>
<tr><td>He put a lot of effort into the success of the group.</td><td></td><td></td><td></td></tr>
<tr><td>He behaved cleanly, neatly and tidily while working.</td><td></td><td></td><td></td></tr>
</table>
</td></tr>
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Lesson plans for the whole school year or a long term project

How does plastic become 'evil'?	
Subjects	Knowledge of the world, Art and technology, Lithuanian language, ICT, Mathematics, Physical education
General objectives	Develop students' eco-awareness and the ability to act sustainably.
Specific and Interdisciplinary Objectives	• Systematize the knowledge gained in the educational program "Waste - animal killer", to generate ideas in the lessons of knowledge of the world. • Understand the relevance of environmental protection and pollution problems while visiting a plastic processing plant. • Learn about the types of plastic and the importance of sorting in a homestead created according to the principles of sustainable consumption. • Find out the meanings of plastic packaging symbols and proper waste management using various information sources and tools. • Apply sustainable problem-solving methods in art and technology lessons creatively while creating games, combining different teaching/learning subjects, develop creative thinking, develop cooperation skills. • Share examples of conscious consumption while developing communication competence, to encourage peers to avoid excessive consumption at the conference.
Target group	7 – 10 years old students
Duration/ Time Necessary for the Activity	• Educational program "Waste - animal killer" - 1 hour. • Activity in the company - 1 hour. • Education "Plastic Road" - 2 hours. • Experiential activity "Package labeling" - 1 month/20 minutes a day. • Creative activity "Create a game" - 3 lessons of 45 minutes each. • Social project "Bottle cap campaign" - 9 months. • Republican practical conference "We are a part of the Earth" - 5 hours
Learning Environment/Place	The educational program "Waste - animal killer" was held at the Panevėžys Nature School. The students observed how plastic waste is recycled at Plasteksus UAB. Education "Plastic Road" took place in the homestead created on the

	principles of sustainable consumption "Gervių lizdas" in Trakai district. Experiential activity "Package labeling" and creative activity "Create a game" were carried out in classrooms. Social project " Bottle cap campaign" has been carried out in families and schools until now. Students participated in the republican practical conference for students of grades 1-4 " We are a part of the Earth" at Panevėžys Rožynas Progymnazium.
Expected learning outcomes	• Be able to systematize knowledge about plastic and apply it in practical activities and generate new ideas. • Understand the relevance of environmental protection and pollution problems. • Get to know the types of plastic and the importance of sorting. • Know the meaning of plastic packaging symbols. • Create games using bottle caps. • Read a report on implemented activities.
Teaching Strategies	Educational program, demonstration, discussion, practical, creative activity, field trip, meeting, observation, recording data in tables, drawing diagrams, searching for information on the Internet, individual work and group work, action, conference, reading a report, watching videos, learning by inquiry model, reading strategies.
Tools / Materials / Resources	Various waste (e.g. box, bottle, cup, toothbrush, pot, etc.) for practical activities, worksheets with tables, bottle caps, grinding equipment, magnifying glasses, tablets, Internet, videos, secondary materials for creating games (e.g. cardboard box, paper sheet, bottle caps, felt-tip pens, glue, scissors, etc.), PPT. Pupils went to the Nature School, the Plasteksus company and the Gervių lizdas homestead by bus. Online sources: • Panevėžys Nature School: https://www.gamtosmokykla.panevezys.lm.lt/images/2022/Darbinis/Edukacijos/Atliekos_gyvunu_zudikes.pdf; • UAB „Plasteksus“: https://www.plasteksus.eu/; • Homestead „Gervių lizdas“: https://www.gerviulizdas.lt/plastiko-kelias/; • Bottle cap campaign: https://www.facebook.com/kamsteliuvajus.lt; • Labeling of packages: https://www.zaliasistaskas.lt/pakuociu-zenklinimas/; • Labeling of plastic: http://www.circulareconomy.lt/ka-reiskia-plastiko-zymejimas/; • Sorting of plastic waste: https://ecoservice.lt/naujienos/plastiko-atlieku-rusiavimas-ir-tvarkymas/;

	• Sorting of plastic: https://www.youtube.com/watch?v=edsxNExXOhY; • Recycling of plastic packaging: https://www.youtube.com/watch?v=9XkTgLvJNlA; • Plastic waste: https://www.uabtratc.lt/plastiko-atliekos/. The teacher needs skills in digital literacy and organization of research activities.
Detailed step-by-step description of the activity / sequences of the units	In the educational program "Waste - animal killer", students discussed the approach to pollution of nature with waste, the impact on climate change, examined waste that, if left in nature, can become a death trap for animals, learned how to properly dispose of garbage so that it does not pose a danger to animals, participated in the "rescue action" of a Can, a Glass and a Newspaper. More: 1. https://www.facebook.com/panevezioviltiesmokykla/posts/4995687057216126 2. https://www.facebook.com/velzysgymnasiumm/posts/pfbid0CMcZJp4uKJahPVhDWL4eYVYVyUfWvodkZqsRRmwjDTh5JJqZHLe3g1egaVPeabLwl In "Plasteksus" company, whose products are sold not only in Lithuania, but also abroad, the students observed how plastic granules are made from recycled raw materials. A film is blown from these granules by extrusion molding. Granules are melted with a special device and the film is blown under pressure. The students learned that products for food packaging are made from food pellets - bottles that are used for water, juice and other products. The company also produces tanks, stoppers, lids, plastic handles,

PE films, bags, plastic blowing and molds.

More:
https://www.facebook.com/paneveziovilties mokykla/posts/5074392329345598

In the homestead "Gervių lizdas" founded according to the principles of sustainable consumption, students participated in the educational program "Plastic Road". Students deepened their knowledge about types of plastic, remembered what PET, HDPE, PP mean, performed practical tasks: sorted bottle caps, grounded them in a grinder, found out how to separate different types of crushed plastic particles. Second and third graders discussed the situation of land pollution with plastic, the importance of sorting.

More:
https://www.facebook.com/prsc.lt/posts/pfbid0AVgKzP9ycAc4ojpYekQ47ezues246ypRDsgxDVz5igRLFUbM4GDbnkcQDFSY2Dp4l

In the experiential activity "Packaging Labeling", students found out about the labeling of plastic packages, its recycling options, collected and studied bottle caps, sorted them according to codes while studying plastic packages and finding out their labeling. Labeling the packages makes it easier to separate and collect the correct plastic waste. The students learned that certain combinations of letters (PET, PVC, HDPE...) and numbers (1-19) are used to label plastics. First and second graders used magnifying glasses to search for them. While completing the research data table, the students noticed that most of the bottle caps are made of HDPE, which is denoted by the number 2. This type of plastic has good chemical resistance and is used in the production of shampoo bottles, garbage bags, shopping bags, butter and margarine containers, household cleaner bottles, and yogurt containers. The students discovered that this type of plastic waste is used to make drainage pipes, washing liquid detergent bottles, oil bottles, floor tiles, outdoor furniture, benches and even the pens they use to write with every day!
More:
https://www.facebook.com/prsc.lt/posts/pfbid0AVgKzP9ycAc4ojpYekQ47ezues246ypRDsgxDVz5igRLFUbM4GDbnkcQDFSY2Dp4l

More:

1. https://www.velziogimnazija.lt/index.php/lt/2-uncategorised/652-pirmokai-tyrineja-plastika

2. https://www.facebook.com/velzysgymnasiumm/posts/5154093181278391

In the creative activity "Create a game", students made board games using collected plastic bottle caps. Some games are designed to develop calculation skills ("Mathematics Actions"), others - to deepen knowledge of the world ("Journey around Lithuania", "Smartie", "Wild West", "Nature Path"), the third - for sports and health ("Olympėdis", "Sportis"), others - for memory training ("Remember", "Memory", "Find a mate for the animal"), for entertainment ("Guess and recognize", "Catch the mouse", "Snake", "Block"). Now students not only play in the classroom or in the library, but also invite all school students to immerse themselves in the world of games.

More:
https://www.facebook.com/groups/1117404808615730/permalink/1749283518761186

By participating in the social project "Bottle caps campaign", students collect plastic bottle caps (HDPE), encourage their peers to pay attention to the sensitive problem of waste sorting in Lithuania. The goal is to collect as many small litter - plastic bottle caps - as possible in order to recycle them.

Students participated in the republican practical conference for students of grades 1-4 "We are a part of the Earth", the purpose of which is to share STEAM long-term projects, the practice of natural science research activities, environment protection ideas, etc., which stimulate children's critical thinking, develop and deepen problem solving and public speaking skills. The students presented the report "I am friendly to nature!". Speakers shared the experience and impressions gained during the project "Movement: school without plastic" (School Plastic Free Movement) and invited their peers to think "green".

More:
https://www.facebook.com/velzysgymnasiumm/posts/pfbid0nKFPXBdK7XZRTxFLrDiTnqccVvcVH45d86A6QqtwFPRDvHMS8ww9qz72eM1mW2D1l

Feedback & assessment	Students were actively involved in the activities, acted creatively, and achieved the goals. Students reflected while answering educators' questions, filled out activity questionnaires for teachers in the Mentimeter program. The students presented the summarized results of the activities at the conference.
Evaluation (for purposes of grading)	Formative assessment was applied, students were given written and oral comments. Assignments were evaluated according to pre-agreed criteria. Parents are informed.

A healthy school breakfast	
Subjects	Class - Life Skills Correlations with the teaching subject Biology
General objectives	To understand what is useful and harmful in their diet, what to take to be healthy, to understand the harmful impact on the health of students and the environment from wrongly packaged food (plastic packaging).
Specific and Interdisciplinary Objectives	• Create teams, healthy body-healthy spirit • Reducing waste (selection and recycling) • Find solutions when choosing packaging • Share information and acquired knowledge
Target group	6-7 years old pupils
Duration/ Time Necessary for the Activity	30 minutes every morning
Learning Environment/Place	School - school kitchen
Expected learning outcomes	• Students learned what is useful and harmful in their diet • They know what to do to be healthy and have a clean environment • They understand the harmful impact plastic packaging has on the environment and on their health • They learned what food should be for proper psycho-physical development of students
Teaching Strategies	Teaching strategies make teaching and learning fun. Most students learn best through engagement and active learning opportunities. Pair work and teaching strategies embrace this and contain components that ensure that learning is fun and engaging. This ultimately helps them learn more and improve their knowledge because it stimulates learning. Demonstrative and practical methods are applied.
Tools / Materials / Resources	Basket made of natural materials, disposable gloves, hat, mask, glasses, biodegradable bags.
Detailed step-by-step description of the	Two students on duty every morning before the start of classes in the school kitchen, respecting the ISO 22000 Standard, pack the food in

activity / sequences of the units	biodegradable paper bags, every morning they make sure that the fruit is well washed, and the waste is properly selected.
Feedback & assessment	Learning progress, information, learning progress report, structured form of the activity. Assessment does not create fear among students, but fear is a consequence of the wrong way in which the teacher approaches his task. In that sense, teachers should offer interesting, varied and challenging, but achievable, cognitively valuable tasks that lead to student progress. It is necessary to pay attention to what the students will say spontaneously or when answering the questions, how they present what they have learned, what the students write, draw and do.
Evaluation (for purposes of grading)	Learning is understood as a dimension of individual development that can be influenced by the environment, but also by the learner with the extent and quality of his engagement. The advantages of this type of assessment lie in its preventive role: it prevents the occurrence of failure with its timeliness.

Plastic free school	
Subjects	Natural Sciences, Plastic Arts, Language, Educational Attention and Physical Education.
General objectives	• To make students aware of the environmental impact derived from the use of plastics, giving them the opportunity to be protagonists of a positive change through their contribution. • Sensitize the entire educational community about the importance of reducing single-use plastic.
Specific and Interdisciplinary Objectives	• Reduce plastic consumption at school. • Separate and recycle the different school waste. • Create a Clean Point for different types of waste: batteries, textiles, plastics, organic and paper. • Develop and implement proposals that involve students and the entire educational community in solving the environmental problems detected. • Participate in curricular initiatives related to the environment, such as a literary and drawing contest, developing creativity and an entrepreneurial spirit. • Promote attitudes of responsible consumption and environmental care. • Promote teamwork, developing communication and dialogue skills.
Target group	3 to 12 years old students, adapting it to the level of each group.
Duration/ Time Necessary for the Activity	The activity has been developed throughout the school year as a cross-cutting theme in the area of Natural Sciences. In the 1st session, the students were told about the environmental problem caused by the use of plastic, and they were asked what would be possible to do from the school. The following activities have been carried out in small spaces of time in the areas of Natural Sciences and Plastics generally, as well as in recess/lunch times and in Physical Education.
Learning Environment/Place	Indoor and outdoor Most of the activities have been carried out in the classroom. A study of waste in the school yard and in the neighborhood has also been carried out.
Expected learning outcomes	• Reduction of plastic in the school. • Separation of the different waste from the center. • Awareness and sensitization of students about the environmental impact of plastics.

Teaching Strategies	The methodology to carry out this project is based on action research. Its main characteristics are the following: • It is participatory. Students will work with the intention of improving your knowledge. • Follow some steps: Motivation, Diagnosis, Reflection, action. • It is collaborative; The activity will be carried out in groups. • It involves recording, collecting, analyzing our own judgments, reactions and impressions around what happens. • Critical analysis of situations is carried out. • Induces to theorize about practice.
Tools / Materials / Resources	• School stationery, computer equipment, internet, teams... • Mobile recycling containers for the clean point and permanent containers/boxes in the Infant, 1st and 2nd grade classrooms. • Recycling campaigns for technological waste and used clothing. • Individual environmental notebook for students
Detailed step-by-step description of the activity / sequences of the units	**Preparation phase:** It is the initial phase of the activity, where the project is presented and the environmental situation of the school is discussed identifying the areas where plastic is most commonly used within the school, for example can be the lunch, scholar materials (is it needed to have each year new pens? new pencil cases? new backpacks, most of them made of plastic? Is it possible to reuse them from one year to another? On the schools with halls of student's residence pupils can discuss about the materials used in their catering service where most of the times the food is carried in one use plastic food trays **Investigation phase:** In this phase, activities are carried out where schoolchildren investigate the chosen topic to find out what happens in the s school. Investigation sheets on waste, garbage meters. **Reflection phase:** Once the investigation is made, activities are carried out where the students reflect on the problem and propose different solutions. **Action phase:** From the different proposals, those that are believed to be most feasible to carry out and those that the students believe will give the best results are chosen. In this phase, awareness and action activities will be carried out so that together, little by little, we can transform our schools: plastic-free lunches and water bottles, a clean point and recycling area for the entire educational community, a literary and drawing contest "A world without

	plastics" and environmental field notebook.
Feedback & assessment	To quantitatively evaluate the individual degree of achievement, a record of all the students of the School has been made, with which to be able to verify the fulfillment of the proposed objectives. As it is a nominal register by levels, a control is kept of which students have still or have reached the objective, thus having the possibility of encouraging each one of them individually, as well as positively reinforcing those who have already established a routine for the benefit of the environment. In order to evaluate the operation of the clean point, the adequate separation of the waste in the mobile containers is periodically observed by the students, in the recess periods, in order to assess the degree of autonomy in this regard and adapt to it. teacher supervision. The responsibility of those in charge of the daily management of the clean point is also valued.
Evaluation (for purposes of grading)	The record developed as an evaluation tool covers the following two achievement indicators: • Use a reusable bottle made of metal or another material instead of single-use plastic bottles. • Bring lunch in a reusable Tupperware or cloth bag instead of using aluminum or plastic wrap. With the results obtained, some percentages of achievement by classes have been elaborated that allow us to see comparatively the evolution with respect to the decrease in the use of plastics since the beginning of the course, when we carried out the garbage meters. The results have been very positive and we are very satisfied.

Too much is not always good	
Subjects	Civics, Life Knowledge
General objectives	• Raise students' awareness about plastics. • Enable them to see the damages caused by plastic in nature, • Promote less use of plastic
Specific and Interdisciplinary Objectives	• The students should know what plastic is, • They should recognize the harm of this material to the nature, • They should learn in detail how long the waste that we produced remains in nature, and they should feel obliged to take measures. • They should be able to show in their behaviors what they have learned and share them with the people around them.
Target group	6 to 10 years old students.
Duration/ Time Necessary for the Activity	The first phase of the activity was organized as a 40-minute session to master the subject via conversations and by doing and experiencing it. Then, every week, observations are made in the first 10 minutes of the first lesson of the week.
Learning Environment/Place	The activity can be done in the classroom or in the school garden. However, outdoor activities are preferable since they are generally more enjoyable than indoor activities, and they have memorable effects on children.
Expected learning outcomes	• Learn to work collectively • Take one's responsibility • Use less plastic • Understand the harm of the plastic to nature • Learn how long the plastic remains in nature
Teaching Strategies	The activity should be carried out in a conversational atmosphere, and students should be able to realize the problem and find their own solutions through the guiding questions and the directions. Students should personally participate actively in the implementation phase of the activity, and a permanent memory should be created in the students about the activity.
Tools / Materials / Resources	• 3 Pots • Sufficient amount of soil • plastic waste • Paper • Vegetable and fruit waste Note: If possible, materials should be placed separately for each group in

	the classroom. By this way, students in each group will have opportunity to participate in the activity more and experience more. This will increase interest and persistence. If it is not possible to provide materials for different groups, it would be appropriate to include as many students as possible during the construction phase of the activity.
Detailed step-by-step description of the activity / sequences of the units	**<u>Preparation Phase</u>** Firstly, guiding questions are addressed to students to raise interest, such as: What is plastic? What would happen if it didn't exist? What happens if plastic is used too much? How can we reduce the use of plastic? What is disposable plastic? What would happen if it was not in our lives? What can be done about recycling? At this stage of the activity, students are promoted to talk about the plastic waste they bring. Then, one of the students is asked to leave the plastic waste in a corner of the classroom or in the garden. It is discussed whether this is disturbing or not. Then, other students are asked to leave what they have in the same places. Ask them how they feel about the growing pile of waste. Finally, all of them are asked to throw what they have as waste. And their opinions are taken about how disturbing this situation is. Then, they are asked to think about how much waste comes out of such a small group and how individual behaviors affect our school, our neighborhood, our district, our city, our country and the world. This phase can be planned for approximately 20 minutes. **<u>Implementation Phase:</u>** In this part, students are asked to place plastic waste, vegetable-fruit waste and paper waste in separate pots where they put soil and cover them with soil. Each pot is then labeled and asked to guess which pot will disappear first. In this process, which is carried out in a conversational atmosphere, students should be guided with various questions and acquisition of the topic should be ensured. This phase can be planned as 20 minutes. **<u>Conclusion:</u>** At this stage, students are asked to estimate the extinction times of the products they placed in the pots. Every Monday, in the first 10 minutes of the first lesson, the pots are checked with groups and the observations are shared with the class.
Feedback & assessment	In order to ensure that what learned by the students is permanent, group presentations will be made by the student groups at regular intervals according to a schedule. By this way students will be more inclined to take

	responsibility to be more careful and insistent in taking the necessary steps.
Evaluation (for purposes of grading)	It is planned that students will not be graded for such activities. The aim is for the student to take the necessary steps with pleasure, by feeling, thinking and adopting. Students are expected to follow each other and warn each other. Students who are careful and exemplary in this regard can be rewarded by badges. Thus, the formation of exemplary and responsible behaviors in other children who wish to have these badges is promoted.

Life around us	
Subject	Natural Sciences
General objectives	Recognizing importance of environment (air, water, soil and light) for planting
Specific and Interdisciplinary Goals	Comprehends the habitats of plants, their indispensable needs, and in which natural or artificial environments they can live according to their species.
Target Group	7 years old students
Duration/ Time Required for the Event	80 minutes, (2 lectures). 1 week of implementation
Learning Environment	Classroom and home
Expected learning outcomes	Learn what plants need to survive.
Teaching Strategies	Learning by doing, by experiencing and by searching
Tools / Materials / Resources	The common characteristics of living organisms and their growth needs are explained with the help of 1st Grade Life Knowledge Book and Morpa Campus Education website. An Experimental Set-up, in which plants will be observed grow: plant seeds or plant seedlings, pots, soil, water will be used.
Detailed step-by-step description of the activity / sequences of the units	Students are informed through lectures in the classroom. • Homework is given on the subject of planting seeds in pots and germinating them under the supervision of parents. • Students provide necessary conditions to seeds and follow their growing. • Students take pictures each day and monitor the development of the plant. • Photos of germinating plants are submitted to teacher.
Feedback and evaluation	The teacher monitor whether the activity has been carried out correctly by checking the photos.
Evaluation (for grading purposes)	In order to measure whether the course has achieved its purpose, students are asked what they did to germinate and grow their plants in the experiment given. The expected answers are soil, water, air and light. And they understand how important the environment for planting.

Lesson plans about sustainability

Become a consumeless traveler	
Subjects	Civics /citizenship
General objectives	• Protection of the environment • Raising awareness of environmental issues
Specific and Interdisciplinary Objectives	• Don't waste water • Adopt behaviors to reduce waste production • Prefer organic products • Simple actions to improve and preserve the environment • Learn in a playful way • Positive citizenship
Target group	6 – 14 years old students (even younger)
Duration/ Time Necessary for the Activity	30 Minutes / lessons / learning sessions
Learning Environment/Place	Indoor / outdoor Classroom, home, garden, etc.
Expected learning outcomes	Promote best practices for saving water and energy and minimizing waste production: throughout the path of the game, you and your friends will learn how to become responsible travelers and respect the places you visit.
Teaching Strategies	Teacher adopts a mediating role, only explains the game, and can help to read the cue at each step
Tools / Materials / Resources	• The game board “BECOME A CONSUMELESS TRAVELER” (www.consume-less.interreg-med.eu) downloadable at this link: https://schoolplasticfreemovement.org/wp-content/uploads/2024/08/Goose-game-CLM_EN.pdf • One pawn for each player (If you wish to have some eco-friendly pawns or pieces you could use beans or paint some corks (you could even draw some characters or stick pictures on them) • One dice
Detailed step-by-step description of the activity / sequences of the units	The game path begins from the square marked with the word "Start". The goal of the game is to reach the final square before any of the other players. The students roll the dice and move their pawn around the track and follow the instructions they find on the squares they must stop into. If they adopt

	sustainable practices and a responsible behaviour they will be able to move forward, otherwise they will be forced to stop or move back.
Feedback & assessment	Question the children in a group debate about their opinions on the game, its interest, relevance, application, theme, etc., ask questions, encouraging a free debate of opinions, encouraging the participation of everyone involved.
Evaluation (for purposes of grading)	The game can be as a stimulus or introduction to the themes covered in the curriculum content Draw up a questionnaire to check content retention after a few sessions of the game

Conserving water doesn't do much to alleviate the climate crisis, but it can help us deal with the impact by diverting less water, saving water solutions	
Subjects	Science, Math, ICT, Language, Art
General objectives	This lesson plan will enhance among the students the following skills, defined as 21st century skills: **Critical Thinking -** Analyze and evaluate major alternative points of view. Synthesize and make connections between information and arguments. **Problem Solving** - Solve different kinds of non-familiar problems in both conventional and innovative ways. **Communication and Collaboration** - Collaborate with others; Demonstrate ability to work effectively and respectfully with diverse teams; Exercise flexibility and willingness to be helpful in making necessary compromises to accomplish a common goal. **ICT Skills -** Use technology as a tool to research and evaluate information. **Productivity** - completing the assigned tasks, students will develop the ability to meet the targets.
Specific and Interdisciplinary Objectives	Water pollution, climate change, water conservation, and envisioning a sustainable future are deeply interconnected issues. Students encounter daily news about these environmental challenges, prompting the need for fostering eco-consciousness and skills development individually. This lesson scenario empowers students to take responsibility for improving both school and community environments. Through collaborative planning and action, they develop vital interpersonal and workplace skills while inspiring positive change among their peers. Some students will flourish in leadership roles, while all will gain confidence and a sense of accomplishment through their contributions to environmental stewardship. • Engage students in multidisciplinary activities • Represent information in different ways: data representation with math, creative representation of the information found with art, language etc. • Enrich students' vocabulary with words relevant to water saving and climate change • Develop critical thinking and problem solving • Work collaboratively and to communicate appropriate • Develop the Eco skills and Eco awareness
Target group	7-9 years old students
Duration/ Time Necessary for the Activity	Integrated multiple classes during the week not on the same day. Language - 40 minutes Science - 40 minutes

	Math - 40 minutes ICT - 40 minutes Art - 40 minutes
Learning Environment/Place	During the lesson, students will participate in an outdoor experience aimed at raising awareness. This school event will introduce parents to STEM subjects and learning strategies.
Expected learning outcomes	This lesson is designed to cater to diverse learning needs and interests by adopting a teaching approach that accommodates each student's individual requirements. Students will understand the nuances of mastering knowledge and learn how to navigate personalized learning challenges in the classroom. Through varied instructional methods such as teamwork, interactive lectures, presentations, exercises, and computer-based activities, they will effectively acquire and apply new knowledge across different learning styles.
Teaching Strategies	Students are encouraged to support each other and work together, having the space and time to do so. Collaboration and communication are actively promoted through partnerships with community peers involved in the learning process, as well as through teamwork opportunities that emphasize authentic presentations. Effective communication among colleagues is crucial for teachers to succeed. We prioritize respecting each other's ideas, celebrating shared successes, and appreciating everyone's individual strengths. Our school fosters an inclusive and affirming environments for all students. The school provides multiple opportunities to inspire and inform students about careers and academic pathways in STEM/STEM-related fields. An outdoor experience will take place during the lesson. The awareness-raising event at school introduces parents to the subject and the learning strategies
Tools / Materials / Resources	Papers, pencils, Notebook, Cardboard, Whiteboard/smartboard, Projector, Mobile phone/tablet/computer, Camera, Internet to watch the film: https://www.storyjumper.com/book/read/8957242/Oliver-s-Journey-to-Save-Fresh-Water Canva and Picsart for e-posters Learning aps for assessment Pear Deck for student feedback Resources used: https://www.state.nj.us/dep/seeds/docs/everydropcounts.pdf https://www.storyjumper.com/book/read/8957242/Oliver-s-Journey-to-Save-Fresh-Water
Detailed step-by-step description of the activity / sequences of	The teacher asks the students about what our needs of water are. They write down their ideas on pad let or on a worksheet (brainstorming activity). (about 15 minutes)

the units	Then, the teacher reads the story "Oliver's Journey to Save Fresh Water" (about 40 minutes) Analyzing the content of the story. Students with teacher guidance are discussing about following questions: • Why is the Earth called “Blue Planet”? • How does Oliver save water? • Where does the water come from? • What are the needs of plants? • Why do we need clean water? Until the next lesson students should observe the water waste and water uses. **Science** (about 40 minutes) The teacher offers students watch the video: https://www.youtube.com/watch?v=rl0YiZjTqpw -Assessing the student’s knowledge using the 20 minutes https://learningapps.org/view5647727 There is a video presentation and tasks for students. **Math** (about 45 minutes) Students are working in groups, and they need to measure the water waste of school shrinks. Students are analyzing the data from the measurement. They presented the data in diagrams or graphs, and they are comparing the data from different shrinks. After their research they think about the solutions for saving water at school. Presenting the conclusions that they come to. Diagrams, graphs and presentations are learning products from this class. **Art and ICT subject** (60 minutes) Students are creating e-posters for saving water with Canva or Picsart web and application tools. At the end they will present own posters and ideas for saving water.
Feedback & assessment	Students provide feedback when indicated by the teacher. Each student will fill a satisfaction survey questionnaire in Pear Deck tool. All provided positive results for the lessons and materials and showed interest in keeping working on multidisciplinary projects based on real-life problems
Evaluation (for purposes of grading)	Teachers can use both summative and formative evaluation methods to comprehensively assess the learning process, ensuring continuous improvement in teaching and personalized student learning. Assessment strategies include online research assignments, creating visual elements for posters, oral presentations, completing worksheets, and utilizing online tools such as Learning aps, Canva, and Picsart. These approaches aim to

	guide students, increase awareness of their learning progress, and enhance their engagement in the learning journey.

Designing fabric pen holders without using plastics	
Subjects	Life Knowledge
General objectives	Increase the level of awareness about reducing the use of plastic
Specific and Interdisciplinary Objectives	• Reduce the use of plastic by raising awareness about the damage it causes. • Create awareness with pen holders designed from fabric. • Raise awareness of the families and those around the students on this issue. • Ensure that steps are taken to reduce the use of plastic in the world, starting from our immediate surroundings.
Target group	9-10 years old students
Duration/ Time Necessary for the Activity	5 working days (1 working day informing, 4 working days implementation)
Learning Environment/Place	Indoor (Home and classroom)
Expected learning outcomes	• Raise awareness about the harms of plastic use, transitioning from plastic pencil holders to fabric pencil holders of their own designs, and transitioning to a plastic-free life.
Teaching Strategies	Firstly, the teacher uses the brainstorming method to encourage the students to find divergent solutions for reducing plastic use in our immediate surroundings. Then, students listen to the instructions of the teacher to design the pen holders.
Tools / Materials / Resources	Scissors, thread, fabric, paperboard, glue and emblems of school plastic free movement.
Detailed step-by-step description of the activity / sequences of the units	• Students conduct research on the harms of plastic, • They watch informative videos about the effects of production and usage of the plastic materials. • They decide to reduce the use of plastic. • They come up with an idea of producing fabric pen holders instead of plastic pen holders. • They choose the colors of the fabric and purchase necessary materials, like paperboard and glue. • They cut the paperboard and glue them to make rectangular prism that one narrow side is open. • They cover inside and outside of the material with fabric and sew them on one side.

	• They start using fabric pencil holders on their desk which also contributes to awareness about the plastic.
Feedback & assessment	Awareness was created about the harms of plastic, and they were motivated to reduce the use of plastic.
Evaluation (for purposes of grading)	Children's performances were evaluated as a verbal grade.

Unusual inventions that come from recyclables / Inventing beyond recycling	
Subjects	Science, Engineering, Technology, CTE, Social studies, English
General objectives	• Explore how new ideas or inventions come about to make the world a cleaner, safer, happier place. • Invent one's own designs that incorporate recyclable or non-recyclable items.
Specific and Interdisciplinary Objectives	Use the invention in your daily life. It can be a toy or something you can use in your daily life. It can be useful.
Target group	8- 10 years old students
Duration/ Time Necessary for the Activity	Two 40-minutes lessons
Learning Environment/Place	Classroom
Expected learning outcomes	• Create some new inventions. • Use imagination, creativity and problem-solving abilities. • Reuse some materials and reduce the over consumption.
Teaching Strategies	Context-based learning techniques will be used. We can do some brainstorming before beginning the activity.
Tools / Materials / Resources	Learners can use some recyclable and non-recyclable plastic items, They can research some online resources to have an idea of their invention.
Detailed step-by-step description of the activity / sequences of the units	**Preparation phase:** A brainstorming session is made about recycling and reuse of materials in order to provide environmental awareness. Students are expected to create new ideas about reusing material. "Which materials we can reuse? How it could be possible to protect environment by reusing? What are the possible reusable materials in the class? How can we create new material from reusing the old materials? Which materials do we need to create new product? In brainstorming session of the lesson, students will develop new ideas. Teacher can guide students' ideas and highlight the important suggestions of students by taking notes to the board. **Implementation phase:** In implementation session of the lesson, a variety of recycled materials is provided to students. Children will examine these materials (e.g.,

	cardboard, plastic containers, old fabric, paper rolls) in order to create a new product. The pictures of reused materials would be show to students. A discussion would be made about different types of materials that can be recycled and reused in creative ways (e.g., cardboard, plastic containers, old fabric, paper rolls). Students are guided to decide what they will do with these reusable materials. Teacher may encourage students to think about the properties and potential uses of each material (e.g., cardboard for sculptures, plastic bottles for planters). Learners start to make their inventions with using some recycled materials. They will also give some information about the invention. (Where can it be used etc.) **Conclusion:** They reuse some materials and create their own inventions. They will make presentations about their inventions and show it to their friends.

Feedback & assessment	Learners create some inventions and present them to their friends. This improves their imagination and creativity. Also, they reuse the materials and create a new object. Other students give their friends positive feedback.
Evaluation (for purposes of grading)	No grading activity, these presentations photos will be included in students' portfolios and given to the parents at the end of the school year.

Study of the stream	
Subjects	Geography, Biology, Mathematics
General objectives	Explore the stream: measure the width, depth, calculate the flow rate.
Specific and Interdisciplinary Objectives	• Measure the width and depth of the stream. • Calculate the speed of the stream flow. • Collect garbage, sort it, record it. • Upload the collected data to the platform: www.plastikopiratai.lt • Work in a team, to share tasks.
Target group	12-13 years old students Students have previously studied these topics in a theoretical way, this work will require previously acquired knowledge.
Duration/ Time Necessary for the Activity	45 minutes field practical work (lesson 1) 45 minutes reflection, analysis of results, uploading data to a web page.
Learning Environment/Place	Outside and inside Field practical work took place in the area near the school. The stream runs along a block of apartment buildings and private houses. Residents in this area like to walk their dogs and go for a walk. The place is on the outskirts of the city, so there is a lot of garbage.
Expected learning outcomes	• Learn to measure the width and depth of the stream, calculate the speed of the flow, • Assess the landscape, analyze the amount of pollution, • Work in a team, share tasks, • Systematize data.
Teaching Strategies	Work in groups, practical measurements, use of information technologies.
Tools / Materials / Resources	Paper, pen, roulette, trash bags, a float. Internet site: www.plastikopiratai.lt
Detailed step-by-step description of the activity / sequences of the units	**Preparation phase:** Work planning, group distribution, revision of the formula for calculating the stream flow rate. **Implementation phase**: Trip to the stream. Students measure the depth and width of the stream. The float is launched and timed for it to swim the intended distance. Using the speed calculation formula, students find out the speed of the stream flow. The left and right banks of the stream are determined according to the direction of the river flow.

	The environment is cleaned. After the garbage is collected from the stream bank, the amount of garbage is recorded by cameras. The water condition of the stream is evaluated whether there is a lot of floating garbage. Stream water samples are taken and will later be examined under microscopes. Collected rubbish is left in the sorting containers on the way back to school. **Conclusions/summary**: In the summarizing lesson, the students organize the data, write down the stream measurements and upload the photos taken in the graph of the plastic pirates' website and give feedback.
Feedback & assessment	During the reflection, the students said that the activity was interesting for them, and they would like to have more practical lessons. Through this activity, the students put their theoretical knowledge into practice. It is a lesson for anchoring the material. Feedback is obtained by reflecting while speaking, if the class is more closed, the www.slido.com program is used.
Evaluation (for purposes of grading)	No formal evaluation was done
Replacing plastic bags	
Subjects	Natural Science, ICT, Mathematics, Technologies
General objectives	Environmental protection to preserve Earth's resources
Specific and Interdisciplinary Objectives	• Create a sustainable reusable product • Conduct research on the use of plastic bags • Choose a sustainable (already used) material for your product • Prepare a drawing of the future product • Make a sustainable product after dividing the work in the group
Target group	9-10 years old students
Duration/ Time Necessary for the Activity	4-5 lessons or 1 project day
Learning Environment/Place	Research was done in the store, calculations and drawings were done in the classroom, cutting, sewing, and embroidery were done in the technology room after pre-assigned work.
Expected learning outcomes	• Develop communication and cooperation competencies. • Develop creativity competence. • Learn about sustainability in the surrounding environment.
Teaching Strategies	Group work, practical research and analysis, mutual learning, use of

	technology, use of digital learning tools (making a video).
Tools / Materials / Resources	Paper, scissors, stationery, sewing equipment, needles, sewing and embroidery threads, string, computer, phone with a good camera, online resources (chosen app for delivery)
Detailed step-by-step description of the activity / sequences of the units	**Preparation stage:** Purification of the idea, practical research on the use of plastic in the nearest store. Students watched a video https://www.youtube.com/watch?v=Yomf5pBN8dY about plastics in the water. They noticed that the main waste of plastic is plastic bags. Therefore, they decided to replace plastic bags with another alternative. They also went to the nearest shopping center and did some research on how many different plastic bags they used to buy the fruits they wanted. It took about 10 bags. The result of the research was recorded on camera. After that students decided to make their own bags to replace plastic ones. **Implementation stage:** Product drawing is drawn, sustainable fabric is chosen, measuring, cutting, sewing, embroidering the first letters of the children's names, threading a string. To create their own bags students decided to use old curtains. They decided on the size of the bags, made drawings and measured and cut the material. Using sewing machines and needles students sewed the bags. They also embroidered the first letters of their manes on the bags. **Conclusions/Summary:** All activities are recorded, and a presentation is created about the sustainable product made by the students. Students made a conclusion that a sustainable bag is not only suitable for buying products in the shop but also good for keeping products in it as it allows the products to stay fresh.

Feedback & assessment	Students have achieved their learning outcome. The bags are used in families, and the presentation took part in the competition, "Young scientists will save the earth". https://prsc.lt/lt/erasmus-projektas-spem
Evaluation (for purposes of grading)	Kahoot, Mentimeter.

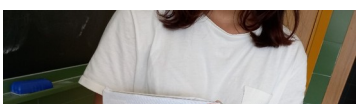
Environmental issues. Recycle. Reduce. Reuse

Subjects	Science, Art
General objectives	Raise awareness for the environment
Specific and Interdisciplinary Objectives	Use second raw materials sustainably and produce your own product
Target group	8-9 years old students
Duration	90 minutes
Learning Environment	Outdoors
Expected learning outcomes	Raise students' awareness of environmental issues.
Teaching Strategies	Discussion, brainstorming, individual work
Tools / Materials / Resources	Paper, empty containers from Pringles and other secondary raw materials, mobile phones for Kahoot.
Detailed description of the step-by-step	**Problem**: Garbage and secondary raw materials. Are they the same? Students learn together in an educational program "Think before buying",

description of the activity / sequences of the units	save while recycling in non-profit informal environmental education school Nature School of Panevėžys. E**xamples of activities that can be implemented:** • Students find out the difference between garbage and secondary raw materials. A recycling system is introduced to the students. • During the game a character Millipede gets into trap (a plastic bag). Students have to help him escape. Using 3R (Recycle, Reduce, Reuse) scheme marking system for recycling containers is introduced. • Students work in groups. They get a pile of domestic waste, measure the height of the pile and sort it out into proper containers. After sorting it they measure it again and find out the difference in measurements. • Students use an empty container from Pringles to make a decoration – a pencil. They decorate it in different colours. These souvenirs are sold in virtual simulation e-shop www.saltinieciai.lt. They will also be used to decorate the classroom.
Feedback & assessment	Kahoot test. What is the difference between garbage and secondary raw materials? What cannot be put into any of the containers at all? Where is the used tissue placed? Where can electronics and electrical goods be left?
Evaluation (for purposes of grading)	No formal evaluation was done

More sustainable school material	
Subjects	This activity is linked to the Plastic and Visual Education subjects, and to Tutorial hours.
General objectives	Present the problem of plastics and motivate students to develop responsible consumption attitudes.
Specific and Interdisciplinary Objectives	Carry out workshops on covering books with paper and cloth, discarding the covering with plastic, so that they continue to do so in this and the next courses.
Target group	12- 13 years old students
Duration/ Time Necessary for the Activity	4 sessions at the school (one per week) at the beginning of the first trimester, if more time was necessary, they would continue the activity at home. - 1st session: (45 minutes) In the tutorial room 30 minutes to present the problem of plastics, what the activity will consist of and view the videos or follow the instructions on the website. 15 minutes for them to make decisions about what materials they need and what type of lining they are going to make. - Rest of sessions. Three sessions of 45 minutes to proceed with the book cover (two of them in tutoring and another in the plastic classroom)
Learning Environment/Place	Indoor / outdoor or else The activity will be carried out in the reference classroom of each group of students, accompanied by their teacher or tutor. It can be done individually or in pairs. If there is no time, they will continue it at home.
Expected learning outcomes	• Learn to differentiate the biodegradable material needed to cover books and to dispose of plastics. • Know the importance of taking care of the planet and of reusing what surrounds us (Reuse). Students can use old scraps to cover books in a creative way or recycled paper from birthday gifts, those newspapers or magazines they have read. • Work on empathy and responsibility. Let's remember that the simple act of being responsible with their materials makes them aware of their altruistic capacities (they should not be their parents who do these tasks) and makes them appreciate everything they own.
Teaching Strategies	In the first session and, in the first place, there will be an expository part by the teacher/tutor and the viewing of the video. Subsequently, reflective period and sharing of their ideas. In the following sessions they will follow one of the following work methods:

	Method 1: Make a paper liner • Choose a paper to cover the book • Cut the paper to the required size based on the measurements of the book. To find out how wide the book is, open it up and measure from right to left with a tape measure or ruler. To that measurement, add 7 for each left and right side of the book. Then to the length of the book and add 3 cm to cover the top end of the book and also for the bottom end • Go over the folds you have created on the paper with a pencil. The idea is that the folds are well marked, especially if you are going to use thick paper • Place the cover on the book • Decorate as the student likes **Method 2:** Make a cloth book cover **Method 3:** Make a felt book cover In these two cases: • Find the fabric or felt that you will use and the elements to sew. • Measure the width and length of the book. • Cut the fabric or felt from the measurements, taken plus 3 cm for the seams, also add 7 cm more to the fabric to make "pockets" that will go at each end. • Sew the top and bottom, as well as the edges of each pocket. • Place the front and back cover of the book in each pocket. • Decorate as the student likes. Evaluation of the results
Tools / Materials / Resources	List of materials and resources needed for book covering: Reading book or textbook, agendas Fabric or felt, Kraft paper or reused paper ruler or tape measure Scissors Needle and thread pins pencil and rubber Decoration materials (optional) Glue (optional) Letter stamps (optional) Colored ink to contrast titles (optional) Computer equipment and Internet Online resource URLs; • How to cover a book easily and without adhesives https://youtu.be/SEOhyIWxYyk • How to make a book cover



	https://en.wikihow.com/make-a-book-liner-for-books
Detailed step-by-step description of the activity / sequences of the units	The steps to follow in the book cover are the following: • Find a flat surface like a table. • Spread the cloth, paper or felt and put the book on top. • Mark with chalk or pencil the necessary dimensions and remove the book. • Cut fabric, paper, or felt and fold or sew with a needle and thread to create borders on all sides. • Put the book back on top and cover it. • Add decoration (to personalize and differentiate what subject it is), they can use photos, postcards and other decorations to decorate the covers.

Feedback & assessment	Checklist to evaluate the individual activity and in pairs of book covers with Yes/No options, and the following criteria: 1. It is organized for the preparation of the work. 2. Bring the necessary materials for the activity 3. Follow the instructions of the video or the teacher 4. Participate collaboratively with other classmates. 5. Maintains discipline in the classroom. 6. He used the right materials 7. Take advantage of the time to cover your books 8. The work presents creative details
Evaluation (for purposes of grading)	The following aspects will be evaluated with forms: • The results obtained (number of participants and number of books covered without plastic) • Adequacy of facilities and spaces • Adequacy of the methods used • Realization environment • Assessment of the help provided by the teachers • Individual achievement and satisfaction • Interest to do it in future courses

Lesson plans based on Art and Language

Ecomusic Day	
Subjects	Language, music, plastic arts, physical education
General objectives	• Raise awareness of caring for the planet by using manifesto method • Make crafts without plastic. • Develop cooperative work
Specific and Interdisciplinary Objectives	• Encourage the use of recyclable materials • Promote physical and musical activity • Perform songs and dances in a group • Make a craft for the activity. • Create an inclusive environment in the classroom
Target group	3 to 12 years old students
Duration/ Time Necessary for the Activity	1 session to make the craft: 1 hour 1 session to learn the song: 1 hour 1 session to rehearse the gestures: 1 hour 1 session for the "party": 1 hour
Learning Environment/Place	Indoor / outdoor settings Preparation sessions are easy to do in the classroom Final party in the schoolyard
Expected learning outcomes	Through this activity, students become aware of the importance of working as a team to reach a common goal. Students learn in a playful way without contaminating the planet.
Teaching Strategies	Use origami for craft making. You also need to learn a song through the methodology of imitation and active listening. Finally, write an ecological manifesto in the language class, encouraging full students' participation.
Tools / Materials / Resources	The necessary materials are newspapers, paints, markers and staples, stereo, paper Sheets size A- 3
Detailed step-by-step description of the activity / sequences of the units	**Preparation phase:** • The students make a cap with newspaper in plastics class, and they must decorate it creatively during a session • During the music class, a song will be learned to carry out the activity of passing the hat in a circle (one session). Children will also

	listen to Beethoven's symphony number 6 "Pastoral". • In Physics Education they rehearse passing the hat to each other while they sing the song (one session) • In language, pupils will read Beethoven's letter linked with the Pastoral symphony on which he says "there is no doubts that forest, trees and rocks produce the echoes that human being wants to hear" and after that, while listening the symphony students will write an ecological musical manifesto that will be read during the eco-musical day (one session) **Implementation phase:** The activity has been organized in an interdisciplinary way, linking nature and music for celebrating the international music day. Programming sessions from different subjects allows different skills to be worked on, with varied activities in which students with different abilities can "shine" (crafts, language, physical education, music…). in addition, there is a link between music and nature (one of the songs that is proposed to be used is Beethoven's Pastoral Symphony, known as "Beethoven's acoustic testament to Nature".) What does this music inspire? What can children express mixing music and ecology? They will read the ecological music manifesto. **Conclusions:** After that day, the manifesto will be posted on the school's website and will be displayed on the school's walls. Include pictures, schemes or other illustrations together with the text, if useful for the implementation.
Feedback & assessment	1. The form of execution of the work carried out and the interest shown by the students will be evaluated. 2. The performance of the musical game will also be recorded for later viewing with them. 3. Finally, the writing of the manifesto, spelling, written expression and cleanliness will be evaluated.
Evaluation (for purposes of grading)	During the work sessions the observation method will be used to ensure that all students participate. We will also be attentive so that the students who finish their homework before help those who have more difficulties to finish it on time.)

The plastic around us	
Subjects	Arts, Physics and Chemistry, Biology, Technology and English.
General objectives	Minimize the amount of plastic in school supplies by becoming aware of the amount of plastic around us.
Specific and Interdisciplinary Objectives	Analysis of the situation: • Impact of plastics on the environment (biology and Technology). • Plastics in food (biology, physics and chemistry) • Plastics in the immediate environment (technology) • Amount of plastic generated in the school environment. Make these quantities visible in the educational environment (technology, language, mathematics, English). • Plastics that are dispensable and can be replaced by eco-tools (art, technology). • Photo-denunciation
Target group	11 to 14 years old students [or older]
Duration/ Time Necessary for the Activity	- 4 sessions in plastic arts for analysis of photographs and creation of new models. - 4 sessions in chemistry, analyzing food and photography with an electron microscope. - 2 sessions in technology for framing and composing posters at the center.
Learning Environment/Place	Indoor / outdoor or else The activities were carried out in the Art Classroom, Technology Classroom and Laboratory.
Expected learning outcomes	Through this activity, students become aware of the importance of working as a team to reach a common goal and promoting learning in a playful way without contaminating the planet. They are also expected to: • Use of photo-denunciation in the environment • Food analysis and microplastic detection. • Creation of wooden frames, framing and composition of an exhibition.
Teaching Strategies	Teamwork for promoting communication, conflict resolution skills, active participation and engagement at the same time than fostering a sense of community and shared responsibility. Teachers can facilitate teamwork providing guidance and support. It is also essential the multidisciplinary work, that integrates knowledge, methods and perspectives from different subjects so students can have the opportunity to gain a holistic understanding of the topic they are working on.
Tools / Materials /	• Cameras and image modification tools.

Resources	• Laboratory instruments and microscopes.
Detailed step-by-step description of the activity / sequences of the units	**Preparation phase:** 1. **Selection of works and contact with the author:** The Art Department selects the works by María Cabaleiro to be exhibited in the exhibition. Contact is made with the author through social networks to obtain her authorization and possibly more information about the works. 2. **Presentation and discussion of María Cabaleiro's works in class:** Students are shown the selected works by María Cabaleiro. The themes, styles and techniques used by the author are discussed in class. **Implementation phase:** 1. **Creation of works by students:** Students work on the creation of works inspired by María Cabaleiro's photographs. They are encouraged to explore themes related to the use of plastic and environmental sustainability. 2. **Exhibition set-up:** The exhibition space is set up with the works by María Cabaleiro and the pupils' creations as planned. Ensures that all works are correctly placed and labelled. **Conclusions:** 1. **Guided visit for 4th ESO plastic education pupils:** Guided visits are organised for 4th ESO plastic education pupils. During these visits, they are introduced to the mixed exhibition and encouraged to reflect on the works and their relation to the use of plastic in society. 2. **Reflection and evaluation:** Students participate in a class reflection session where they discuss their impressions of the mixed exhibition. They are asked to reflect on how Maria Cabaleiro's work influenced their own creations and what they learned about the issue of plastic use. **The Microplastics we eat everyday-** Photo exhibition on microplastics. Looking for foods included in our diet where we will be looking for microplastics in the Science Lab. Photograph these foods under the microscope. Exhibit the photographs together with those taken in the Plastics Department **Preparation phase:** 1. **Selection of foods and planning of the laboratory:** The foods included in the students' daily diet will be selected to analyse the presence of microplastics. The search and analysis process is planned in the Science Laboratory. 2. **Laboratory preparation and materials:** Prepare the science laboratory for microplastic analysis. Ensures that the necessary microscopes, laboratory materials and appropriate reagents are available.

Implementation phase:

1. **Sample collection and preparation:** Samples of selected foods are collected and prepared for analysis in the laboratory. Specific cuts and preparations are made as required.
2. **Laboratory analysis of microplastics:** Students carry out the analysis of food samples in the science laboratory. They use microscopes to observe the presence of microplastics in the samples and take photographs of the samples.

Conclusions:

1. **Photographic exhibition of microplastics:** A photographic exhibition of the microplastics found in the analyzed food is organized. Photographs taken during the analysis in the laboratory are displayed for pupils and other members of the school community to see.
2. **Reflection and evaluation:** Students participate in a class reflection session where they discuss their impressions of the activity. They are asked to reflect on the presence of microplastics in food and how this can affect their health and the environment.

Collaboration with the Department of Physics and Chemistry: Microplastics in food.

The students of the Environmental Council were in charge of framing the photographs in the Technology workshop, with the help of some students

from 4th grade of Secondary school

Collaboration with the Department of Plastic and Visual Education: The plastic that surrounds you:

The photographer María Cabaleiro echoed our initiative on socialnetworks*:*

	 Photographs inspired by the work of the photographic artist María Cabaleiro, currently exhibiting in Paris
Feedback & assessment	**To assess whether students achieve the learning outcomes in the microplastics activity**, it is important to use a variety of assessment methods. Here are some suggestions for activities to gather student feedback and provide feedback: <u>Observation and sample analysis:</u> After carrying out the microplastic analysis in the laboratory, students are asked to observe and analyse the samples under the microscope. During this activity, questions are asked to assess their understanding of microplastics and their ability to identify and describe the findings. <u>Group discussion and debate:</u> Class discussion where students discuss the environmental and health impacts associated with the presence of microplastics in food. Active participation is encouraged, and students are asked to justify their views with evidence obtained during the activity. <u>Satisfaction survey:</u> Anonymous survey of students to gather their views on microplastics activity. It asks about their level of interest, understanding of the topic and satisfaction with the format of the activity. You can also include open-ended questions to collect suggestions for improvement. <u>Presentation of findings</u>**:** Create a short presentation on the findings of the microplastics activity to share with the rest of the class. This gives them the opportunity to practice oral communication skills and receive feedback from their peers and the teacher. **To assess whether students achieve the learning outcomes in the**

<table>
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<td>photography activity, it is important to use a variety of assessment methods. Here are some suggestions for activities to gather student feedback and provide feedback:
<u>Evaluation of photographs</u>:
Selection of some of their best photographs taken during the activity and present them in class.
Group discussion where students analyze and comment on their classmates' photographs. This allows them to assess the technical and creative quality of the images produced.
<u>Self-assessment</u>:
Provide students with a list of evaluation criteria (e.g. composition, focus, lighting, creativity) for them to evaluate their own photographs against these criteria. They can then write a reflection on their strengths and areas for improvement in relation to the assignment.
<u>Satisfaction survey</u>:
Create an anonymous survey for the students and collect their opinions about the photography activity. Ask about their level of interest, learning acquired, difficulties encountered and suggestions for future improvement.
<u>Individual or group interviews:</u>
Conduct individual or group interviews with learners to gain a deeper understanding of their experience during the photography activity. With open-ended questions about what they liked the most, what they found most challenging and what they learned during the process.
<u>Photo exhibition:</u>
Invite other students, teachers and members of the school community to visit the exhibition and leave comments on the photographs.</td>
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<td>Evaluation (for purposes of grading)</td>
<td>Assessment rubric for microplastics:

<table>
<tr><th>Aspects to be evaluated</th><th>Level 4</th><th>Level 3</th><th>Level 2</th><th>Level 1</th></tr>
<tr><td>Understanding of the topic</td><td>The learner demonstrates a thorough understanding of the topic of microplastics, including their origin, environmental impact</td><td>The learner shows an adequate understanding of the topic of microplastics, addressing aspects such as their presence in</td><td>The learner shows a basic understanding of the topic of microplastics, but with some gaps or misconcepti</td><td>Student shows limited or incorrect understanding of the topic of microplastics, with no evidence of significant</td></tr>
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	and health risks.	food and their environmental impact.	ons.	knowledge.
Laboratory skills	The learner demonstrates advanced skills in the handling of laboratory equipment and microplastic analysis techniques, producing accurate and reliable results.	The learner demonstrates competent skills in the handling of laboratory equipment and microplastic analysis techniques, producing consistent and satisfactory results	The learner shows basic skills in handling laboratory equipment and microplastic analysis techniques, but with some errors or inconsistencies in the results	The learner shows limited skills in handling laboratory equipment and microplastic analysis techniques, with unreliable or erroneous results.
Data analysis and presentation	The learner performs a detailed analysis of the data collected during the laboratory activity and presents the results in a clear and organized manner, using graphs, tables or other visual aids where necessary	The learner performs an adequate analysis of the data collected during the laboratory activity and presents the results in an understandable manner, although there may be some lack of organization or clarity in the presentation.	The student performs a basic analysis of the data collected during the laboratory activity and presents the results in a limited or unstructured manner	The student has difficulty in performing an analysis of the data collected during the laboratory activity and presents the results in a confusing or incomplete manner
Reflection	The learner	The learner	The learner	The learner

and self-assessment	demonstrates a thorough reflection on their experience during the microplastics activity, identifying lessons learnt, challenges overcome and areas for future improvement.	demonstrates adequate reflection on their experience during the microplastics activity, identifying some positive aspects and areas for future improvement.	provides a basic reflection on their experience during the microplastics activity, but with little detail or depth in their comments.	has difficulty reflecting on their experience during the microplastic activity, offering superficial or not very meaningful reflections.

Assessment rubrics for the photography:

Aspects to evaluate	**Level 4**	**Level 3**	**Level 2**	**Level 1**
Technical quality	The photographs show exceptional mastery of composition, focus, lighting and technique.	Photographs show good overall technical quality, with some minor errors or areas for improvement.	Photographs show basic technical quality, but with several obvious errors in composition, focus, lighting, etc.	Photographs show insufficient technical quality, with numerous errors in composition, focus, lighting, etc
Creativity and originality	The photographs show a creative and original approach to composition and presentation of the subject.	Photographs show an adequate level of creativity and originality in the composition and presentation of the	Photographs show some creativity and originality but lack innovation or fresh ideas.	Photographs lack creativity and originality, being generic and predictable in composition and presentation

		subject		
Understanding of the subject matte	Photographs demonstrate a thorough understanding of the theme and convey a clear and relevant message.	Photographs demonstrate an adequate understanding of the subject matter and convey a coherent and relevant message	Photographs demonstrate a basic understanding of the subject matter, but the message may be unclear or confusing.	Photographs show limited or incorrect understanding of the topic, and the message is unclear or non-existent.
Effort and dedication	There is a perceived high level of effort and dedication in the planning, execution and presentation of the photographs	There is an adequate level of effort and dedication in the planning, execution and presentation of the photographs	Some effort and dedication in the planning, execution and presentation of the photographs is observed, but with some areas of carelessness or lack of attention	There is an insufficient level of effort and dedication in the planning, execution and presentation of the photographs
Reflection and self-assessment	The learner demonstrates thorough reflection on his/her work and provides honest and critical self-assessment.	The learner demonstrates adequate reflection on their work and provides a coherent and reflective self-assessment.	The learner provides basic reflection on their work but the self-assessment is superficial or uncritical.	The learner does not demonstrate significant reflection on their work and provides limited or absent self-assessment.

The voice of the plants	
Subjects	Natural sciences, Technology, Civic education, Human sciences, Philosophy, Language, Art
General objectives	• Increase knowledge and respect for the world we inhabit. Reflections on what intelligence is and the human peculiarity of taking into consideration above all that which resembles us. • Discover the world of plants, their communication, their ability to cooperate, their defense strategies, etc. What can we learn from them? • Improve knowledge on Botanic/Natural sciences/Technology/Civic education/Human sciences, Philosophy.
Specific and Interdisciplinary Objectives	• Improve the understanding of the communication strategies of other living beings • Learning to work in a team • Improve communication skills • Develop critical thinking • Improve divergent thinking • Learning from peers • Develop thinking around what intelligence is • Develop reflections on whether there really is one living being that is worth more than another • Foster a caring attitude toward living beings • Increasing empathy • Foster creativity • Learn to use technical equipment
Target group	6 to 13 years old students. Possibility of adapting the workshop to children from 14 to 18 years of age. The workshop can be adapted to any of the children's needs.
Duration/ Time Necessary for the Activity	Workshops of approximately 90 min (no less) are recommended. The rest of the activities continue for the whole school year.
Learning Environment/Place	The workshops can take place either in the classroom or with an outing to the school garden. In the classroom, it would be better to have the possibility to carry out online research or suitable teaching material.
Expected learning outcomes	• Development of empathic skills • Development of self-learning skills - peer to peer • Development of collaboration skills • Broadening knowledge about the relational and communication dynamics of other living beings that, unlike humans, appear to be unmoving

	• Reflection on anthropocentrism • Learning respect for all living beings even if they seem very different from us
Teaching Strategies	Teachers have the task of facilitating debate among pupils by providing for the viewing of videos that can stimulate new reflections by pupils. Children work in small groups, promoting peer mentoring and collaborative learning. Increase empathy also by caring for a seedling Beginning the activity always with an open question, leaving the main discussion to the children, marking hypotheses, observations and reflections that will then be verified together using all research possibilities e.g. paper and interactive whiteboard.
Tools / Materials / Resources	Interactive blackboard with internet connection or the possibility of watching videos previously downloaded by teachers like WorldWideWeb - The secret language of trees - Camille Defrenne and Suzanne Simard (https://ed.ted.com/lessons/the-secret-language-of-trees-camille-defrenne-and-suzanne-simard) or Electrical experiments with plants that count and communicate by Greg Gage (https://www.youtube.com/watch?v=pvBlSFVmoaw) Possibly, tools that perceives the electromagnetic signals of plants and translates them into musical harmonies like https://www.musicoftheplants.com Paper, coloured pencils and other things will depend on the individual choices of the teachers. Seedlings
Detailed step-by-step description of the activity / sequences of the units	**A) Initial workshops** of approximately 90 min (no less) are recommended. **Introduction**: 10 min initial presentation - reflection on our world and the variety of beings that inhabit it. The teacher begins the activity with an open question, leaving the main discussion to the children, marking hypotheses, observations and reflections that will then be verified together using all research possibilities e.g. paper and interactive whiteboard. Example of leading questions: Are plants intelligent? Do Plants Communicate? Do they think? Are they really immobile? View 10-15 minutes video to introduce discussion. Example of video to start the debate: Electrical experiments with plants that count and communicate by Greg Gage https://www.youtube.com/watch?v=pvBlSFVmoaw 20 minutes for general debate 20 minutes for group research. Division into groups each with an initial sentence to stimulate discussion and research Example

	• First group: Plants are intelligent? • Second group: Do plants know how to communicate with each other? and with other living beings? and with us? • Third group: Can plants defend themselves? • Fourth group: What can we learn from plants? And so on ... 15 minutes for sharing research results - To hear the conclusions reached by the various groups 10-15 minutes for the general conclusions: the final points of the various groups will be specified and clarified by the teacher. **B) Long term activities:** A plant as a friend: the teacher brings one or more seedlings to the classroom. Each group of pupils take care of them throughout the year. They analise and record the state of the plant in specific diaries. Regularly they check the "music" of the plant growing, identifying changes and trying to interpret them. The pupils can also create photos/ essays/ comic strips on the relationship developed during the year between them and the growing plant. The different languages used for the reporting will help the students with learning difficulties, migrant background, disabilities to express themselves better than with the scientific terms.
Feedback & assessment	The teacher can discuss with the pupil at the end of the initial workshops about the emotions felt and the collaboration dynamics developed in the group. To disseminate the activity in the school, the groups can create posters to be displayed on the walls of the common areas so that the reflections of the various groups can then be shared with the other classes in a peer-to-peer exchange.
Evaluation (for purposes of grading)	The teacher can assess the participation to the debates and the collaboration in the group activities The "A plant as a Friend" diaries and reports can be assessed both in scientific and humanistic subjects according to the expressive language used by the pupils.

The importance of soil	
Subject	Language (Turkish)
General objectives	Gain environmental awareness by making inferences from the text during native language course.
Specific and Interdisciplinary Goals	Defines environmental problems and develops solutions, and explains the importance of soil for life
Target Group	10 to 13 years old students
Duration/ Time Necessary for the Activity	6 lesson hours
Learning Environment	Classroom and school garden
Expected learning outcomes	• Realize that soil is an indispensable element for human life • Understand the necessity to protect the soil for human life. • Realize that there is no life without soil.
Teaching Strategies	Lecturing, question-answer, problem-solving, demonstration, discussion, brainstorming.
Tools / Materials / Resources	Paper, scissors, cardboard, glue and other stationery materials URL of online resources Various web tools (Canva etc.)
Detailed step-by-step description of the activity / sequences of the units	**Preparation phase**: Students explore the importance of soil for life. Finds proverbs and idioms about soil. Statistical research on soil fertility, desertification and drought in Türkiye by years. **Implementation phase**: Aşık veysel Şatiroğlu's poem “My loyal friend is black earth” is read aloud and silently, and a folk song is played. The meaning of the unknown words in the poem is guessed and looked up from the dictionary. The message of the poem is asked in each room and the main idea is found. The school's garden is visited, and part of the lesson is taught in this garden. Brainstorming is conducted via stimulating questions such as “what happens if we protect our environment, what happens if we don't”. Suggestions of the students are discussed to find solutions.

	<u>Conclusion:</u> Students show the statistics and graphs which are obtained by research. The students are requested to prepare posters about protecting the environment. They can use web tools or by hand. Awareness is created/increased by displaying the posters in school and classroom environments (including social media) where deemed appropriate.
Feedback and evaluation	By using the question-answer technique, feedback on environmental problems and suggested solutions are collected.
Evaluation (for grading purposes)	No formal evaluation was done

Nature and Universe	
Subjects	Language (Turkish), Science
General objectives	• Aware use of resources • Realize the importance of recycling and the resources necessary for life. • Give impromptu speeches. • Determine the main idea/main feeling of the text. Makes inferences about what one reads. • Use art elements and design principles when creating visual art works.
Specific and Interdisciplinary Objectives	• Read an article about the causes of climate change. • Research and draw conclusions about what can be done to minimize plastic use. • Create designs using the SCAMPER technique.
Target group	9-10 years old students
Duration/ Time Necessary for the Activity	3 lessons
Learning Environment/Place	Lessons will be held in the classroom. Since the design studies to be done in the Visual Arts course will be done as group work, the desks in the classroom will be arranged accordingly.
Expected learning outcomes	• Aware use of resources • Recognize the importance of recycling and the resources necessary for life. • Apply speaking strategies. • Participate in class discussions and conversations. • Make a design by taking advantage of the SCAMPER activity. • Know the harm of plastic to the environment. • Express thoughts on what can be done to minimize the use of plastic.
Teaching Strategies	• SCAMPER technique • Questions and answers, Case study, Brainstorming, Group work • Group discussion, Games • Role playing, Animation
Tools / Materials / Resources	Our Turkish Textbook, Interactive Whiteboard, Science Textbook, Eba Contents Examples of activities related to SCAMPER, various waste materials, cardboard, scissors, glue and paints
Detailed step-by-step description of the activity /	During the **first lesson**, a brainstorming group discussion is held by asking questions such as:

sequences of the units	• Why is it important to use resources economically? • What is the importance of recycling? • What is climate change, what may be its consequences? • What can we do to prevent climate change? The reading text in the Turkish book titled "What is Climate Change" is read. With the book and brainstorming, the children's awareness about how plastic use affects environmental pollution, and climate change is increased. In the lesson, it is concluded with children that one of the things that needs to be done to reduce climate change is to reduce the use of plastic. In the **second lesson**, students are informed about the SCAMPER technique. It is explained that SCAMPER technique means the combinations of the words "Substitute, Combine, Adapt, Modify, Put to another use, and Reverse. With the Scamper method, children will discuss what we can design in order to reduce plastic use or reuse plastic. By asking what we can use instead of plastic, they are asked to think about what we can use instead of the bags and plastic bottles we use in our daily lives. **Finally**, they are asked to make a design. The children decided what to create in order to reduce their plastic use in the previous lesson. They will create their design with the materials. At the end, children present their own design to their peers.
Feedback & assessment	The students will be asked to give information about the design products they can use instead of using plastic, write a text explaining the product they made and draw a picture of the product. An evaluation will be provided with short questions and answers. They are encouraged to convey their feelings and thoughts in their writing.
Evaluation (for purposes of grading)	In order to find out whether they understand the subject, they will be asked questions about the subject, they will be asked to answer, they will be asked to explain what they have written, and the lesson will end with a Self-Assessment.

Digital books	
Subjects	Language (Turkish)
General objectives	Reducing plastic use and recycling used plastics
Specific and Interdisciplinary Objectives	Designing, writing and digitally drawing the event and turning it into an e-book
Target group	11-12 years old student
Duration/ Time Necessary for the Activity	4 lessons of 40 minutes each
Learning Environment/Place	Classroom environment
Expected learning outcomes	Children's book illustration designs will be examined.
Teaching Strategies	Explaining, listening, watching, question and answer
Tools / Materials / Resources	Paper, pencil, story books, drawing tablet
Detailed step-by-step description of the activity / sequences of the units	**Preparation phase:** Before the application phase, digital illustration designs, drawings and stories about environmental awareness were examined. The project preparation phase was completed by applying a question-and-answer strategy on how to give messages about plastic use and how to raise awareness with the messages given. Students are expected to create new ideas which would be a topic of the story. (About pollution, reuse or recycling) **Implementation phase:** Students participating in the project wrote short stories about the unconscious use of plastics and the damage caused to the environment by the plastics used. The written stories were read in the classroom, voted and they chose the story to be illustrated in the digital environment. **Conclusion**: The selected story was first drawn as a draft by the student who owns the story. The drawn story was project coordinator. It was turned into an e-book digitally by Çelik.
Feedback & assessment	As a result of the stories shared, the students learned about the use of plastic and the damage plastic causes to the environment.
Evaluation (for purposes	All prepared stories were exhibited on classroom and school boards.

of grading)	The work chosen as the first among the works submitted for voting was turned into an e-book and the project was shared on a social media account. By exhibiting the works resulting from the study, it is aimed to increase the environmental awareness of the students.
Out into nature	
Subjects	Foreign language (German)
General objectives	Raising awareness for the environment
Specific and Interdisciplinary Objectives	• Repeat the studied vocabulary • Develop and raise students' awareness of environmental protection • Develop students' awareness of environmental problems related to the use of plastic • Develop creativity and collaboration between students
Target group	14 years old students
Duration/ Time Necessary for the Activity	40 minutes
Learning Environment/Place	Indoor/ Classroom
Expected learning outcomes	• Know the learned vocabulary about the subject • Educate about environmental problems • Creative and collaborate with their classmates
Teaching Strategies	Teaching is problematic, integrated Teaching forms: individual, work in pairs and groups Teaching methods: dialogically, illustrative, demonstrative, practical work, Teaching Techniques: Growth, Game/ Quiz
Tools / Materials / Resources	Materials: paper, scissors, markers, Smart Interactive Electronic Whiteboard, iPads, Online sources: https://create.kahoot.it/details/41767611-6bdc-4d6b-9cf9-4f58618bb1f7 https://create.kahoot.it/details/56060a34-4d11-4ca4-afc4-ecc3ae8ec799
Detailed step-by-step description of the activity / sequences of the units	In this lesson plan focusing on environmental awareness, students engage in interactive and collaborative activities to deepen their understanding of environmental protection, with an emphasis on vocabulary and concepts. The lesson begins with the G.R.A.P.E. technique, where a central keyword such as "Umweltschutz" (environmental protection) is written on the board. Students then

<table>
<tr><td></td><td>brainstorm and contribute related words and ideas, creating a contextual framework that activates prior knowledge and sets the stage for the lesson. This initial activity is followed by pair work using iPads, where students participate in a swimming quiz on the interactive platform Kahoot. This phase not only reinforces learned vocabulary but also introduces new concepts related to environmental science, technology, and engineering, highlighting the role of STEM in addressing environmental challenges.
Concluding the lesson, students are grouped to create slogans reflecting their learning, using tools such as hammers and markers. This creative exercise consolidates their knowledge and encourages them to express environmental awareness through practical and engaging means. The lesson wraps up with a discussion on reducing plastic usage in the school, emphasizing the implementation of a school plastic-free model. This discussion promotes actionable steps for environmental consciousness within the school community, integrating the principles learned throughout the lesson into real-world applications. Through these activities, students not only enhance their vocabulary and understanding of environmental issues but also develop problem-solving skills and a commitment to sustainability.</td></tr>
<tr><td>Feedback & assessment</td><td>Oral feedback
ZSNU Table is an educational assessment tool designed to evaluate students' performance across four dimensions: **Zielerreichung (Achievement of Goals)**, **Selbstständigkeit (Independence)**, **Nachhaltigkeit (Sustainability)**, and **Umfang (Scope)**. It enables a structured evaluation of how well students meet objectives, their ability to work independently, the sustainability of their approaches, and the breadth of their content. For example, in a project on "Reducing Plastic Use," the table assesses whether the goals were effectively achieved, the student's independent execution, the long-term sustainability of proposed solutions, and the comprehensiveness of their coverage on plastic alternatives. By providing specific feedback in these areas, the ZSNU Table helps students improve holistically, fostering both academic and practical skills.</td></tr>
<tr><td>Evaluation (for purposes of grading)</td><td><table><tr><td>What do I know</td><td>What do I want to know</td><td>What did I learn</td></tr></table></td></tr>
</table>

Lesson plans for activities for high cognitive potential students

Detectives for sustainability (escape room)	
Subjects	Social Sciences (History), Literature, Geography
General objectives	Learn about different types of plastic and their use throughout history to promote responsible consumption.
Specific and Interdisciplinary Objectives	• Know different types of plastic and their usefulness throughout History. • Promote research • Develop critical thinking • Enhance creativity in problem solving • Develop communication and dialogue skills • Develop responsible consumption attitudes • Promote the image of women as scientists
Target group	12–13 years old students with high cognitive potential / gifted [or older]
Duration/ Time Necessary for the Activity	1 hour 45 minutes (The Escape Room will probably last less time, so the remaining time is recommended to share what has been learned and reinforce learning).
Learning Environment/Place	Physics Laboratory and Physics Museum
Expected learning outcomes	Learn about different types of plastic and their use throughout history to promote responsible consumption.
Teaching Strategies	It is advisable to guide the students as they develop the activities so that they do not waste too much time on false leads. They should be encouraged to participate and work as a team. You can add more clues, both false ones and others intended for reflection or to lengthen the activity further. The clues can be placed in strategic places, more or less obvious, depending on the characteristics of the group.
Tools / Materials / Resources	• Audio with game instructions. • Photocopies with the clues they must follow and the investigation sheets. • Posters of different sizes to place throughout the classroom. • Cardboards for the four tracks.

	• Tablets.
Detailed step-by-step description of the activity / sequences of the units	**Preparation:** An audio will be played in which the instructions they must follow are given. They must get the name of 4 different types of plastic, for each type of plastic they will receive a research sheet that they must complete. Once each card is completed, they will be given a piece of cardboard with a syllable on the back. **Main phase:** They must get the name of 4 different types of plastic (Bakelite, Kevlar, Polypropylene and Nylon), for each type of plastic they will receive a research sheet that they must complete which refers to its use, its discovery and its Historical importance. Once each card is completed, they will be given a piece of cardboard with a syllable on the back. With the syllables on the back of each plastic the word RE-CY-CLI-NG is formed. It is the key that allows you to solve the Escape Room. **Conclusions**: The students in general were very participatory and collaborative. Some students have tried to take the lead by assuming all the responsibilities, but they soon understood that collaboration was needed to progress. They usually need some kind of guidance to avoid getting too distracted by red herrings throughout the class.

Feedback & assessment	The results have been satisfactory, most of the students have participated and collaborated, generally opting for those activities of their preference, so the work has been diversified.
Evaluation (for purposes of grading)	It was an extracurricular activity; no formal evaluation was done.

Mr. Plastic's Store	
Subjects	Physics and Chemistry, Social Sciences, Languages
General objectives	Know different types of polymers and the most frequent uses through experimentation.
Specific and Interdisciplinary Objectives	Know different types of polymers and the most frequent uses through experimentation.
Target group	9-10 years old students with high cognitive potential / gifted [or older] The maximum number to carry out the activity is 10 students.
Duration/ Time Necessary for the Activity	2-2.5 hours
Learning Environment/ Place	The session can take place in a traditional classroom.
Expected learning outcomes	Know different types of polymers and the most frequent uses through experimentation.
Teaching Strategies	• It is necessary to leave time for the explanations of the concepts and to relate the resolutions of the enigmas and experiments with the topic to be discussed. • Experiments may take longer than expected. • Preparing a Scape Room session requires a lot of preparation time. It is recommended to carry out activities that can be easily replicated.
Tools / Materials / Resources	• Props for classroom setting, which includes information about different polymers and their uses, and information related to the clues to be discovered by students. • 1st experiment: glasses, kitchen paper, food coloring, water. • 1st clue: “magic box” (made with sheets of plywood, methacrylate, screws, cables, battery pack and light bulb). • 2nd experiment: glasses, milk, vinegar, coffee filters, strainer, molds. • 2nd clue: prepared papers with a hidden message (for the preparation it is necessary to have paper, salt water and ear swabs). • 3rd experiment: glasses, water, sand and waterproofing spray.
Detailed step-by-step description of the	**Preparation:** Ambience of the room with the desired motif. In this case, a store that has

activity / sequences of the units	been hit by a hurricane. The participants will have to help the store owner so that they have to carry out different search tests and experiments. Three experiments related to the use and characteristics of polymers are arranged. Each experiment is preceded by a puzzle that the participants must solve in order to carry out the experiment. In this case, the participants have to find the necessary ingredients to carry out the experiment. To help with the setting, the instructions to solve the puzzles are included in audio as a voice message on a phone. The instructions for the experiments are placed around the classroom on crumpled sheets. The possible necessary information is included in decorative elements of the store, to force participants to search and think about possible solutions. **Main phase:** • Communicating vessels experiment: glasses with water and coloring communicate through kitchen paper, mixing colors in the intermediate glasses. This practice serves to give rise to the explanation of how the ecosystem is connected, in addition to introducing concepts and properties of water, absorbent material, etc. https://www.youtube.com/watch?v=GrTLxzs29gM • Magic box: a case is presented in which the participants have to solve a puzzle to locate the secret ingredient. In this case, it is about achieving an arrangement of conductive materials to make the light inside the box turn on and the name of the secret ingredient appear on the screen (in another language, to increase the difficulty). • Bioplastic experiment: children produced bioplastics from milk and vinegar. The ingredients and process can be seen at: https://www.sciencebuddies.org/stem-activities/milk-into-plastic#:~:text=When%20milk%20is%20heated%20and,milk%20is%20called%20casein%20plastic. https://www.youtube.com/watch?app=desktop&v=cj_2zvOe6g • Hidden message: participants have to collect paper cuttings and paint them with wood paints. Marks will appear that give rise to a word if the papers are placed in the correct position. Each paper could have been painted a different color and the result will be a collage of colors with the word that is the secret ingredient for the next experiment. • Waterproof sand: activity to waterproof sand from a liquid polymer. The description of the activity can be found at: https://www.youtube.com/watch?app=desktop&t=399&v=JpeI8lQ5CU8&feature=youtu.be

Feedback & assessment	Knowledge survey before and after the module, as well as a satisfaction survey. Participants learn concepts by experimenting and in a motivating environment that gives rise to their creativity.
Evaluation (for purposes of grading)	It was an extracurricular activity; no formal evaluation was done

Animated sustainability	
Subjects	Plastic and Visual Education, Social Sciences, Natural Sciences.
General objectives	Create a small animation using the Stop Motion technique to spread the knowledge learned in previous sessions and contribute to raising awareness about the use of plastics and their environmental impact.
Specific and Interdisciplinary Objectives	• Create a small animation using the Stop Motion technique to spread the knowledge learned in previous sessions • Contribute to raising awareness about the use of plastics and their environmental impact.
Target group	10-12 years old students with high cognitive potential / gifted [or older] The maximum number to carry out the activity is 10 students.
Duration/ Time Necessary for the Activity	1 hour and 45 minutes.
Learning Environment/ Place	It can be done in a traditional class which has electronic devices.
Expected learning outcomes	Awareness about the proper use of plastic and its dissemination
Teaching Strategies	This workshop can be carried out by replacing tablets with computers, using default Windows programs such as MovieMaker or iMovie on Mac, and having cameras or mobile phones to take photographs. It can also be worked without an Internet connection, since the Stop Motion Studio app works offline. Similarly, you can also do without tablets or computer devices, making a paper flip book instead of a Stop Motion video .
Tools / Materials / Resources	• Tablets with cameras. • App Stop Motion Studio. • Projector. • Colored cardboard, colored paper, plasticine, etc. • Scissors. • Glue. • Scotch tape. • Plastics (plastic bottles, transparent film, bags, etc.). • Internet connection (only to send the created videos).

Detailed step-by-step description of the activity / sequences of the units	At the beginning of the session, a brief presentation will be shown on the evolution of animated cinema from its beginnings to the present day. Devices such as the thaumatrope, phenakistoscope, zoetrope, etc. will be presented. All of them based on the effect of the persistence of vision that has been used as a means of simulating movement in cinema. Examples such as Eadweard Muybridge's chronophotography and his relationship with the Stop Motion animation technique of our days, as well as examples of animation from various films, popular advertisements, etc. They will serve to learn the basic principles of animation in cinema. Afterwards, you will learn about the materials and animation possibilities available to you. Following the guidelines of the Stop Motion technique (tips at: https://www.instructables.com/Stop-Motion-Animation-for-Kids/; https://www.youtube.com/watch?v=Pw80ki6kc-k), the students will photograph the same scene many times, manipulating the object between each shot. To do this, the Stop Motion Studio app, previously installed on the tablets, will be used. Likewise, a sheet will be given to students with various tips and guidelines on the use of this app. To design your scenes, you can cut out or model figures, shapes, or even draw on cardboard and erase as you want to simulate the effect of movement. Once the photographs are obtained, through the application, they will be reproduced at high speed one after the other, in such a way that the optical illusion is created that the scenes, shapes, drawings, etc. They move. It is then exported in GIF format or, if it is very long, a small video in MP4 format.
Feedback & assessment	The evaluation must be carried out on the process and the final product; in particular, ask students what they liked/disliked most.
Evaluation (for purposes of grading)	It was an extracurricular activity; no formal evaluation was done.

Leave your footprint	
Subjects	Technology and Arts and Crafts.
General objectives	Consolidate the knowledge acquired in previous sessions through a practical and creative proposal.
Specific and Interdisciplinary Objectives	• Develop creativity • Consolidate the knowledge acquired about plastics and sustainability.
Target group	9-10 years old students with high cognitive potential / gifted [or older] The maximum number to carry out the activity is 10 students.
Duration/ Time Necessary for the Activity	2-2.5 hours
Learning Environment/ Place	Assembly hall or large, unobstructed space.
Expected learning outcomes	The practice consists of making a video with a message related to the concepts covered during the workshop, using the technique of shadow theatre. This activity allows participants to take responsibility for a common creative task.
Teaching Strategies	It is recommended that the educator's guidance be as limited as possible, allowing ownership of the outcome by the learners.
Tools / Materials / Resources	• Frames and canvas. • Video camera and tripod. • Spotlight. • Office material (paper, pen, scissors, tape, etc.). • Cardboard and cardboard.
Detailed step-by-step description of the activity / sequences of the units	**Preparation phase:** The practice consists of making a video with a message related to the concepts dealt with during the workshop, using the shadow theatre technique. In a large space, the set is arranged with a powerful spotlight (preferably with a diffuser) on one side of the frames with the canvas, and on the other, the camera with a tripod. **Implementation phase:** *Creation of the story:* the participants work on the message they want to convey. Subsequently, the story is developed with a script, depending on

	the number of participants and the skills of each one. *Distribution of roles*: the students are distributed among the different tasks to be carried out (direction, script, props and technicians). *Preparation of props:* the participants develop the necessary performance material with the help of cardboard and cardboard. Preparation of technical means: all technical means and their possibilities are arranged. *Rehearsal.* *Sound recording.* *Image recording.*
Feedback & assessment	Pre- and post-module knowledge survey and satisfaction survey.
Evaluation (for purposes of grading)	It was an extracurricular activity; no formal evaluation was done