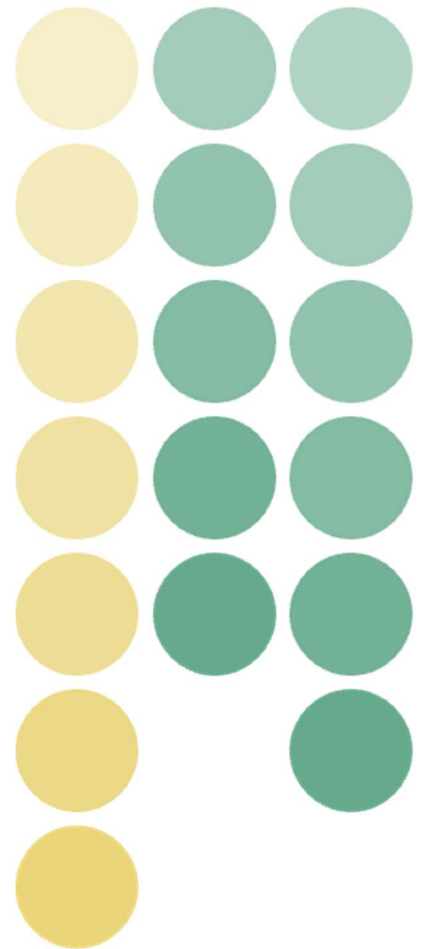


UpCycling:
transformative
framework
for schools and
educators





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Introduction

Upcycling is the word for creative recycling and it is about the re-usage of waste material products to convert them into products of both higher quality and higher value through a creative and aesthetic process. The term upcycling is a combination of two terms: the up stands for ‘upgrading’ which embeds the concept of adding value and cycling stands for ‘recycling’ which embeds the concept of reusing (Wegener & Aakjær, 2016). Consequently, upcycling refers to the reuse of an object but adding value to it. The term upcycling is also expressed as creative reuse. Creativity is the element that makes it possible to transform disused and useless products into better quality and more sustainable products (Oyenuga *et al.*, 2017)

Reduce, reuse and recycle are the 3 R's that make up the waste management hierarchy. At first glance, upcycling could be confused with recycling. Generally speaking, recycling comprises the process of decomposing waste and converting its constituent materials into reusable materials (Oyenuga *et al.*, 2017). Upcycling, on the other hand, is a subcategory of recycling. The transformation process involves the use of a product at the end of its life cycle but in its entirety, which is brought back to a new functional condition by finding an alternative use for it. The main difference between recycling and upcycling lies in the amount of energy used. In fact, upcycling requires a minimal amount of energy, compared to recycling (Oyenuga *et al.*, 2017). Upcycling is a trend to counteract the “throwaway” culture based on producing and consuming short-lived products (Bridgens, 2018). The waste is the starting point of the upcycling process: it can start from the reuse of products that have had another purpose and another life, but there are also products created to be upcycled (Bridgens, 2018). In this regard, the concept of upcycling disrupts the idea that waste is useless (Santulli & Lucibello, 2018); through upcycling, disused objects are modified, acquiring a new function and a new life.

The fast consumption culture has a long-run impact on the environment (Bridgens, 2018). Upcycling seeks to counter the trend toward mass consumption by promoting sustainable consumption instead (Wegener & Aakjær, 2016). Regarding the environment, upcycling processes are the ones with less environmental impact. Indeed, even if recycling is a sustainable approach, it still requires energy consumption for the transformation of the new product (Bridgens, 2018). The sustainability of upcycling lies in the possibility of revitalising old materials by thinking up new ways of using them (Wegener & Aakjær, 2016).

Upcycling is deemed to be a fundamental topic in designing educational material to teach sustainability, and make people aware of climate change and resource depletion, and yet it has different aspects to be addressed, for example, how upcycling is done, how materials are repurposed, and the same environmental impact of upcycling activities that often goes under-assessed.



1.1 Upcycling: definition in the EU framework

The effects of climate change create a real concern within the European Union. The extremely high temperatures reached in both winter and summer and the consequences on the environment have attracted the attention of the population and the EU institutions (Siddi, 2020). Moreover, the Covid pandemic highlights the strict connection between the natural environment and the vulnerability of global society (European Environment Agency, 2020). As a result, the EU is engaged in several political commitments to lead a transformation towards a greener and more sustainable Europe. The need for a green transition is listed among the priorities of the new strategic agenda 2019-2024, which calls for building a climate-neutral, green, fair and social Europe.

1.1.1 EU Green Deal

The European Green Deal is the green transition framework promoted by the European Commission and adopted in 2020, aimed at implementing international commitments undertaken in the context of the Paris Agreement (2015). It is a set of policy initiatives proposed by the Commission containing climate change strategies with the ultimate goal of transforming the EU into a climate-neutral territory in 2050.

The Green Deal is part of the EU climate governance which sets a growth strategy and a political and legislative roadmap for the EU, in which environmental protection is the priority (Ossewaarde & Ossewaarde-Lowtoo, 2020; Siddi, 2020). The green transition is a broad transformation process which involves a complexity of sectors: energy, economy, industry, production and consumption, infrastructure, transport, food and agriculture, construction, taxation and social benefits. The main objective is therefore to align EU legislation with the designated climate targets.

The Green Deal has implemented the shift from a brown growth which relies on carbon and fossil fuels to a green growth which, on the other hand, relies on a coordinated pathway among economic activities and ecological challenges (Ossewaarde & Ossewaarde-Lowtoo, 2020). Green growth determines a new growth strategy based on sustainability. The long-term target is set at 2050, aimed at achieving zero net emissions. The short-term target is set for 2030: the Green Strategy envisages the reduction of EU greenhouse gases by 2030 to at least 50 % of 1990 levels (Siddi, 2020).

During the peak of the Covid pandemic, the governments reacted by imposing a lockdown which diminished flows of transportation and trade. As reported by the European Environment Agency (2020), the lockdown implied a decline in GHG emissions from transportation, as well as an improvement in air quality in the most polluted areas. In this regard, “the crisis provides an opportunity to make policy choices that prioritise the energy transition” (Siddi, 2020, p. 8) both in the short- and the long-term.



Figure 1. The EU Green Deal

The EU Green Deal



The EU will become
climate-neutral by 2050



The EU will help companies
become world leaders in
clean products and
technologies



The EU will protect
human life, animals and
plants, by cutting
pollution



The EU will help ensure a
just and inclusive
transition

1.1.2 EU Circular Economy

In the context of the Green Deal, in 2020 the European Commission adopted the Circular Economy Action Plan which envisages the implementation of circular production and consumption systems. In general terms, the economy that has dominated the markets so far is called linear in that natural resources are transformed into materials or products for sale. The so-called circular economy involves not only the production of goods but also their reuse (Stahel, 2016). The EU Circular Economy is therefore applied to the different levels of production. The design phase must take into account product durability and ease of future repair.

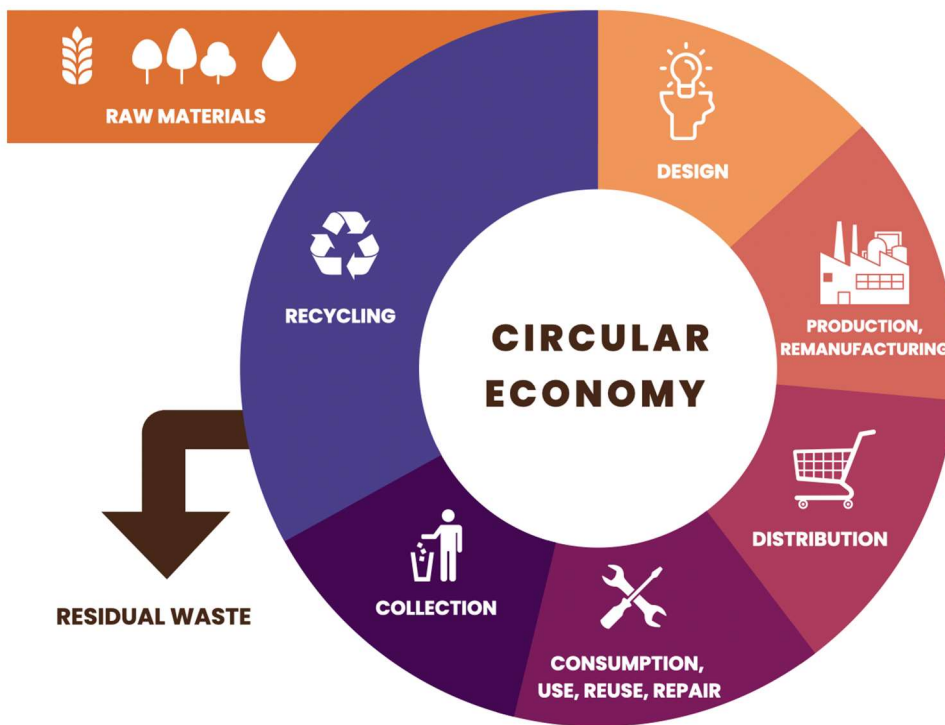
The implementation of a circular economy is essential to achieving the 2050 climate neutrality target. In this respect, the circular economy can reduce the exploitation of natural resources and halt the loss of biodiversity. At the same time, it can create both more and more sustainable growth and employment. This type of economy affects all levels of production, starting from the design of products through to the consumption of final products.

The function of the circular economy is to transform goods that are at the end of their useful life into resources for others, closing loops in industrial ecosystems and minimising waste. The circular economy follows three basic principles: reuse, recycling and repair. In this macrosystem, individuals play a key role. Consumers become actors in the circular process as they contribute to the process of consumption but also reuse and repair (Stahel, 2016).



There are two main categories that divide circular economy models. On the one hand, there are models that favour reuse, repair, remanufacturing, upgrades and retrofits; on the other hand, there are models that favour material recycling, turning old goods into new resources (Stahel, 2016).

Figure 2. Circular economy



1.1.3 Waste Framework Directive

The Waste Framework Directive is complementary to the EU Green Deal and the EU Circular Economy. It sets the guidelines for waste management in order to protect human health and the environment. The Waste Framework Directive is a legislative framework to manage waste within the EU. It establishes a waste hierarchy: the first step is the prevention of waste production; from the second step on, waste is divided into a different level of second life which includes the re-use of waste, recycling, recovery, and disposal. The aim of this framework directive is to improve waste management, promote recycling, introduce, and spread new recycling techniques, and limit the life end of a product, avoiding the landfilling of waste but providing a second life. In this regard, waste management is characterised by the end-of-waste criteria according to which waste gains a second life, becoming a product or a secondary raw material (European Commission).

Figure 3. Waste hierarchy

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Waste hierarchy



1.1.4 Right to repair

The European Commission has established the right to repair. It is another building block in the framework of the European Circular Economy and the EU Green Deal. The right to repair takes the side of the consumer: facilitating the repair process, this right will help consumers to keep products longer and save the costs of a new purchase (Šajin, 2022). The right to repair includes the repair process during the guarantee period, after the expiry of the guarantee and finally the right for consumers to repair products by themselves.

In ecological terms, repairing an object - especially an electric or an electronic one - reduces emissions and waste and reduces the exploitation of raw materials (Šajin, 2022).

1.2. Good practices within the EU Member States

The formal framework of upcycling within the EU is a starting point. Once the institutional framework is established, it is necessary to move on to the implementation of these objectives.

EU4 Climate (2022) is an EU-funded and UNDP-implemented project created to help the governments of the EU's six Eastern partner countries - Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova and Ukraine - to take action against climate change and towards a low-emission, climate-resilient economy.

Various initiatives were launched to support the project with the aim of limiting the impact of climate change on citizens' lives and making them more resilient. Among these initiatives is 'Ozun Yarat', a



project developed and funded by UNDP and the EU in cooperation with the Ministry of Ecology and Natural Resources of Azerbaijan. Ozun Yarat means 'do-it-yourself'. In fact, the aim of the programme is to promote upcycling as an effective method to reduce waste and other harmful environmental impacts of our throwaway consumption culture.

Zero Waste Europe is another good example. It is a group of 33 local and national NGOs from all over Europe working together to promote the zero waste target at national level. The aim is to establish frameworks and implement zero waste solutions at the local level, in line with European programmes. In this regard, the Zero Waste Cities Programme includes 445 municipalities and cities (Zero Waste Europe, 2022).



2. Educative Upcycling

2.1 Upcycling in primary education

The practice of upcycling has important educational value. It is an experiential process that encourages a meaningful use of creativity and establishes a link between users and objects; on an educational level, upcycling offers children the opportunity to play and apply creativity with waste (Santulli & Lucibello, 2018). Waste or disused objects thus acquire new life and at the same time take on a strong educational value. On the one hand, children put the concept of sustainability into practice and on the other hand, they approach design: the upcycling process mainly involves engagement, which involves brainstorming on how to modify a disused object, and creation, which is the practical realisation of the transformation.

The fundamental distinction between recycling and upcycling lies in the transformation process. Recycling encompasses a process of transformation, which involves reprocessing or remanufacturing the materials that make up an object to create a new one; upcycling involves reusing an object, but the transformation aims to creatively alter it to increase its value (Creative Educator, n.d.; Flowers et al., 2019).

Teaching recycling and upcycling at school raises awareness and changes students' attitudes towards the environment (Flowers et al., 2019). The first approach to waste is related to waste separation. This procedure allows children to sort materials into different categories, also introducing the main objective of sorting which is the division of household effort to promote and facilitate reuse and recycling of waste (Santulli & Lucibello, 2018). Waste collection raises awareness of materials, their texture and composition, providing a sensory experience.

Recycling and upcycling contribute to solid waste management. Waste management is a challenge for everyone. According to the World Bank, each year the world's population produces 2.01 billion tonnes of municipal solid waste, of which at least 33% is not managed in an environmentally safe manner. At this rate, global waste generation is expected to increase to 3.40 billion tonnes by 2050. Poor waste management poses a risk to the environment as a source of pollution, contributing to climate change and uncontrollable natural disasters. Raising awareness among the younger generation is therefore of paramount importance to contribute to more responsible and sustainable waste management

2.2 Upcycling in the education in the EU system

Girls Go Circular (n.d) is an EU-funded project. Its primary objective is to reduce the gender digital skills and entrepreneurship gap applied to the circular economy. The project includes the online platform Circular Learning Space where students can access different learning modules where the circular economy is applied to food, fashion, use of plastics and so on.



Every Can Counts Europe is a European project that aims to inspire, encourage and empower people to recycle beverage cans in order to achieve 100% recycling of aluminium (today 75% in Europe). Their recycling strategy is applied not only on a social level, but also on an educational level. The Austrian school HTL Bregenz, in cooperation with Every Can Counts, proposed an Upcycling contest for students. The objective was to come up with innovative solutions for the reuse of cans: students were invited to create something new from the empty cans collected at their school (Every Can Counts, 2022)



3. Upcycling in the primary schools in the national systems

3.1 ITALY: Environmental education strategies in the primary school

In terms of recycling, Italy ranks above the European average: 79.4% of waste is recycled in Italy (Giannetto, 2022). According to the report "L'Italia del Riciclo 2021", the Italian recycling industry is among the leading ones in Europe, both for special and municipal waste recycling. Moreover, Italy has achieved the 2025 targets for recycling paper (87%), glass (79%), plastic (49%), wood (62%), aluminium (69%), and steel (80%).

Notwithstanding data showing the good performance of the country in recycling, there is the need to raise awareness among new generations, spreading the message that recyclable products are not waste but a product with considerable value, considered the global 'Seventh Resource' (Giannetto, 2022). In 2018 Global Recycling Day was established by the Global Recycling Foundation with the aim of raising awareness of the need to reduce waste and give products a new life.

At the institutional level, the Plan for Education for Sustainability was presented in 2017 by the Ministry of Education; it consists of 20 actions drawn up in conformity with the 17 SDGs and implemented with the aim of transforming the entire education system, making school and research environments aligned with sustainable development (MIUR, 2017).

At a private level, every year the Fondo per l'Ambiente Italiano (FAI) organises the FAI Days for Schools: a week of exclusive school visits led by young students to discover Italy's environment and cultural heritage. As part of the FAI Days for Schools, in 2021 a contest was also held to promote sustainability and the development of the SDGs with the theme of the sustainability of the marine ecosystem (FAI, 2021).

Another example is "Mi Cura di Te". It is a project promoted by WWF Italy and Regina, an Italian company that produces toilet paper, and is addressed to primary and secondary schools and families. It is a three-year course that deals with the sustainable development themes promoted by the UN 2030 Agenda and is divided into three macro themes: forests, climate change and water (WWF Italia, 2021).

3.1.1. Good practices

Io Riciclo

The project "Io riciclo" aims to raise awareness of climate change and the consequent environmental challenges. In detail, the project promotes the development of 'environmental awareness' for the protection of the environment and raises awareness of waste management as a means of successfully preventing major environmental consequences.



The elements that make this a good practice are first of all the learning by doing approach; the pupils had the opportunity to gain knowledge in terms of the environment, ecology, recycling and creative reuse through a project with an educational purpose, which involved both manual work and teamwork. On a conceptual level, the project contributed to the eradication of the throwaway culture by revaluing objects that were no longer used.

Made in Science

As part of the European Researchers' Night 2017, Explora Museum organised a "Made in Science" evening dedicated to Science and Research to bring children closer to plastic waste and recycling culture. The workshop "The World of Plastic" was targeted at children aged 3-5 years and was about reusing plastic waste in a creative way. The 'Plastics of Value' workshop was targeted at 6-7 year olds for learning how to consciously recycle. (Museo dei Bambini, 2017).

The workshop "Bioplastic" was carried out by design and material engineering researchers from the University of Rome "La Sapienza" and the University of Camerino. The children aged 8-11 and were divided into several groups of 15 participants each. The aim of the experiment was to make fabric buttons and refrigerator magnets. For both objects, they used organic waste materials, such as carrot or tomato peels, dried parsley leaves or expired coconut powder (Santulli & Lucibello, 2018).

Figure 4. Workshop "Bioplastic"



Source: <https://www.mdb.it/en/notte-dei-ricercatori-2017/>



3.1.2 Primary school curriculum to promote environmental education

Looking at the PROF (three-year training offer plan) of the Institute (IIS Renato Cartesio of Olevano Romano), where the people interviewed work. Unfortunately there is no trace of anything directly related to environmental education / sustainable development.

These are the main initiatives close to promote environmental education in primary schools:

WALL DECORATION OF THE INSTITUTE - (EDUCATE BEAUTIFUL)

Requalification of the walls, both of the classrooms and of the common areas; Reappropriation of the civic value of "beauty" as a basic element for the student's education. Transforming respect for the environment into an active and shared commitment. Training objectives and expected skills:

- Educating for beauty - Educating about respect for the environment - Educating about cooperation
- Educating to creativity • Educating the knowledge of culture in a transversal sense between all languages.

THE SCHOOL: A PLEASANT ENVIRONMENT

The institute needs a redevelopment of the external environments that may be more welcoming as possible for more and more pupils to stay at school pleasant and motivated by making the same architects of this redevelopment grow in them a sense of belonging, a sense of ecology and a sense of respect for shared environments. Training objectives and expected skills:

- Creation of a botanical garden equipped with didactics managed by the pupils themselves both in the implementation and in the actions of dissemination and guidance for future visits by primary and secondary school pupils.
- To develop a sense of belonging for pupils and respect for shared environments.

CITIZENSHIP AND WORLDWIDE EDUCATION

The Project pursues the aim of enhancing our students' awareness of being in a "School" of Inclusion with a European dimension. Need to "open up to the world ", address current issues to form a critical thought and overcome prejudices and stereotypes of all kinds. The Charter is the foundation for our work Constitutional and general aims of the school.

Training objectives and expected skills:

- To understand social and cultural phenomena using the scientific / Socratic method of study, research, comparison of opinions
- Building spaces for dialogue and discussion to train men and citizens of peace
- Raise awareness of the issue of volunteering and welcoming diversity in all areas
- Strengthen the ability to approach interdisciplinary to the issues using historical, philosophical, religious languages, scientific, artistic and language skills
- Understand the role of associations, NGOs, international cooperation and development organisations such as the UN, UNESCO, FAO.



Case study 1

Case Study 1 is based on the interview conducted with Deborah Ann Williams on 03/09/2022. The interviewee is a teacher from Istituto IIS Renato Cartesio di Olevano Romano.

1. How is your school contributing to circular economy education?

I don't think that in general schools are contributing to circular economy education, because they don't even know what it is about.

2. Do you think teachers are prepared enough to implement creative recycling classes?

The best prepared teachers are the ones from nursery school because of the reduced funding, and the teachers are creative in recycling things in order to do interesting things with children. Generally speaking I've never seen that in other schools.

3. Is there any barrier to making a primary school more sustainable?

The barriers would be just the ones in our minds because of the lack of knowledge on how to become more sustainable. In a few words the barriers would be in how to make people aware of this subject.

4. Do you think students are used to recycling and are aware of the different planet's problems?

Yes, the students are more aware of recycling and if we do a comparison with the older generations, they are much more aware of the problems that we have with the planet; nevertheless, there's much more that we can do with these students.

5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?

Sometimes when I teach Biology in English, I talk about water because of the circular economy innate structure of it and the importance of recycling it and not wasting it. Unfortunately, it was a small project, but it was really good; It was a small POND project in English that I have done in Fiuggi, and as we all know it is very important for that city to be aware of water.

6. Is there any action going on to recover the materials you use for creative laboratories?

No, I've never seen something like this, but for example when I used to work in the nursery school we have done several projects about recycling like using bottle tops to make new products.

7. Do you have any active collaboration with recycling stations or public contractors?

I don't think there are any collaborations with recycling stations or public contractors. We used to throw waste in different bins based on the waste nature and the potential to be recycled, but in the end I think it's not well managed because everything ends up being thrown away in the same container, and it doesn't make so much sense.

8. Are the students taking any recycling actions in their daily life in school?



Totally no, apart from throwing paper in the paper bin and plastic in the plastic bin. I don't think that they are aware of the consequences of doing it or not. As schools we are not making improvements on it, for example we could just fill up reusable bottles instead of throwing them

as soon as they finish drinking. I personally think that it is a very complex subject and it is one of those battles hard to win, but if we can't change the mentality of "Why I have to do that if other people are not doing that" it would be a disaster for the future generation.

Case study 2

Case Study 2 is based on the interview conducted with Giuliana Raponi on 27/09/2022. The interviewee is a teacher from "Cesare Chiominto" State Comprehensive Institute.

1. How is your school contributing to circular economy education?

In small terms, on a practical level, in my institute there is still no real contribution to this issue except on a theoretical level, limiting itself to the explanation.

2. Do you think teachers are prepared enough to implement creative recycling classes?

Maybe not yet, but they can be formed; I personally took part in some courses organised by the municipality, but I think there is still work to be done.

3. Is there any barrier to making a primary school more sustainable?

Yes, the bigger barrier is the economic one. The funds that the ministry puts in place are not enough to make my school more sustainable.

4. Do you think students are used to recycling and are aware of the different planet's problems?

Pupils are in a certain sense used to it because they do separate collections both at school and at home; yes, they are aware of the different problems of the planet but there is always an education that also depends half on the family since school and home are the two environments they mainly attend.

5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?

Yes, separate collection is the main daily activity on which we focus.

6. Is there any action going on to recover the materials you use for creative laboratories?

Only a few actions are implemented for the small projects we do

7. Do you have any active collaboration with recycling stations or public contractors?



No, we don't have any collaboration with recycling stations.

Yes, every day with door-to-door separate waste collection in every classroom of the school.

8. Are the students taking any recycling actions in their daily life in school?

Case study 3

Case Study 3 is based on the interview conducted with Arianna Palumbo on 02/10/2022. The interviewee is a teacher from Istituto Mancinelli Falconi, Velletri.

1. How is your school contributing to circular economy education?

The school tries to contribute by adopting the short week over 5 days, carrying out the meetings of the collegial bodies electronically, practising separate collection both in the classrooms and in the secretariats and in the conferment of special materials.

2. Do you think teachers are prepared enough to implement creative recycling classes?

I believe that some of the teachers are quite trained and are willing to further train themselves in this area.

3. Is there any barrier to making a primary school more sustainable?

I don't think there is currently an obstacle to continuing along the school's sustainability path. Perhaps, due to particular needs not foreseeable at the moment, a barrier could arise from the needs of local authorities due to the economic crisis.

4. Do you think students are used to recycling and are aware of the different planet problems?

I don't know if the students are used to recycling and to what extent. They tend to use water bottles and not disposable plastic bottles as well as cloth bags and not plastic bags. They are involved in the problems of the planet as shown by some surveys carried out in the last two years and the attention to sustainability projects.

5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?

Students conscientiously sort out the trash. Each class has buckets for paper, plastic and glass.

6. Is there any action going on to recover the materials you use for creative laboratories?

No, there are no actions for creative workshops.



7. Do you have any active collaboration with recycling stations or public contractors?

We have active collaborations in the differentiation of waste managed by the municipality.

8. Are the students taking any recycling actions in their daily life in school?

They practise separate collections and generally avoid buying disposable water bottles.

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3.2 ICELAND: Environmental education strategies in the primary school

Sustainability education, environmental awareness, community identity and climate issues is an important element in all schools and educational providers in Iceland. In the national Climate action plan (Umhverfis- og auðlindaráðuneytið, 2020) there are special transition incentives based on Increasing climate and environmental education at all school levels and by various educational providers. This incentive is in accordance with the basic element of education about sustainability with the aim of offering diverse education about climate change, its consequences and what can be done to prevent it.

3.2.1. Good practices

Elective course on creative recycling

The basic elements of creativity will be reviewed at the beginning, but creativity is based on methods that open up new possibilities, to go beyond the known and thus increase knowledge, mastery and skills in school work. In this way, creativity strengthens the search for solutions, initiative and increases the joy of creativity.

Students bring an object from home (can be anything they want to change or fix) or go to a flea market and find some treasures and bring them. Students make a sketch of how they intend to change/fix the object. You can use sketchbooks or an iPad to bring your ideas to a visual form. The material available on site will be new, but students are free to bring materials from home and the school will also take care of purchasing materials if needed. What makes this interesting is that there the students themselves choose to participate in such a course, on their own terms and interest

Source: <https://sites.google.com/siduskoli.is/valgreinar2021-2022/velja-sk%C3%B3la/naustask%C3%B3li/skapandi-endurn%C3%BDting-8-10-bekkur>

Waste to art seminar

This interesting project aims to allow secondary school students to get familiar with creating artwork with refused material and waste whilst learning about sustainability. Additionally, creating something new and that art can be created with all sorts of material and medium. Students searched for waste and refused material in their local community, companies, organisations etc. This is a good example of how school work can introduce ideas about the circular economy and sustainability to students. In such a way that the students get to take the lead and unleash their creativity.

Source: <https://www.mtr.is/static/files/Trounarverk/Urgangslislist.pdf>

3.2.2 Primary school curriculum to promote environmental education



The national primary school's main curriculum outlines the objectives and structure of the school work. The role of the main curriculum, general education and fundamental elements, evaluation of school work, and other topics are covered in the curriculum. Six focus items are covered in the main curriculum, which can be thought of as the fundamental elements of education. These six fundamental elements are: health and well-being, equality, democracy and human rights, literacy, **sustainability and creativity** (Ministry of Education, 2014).

Landvernd (Iceland Environment Association) is in charge of the global environmental education initiative known as Eco-schools. Iceland has participated since 2001 and today the total participants in Iceland counts around 200 schools. Eco-schools support environmental education, education for sustainability and general environmental work in schools at all school levels (ICELANDIC ENVIRONMENT ASSOCIATION, n.d.).

Case study 1

Case Study 1 is based on the interview conducted with the principal and teachers in Stóru-Vogaskóli (primary school) on 08/09/2022. This school is working towards becoming a Green flag awarded Eco-school.

1. How is your school contributing to circular economy education?

We are not using natural resources in a direct way. We are recycling or reusing textiles and we recycle wastes from classrooms.

2. Do you think teachers are prepared enough to implement creative

recycling classes?

Yes and no, some are while some are not.

3. Is there any barrier to making a primary school more sustainable?

No

4. Do you think students are used to recycling and are aware of the different planet problems?

Yes, in some ways

5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?

Daily recycling and waste sorting

6. Is there any action going on to recover the materials you use for creative laboratories?

Yes sometimes when it applies, we try at best to recycle and reuse.

7. Do you have any active collaboration with recycling stations or public contractors?



Nothing specific other than scheduled refuse collection.

8. Are the students taking any recycling actions in their daily life in school

Yes, paper and organic waste.

Case study 2

Case Study 2 is based on the interview conducted with the environment team in Njarðvíkurskóli (primary school) 08/09/2022. This school is a Green flag awarded Eco-school.

1. How is your school contributing to circular economy education?

Yes, we teach circular economy in various ways at most school levels.

2. Do you think teachers are prepared enough to implement creative *recycling classes*?

They have different levels of knowledge/competence and interest in terms of creative recycling processes and classes.

3. Is there any barrier to making a primary school more sustainable?

Yes, availability of time, funds and manpower.

4. Do you think students are used to recycling and are aware of the *different planet problems*?

Yes, our students are very aware about the problems the planet is facing and are open to discuss it with their peers and teachers. They're most common questions regarding climate change is i.e. Where should we start, how much do we have to do to save the

planet, what is the extent of our change of behaviour.... ?

5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?

Yes, our students recycle/collect waste in the classroom and dining hall. Molting with earthworms etc.

6. Is there any action going on to recover the materials you use for creative laboratories?

There are no specific strategies in place at the moment. Although we have organised projects and classes with creative laboratories.

7. Do you have any active collaboration with recycling stations or public contractors?

We have no specific cooperation, but we collect waste such as organic, paper, plastic and more.

8. Are the students taking any recycling actions in their daily life in school

Yes, all organic waste from their lunch, all types of paper, plastics and metals.



3.3 PORTUGAL: Environmental education strategies in the primary school

Environmental education is an integral part of education in Portugal for citizenship assuming, by its eminently cross-cutting, a privileged position in the promotion of attitudes and values, as well as the development of skills needed to meet the challenges of society in the twenty-first century. In this context, the Directorate General for Education (DGE) in Portugal has been developing, in collaboration with other public organisations and institutions and with several partners in civil society, documents that could be used as benchmarks in the approach to the different dimensions of citizenship. The Environmental Education for Sustainability Benchmark is part of the set of Benchmarks prepared by the Directorate-General for Education within the framework of Education for Citizenship. The Benchmark, flexible in nature, can be used in very diverse contexts, in whole or in part, in the framework of the transversal dimension of Education for Citizenship, through the development of projects and initiatives that aim to contribute to the personal and social formation of students.

It should also be noted that the National Strategy for Education for Citizenship (ENEC) was publicly presented in September 2017, which is a reference document to be implemented in public and private schools in convergence with the Profile of Students Leaving Compulsory School and the Essential Learning.

National days of recycling are:

- Global Days Action promoted by the Ecoschools project and the Blue Flag Association of Europe - ABAE
- June 5th - World Environment Day.
- November 7th - International Day of Eco-Schools, the International Day of Eco-Schools (Word Days of Action).

3.3.1. Good practices

UpCycling Happier environment

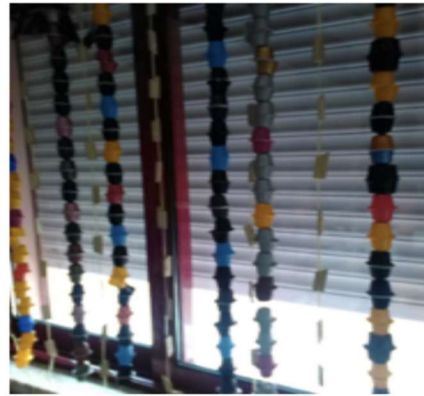
Project developed within the scope of the Visual Education discipline around the 17 Sustainable Development Goals (SDGs) of the UN 2030 Agenda. This dynamic included 3rd cycle classes, over a year, in a dynamic project with the purpose of alerting people to the importance of recycling and upcycling.



The project aims to improve physical spaces, their quality and comfort, contribute to a happier environment, to the success of students and to the better performance of teachers and operational assistants. Basically, they contribute to the well-being of the school community.

The students started by collecting materials that would become garbage: plastic lids and coffee capsules. They were used as feedstock for making curtains, recreating a Christmas tree and designing the school logo. Students used all their creativity to create authentic works of art.

With this project we managed to make our young students more resilient, more competent, more supportive, inclusive and autonomous, which was evident in their open smiles and the inexhaustible energy with which they always engaged in the various activities to which they were challenged. Thus, we believe that this dynamic project has contributed to a holistic view of knowledge, preparing our students for a fairer, more caring and more democratic society, but also economically viable and environmentally sustainable.



Pallet Couches

Recycling is fundamental, to avoid the depletion of available natural resources, and is understood as a process of reuse through which used objects pass, transforming them into new products. The Upcycling concept is applied to the transformation of end-of-life products that acquire a new value. The use of wooden palettes led to a new decoration in the school space.

The pallet was used as a base for the couch, with cushions to increase comfort. The pallet reuse project aims to improve physical spaces, their quality and comfort, contribute to a happier school environment contributing to the well-being of the school community



Reusing wooden pieces is a great way to use the material without causing further damage to nature. It is interesting to use wooden products that are easily discarded after a short period of use, such as pallets. It is a conscious consumption option, with a demonstration of respect for nature.



Tutors/Parents' meeting room

This project aimed to improve a specific physical space. It was the Parents' meeting room. The comfort of that space contributed to a happier and more welcoming environment for the educational community.

After raising awareness of the topic, the students prepare a project. They collected unused CDs and slippers. They proceeded to paint the walls, measurements to place the slippers panel and to compose the curtain with the CDs. The slippers had already been painted, based on canvases by various painters

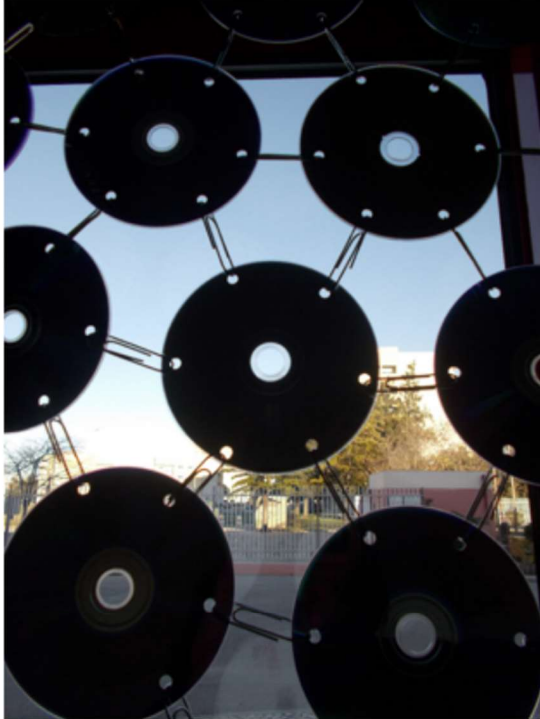
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for another exhibition. After that exposure they had been rendered useless and abandoned. The students decided to use them to build a decorative wall. In the same room, the tables were decorated with apples made from used fabrics, supported by egg cartons.

The extraordinary idea is the constant concern to improve school spaces, with projects carried out by students, combining creativity with disused materials, thus contributing to the formation of our students as citizens and to the beauty and comfort of what is our second home, School D. Luís de Mendonça Furtado School.

The actions developed in the project provided an approximation between the School community and the educational community, strengthening their ties. By bringing the school closer to the community in which it is inserted, through a tutors/parents room . In this sense, the project favoured the development of all areas of skills set out in the [Student's Profile By the End of Compulsory Schooling](#), as well as multiple literacies. The teaching activity and learning projected a message aimed at changing behaviours and contributing to the achievement of the goals of the 2030 Agenda.





3.3.2 Primary school curriculum to promote environmental education

The Education Strategy for Citizenship of the Agrupamento de Escolas do Barreiro privileges a curricular organisation for the development of learning aimed at the formation of the individual, in a humanist perspective, as an active, critical and participatory citizen, initiating the path of exercising citizenship throughout the of life.

The inclusion of this area in the curriculum is justified by what is described in the Basic Law of the Educational System, in DL nº 55/2018 and in the Profile of Students Leaving School Mandatory, given that the school is responsible for ensuring adequate preparation for the exercise of citizenship active, as well as adequate training to meet the goals for Sustainable Development.

The different domains of Education for Citizenship are organised into three groups with different implications: the first is mandatory for all levels and cycles of schooling (because it deals with transversal and longitudinal areas). This domain includes Environmental Education, which has as its reference curricular document the Environmental Education Framework for Sustainability.

Case study 1

Case Study 1 is based on the interview conducted with Felicidade Alves on 12/06/2022. The interviewee is the Head of Agrupamento de Escolas do Barreiro.

1. How is your school contributing to circular economy education?

The circular economy is a concept that is based on the reduction, reuse, recovery and recycling of materials and energy and, in this context, it was intended to optimise education for the values of citizenship, autonomy, civic participation and education for the environment.

It is present in the curriculum of subjects and disciplinary areas of Science and in numerous projects developed by the school, many of them with the direct collaboration of the Ministry of Education, others developed within the framework of the school's autonomy, within the scope of various

partnerships established with municipalities in Barreiro. This is the case of the Eco-Schools Project developed within the scope of this partnership or the delivery of containers for recycling between the Town Hall of Barreiro (Câmara do Barreiro) and the Schools.

2. Do you think teachers are prepared enough to implement creative recycling classes?

Yes, the teachers and the school community are prepared to put into practice classes within the scope of these themes. The classes, prepared on recycling at school, make an important contribution to creating citizens who participate in the process of preserving the planet.



3. Is there any barrier to making a primary school more sustainable?

There needs to be a systematic approach to environmental aspects, developing projects continuously. If it doesn't, it becomes an obstacle. Each strategy put into practice at school will positively influence routines. In order to have a (more) sustainable school, it is necessary to make the approach and practice of this theme a habit. In this case, it becomes a matter of time and persistence to reach the ideal.

4. Do you think students are used to recycling and are aware of the different planet problems?

Not all students are used to recycling, although most are aware of the planet's problems.

5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?

Yes. There are differentiated garbage collectors in the school and a frequent alert to students about this problem

6. Is there any action going on to recover the materials you use for creative laboratories?

Throughout the school year there are several actions to recover materials

7. Do you have any active collaboration with recycling stations or public contractors?

It is common for specialised companies to collect several materials (computer equipment, paper, batteries, ...).

8. Are the students taking any recycling actions in their daily life in school

Throughout the school year there are several actions to recover materials.

Case study 2

Date: 20/09/2022

Interviewee: Alzira Mendes

School: Centro de Formação de Escolas dos Concelhos Barreiro e Moita

Teaching to: Head of Teacher Training Centre

Schools webpage:

1. How is your school contributing to circular economy education?

My institution is a Teacher Training Centre that includes 13 school clusters and in total



about 1800 teachers working in all the education levels of our schools . Most of those teachers work with their students in order to motivate them, drawing their attention to the importance of preserving the planet, recycling and contributing to maintaining the current resources that we all still have. For example students of arts design and make original objects from used materials and that can be used in a useful way.

2. Do you think teachers are prepared enough to implement creative recycling classes?

I think a lot of teachers are already prepared to do it , but only in specific subjects. I think we still have a long work to do in this way ,namely in the training of teachers to motivate them to do it with students. And not only the teachers , it's very important in my opinion to work also with parents.

3. Is there any barrier to making a primary school more sustainable?

Primary schools could be more sustainable certainly, but first we have to work with responsables to allow it and to understand the importance of it to the future of all the children.

4. Do you think students are used to recycling and are aware of the different planet problems?

All the students whose teachers work on these subjects with them are certainly motivated to recycle and they understand the great

problema the planet has at this moment. It's about their future!

5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?

My target groups are teachers. Yes ! I myself I'm recycling all the time , water bottles, its lids, paper, and I'm fighting every day to dematerialize leaving paper at once to work only with virtual documents for exemple.

6. Is there any action going on to recover the materials you use for creative laboratories?

Yes, in most of our schools teachers are recovering diferente materials to work with in their classes, mainly teachers of arts : paper, plastic , cardboard boss, glace....not exactly for "creative laboratories" but for working in class with students and the students do that.

7. Do you have any active collaboration with recycling stations or public contractors?

Many times, but not directly. In general, through the schools which I work with. There're some companies that collect obsolete ICT material, paper and other materials if we have large quantities to recycle.

8. Are the students taking any recycling actions in their daily life in school



Yes, in all the schools, students separate plastic , paper, glasses and there's some schools that have Eco Clubs, where they work all these

subjects and they do concrete actions with them.

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3.4 SPAIN: Environmental education strategies in the primary school

Environmental Education Action Plan for Sustainability (PAEAS) is a strategic planning document that establishes the objectives and lines of action in the field of Environmental Education for Sustainability (EAS), to be developed between 2021 and 2025.

The general objective of the PAEAS is to define the strategic lines of EAS in Spain for the next 5 years and offers a framework for participatory work from which to reinforce, from the tools of social and cultural influence - communication, education and training, training and participation - those policies that must face the climate and environmental challenges. This is a practical document, which establishes a catalogue of 61 actions, grouped into six operational axes, or large blocks, which respond to 20 specific objectives.

The PAEAS Coordinating Group is formed by the Ministry for Ecological Transition and the Demographic Challenge (MITERD) and the Ministry of Education and Vocational Training (MEFP).

3.4.1. Good practices

Education for the circular economy

Ongoing project aimed to awaken the curiosity of children between the ages of 3 and 9 about the origin of the things they use, this is, the materials the things they use are made of. The aim of these workshops is to raise children's awareness of the environmental impact of the life cycle of the things they use and how they can help reduce the impacts.

Between 2019 and 2021, more than 1500 children have studied the circular economy in primary and secondary schools in the Bay of Cadiz.

- Centro de Estudios Las Canteras summer camp at the “Puerto Real Tennis Club” (Cádiz), 20 children between 4 - 12 years old (2019).
- around 60 schools in Algeciras (Cádiz), 1200 children aged 8 - 9 years old (2019-2022).
- “Viento del Sur” nursery school in Puerto Real (Cádiz), 200 children between 3 - 5 years old (2022).

The Circular Economy workshops enable children to discover new ways to help the environment and promote the circular economy by learning about the life cycle of the things they use.

The greatest achievement of the workshops was that the children asked questions that they didn't ask before, for example:

- What is this toy made of?
- Where does the plastic (the inks) come from?
- How did it get here?
- What do I do when I don't use it anymore?
- Where does the rubbish truck take it?



Figure . Economía circular para niños



Figura 3. Taller de economía circular en la Escuela Infantil Viento del Sur.
Puerto Real (Cádiz), España.

Source: [Economía circular para niños - Centro de Formación Sostenible \(centrodeformacionsostenible.com\)](http://centrodeformacionsostenible.com)

The Weekly Walk

In the 2009-2010 academic year, the Network of Schools for Sustainability of Catalonia (XESC) was created, formed by the network of green schools and local networks that promote sustainability education programmes aimed at educational centres in Catalonia.

XESC offers continuous monitoring of education programmes for the sustainability of each of the centres in its network. XESC also works in the creation of spaces to exchange experiences by organising training actions for the teaching staff of the centres that are part of this network.

XESC has a repository of good educational practices revised and vouched by its members according to PQiMC (quality and continuous improvement project). One of them is the “Weekly Walk”, an interdisciplinary project focused on preschool students, who consists of leaving school weekly with the aim of discovering the environment and working on the environment, and that also incorporates education for health, citizenship, emotions and the different Languages. The activity aims to ensure that children have fun, know and interact with their environment, and at the same time reach greater maturity and autonomy.



The activity shows that this is a simple, adaptable and safe activity that generates healthy habits and allows students to expand their map of reality. Therefore, the activities proposed work on the senses and perceptions (visual, auditory and kinesthetic) and combine practical/outdoor and classroom activities.

Environmental Education Programme "Amalia Arenas Esteban"

The Guadarrama River Nursery-school focuses its work on the production of native plants and, with its Environmental Education Programme ("Amalia Arenas Esteban"), works in the design and implementation of environmental education activities.

The Environmental Education Programme of the Guadarrama River Nursery-School is developed, on the one hand, through visits by organised groups to the facilities and, on the other hand, through activities carried out in the educational centres themselves by means of technical support and the implementation of specific activities by monitors from the Nursery School; this system of visits to the facility has been in place since 1999.

The methodological approach for the development of the programme is based, fundamentally, on the experimental method, providing the activities designed with a practical approach that allows for experiential learning, this is, an open, dynamic, playful and flexible methodology which adapts to the characteristics of the visitors facilitating learning that is full of fun.

The programme is targeted at all groups of people related to or interested in environmental education and the environment. It has a national scope and is completely free of charge. The programme has activities adapted to groups belonging to both formal and non-formal education: Nursery Education, Primary Education, Secondary Education and Baccalaureate, Special Education, Adult Education, Occupational Training (Workshop Schools, Trade Schools and Employment Workshops), University Education, Associations, Senior Citizen Centres, Urban Camps.

3.4.2 Primary school curriculum to promote environmental education

Organic Law 3/2020, of 29 December, which amends Organic Law 2/2006, of 3 May, on Education (LOMLOE) has incorporated for the first time explicit references to Education for Sustainable Development and Global Citizenship Education, as reflected in the 2030 Agenda. Although, because of its newness, the current curriculum for compulsory education is not conducive to the pursuit of a SDG (yet). Since the last amendment of the educational curriculum (Organic Law 8/2013) predates the agreement on the Sustainable Development Goals (2015).

Although, there are good examples of Environmental Education Programmes for Educational Centres (PEACE) such as the PEACE Programmes of the Community of Madrid for Preschool/Nursery, Primary, Secondary, Baccalaureate, Vocational Training and Special Education.

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The programme offers free environmental activities aimed at all educational levels, from kindergarten to high school and vocational training.

The following topics are covered:

- Water (Nursery and 1st Grade of Primary School)
- Waste (2nd Grade of Primary School)
- Ecosystems (3rd Grade of Primary School and Special Education)
- Responsible consumption (1st Grade of Secondary School)
- Renewable energies (2nd Grade of Secondary School)
- Circular Economy (Baccalaureate and Vocational Training)

Case study 1

Case Study 1 is based on the interview conducted with Marica Frigerio on 24/05/2022. The interviewee teaches 1st grade students (primary school) at the ICS Galbiate school (pre-school, primary and secondary school)

1. How is your school contributing to circular economy education?

“In 2021 I was involved in a year-long project for all school cycles about Recycling. The project consisted in Theoretical classes (about saving water, reducing the amount of plastic used, recycling) and day to day activities and practises related to sustainability that were to be developed in the classroom” ... “I was also involved in another (longer) project that was carried out in the school’s garden. Since the school was near a natural park, teachers were to develop a safe space outdoors in order to improve the connection between children and nature. As well as the connection between the school and the natural park” ... “My class came up with the idea to create a corner to study outdoors. As a result, my class built chairs made out of pallets, flower pots made out of

plastic bottles/cans, as well as houses for bees”.

2. Do you think teachers are prepared enough to implement creative recycling classes?

“Actually no, us teachers were not trained in these topics. All the activities that were implemented were thought out and designed based on discussions and conversations with other people or we found them by searching on google. Also, the materials used in the activities were donated by the parents. The pallets for the chairs, dirt for the flowerpots were all donated by people from our close family circles or networks. We didn't have a connection with an organisation or company that supplied us with the materials”.



3. Is there any barrier to making a primary school more sustainable?

“Surely COVID was a great barrier. For example, during the pandemic, the use of single use plastic increased in schools, this is, the school lunch was wrapped in plastic” ...
“For instance, before COVID the school asked parents to bring the children’s school lunch in a tupperware container or that the children bring a thermos. This initiative had to disappear during the pandemic and thermos had to be substituted form single use plastic bottles to prevent the contagion of the disease because of the risk it entailed passing thermos from one hand to another when this one had to be refilled”.

4. Do you think students are used to recycling and are aware of the different planet problems?

[Kids are more aware of the topic, certainly because of the movement “Fridays for future” (Gretta Thumberg). For example, in my town there were a few strikes in schools. Also, older students from the school I worked in organised lectures to talk about the subject. Certainly, kids are more used to thinking about this (climate change) which I believe is positive].

5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?

“We taught children from our class to clean their hands by opening the tap for only 5 seconds and then closing it off, this is, not wasting water by using the least amount of water possible. Also, we assigned a student to

be responsible for turning off the light once the rest of the students were out of the classroom”.

6. Is there any action going on to recover the materials you use for creative laboratories?

“In general no. It depends on the project. Not all schools have spaces to store material or less so a person in charge of classifying it” ... “As we have discussed before, everything that we collected for the implementation of our project was donated by people around us”.

7. Do you have any active collaboration with recycling stations or public contractors?

“No, the school did not have a collaboration agreement with, for instance, the recycling company of the town. To my mind, since this was a very new project and because it was 2021 the following year after the pandemic the school did not have the means nor the correct planning in order to have collaborations” ... “It could be very interesting for future projects that the teachers are trained in these topics to make a better impact”.

8. Are the students taking any recycling actions in their daily life in school

“In schools I guess no. But I know that nowadays, children do not throw rubbish on the floor because they are accustomed to this (problem of littering). I believe older people are less sensitive to this problem, for example, I still see people throwing cigarette buds on the floor”.



Case study 2

Case Study 2 is based on the interview conducted with Ona Ventura on 25/05/2022. The interviewee teaches nursery at the Escola Monsant.

1. How is your school contributing to circular economy education?

“I did my internship in Escola Monsant. They try to become greener and one proof of that is that they have solar panels. Also, as a day to day practice and as part of the curriculum, children have some classes related to circular economy e.g. the repurposing of materials' '.

2. Do you think teachers are prepared enough to implement creative recycling classes?

“No, speaking on my behalf, I can confirm that teachers leave the universities not equipped with the knowledge related to sustainable practices. This is, you don't have the knowledge to carry out (appropriately) the recycling practices incorporated in the day to day activities of the school. Obviously, this does not mean that all schools have sustainable practices since this is not mandatory. Now, if you have the initiative to execute them, you ought to invest a reasonable amount of time outside your working schedule to educate yourself on the matter”.

3. Is there any barrier to making a primary school more sustainable?

“I don't think there are barriers. In any case, if they exist, they are economical because the money comes from the government of the autonomous community (educational department). In spite of that, the staff of schools have the willingness to carry out sustainable activities”.

4. Do you think students are used to recycling and are aware of the different planet problems?

“Nowadays students are well aware of climate change and acquainted with sustainable practices ... Children recognise that their actions and habits have positive and negative repercussions on the environment. I would also like to say that students practise recycling at school but not at home. There is no incentive on the part of governments and therefore, there is no moral responsibility on the part of parents to continue these sustainable (recycling) practises at home” ...
“Also, some parents (individually) try to send the child's school lunch in a tupperware container or a clothing bag instead of a single-use plastic bag. They are not the majority though”.



5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?

“The (only) day to day practice is to throw rubbish in the correct recycling bin”.

“The school is part of the “Escola Verde” project, this is an initiative powered by the local councils/autonomic government in collaboration with schools. The project incentivises the daily practice of sorting out rubbish for it to be recycled”.

6. Is there any action going on to recover the materials you use for creative laboratories?

“We as teachers sometimes try to organise craft activities with recycled materials. For example, we ask students to collect items that are disposable e.g. toilet paper rolls. Although, this is not a daily practice, in fact, there is no storage station so all recycled materials come from the houses of our students”.

8. Are the students taking any recycling actions in their daily life in school

“There are very few parents that have sustainable practices, like the example I gave before of parents using tupperwares or cloth bags for their children’s school lunch. Although the number is very low, I would say that the proportion is 2 children from a class of 25”... “On a personal note, I would love to see that schools have more sustainable practices like a school orchard/nursery or other initiatives apart from the correct recycling of residues”.

7. Do you have any active collaboration with recycling stations or public contractors?

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3.5 POLAND: Environmental education strategies in the primary school

Man is an integral and indissoluble part of the natural environment. In Poland, the legal basis for environmental education is contained in the Constitution of the Republic of Poland, laws such as the Environmental Protection Law (POŚ), the National Ecological Policy, the National Strategy for Ecological Education, regulations of the Minister of Education concerning the Core Curriculum for General Education. In addition, the issue of environmental education is addressed by resolutions adopted at various administrative levels and educational programmes, e.g. Municipal Programmes of Environmental Education and Education for Sustainable Development (Terlecka, 2014). In 2015, in Poland there was established The “Polish Recycling” association. It promotes the recycling of waste in Poland and supports the development of domestic recycling industry. Another example of ecological association is Municipal Association of Municipalities “Dolina Redy i Chylonki”. In terms of environmental education, the Association performs three tasks in parallel. These are environmental education of children and young people, environmental education of adult residents of the Union's municipalities and promotion of the principles of selective waste collection.

Polish awareness of recycling/upcycling is still growing. 18th March is World Recycling Day and many schools and organisations take part in it. Pupils learn how to segregate rubbish and what a circular economy is.

Every year on 22nd April, Polish students are involved in International Earth Day activities. Furthermore, schools organise many local competitions and activities, which help students to think ‘eco’ and be green. e.g. Nationwide Clean Up The World Campaign (every third week of September).

3.5.1. Good practices

Act with impPET

The "Act with impPET!" campaign is an innovative educational project aimed at raising environmental awareness of waste segregation and helping people understand recycling. Thanks to our efforts, we have a real impact on increasing the amount of collected and recycled waste from the yellow bin fraction: plastic, metal and multi-material packaging. We want us to ensure that children know how to separate waste and why they should do so. "Act with impPET!" is a programme designed to impart knowledge in an easy and interesting way, to help absorb new information, understand it and remember it. Our campaign is a way of environmental education that gets results. The first campaign was initiated in 2018 by the four leading manufacturers of the FMCG industry, introducing waters and beverages in PET bottles to the Polish market: Coca-Cola HBC Polska Sp. z o.o., Nestle Polska S.A. Nestle Waters Division, Pepsi-Cola General Bottlers Poland Sp. z o.o., Żywiec Zdrój S.A. Rekopol



Organizacja Odzysku Opakowań S.A. was the organiser. Initially, the project focused solely on the subject of PET bottles.

We believe that by educating school and kindergarten pupils, we are able to promote eco basics and create eco habits from an early age. This is why it will be carrying out a nationwide educational programme for primary schools.

Without education, there is no segregation. Without segregation, there is no recycling. Without recycling, there is no beautiful planet.

Thanks to cooperation with many entities, including those managing waste in municipalities, during the three years of the project we have increased the quantity of PET bottles collected and recycled in the Rekopol system by approximately 38%.

The "Act with imPET!" campaign has already educated half a million children, with up to 2,000 establishments participating annually.

Source:

<https://dzialajzimpetem.pl/>

Litterless Lesson

"Litterless Lesson" is an educational campaign that supports schools in the process of environmental education related to waste segregation. It aims to provide children with practical ecological knowledge and to develop appropriate behaviour and habits. In the first edition aimed at grades I-III, original educational materials were prepared for teachers to support environmental education at the selected stage of education. The accompanying competition consisted of a description of the activities that the school would undertake using the won waste separation system. As a result, such stations were installed in 20 winning schools. The station teaches how to separate waste into the five applicable fractions (glass, paper, plastics, biowaste, mixed). It also has two additional fractions - batteries and plastic caps, which are the most common separate collections made by schools, and a can crusher. Attractive graphic boards have been prepared for each fraction with instructions on what to put in and where.

We are facing many environmental challenges today, such as climate change, water pollution and the backlog of plastic waste in the seas and oceans. It is absolutely crucial to conserve natural resources by recovering secondary raw materials and reusing them. In practice, it often all starts with proper waste separation in homes, schools and workplaces. This is why it is so important that children learn its principles from an early age.

Source:

<https://www.lekcjaniesmiecenia.pl/>

Screw in aid campaign - collecting bottle tops



In schools, kindergartens, universities, offices and even in grocery shops and markets, you can find points where plastic drink caps are collected. The collection of bottle tops is one of the most popular social campaigns that have been organised in Poland for several years. It is a charity-environmental action, which anyone can join. Plastic caps - from drinks, oil, instant coffee or detergents - are in every home. The collection of plastic caps is simple and does not require much commitment from those taking part. All you have to do is bring the nuts you have collected to a designated location. They are then handed over to a plastic nut collector, a recycling company, which turns them into a secondary raw material. Initially, they produce plastic pellets that can be used to make new caps, plastic housings for electronic devices, as well as PVC packaging and pipes.

The aim of the plastic nut collection campaign is to help sick children. Every plastic nut is valuable! We do not throw them in the rubbish with the waste! We give the collected nuts to children in need. This charity-environmental activity, which combines the pleasant with the useful, has gained wide popularity in our school and has become an everyday occurrence. The bottle-top collection is a tried-and-tested idea. It fosters the systematic habit of separating waste, which is so necessary in our times. It also gives us the feeling that we can do something good for those in need.

Such campaigns have many positive effects, including learning to segregate, reducing the amount of rubbish in landfills and environmental pollution (plastic takes several hundred years to decompose in the soil). There is also a reduction in the consumption of raw materials needed to produce from plastic in favour of using secondary raw materials - from waste.

Source:

<https://www.coca-cola.pl/czyn-dobro/swiat-bez-odpadow/recykling/zrob-dla-innych-co-dobrego-i-zbieraj-nakrcki--recyklingowe-akcje>

3.5.2 Primary school curriculum to promote environmental education

In Poland, the legal basis for environmental education is contained in the National Ecological Policy, the National Strategy for Ecological Education, regulations of the Minister of Education concerning the Core Curriculum for General Education. In addition, the issue of environmental education is addressed by resolutions adopted at various administrative levels and educational programmes,

All pupils learn about environmental education content in compulsory classes in various subjects. From kindergarten onwards, they are instilled with respect for the environment. They learn that caring for the environment is everyone's responsibility. To a large extent, it depends on our daily habits and the way we run our households.

During the lessons, the children develop good habits, learning to save energy, water, raw materials, segregate and reuse waste, and handle technical products in an eco-friendly way. They learn about climate change, learning about the complexity of the issue. They implement this content in nature, geography, chemistry, physics and biology. Sample teaching content for environmental education:

Primary school

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Technology subject - adopting a pro-environmental attitude; attitudes of responsibility for the present and future state of the environment; developing the ability to separate and reuse waste found in the immediate environment; eco-technologies to help protect the environment; ecological handling of technical products, especially used ones.

Case study 1

Case Study 1 is based on the interview conducted with Marta Fyk on 24/06/2022. The interviewee is a principal of Primary School in Jaslikow.

1. How is your school contributing to circular economy education?

Yes, we try to do a lot in this area. For many years, we have been promoting selective waste collection, as well as spreading awareness of recycling and the circular economy. We educate primarily through various actions and educational campaigns.

2. Do you think teachers are prepared enough to implement creative recycling classes?

I think that teachers and students are prepared to teach environmental education and therefore recycling classes. We are all responsible for our planet. From the earliest grades we teach children how to segregate rubbish, we organise competitions on the themes of segregation, recycling and saving energy and water, we organise trips to the sewage treatment plant and the selective waste collection plant. We run a twice-yearly clean-up campaign around our school and our village, collecting rubbish and segregating it. This is learning by doing. We also promote the role of segregation and recycling through collections of electro-waste, waste paper, batteries, bottle caps. We develop leaflets and distribute them to parents.

However, we still need to develop in this area in order to better fulfil our role as educators and promoters of a clean environment.

3. Is there any barrier to making a primary school more sustainable?

I think that the youngest are the fastest to receive such knowledge, they are eager to learn, but their stock of knowledge is limited. We should reach pupils at every educational level with a range of knowledge adapted to their developmental level.

4. Do you think students are used to recycling and are aware of the different planet problems?

At our school, pupils are used to recycling and are environmentally aware. They encounter segregation every day at school, as there are segregation and recycling bins in the corridor and in front of the school, but outside the school our work is often levelled. On the streets there is a lack of such bins and rubbish ends up in one bin. We need to keep educating people about this.

5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?



Our school has had recycling bins in the school corridors for many years. There are also recycling bins in front of the school. Every year we organise a battery and electro-waste collection campaign, which is collected by a specialist company. Waste paper is collected at a recycling centre and in return we collect toilet paper. We also collect plastic bottle and packaging caps, which we recycle. We also collect them for a good cause, as the money raised goes towards the purchase of wheelchairs for the disabled.

6. Is there any action going on to recover the materials you use for creative laboratories?

Throughout the school year, several campaigns take place to recover materials, i.e. collection of waste paper, collection of electro-waste, collection of plastic caps, collection of batteries.

7. Do you have any active collaboration with recycling stations or public contractors?

Our school runs a number of campaigns in cooperation with specialised companies or the

Municipal Utilities Company, where we give away collected waste equipment or materials.

- 1) Most often we give away used computer equipment or electro-waste to the Communal Enterprise of Municipal Economy in Zakręcie
- 2) Collection of plastic bottle tops for the purchase of wheelchairs
- 3) Collection of waste paper to be recycled into toilet paper for our school
- 4) Collection of used toner cartridges
- 5) Collection of batteries

8. Are the students taking any recycling actions in their daily life in school?

Yes, I mentioned this in previous questions. We are keen to get involved in environmental actions related to recycling. This year we made a

- a bicycle stand made from used car tyres
- We used old plates to make wall decorations (glass paint)
- from pallets we made seats (benches) for the school garden
- From plastic milk containers, we cut out signs to label the plants in the garden.
- we saved money, we have interesting solutions, we used materials that would have ended up in the rubbish.

Case study 2

Case Study 2 is based on the interview conducted with Izabela Józefowska on 20/05/2022. The interviewee is a principal of Primary School in Krupie.

1. How is your school contributing to circular economy education?

Addressing the circular economy in geography lessons, nature lessons /, encouraging recycling, environmental protection/. Organising Earth Day. Participating in the competition "I am a Friend of Nature".

2. Do you think teachers are prepared enough to implement creative recycling classes?

Yes, teachers and the school community are prepared to implement activities within these themes.

3. Is there any barrier to making a primary school more sustainable?

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There must be a systematic approach to environmental aspects in the school, a continuous development of projects. If this is not the case, it becomes an obstacle.

4. Do you think students are used to recycling and are aware of the different planet problems?

The vast majority of pupils is aware of the various ecological, environmental risks. Pupils also try to apply the principles of recycling.

5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?

Yes. There are differentiated litter bins in the school and frequent warnings to pupils about the problem.

6. Is there any action going on to recover the materials you use for creative laboratories?

Actions are held throughout the school year to recover materials.

7. Do you have any active collaboration with recycling stations or public contractors?

It is common for specialised companies to collect several materials (hardware, paper, batteries, toners).

8. Are the students taking any recycling actions in their daily life in school?

Several actions take place throughout the school year to recover materials.

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3.6 THE NETHERLANDS: Environmental education strategies in the primary school

The importance of Environmental education has an important and crucial value in the Netherlands with two interdependent streams of education to co-exist within the country: environmental education and learning for sustainable development. The last mentioned can be seen as the Dutch version of the more internationally used term “ education for sustainable development”.

In the Netherlands the phrase “nature & environment” (*natuur-en- milieueducatie*) is used to describe what in most parts of the world is called environmental education.

Dutch nature and environmental education has its roots in nature, conservation education as it emerged about a century ago. Two concerns triggered this emergence: increased urbanisation which led to a loss of connectivity to the land among those growing up and living in the city, and the rapid expansion of these cities resulting in a need for peripheral areas to be set aside for the dumping of household waste in landfills. The latter led to a loss of pristine and fragile natural areas located just outside the city. There were two key responses to these trends.

Local governments of some of the biggest cities, such as The Hague, Amsterdam and Rotterdam, created facilities for reconnecting citizens, particularly young children, to the land, not by taking them outside the boundaries of the city, but by building city farms and supporting the creation of school- and children’s gardens within the city. The principle aims of these facilities and their affiliated educational programs included giving urban citizens a sense of where their food comes from, of introducing them to the functioning of the natural world, and developing in them an appreciation for plants and animals.

The policy profile on education in the Netherlands, enacted in 1988, is part of the new Education Policy Outlook series, which presents comparative analysis of education policies and reforms across OECD countries. Building on the substantial comparative and sectorial policy knowledge base available within the OECD, the series will result in a biennial publication (first volume in 2015). It offers a comparative outlook on education policy by providing: a) analysis of individual countries’ educational context, challenges and policies (education policy profiles) and of international trends and b) comparative insight on policies and reforms on selected topics.

3.6.1. Good practices

Global Environmental Education Partnership

The first environmental education policy of the Netherlands, providing the whole country with a long and rich history of using environmental education as a key strategy in addressing environmental issues. By positioning environmental education as a platform for forging relationships and building capacity, the Netherlands’ government facilitates a “learning society” to assist individuals and



institutions in addressing key issues through education and sustainable practices. National policy also supports new forms of monitoring and evaluation for the country's prominent environmental education programs, such as Groen Gelinkt, a web hub that offers teaching materials and information about environmental education and sustainability. The Netherlands also facilitates national education networks for sustainability in higher education and vocational practices to lobby at all levels and achieve key objectives for engaging students in sustainable development curricula, research, and practice.

Whole School Approaches to Sustainable Development

A program developed with the cooperation of the program DuurzaamDoor and the Ministry of Agriculture, Nature and Food Quality in The Netherlands, providing a framework for re-orienting and redesigning education considering emerging global sustainability challenges.

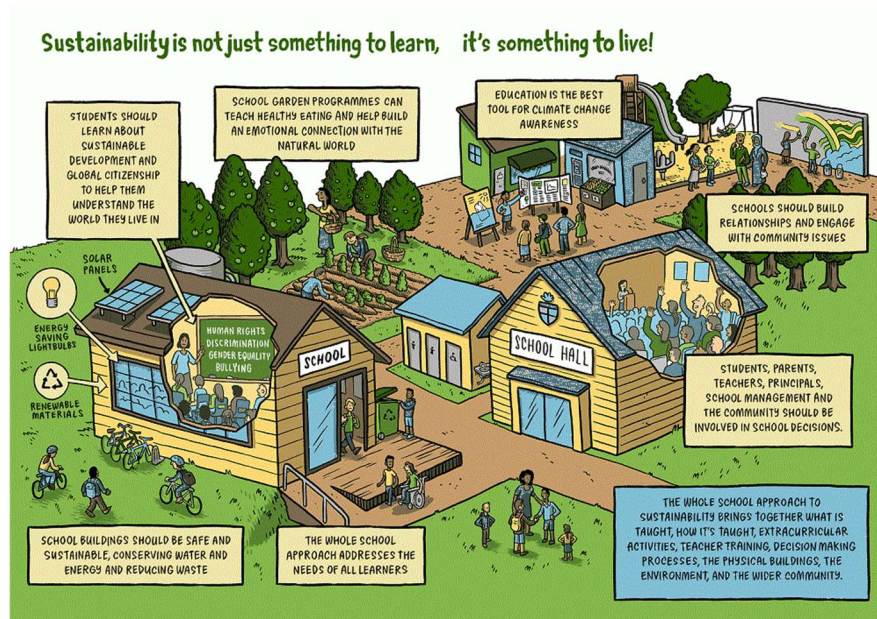
Curriculum design assessment and development; Pedagogical innovation; School management and leadership; School-community relationships; Professional development of all staff; and Institutional practices – The school as a 'living laboratory' for experimenting with healthy, equitable, democratic, and ecologically sustainable living.

DuurzaamDoor

DuurzaamDoor – the name of the national plan on Education for Sustainable Development (ESD) in which formal, nonformal and informal learning is supported. This plan is based on multi-stakeholder participation, cocreation, social innovation and transformative learning as underlying concepts.

An initiative of the Dutch government, e.g. the Ministry of Agriculture, Nature and Food Quality and is executed by the Netherlands Enterprise Agency.

The focus in 'DuurzaamDoor' is on 5 thematic areas: Biodiversity, Foodsystem, Circular economy, Energy & Climate, and Water. And there are 3 crosscutting areas: Curriculum & Whole School Approach, Integral decisionmaking for SD ('Omgevingswet') and Regional Cooperations for (E)SD ('Regionale duurzaamheidsnetwerken'), thus supporting bottom-up energy in society.



3.6.2 Primary school curriculum to promote environmental education

In the Netherlands, a number of environmental education (EE) programs have been developed to (re)connect primary school children with nature and to stimulate their care for nature by engaging them in outdoor experiences. These programs usually complement nature-oriented in-class lessons. NatureWise (Natuurwijs), supported by the Dutch Forestry Service (Staatsbosbeheer) and the NatureCollege Foundation (NatuurCollege), is one program that is known for its experiential design and its careful linking of outdoor learning and school-based learning.

Case study 1

1. How is your school contributing to circular economy education?

Following the Circular Economy Implementation Programme 2019-2023 of the Dutch government and educating and raising students awareness about environmental footprint by providing them different activities.

2. Do you think teachers are prepared enough to implement creative recycling classes?

Most of them yes, but for sure there is still a lot of development which can be approached.

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3. Is there any barrier to making a primary school more sustainable?

No, all necessary support and materials, as also an overall plan (Circular Economy Implementation Programme 2019-2023), are all provided by the Dutch government. Is only regarding willingness and adaptation.

4. Do you think students are used to recycling and are aware of the different planet problems?

Is always hard to be able to categorise the knowledge level of a student. Most of them



are used in recycling and can be said that they have well awareness of the planet problems.

5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?

Is one of our everyday tasks, trying to encourage the whole school community to be more environmentally friendly. Lots of the initiatives we are currently running at school help to make the school more sustainable and teach the whole school community the importance of Environmental Integrity

6. Is there any action going on to recover the materials you use for creative laboratories?

Different actions can be considered following under this category ex. the Reducing waste and repurposing creatively cut-offs from the guillotine for mark marking, and junk modelling is a fine example of pupils using items that are no longer needed to create a piece of art.

7. Are the students taking any recycling actions in their daily life in school?

Yes they do – as they are actions with which they are dealing with during their everyday school education hour

Case study 2

1. How is your school contributing to circular economy education?

Through raising awareness regarding environmental footprint and when applicable creating different activities for the students.

2. Do you think teachers are prepared enough to implement creative recycling classes?

Some of the teachers are prepared enough but as society is growing even faster everyday for sure there are still some milestones to be reached.

3. Is there any barrier to making a primary school more sustainable?

We cannot count barriers from the point of materials/ training and education provided but mostly to willingness of adjustment and transformation.

4. Do you think students are used to recycling and are aware of the different planet problems?

Yes due to different educational and national programs.

5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?

By providing information regarding the use and the advantages of recycling and also opportunities of participating different actions/ programs and initiatives, meeting new people, students of their age etc.

6. Is there any action going on to recover the materials you use for creative laboratories?

Laboratories sharing ideas and developing students creativity of have they can use/ recover the materials being used to another activity.

7. Do you have any active collaboration with recycling stations or public contractors?

Not sure to mention names

8. Are the students taking any recycling actions in their daily life in school?

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Mostly separating their waste to our different colour recycling bin

3.7 CYPRUS: Environmental education strategies in the primary school

The importance of Environmental Education has grown in recent years. The Ministry of Education and Culture has close cooperation with various public institutions, such as Cyprus Pedagogical Institute, Ministry of Agriculture and Department of Environment. It has adopted educational policies and has emphasised Environmental Education from Primary Education to Secondary School.

Education is approached interdisciplinary through the various topics of the Curriculum and consists of a holistic approach on environmental issues. Children have the opportunity to gain comprehensive information in order to proceed to the necessary revisions of attitudes and values, adopting a new, more sustainable profile through a critical approach. Environmental Education is student-centred, based on experimental learning processes, has set as a clear goal that learning must lead to action and is explicitly concerned with the development of values and attitudes.

Various specialised Environmental Programs are implemented in which a significant number of schools participate. The program Eco-Schools, the Greek Cypriot cooperation "Golden Green Leaf", the program "The Sporaki - Source of life", the program "Leaf - Learning about forests", the program "Litter less - litter less". Similarly, the Ministry of Education and Culture in cooperation with various governmental bodies, includes in the school program educational seminars regarding International Days of water, trees, plants and organises relevant activities within the school units.

In reference to the national environmental strategies and public initiatives, multiple public sectors are involved. An important reference is the recent National Plan for Support of Circular Economy which was established last year 2021 and it is in force until 2027, and will create an action plan in all levels, including educational level, to raise awareness for circular economy.

Another public institute is the Department of Forests, which has established the "Week Forests Protection", with the aim of reminding, raising awareness and the most essential, involvement of citizens, especially young people.

Also, Cyprus Volunteer Council has formulated the Policy for the Respect and Protection of the Environment, aiming for environmental awareness and culture. More specifically, it is focused on the three R's of the Environment: Reduce, Reuse, Recycle.

In addition, the Education Unit for Sustainable Development develops various workshops in cooperation with the Ministry of Education. For example, this year, it conducts online courses on food waste within the school, within the European Life LifePrint program. The courses aim at information, awareness and mainly education of students in matters related to production and waste, food security, food security, management and reduction of food waste, composting, responsible consumption, and adopting sustainable practices to reduce food waste. Worth mentioning is the recent program "Seeds of Hope – Write and Plant", which has been launched in 2021. Together Cyprus Organization has distributed 1500 Seed Pencils in 20 schools belonging to the DRASE zones. Program



will be completed with the creation of vegetable gardens in the spring of 2022. The 1500 pencils contain 9 different 'Mediterranean' seeds such as basil, mint, tomato, carrot and lavender while along with the creation of vegetable gardens will be the appropriate education of children for the need for recycling and sustainability due to climate change and excessive consumption of finite resources of the planet.

3.7.1. Good practices

Tiganokinisi

Tiganokinisi is an educational, environmental program for the collection of used cooking oils that is successfully implemented in more than 400 schools in Cyprus. Through collection of used frying oil, it is converted from waste to biodiesel and provides resources for environmental education activities and support of environmental infrastructure for schools and students throughout Cyprus. Tiganokinisi started with a pilot application in 2011 in 10 schools, of all levels, in the municipality of Aglantzia and from September 2013 on a nationwide basis. The program is under the Ministry of Education which is implemented in collaboration with the Ministry, the Pedagogical Institute and the Non-Profit Organization AKTI, Center for Studies and Research.

It is an innovative approach to environmental education, which includes hands-on activities and teaching, hands-on learning and the implementation of environmentally friendly practices.

Used cooking oil is the means for the sustainability of the program and the schools. The used cooking oil is recycled and the money earned is used to apply green technologies in order to achieve the principle of a sustainable school. Young people act as agents of change in society and are able to pass on environmentally conscious habits to their families and friends.

Local authorities and businesses participate as they donate their used oil (or part of it) as part of their corporate social responsibility programs to schools.

Informing, educating, collaborating and raising awareness of students, teachers, parents and the wider society on issues of sustainable development - environmental protection. More specifically, it instils to students the idea of reusing waste and the conversion of a waste (frying oil) into a useful material, biodiesel. It also enhances the cooperation of schools with the community. the improvement of the environmental character of the school unit

to contribute to the autonomy of schools. In addition, it promotes corporate social responsibility and establishes networks of cooperation and communication between the school, the community and all stakeholders.

This good practise assists in the environmental orientation of school buildings and the school space, through specific interventions and changes, which will be governed by systematic, will result from the needs of the school and from the implementation of the Sustainable Environmental Education Policy of each school



“Litter Less”

The "Litter less" program deals with - specialised in the issue of waste and involves the school in actions related to reducing the waste it produces. With the aim of educating students in recycling creatively and reducing waste, 30 schools are participating.

To achieve this goal, various activities are organised in each school and an Action Plan is presented, which is related with the reduction of waste and their proper management through recycling and reuse. An ecological committee is setting up and they observe the waste inside the school unit, discussing ways to reduce the waste. Students collect the waste and they sort it out into recyclable and non-recyclable waste. Then they are involved in various creative works. They bring used clothes like T-shirts or useless items and use them to create shopping bags, dolls, plant pots, lamp shades etc. Hence, through these workshops they learn hands-on experience creative ways to use the waste to create something new.

Composting in schools

Between September 2016 and June 2018, Together Cyprus in collaboration with the Office of the Environment Commissioner and the Cyprus Pedagogical Institute ran a series of presentations and workshops in educational institutions on the subject of composting.

More than 35,000 and 3000 teachers have been trained for composting. As part of the campaign, 200 presentations were made to inform students of all levels about what composting means. Each school is offered a free composter with the contribution of Lordos United Plastics LTD, which has chosen to support the Let's do it Cyprus campaign by offering a total of 200 composters.

The main goal is learning the benefits of composting, by using organic waste and converting into compost, which can be used to improve soil quality. Educating students in reducing edible waste and converting it to soil. It also supports school units to learn the philosophy of sustainability and create common green areas within the school units. Students are also involved in creative activities. They use the compost to create green spaces, get involved in gardening activities and in some cases they grow their own vegetables within the school units

Figure. Together Cyprus



Source: *Organisation Activities – Together Cyprus*. (n.d.). www.togetheryprus.org. Retrieved May 16, 2022, from <https://www.togetheryprus.org/en/organisation-activities/>



3.7.2 Primary school curriculum to promote environmental education

Success Indicators and Adequacy Indicators related to the Cognitive Object of Environmental Education/Training for Sustainable Development have been organised to meet all the learning levels of Primary Education and related to the respective learning outcomes of each thematic unit at each learning level. Sample activities include teamwork for presentation in one of the practices in solid waste management: recycling, composting, incineration, burial), and notification and discussion of results of each practice in the class.

Case study 1

Case Study 1 is based on the interview conducted with Stavri Panagiotou on 18/07/2022. The interviewee teaches the secondary school 's students at the Olympion High School

1. How is your school contributing to circular economy education?

The Olympion High School is defined as a Green school. The curriculum of the cypriot secondary school involves participation in relevant

2. Do you think teachers are prepared enough to implement creative recycling classes?

Some of them yes, but the majority no. I believe there's still much knowledge to be acquired.

3. Is there any barrier to making a primary school more sustainable?

Beside the adequacy of teachers, the main barrier that schools face in becoming more sustainable is related to the lack of prioritising sustainability by the government. Schools need to have the means, the material, the space and the budget to make their school sustainable.

4. Do you think students are used to recycling and are aware of the different planet problems?

Notwithstanding the effort made toward the implementation of environmental education, there is still the need to better train teachers in the field. However it is important to raise awareness among the new generations, since primary school. A pupil has very limited knowledge regarding the reasons why we need to recycle and the problems environmental pollution brings. In this regard school has the duty to feel this gas, giving them the instrument through different projects and the material covered during classes.

5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?

In the Olympion High School classrooms are equipped with paper recycling boxes. There are recycling bins at the schoolyard and in classrooms and students are encouraged not to waste energy (turning off the lights when leaving the classrooms) or water (turning off



taps in washrooms). Students also recycle their used books and notebooks at the end of each school year. Although there is not a daily practice on sustainability or creative recycling laboratories.

Regarding recycling, the school volunteering team collects all the recycling material from the school's recycling bins and visits recycling stations approximately 3 times a year or if it is

needed. Moreover, the school offers the collection of plastic, glass, paper or even clothes that are brought to nearby recycling stations.

6. Is there any action going on to recover the materials you use for creative laboratories?

There is no current action going on at school.

Case study 2

Case Study 2 is based on the interview conducted with Maria Georgiou on 17/07/2022. The interviewee teaches the primary school 's students at the Xenion Primary School.

1. How is your school contributing to circular economy education?

Educating students about environmental footprint.

2. Do you think teachers are prepared enough to implement creative recycling classes?

No, workshops/seminars might help.

3. Is there any barrier to making a school more sustainable?

Lack of coordination/planning.

4. Do you think students are used to recycling and are aware of the different planet problems?

Yes, to a certain extent.

5. Is there any everyday practice you spread among your students regarding recycling or sustainable goals?

By encouraging recycling.

6. Is there any action going on to recover the materials you use for creative laboratories?

Not as far as I know.

7. Do you have any active collaboration with recycling stations or public contractors?

Yes.

8. Are the students taking any recycling actions in their daily life in school?

Most students try to recycle.

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4. Strategic Framework for Upcycling competences

- Upcycling main principles:
 - waste is useful
 - waste as the seventh resource
 - new life for disused object
 - Eu political commitment
 - alignment with the principles of sustainable development
 - sustainable design of products
- Materials: uses and suggestions
 - shift from a brown growth (carbon and fossil fuels) to a green growth
 - link between users and objects
- Global thinking (Reuse, Reduce, Recycle)
 - waste management hierarchy
 - counteraction to throwaway" culture
 - circular economy
 - right to repair
- Knowledge of the techniques of upcycling
 - creative alteration of an object
 - waste collection raises awareness of materials, their texture and composition, providing a sensory experience.
 - have fun
 - know and interact with their environment, improve the connection between children and nature
 - experimental learning processes
- Problem identification and solution
 - raising awareness on climate change, resource depletion
 - day to day activities in order to see results
 - training actions for the teaching staff
 - lack of active collaboration with recycling stations or public contractors
 - not all governments economically supports sustainability initiatives in schools
 - children recycle more at school than at home



- Generation of ideas
 - creativity as a tool to fight waste
- Prototyping
 - materials and examples of exercises
- Organic waste
 - organic waste (carrots, coffee capsules, wooden products, pallets, cooking oils), plastic (lids, slippers, CDs), paper (egg cartons), fabrics

Final topics:

1. Environmental challenges
2. Key concepts and benefits of upcycling
3. How to apply STEAM to teach upcycling to the children
4. How to implement the design processes in the classroom
5. Creating ideas related to art and music
6. Materials that can be used for upcycling with children
7. Tips for upcycling entrepreneurs
8. How to assess upcycling

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Annexes

Annex 1

Main laws and strategies on sustainability and material reuse/recycling in the primary schools

1. ITALY

Main laws and strategies on sustainability and material reuse/recycling in the primary schools	
Law/initiative /strategy (n/year & name)	Decreto Ronchi – Dlgs 22/97
Aim/scope of the law or initiative	<p>The Ronchi Law was issued to make the European directives (91/156/EEC) on municipal waste, hazardous waste and packaging effective. The decree-law establishes standards to:</p> <ul style="list-style-type: none"> ● reduce waste production; ● encourage recycling; ● increase the environmental awareness of citizens; ● create active collaboration between enterprises and municipalities; ● impose a fair system of taxation for waste production.
Link to the law or initiative or strategy	https://www.gazzettaufficiale.it/eli/id/1997/02/15/097G0043/sg
Law/initiative /strategy (n/year & name)	D.Lgs. 116/2020
Aim/scope of the law or initiative	<p>The decree amends legislative decree 152/2006 (Consolidated Environmental Act)</p> <p>Legislative Decree 152/2006 establishes that the producer is responsible for the proper management of waste and institutes the use of the National Electronic Waste Tracking Register (RENTRI).</p> <p>Legislative Decree 116/2020 modifies the definition of urban waste, extending the definition also to undifferentiated and separately collected waste from domestic and non-domestic sources.</p>
Link to the law or initiative or strategy	https://www.gazzettaufficiale.it/eli/id/2020/09/11/20G00135/sg



Law/initiative /strategy (n/year & name)	Climate Act - D.L. 111/2019
Aim/scope of the law or initiative	The Climate Act envisages the realisation or implementation of ecological school transport; the promotion of an information campaign in schools; the transparency of environmental data; urban reforestation; the creation of environmental economic zones; the Italia VerdeFondo programme for the reforestation and environmental and hydrogeological protection of inland areas; the creation of green corners; the institution of green helmets for the environment; and incentives for the scrapping of more polluting cars and scooters.
Link to the law or initiative or strategy	https://www.gazzettaufficiale.it/eli/id/2019/10/14/19G00125/sg
Law/initiative /strategy (n/year & name)	D.Lgs. 155/2010 - Quadro normativo unitario in materia di valutazione e di gestione della qualità dell'aria ambiente
Aim/scope of the law or initiative	(a) identify ambient air quality objectives designed to avoid, prevent or reduce harmful effects on human health and the environment (b) assessing ambient air quality on the basis of common methods and criteria throughout the national territory (c) obtain information on ambient air quality as a basis for identifying the measures to be taken to combat pollution and the harmful effects of pollution on human health and the environment and to monitor long-term trends and improvements resulting from the measures taken; (d) maintain ambient air quality where it is good and improve it in other cases; and other cases; (e) providing information on ambient air quality to the public (f) achieving better cooperation between the States of the European Union on air pollution.
Link to the law or initiative or strategy	https://www.gazzettaufficiale.it/eli/id/2019/10/14/19G00125/sg

2. ICELAND

The criteria for research for the project's results 1 were on the basis of desk research. Considering the criteria that were given for the research work for Result 1, it is not possible to find information that we would have wished to find about the main laws and regulation in the field of sustainability or recycling in primary schools in Iceland. The outcome is then either that these laws and strategies do not exist or that they're inaccessible and information is not available. To conclude, considering the



aim of this project, we see an opportunity to point out to the authorities in the field of education and the environment that laws and regulations are lacking.

Main laws and strategies on sustainability and material reuse/recycling in the primary schools	
Law/initiative /strategy (n/year & name)	n/a
Aim/scope of the law or initiative	N/A
Link to the law or initiative or strategy	
Law/initiative /strategy (n/year & name)	n/a
Aim/scope of the law or initiative	
Link to the law or initiative or strategy	
Law/initiative /strategy (n/year & name)	
Aim/scope of the law or initiative	
Link to the law or initiative or strategy	

3. PORTUGAL

Main laws and strategies on sustainability and material reuse/recycling in the primary schools	
Law/initiative /strategy (n/year & name)	Environmental education benchmark for sustainability
Aim/scope of the law or initiative	<p>REFERENCE ENVIRONMENTAL EDUCATION FOR SUSTAINABILITY Pre-School Education Primary Education (1st, 2nd, and 3rd cycles) Secondary Education/April 2018</p> <p>The current global crisis makes it increasingly urgent to promote a development that meets the needs of the present without jeopardising the satisfaction of the needs of future generations.</p>



	<p>In this context, the school cannot be limited to being a mere space for the transmission of academic knowledge, in a fragmented and decontextualized way, making it imperative to be concerned with the training of young people as full citizens, preparing them to exercise an active citizenship, responsible and enlightened towards the problems of civil society.</p> <p>Environmental education is an integral part of education for citizenship, assuming, by its eminently transversal characteristic, a privileged position in the promotion of attitudes and values, as well as in the development of skills needed to meet the challenges of society in the 21st century.</p> <p>In this context, the Directorate General for Education (DGE) has been developing, in collaboration with other public bodies and institutions and with various partners from civil society, documents that may constitute benchmarks in addressing the different dimensions of citizenship.</p> <p>The Environmental Education for Sustainability Benchmark is part of the set of Benchmarks prepared by the Directorate-General for Education within the framework of Education for Citizenship.</p>
<p>Link to the law or initiative or strategy</p>	<p>https://www.dge.mec.pt/sites/default/files/ECidadania/ref_sustentabilidadade.pdf</p>
<p>Main laws and strategies</p>	
<p>Law/initiative /strategy (n/year & name)</p>	<p>National education strategy for citizenship</p>
<p>Aim/scope of the law or initiative</p>	<p>Refrente Development Education Preschool Education Primary Education Secondary Education September 2017</p> <p>Development Education, according to the document 'Education for Citizenship - guidelines', aims to raise awareness and understanding of the causes of development problems and inequalities at local and global levels, in a context of interdependence and globalisation, in order to promote the right and duty of all individuals and peoples to participate and contribute to an integral and sustainable development.</p>



	In this process, it is recognized that the school must assume a fundamental role, at all levels and cycles of education and teaching, providing the acquisition of knowledge, the development of skills and the promotion of values, attitudes and behaviours that enable children and young people to critical understanding and informed participation in the face of local and global challenges that face the construction of a more just, inclusive and united world.
Link to the law or initiative or strategy	https://www.dge.mec.pt/sites/default/files/ECidadania/educacao_desenvolvimento/Documentos/referencial_de_educacao_para_o_desenvolvimento.pdf
Main laws and strategies	
Law/initiative /strategy (n/year & name)	Law transposing Directives No. 2015/720/EU, 2016/774/EU and 2017/2096/EU
Aim/scope of the law or initiative	Decreto-lei n.º 152-D/2017, de 11 de dezembro The Government has defined in the National Reform Programme, as a priority of public waste policy, the promotion of waste prevention and waste management integrated in the life cycle of products. This policy, focused on a circular economy also aligned with the Action Plan for the Circular Economy in Portugal, approved by the Resolution of the Council of Ministers No. xx/2017, aims to increase the rate of waste preparation for reuse and recycling, thus diverting waste susceptible to multi material recovery from landfill.
Link to the law or initiative or strategy	https://erp-recycling.org/pt-pt/wp-content/uploads/sites/16/2018/08/DL-152-D_2017_11.12.2017.pdf

4. SPAIN

Main laws and strategies on sustainability and material reuse/recycling in the primary schools	
Law/initiative /strategy (n/year & name)	STRATEGY: ESenRED - Schools Towards Sustainability Network (2012). [Escuelas hacia la Sostenibilidad en Red (ESenRED)]
Aim/scope of the law or initiative	ESenRED, is a connection of networks of schools towards sustainability, driven by public institutions, which began its work in 2012.



	<p>The main aim of ESenRED is to establish an agile, functional, sustainable network model linked to the practices developed in educational centres that takes student learning as the axis of reference for the entire process.</p> <p>The network currently groups more than 2,600 educational centres (about 10% of all the existing educational centres in Spain) , almost 55,000 teachers and more than 1,100,000 students.</p>
Link to the law or initiative or strategy	Qué es ESenRED (miteco.gob.es)
Law/initiative /strategy (n/year & name)	INITIATIVE: Guide for schools. School Agenda 21: Educating for sustainability (2008). Educar para la sostenibilidad. Agenda 21 escolar.
Aim/scope of the law or initiative	School Agenda 21 is an environmental education programme of the Basque Government, aimed at schools in the Basque Autonomous Community. The document is a guide for schools that promotes interdisciplinary work between them and local councils. This is an educational programme for the sustainability and quality of the school. It is based on the participation of the community and intervenes and collaborates with the sustainable development of the municipality. Its aim is to develop knowledge, skills, attitudes, motivation and commitment to take part in the resolution of environmental problems.
Link to the law or initiative or strategy	Benito Iza, J. (2008). Guía de la Agenda 21 escolar: educar para la sostenibilidad (1st edition). Servicio Central de Publicaciones del Gobierno Vasco. https://www.euskadi.eus/web01-a2inghez/es/contenidos/libro/l_041935_0001_0001/es_def/index.shtm! https://www.miteco.gob.es/es/ceneam/programas-de-educacion-ambiental/programas-de-otras-entidades/agenda21escolar_paisvasco.aspx
Law/initiative /strategy (n/year & name)	LAW: The Law on Waste and Contaminated Soil (2022).
Aim/scope of the law or initiative	The Law on Waste and Contaminated Soil for a Circular Economy. One of the main pieces of legislation to boost the circular and low-carbon economy in Spain. This law addresses, among other issues, the problem of single-use plastics and to achieve "zero waste" by 2050.
Link to the law or initiative or strategy	BOE.es - BOE-A-2022-5809 Ley 7/2022, de 8 de abril, de residuos y suelos contaminados para una economía circular.



Law/initiative /strategy (n/year & name)	Environmental education on an Autonomous Community level, compendi
Aim/scope of the law or initiative	<ul style="list-style-type: none"> - Andalusia. Andalusian Strategy for Environmental Education. 2006. - Aragon. Aragonese Strategy for Environmental Education 2030. Approved on 12 March 2019. - Balearic Islands. Balearic Strategy for Environmental Education. 2003. - Canary Islands. Canary Islands Strategy for Social Responsibility and Environmental Education. 2014. - Cantabria. Cantabria Environmental Education Strategy. June 2006. - Castilla-La Mancha. Castilla-La Mancha Environmental Education Strategy. October 2019. - Castilla y León. Environmental Education Strategy of Castilla y León 2016-2020. June 2016. - Catalonia. Catalan Strategy for Environmental Education. 2003. - Community of Madrid. Estrategia de Calidad del Aire y Cambio Climático de la Comunidad de Madrid (2013-2020) Blue Plan, Revision April 2019. - Community of Valencia. Environmental Education on the Road. March 2018. - Extremadura. Environmental Education Strategy of Extremadura. Draft. August 2018. A strategic document is currently being prepared based on this draft and other documents (Documento Expertos PAEAS). - Galicia. Estrategia da paisaxe galega. July 2008. - Process of diagnosis and updating of the Galician Environmental Education Strategy. Summary Document. 2010. - La Rioja. Sustainable Development Strategy. 2001. - Navarra. Reviewing the past to build the future: a reflection on environmental education in Navarre since the implementation of the education in Navarre since the implementation of the ENEA. 2006. Currently, the ENEAS2030, Environmental ENEAS2030, Environmental Education Strategy for Sustainability in Navarre 2030. - Basque Country. Sustainability Strategy for the Basque Country 2030. 2018. - Princesdom of Asturias. Sustainable Development Strategy. May 2008. - Region of Murcia. Climate Change Mitigation and Adaptation Strategy. December 2019
Link to the law or initiative or strategy	MITERD & MEFP. (2021, August 3). Plan de Acción de Educación Ambiental para la Sostenibilidad. SGCTIE Ministerio de Educación y Formación Profesional. Retrieved June 21, 2022, from https://www.educacionyfp.gob.es/mc/sgctie/educacion-para-sostenibilidad/paeas.html



5. POLAND

Main laws and strategies on sustainability and material reusage/recycling in the primary schools	
Law/initiative /strategy (n/year & name)	Education for Sustainable Development in Poland and the United Kingdom -Doctoral dissertation. 2013
Aim/scope of the law or initiative	Sustainable development is to guarantee the improvement of people's quality of life and economic progress economic progress, without degrading the quality of the natural environment and without diminishing natural resources for future generations. In 1992 in Rio de Janeiro, Brazil, at the United Nations Conference on "Environment and Development", the concept of sustainable development was adopted as the interpretation of the further development of mankind, and education was identified as one of the necessary conditions for the implementation of this concept.
Link to the law or initiative or strategy	https://depotuw.ceon.pl/bitstream/handle/item/457/Praca%20doktorska.pdf?sequence=1
Law/initiative /strategy (n/year & name)	National Strategy for environmental education
Aim/scope of the law or initiative	In 1995, under an agreement between the Ministry of National Education and the Ministry of Environmental Protection, Natural Resources and Forestry, implementing the recommendations of Agenda 21, work began on preparing the National Strategy for Environmental Education "Through Education to Sustainable Development". In 1998, the above document was approved by the parliamentary and senate environment committees. The National Strategy for Environmental Education identifies and prioritises the main objectives of environmental education, while also indicating the possibilities for their realisation. One of the basic provisions of the Strategy is that environmental education should involve the whole society, all age groups, professional groups, as well as decision-makers at central and local level. 2001
Link to the law or initiative or strategy	http://cee.elk.pl/sites/default/files/nsee.pdf
Law/initiative /strategy (n/year & name)	Strategies in education for sustainable development. 2011

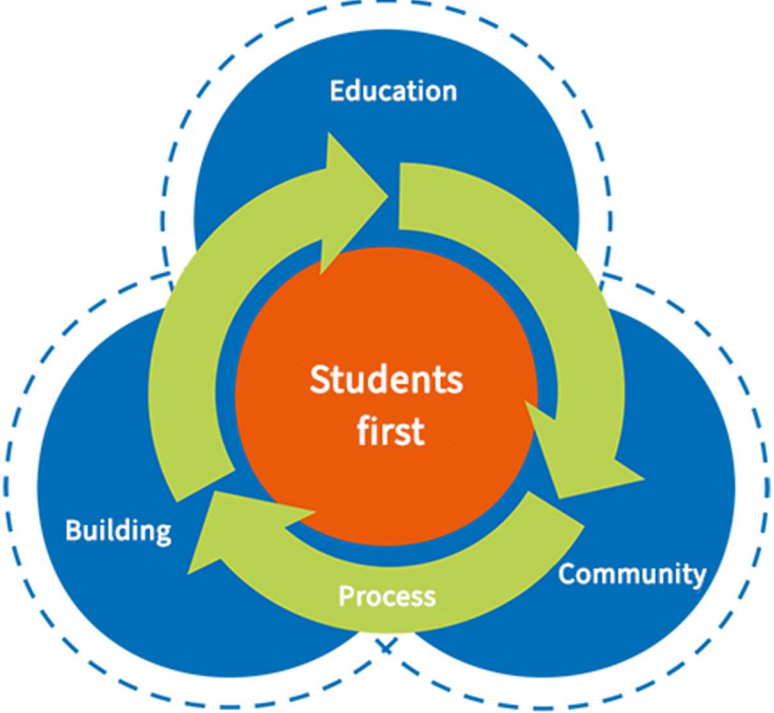


Aim/scope of the law or initiative	<p>The aim of sustainable development is to meet the needs of people in such a way as not to diminish the possibilities of meeting the needs of future generations. This concept is linked to the so-called global revolution, which leads to the questioning of the Western world-dominant direction of civilisational development (Papuzinski, 2005).</p> <p>There are four basic dimensions of sustainable development: ecological, economic, social and cultural. Thus, economic growth should take place in such a way as to take into account the determinants of natural conditions, but also to shape the right attitudes in society. It is important to develop respect for local and regional assets, as well as for the natural and cultural assets of a region.</p>
Link to the law or initiative or strategy	https://repozytorium.amu.edu.pl/bitstream/10593/1858/1/neo3132-137-148.pdf

6. THE NETHERLANDS

Main laws and strategies on sustainability and material reusage/recycling in the primary schools	
Law/initiative /strategy (n/year & name)	Eco-schools Netherlands
Aim/scope of the law or initiative	<p>Eco-Schools is a program for schools that work with students to think and act sustainably. They take steps with their head, heart and hands to give sustainability a permanent place in the school. Pupils are invited to take action and experience the contribution they can make to a sustainable society. They discover their values, interests and talents. In this way, sustainable thinking and doing gradually becomes self-evident!</p>



	 <p>The</p> <p>Eco-Schools philosophy consists of five pillars:</p> <ul style="list-style-type: none"> ● Pupils take center stage (pupils focus point) ● The school always takes sustainable steps - large or small (process) ● Sustainability has a permanent place in education (education) ● Sustainability is visible in the building and the surroundings (building) ● Everyone in and around the school participates (community)
Link to the law or initiative or strategy	https://eco-schools.nl/en/about-eco-schools/how-it-works
Law/initiative /strategy (n/year & name)	Schools on Course to 2030
Aim/scope of the law or initiative	<p>The program supports schools and municipalities in making education accommodation more sustainable. The program offers a variety of instruments to organise the sustainability task in a planned and smart way at portfolio level.</p> <p>This program is taking into account the entire quality task of education, which includes sustainability. The goal is to jointly take schools and municipalities one step further from the broader task. This is done</p>



	through active support, sharing tools and knowledge items and organising start-up and in-depth meetings.
Link to the law or initiative or strategy	https://www.scholenopkoersnaar2030.nl
Law/initiative /strategy (n/year & name)	SEPARATING WASTE IN THE CLASSROOM: A LOGICAL STEP AND TEACHABLE MOMENT.
Aim/scope of the law or initiative	<p>It is well known that only 5% of Dutch schools separate plastic waste. Today, school waste is regarded as industrial waste making it expensive to separate and recycle.</p> <p>At the beginning of January 1, 2023, The Waste Fund will be introducing a free plastic collection service for primary schools. Schools have until May 18, 2022 to register for this service.</p> <p>The Waste Fund will also be offering free plastic collection to universities, associations and museums.</p> <p>Policy makers are supporting the proposal for waste separation in the classroom to become the standard practice within 4 years. State Secretary Van Weyenberg, from the Ministry of Infrastructure and Water Management, has publicly announced that he backs this measure.</p>
Link to the law or initiative or strategy	https://www.plasticsoupsurfer.org/campaigns/waste-seperation-in-schools/

7. CYPRUS

Main laws and strategies on sustainability and material reuse/recycling in the primary schools	
Law/initiative /strategy (n/year & name)	Eco Schools/1997
Aim/scope of the law or initiative	<p>Eco-Schools is a fundamental initiative which encourages young people to engage in their environment by allowing them the opportunity to actively protect it. It starts in the classroom where it expands to the school and eventually fosters change in the community at large. Through this programme, young people experience a sense of achievement at being able to have a say in the environmental management policies of their schools, ultimately steering them towards certification and the prestige which comes with being awarded a Green</p>



	<p>Flag. The Eco-Schools programme is an ideal way for schools to embark on a meaningful path towards improving the environment in both the school and the local community while at the same time having a life-long positive impact on the lives of young people, their families, school staff and local authorities. It is the most massive Environmental Education Program that is successfully implemented in our schools. It started its operation in 1997 with the participation of 16 primary schools and followed an upward course, as a result of which 139 primary schools, 95 kindergartens, 3 special schools, 41 high schools and 17 lyceums participate in the Program this year.</p> <p>Eco-Schools instils in students a sense of responsibility and cultivates a sustainable mindset which they can apply on a daily basis. It equips those involved with the drive to really make a difference and to spread such proactive behaviour amongst family and friends, ultimately passing it on to future generations. It is approached interdisciplinary through the various topics of the Curriculum and touches with critical spirit the main world and local environmental problems with a holistic approach.</p>
<p>Link to the law or initiative or strategy</p>	<p>Cymepa. (n.d.). www.cymepa.org.cy. Retrieved May 12, 2022, from http://www.cymepa.org.cy/el/page/eco-schools</p>
<p>Law/initiative /strategy (n/year & name)</p>	<p>Education Unit for Environment and Sustainable Development 2018</p>
<p>Aim/scope of the law or initiative</p>	<p>The Education Unit for Environment and Sustainable Development, which was officially established in 2018, is the competent Unit of the Ministry of Education, Culture, Sports and Youth for the promotion of environmental education and sustainable development in the context of formal and non-formal education. It is a horizontal structure, in close cooperation with all Directories of Education and Departments of the Ministry of Education and Culture.</p> <p>The strategic goal is the integration of Environmental Education in all educational levels, through the parallel promotion of central educational actions, as provided in the National Strategic Planning, which can contribute to shaping tomorrow's thinkers and environmental citizens in the context of the formation of the sustainable school which will conduce to environmental and social change.</p>
<p>Link to the law or initiative or strategy</p>	<p>Education Unit for Environment and Sustainability. (n.d.). mepaa.moec.gov.cy. Retrieved May 13, 2022, from https://mepaa.moec.gov.cy/index.php/el/#</p>



Law/initiative /strategy (n/year & name)	Cyprus Center for Environmental Research and Education/2004
Aim/scope of the law or initiative	<p>The Cyprus Centre of Environmental Research and Education (CYCERE) is located in the heart of the Akrotiri Peninsula and is the first of its kind independent environmental center of Cyprus. CYCERE aims to contribute in environmental conservation by adopting and promoting strategies in environmental education, environmental research and information.</p> <p>It has three main pillars: environmental education - research - information. Schools from all over Cyprus are invited to visit the environmental center and attend the unique environmental education programs. Environmental education programs are provided completely free of charge.</p>
Link to the law or initiative or strategy	Cyprus Center for Environmental Research and Education (CYCERE). Retrieved May 13, 2022, from http://kykpee.org/en/

Annex 2

Free educational materials on upcycling/creative recycling

Italy	Name of the resource		IT/EN
	Kit didattico		
	Brief description	The website provides 18 worksheets for primary school pupils and their teachers to explore the 2030 Agenda and the 17 MDGs in an interactive way	
	Link of the resource	https://asvis.it/kit-didattico/	
	Name of the resource	Il riuso creativo	IT
	Brief description	Guidelines for creative recycling activities: decorating with recycled materials making storybooks with recycled material Book workshop: making an accordion book	
	Link of the resource	https://www.giuntiscuola.it/articoli/il-riuso-creativo	
	Name of the resource	Riciclare creativamente - Maestra Agnese	IT



	Brief description	The website collects examples of creative recycling activities	
	Link of the resource	https://www.maestraagnese.com/riciclare-creativamente.html	
Iceland	Name of the resource	Verkefnakista skóla á grænni grein	IS
	Brief description	The website is a toolbox with extensive collection of examples of upcycling and recycling activities and projects. Also with general environmental education activities and projects. The Icelandic environment association is in charge of the website. Examples for all school levels	
	Link of the resource	https://landvernd.is/verkefnakista/	
	Name of the resource	Gera sjálfur - projects made with recyclable materials	IS
	Brief description	A collection of creative projects using recyclable materials in textile courses for primary school.	
	Link of the resource	http://www.gerasjalfur.is/endurvinnslu-verkefni.html	
Portugal	Name of the resource	“The world in our hands” - “O Mundo nas nossas mãos”	PT
	Brief description	Escola Básica Dom Luís Mendonça Furtado - Barreiro, commemorates the international day of awareness of the consequences of climate change. This activity was carried out within the scope of the Global Days Action promoted by the Eco Schools project and the Blue Flag Association of Europe - ABAE.	
	Link of the resource	https://globalactiondays.abae.pt/	



Spain	Name of the resource	Recycling activities in the classroom - Ecoembes	ES
	Brief description	Ecoembes is a non-profit organisation that manages the recycling of waste deposited in the yellow and blue containers across Spain. Ecoembes' website has a variety of resources to promote the safekeeping of the environment in class with materials, games and posters and ideas for outdoor activities, among others all of these resources are free of charge and are classified according to the school grade: nursery, primary and secondary education.	
	Link of the resource	Actividades de reciclaje en el aula Ecoembes	
	Name of the resource	Rec4Rec: Open Educational Resources	ES
	Brief description	Fundación Renovables is a think tank created in 2010 with the aim of raising public awareness of the need to change the energy model with savings, efficiency and renewables as basic principles. The project rec4ren is an open repository of online resources for teaching and learning subjects related to responsible energy consumption and its effects on biodiversity (with a multidisciplinary approach).	
	Link of the resource	rec4ren – Recursos para renovables (fundacionrenovables.org)	
	Name of the resource	Environmental Education Resources Guide (to contribute to the solution) 2022	ES
	Brief description	Compendium of resources for Environmental Education. The majority of the resources in this guide are accessible and can be downloaded from the Internet.	
	Link of the resource	Guía de recursos de educación ambiental 2022: para contribuir a la solución (miteco.gob.es)	
Poland	Name of the resource	Nasze śmieci - Our rubbish	PL
	Brief description	The website provides different materials for school and teachers e.g. infographics, graphics and illustrations, videos. With a view to providing education on waste management, including waste segregation, the Ministry of Climate and Environment permits the use of the educational material contained on the naszesmieci.pl website. This consent is valid only in the Republic of Poland.	



	Link of the resource	https://naszesmieci.mos.gov.pl/materialy	
	Name of the resource	My city without electro-waste	PL
	Brief description	"My city without electro-waste" is an out-of-the-box education based on free educational materials delivered to educational institutions (schools and kindergartens), as well as remote and online learning materials, a series of educational workshops, environmental events and happenings.	
	Link of the resource	https://www.moje-miasto-bez-elektrosmieci.pl/materialy-edukacyjne/	
	Name of the resource	Dzień bez śmiecenia - The Zero Litter Day	PL
	Brief description	The Zero Litter Day is an idea developed by young people from several countries working together in the framework of the international programme "European Youth Eco-Parliament" in 2007, a project promoted by PRO EUROPE (an organisation bringing together recovery organisations operating under the Green Dot system), and coordinated and organised in Poland by Rekopol O.O.O. SA. The aim is to promote correct waste segregation rules, promote pro-ecological attitudes and environmental protection. The website provides - educational films, e-cards, games, coloring pages, infographics.	
	Link of the resource	https://dzienbezsmiecenia.pl/materialy-edukacyjne/	
	Name of the resource	The Earth Day	PL
	Brief description	The webpage provides materials for teachers - coloring pages, infographics, ideas how to conduct the Earth Day.	
	Link of the resource	https://pl.pinterest.com/pin/762445411895539717/	
	Name of the resource	Aware of change, we change for the climate" (free EDUCATIONAL MATERIALS)	PL
	Brief description	"Aware of change we change for the climate" is the title of an information and education campaign on climate change in Wielkopolska, The project included a comic book, a newsletter and film spots. All materials are available for using.	



	Link of the resource	https://portalkomunalny.pl/swiadomi-zmian-zmieniamy-sie-dla-klimatu-bezplatne-materialy-edukacyjne-428886/	
The Netherlands	Name of the resource	Upcycle your Waste - Education Centre NOVA College – The Netherlands	EN/FR/NL
	Brief description	The Upcycle Your Waste project that supports small and medium sized enterprises (SMEs) to turn their company waste into a valuable resource. Businesses can benefit significantly from circular approaches like waste material recovery and green procurement. But many SMEs lack the knowledge, resources and scale to make this transition on their own. Informative materials can be also used for education reasons generally.	
	Link of the resource	https://academy.upcycleyourwaste.com	
Cyprus	Name of the resource	Green Dot	EL/EN
	Brief description	Green Dot Cyprus is the first collective recycling system approved in Cyprus and is a non-profit organisation. They provide free material in all educational levels and they collaborate with schools.	
	Link of the resource	Cyprus, G. (n.d.). Educational material for schools. Green Dot Cyprus. Retrieved May 12, 2022, from https://greendot.com.cy/newsroom/educational-material/educational-material-for-schools/	
	Name of the resource	The Education Unit for Environment and Sustainable Development	EL
	Brief description	Educational material to be used from teachers as a supportive material.	
	Link of the resource	Waste. (n.d.). Peeaad.schools.ac.cy. Retrieved May 12, 2022, from https://peeaad.schools.ac.cy/index.php/el/yliko/aporrimata	
	Name of the resource	Democratic Movement of teachers- kindergarten teachers	EL
	Brief description	Educational material to be used from teachers as a supportive material.	
	Link of the resource	Educational material. (n.d.). Wwww.diki.org.cy.	



		Retrieved May 12, 2022, from http://www.diki.org.cy/index.php/ekpaideftiko-yliko-main	
	Name of the resource	Activities, Pedagogical material for Kindergarten & Primary School	EL
	Brief description	Educational material to be used from teachers as a supportive material.	
	Link of the resource	Activities, Pedagogical material for Kindergarten & Primary School. (n.d.). Retrieved May 13, 2022, from http://taniamanesi-kourou.blogspot.com/search/label/%CE%A0%CE%95%CE%A1%CE%99%CE%92%CE%91%CE%9B%CE%9B%CE%9F%CE%9D%2F%CE%9F%CE%99%CE%9A%CE%9F%CE%9	
	Name of the resource	Suggested Activities – Educational Initiatives	EL
	Brief description	Suggested activities to be used during teaching of environmental education.	
	Link of the resource	Suggested Activities – Educational Initiatives. (2021, March 13). Retrieved from Educational Initiatives website: https://ecologico.education/%cf%80%cf%81%ce%bf%cf%84%ce%b5%ce%b9%ce%bd%cf%8c%ce%bc%ce%b5%ce%bd%ce%b5%cf%82-%ce%b4%cf%81%ce%ac%cf%83%ce%b5%ce%b9%cf%82/	
	Name of the resource	In Action for a better world	EL/EN
	Brief description	The Greek SDGs Library has started as an initiative, taking into account the features and priorities of Greek society, as well as the need for broad based information and education on specific issues, as these have been recorded by the official Greek institutional bodies. Teaching resources, comprehensive learning programmes, teacher proposals and supplementary material are available to help teachers develop educational programmes and actions.	
	Link of the resource	Greek SDGs Library - in action for a better world. (n.d.). In Action. Retrieved May 13, 2022, from https://inactionforabetterworld.com/en/greek-sdgs-library-en/	
	Name of the resource	Environment and Education Office of Environmental Education DIPE West Attica	EL



	Brief description	Teaching material for Environmental Education.	
	Link of the resource	https://perekp.wordpress.com/%CF%85-%CE%B1%CE%BD%CE%B1%CE%BA%CF%8D%CE%BA%CE%B%CF%89%CF%83%CE%B7/	