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# RECYCLING OF WASTE WITH HANDICRAFTS

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Training course handbook

# IMPRESSUM

Project: Recycling of Waste with Handicrafts

Program: Erasmus+ small-scale partnership in adult education

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Lietuvos jaunimo centras (Lithuania)

Associació Cultural Tabalà (Spain)

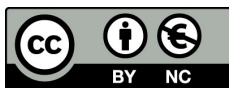
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# INTRODUCTION

The waste problem has become a serious negative impact on our daily lives. In response, social organizations, foundations and associations have been established to tackle the issue, yet it continues to worsen on a global scale. To combat this, art is one of the most effective expression methods and ecological art projects are essential for maintaining ecological balance and raising environmental awareness.

Due to the rapid pace of modern life, public consumption and waste are inevitable. Companies capitalize on this, using packaging to make products more attractive. However, this has resulted in a dramatic increase in packaging waste. The negative natural effects of this process are becoming increasingly clear, leading to the emergence of the idea to decrease waste by recycling. During and after COVID-19, working conditions have changed, with the introduction of working from home and flexible working models. This has resulted in an increase in online shopping and thus more packaging, leading to waste. This has had a huge psychological impact on those who spend more time at home, resulting in emotional fatigue and an increase in domestic violence.

The aim of this project is to encourage those who have to stay at home, such as housewives, the people with disabilities, the elderly, to spend time more productively with handicrafts, especially during the pandemic processes. Through use of their own creative ideas, they can recycle waste in their homes into toys, ornaments or souvenirs, contributing to the family economy and environmental cleaning by using their time efficiently. Taking part in such activities will also help to reduce psychological stress and strengthen communication within the family, thus reducing violence.



Eco-art can be used to recycle waste and products that are no longer of use. Examples include rag dolls from used clothes and fabrics, models or picture frames from lit matchsticks, sculptures with contemporary designs from plastic bottle caps, using used car tires as a garden fence, reusing scrap iron and making artistic sculptures for indoor and outdoor spaces, cedar covers, door mats and bags from used sweaters, dolls and souvenirs from banana tree fibres and maintaining used shoes as works of art. Eco-art should not just be thought of as a way to recycle waste, but as a hobby for modern people wanting to escape the boredom of daily life.

## INTERACT WITH ME!

The handbook consists of four major chapters on the environment and eco-art, with each chapter being divided into smaller sections. In each section, we deal with one or more concepts important to understanding the environment and/or eco-art. The goal of this handbook is not only to provide an overview of such concepts and ideas, but also to engage you, the reader, with the material. For this reason, you will find green shapes like this interspersed throughout the handbook.

Resource boxes will contain hyperlinks to additional information, infographics, tools, videos, etc., that will enhance your learning and provide you with opportunities to engage more, learn more, and participate more. We recommend exploring on your own, enhancing your learning, engaging with people around you, and making a joint effort to learn more about the environment and eco-art.

Reflection corners will contain material that will allow you to examine your thoughts, feelings, and behaviour in a non-judgmental manner. Think of it as tools for introspection that in turn can lead to you better understanding yourself, identifying areas for personal growth, and gaining a clearer understanding of the areas of self-improvement.

## PROJECT INFO



**Recycling of Waste with Handicrafts** is an Erasmus+ small-scale partnership project co-funded by the European Union. The project is being coordinated by the Turkish organisation Oltu Halk Eğitimi Merkezi, and was approved by their national agency, The Centre for European Union Education and Youth Programmes.

The project focuses on two main specific goals:

1. Protecting the environment and raising awareness about recycling of waste;
2. Using waste as a form of artistic expression.

Many people are not aware of the seriousness of environmental problems such as environmental pollution and climate change, and even if they do, they are not familiar with the ways in which they can individually contribute to solving them. This project aims to provide a positive contribution to the environment and climate change by re-evaluating waste recycling, especially in artistic content, and to raising awareness about environmental issues.

Within the scope of the project, four transnational partner meetings were planned, each accompanied by a myriad of activities:

1. The meeting in Türkiye: a discussion and exchange of good practices on the topic of raising awareness about environmental protection and recycling of waste was held;
2. The meeting in Lithuania: a workshop on artistic ways of recycling with handicrafts was organized;
3. The meeting in Croatia: partners discussed future steps of the project and visited local associations that recycle fabric materials and thus contribute to the development of the local community;
4. The meeting in Spain: partners organised an exhibition with examples of handicrafts made from waste materials.

This project provided a new perspective and re-evaluation of the view of waste materials, and an insight into the different possibilities of recycling and reusing materials for artistic purposes.

More information about the project and the project activities can be found on the project web-site: <https://handicrafts.pou-cakovec.hr/>.

## PARTNER INFO

The partnership consortium consists of four organizations from Türkiye, Croatia, Lithuania, and Spain, respectively. Each of them recognizes the importance of sustainability, environmental protection, and waste reduction. By combining their resources, experiences, and insights, they have embarked on a journey to make the future greener. By raising awareness of environmental topics and challenges through an artistic lens, they strive to demonstrate that small projects, such as handicrafts, can have a significant impact on our environment and the lives of those involved. The cooperation between the partners demonstrates how working together towards a common goal can lead to positive change in local communities, partner countries, and the whole of Europe.



### **Oltu Halk Eğitimi Merkezi**

Oltu Public Training Centre, established in 1975, is a non-formal training centre that has been offering training services to 1500–2000 citizens by organizing various (140-150) social-cultural and occupational-technical courses on various branches, employing principals, 5 staffed teachers, 3 qualified instructors and teachers for a fee. The purpose of the Centre is to provide lifelong training to people, enable participation of people in development projects utilizing public resources, to protect national cultural values, to develop and popularize open and universal culture. Other activities conducted at the Centre include conducting studies for education-production-employment, marketing and organizing, assisting individuals emigrated from rural areas to urban areas adapt to environment and training of traditional craft works. The Centre offers services by subjecting to General Directorate of Apprenticeship and Non-formal Training, applying module programs for adult

education. A fee is not charged to trainees, and a participation certificate is granted to trainees who have successfully finished in the course programme. There exist computer lab, workshops and classrooms for processing Oltu stone, silver, embroidery, knitting work and clothing as part of the Centre. Principals and trainers can transfer their knowledge obtained as a result of examinations and studies to their applications.



**PUČKO  
OTVORENO  
UČILIŠTE  
ČAKOVEC**

### **Pučko otvoreno učilište Čakovec**

Public Open University Čakovec is a public adult education institution and one of the leading adult education institutions in the Republic of Croatia. It is a member of the Croatian Association for the Education of Adults, seated in Zagreb. It was founded in 1950 as Workers' University, which was followed by a merger with People's University in 1960. In 1989, it was renamed into Open University and finally, in 1997, it became what it is today, Public Open University Čakovec, a public institution under the jurisdiction of the City of Čakovec. People's University had several departments, which included the Cultural Centre, the Library, Međimurje County Museum, the Elementary Music School and the Education Centre. As the departments developed, they separated from the University and are autonomous even today. People's University redirected towards adult education, which remains its speciality to this day. This lifelong learning centre has continually evolved to meet the demands of our society. It remains a dynamic setting open to changes as well as social and economic influences dictating program structure and development. It welcomes everybody with a need for new knowledge and skills, and the numerous available experts ensure the best possible education.



LIETUVOS JAUNIMO CENTRAS

### **Lietuvos jaunimo centras**

The Lithuanian Youth Center was founded in 2010. Its main goal is to promote positive youth initiatives as well as interaction and understanding between youths with different cultural or social backgrounds. Our organization seeks to shift the youth's energy towards activities that bring benefit to the society and the country. The Center promotes and popularizes the ideas and values of young people. Progressive youths who are under the umbrella of the centre encourage non-formal education, democratic reforms, social justice, the emergence of sociability, public spirit and equal opportunities for everyone. We believe that every person should be treated independently of his/her ethnicity, race, sexual orientation and religious belief. Members of the organization are involved in various projects, which are mainly related to the dissemination of non-formal education in Lithuanian regions, social advertising and implementation of the projects that improve the levels of competence of young people.



### **Associació Cultural Tabalà**

TABALA is a Spanish non-profit cultural association that contributes to creating long-term links between different persons and organizations. Our NGO promotes concepts of development, inclusion and the importance of volunteering culture. As well, we promote solidarity and tolerance to foster the social cohesion and cooperation among different EU's countries. The institution focuses on institutional capacity-

building for individuals and institutions through training programs, conferences, workshops, as well as creation of partnerships with other institutions regionally and internationally, providing a platform for the exchange of experiences. With the aim to increase the knowledge and capacities of leaders by strengthening independent thinking, social tolerance, conflict management, free dialogue, and leadership.

# ENVIRONMENTAL INFO: PROBLEMS AND SOLUTIONS

Rapid advancements of technology, the latest scientific breakthroughs, and the major world events such as the COVID pandemic have not only made our lives more complex, but they have fundamentally changed how we interact with the environment. Our increased dependence on technology has caused us to be more immersed in the digital expanse and be less connected to the physical world that surrounds us. This disconnect may have decreased our awareness of our actions having an impact on the environment, which in turn has been reflected in the deterioration of the bond we share with the environment. It is therefore vital for humans to re-establish a healthy relationship with the environment in order to ensure a sustainable future for generations to come. That is the main goal of this handbook – to offer an overview of all the major environmental topics, while also providing resources, advice and suggestions on how to learn more, act more, and be more involved in shaping our green, sustainable future.

## RESOURCE BOX

For more information on the current state of the environment and actions taken to protect it, we suggest visiting the web-sites of the following organizations.

- European Environment Agency - <https://www.eea.europa.eu/>
- UN Environment Programme - <https://www.unep.org/>
- European Commission - [https://environment.ec.europa.eu/index\\_en](https://environment.ec.europa.eu/index_en)

## RESOURCE BOX

The European Environment Agency has defined the environment as the following.

A concept which includes all aspects of the surroundings of humanity, affecting individuals and social groupings. The European Union has defined the environment as "the combination of elements whose complex interrelationships make up the settings, the surroundings and the conditions of life of the individual and of society, as they are or as they are felt". The environment thus includes the built environment, the natural environment and all natural resources, including air, land and water. It also includes the surroundings of the workplace.

The first step in approaching the environmental topics is the concept of the environment itself. The environment is made up of many different components, each playing an integral role in the overall health and livelihood of people and ecosystems. Physical components such as air, water, soil, sunlight play a vital role in providing essential resources for life to exist and thrive. Chemical elements like nitrogen, oxygen, and carbon dioxide are also important as they are necessary for plants' growth and survival. In addition to physical elements, the environment is home to millions of species of animals and plants, which provide food sources for other organisms while also helping balance out the ecosystem with their presence. Furthermore, it affects social forces like culture through its influence on communities that rely on its natural resources or depend upon certain environmental conditions for sustenance. Finally, environmental change can drastically impact human lives by altering climates or disrupting delicate ecosystems, leading to displacement or loss of habitat/food sources among many other things. The importance of keeping our environment healthy cannot be overstated; we must take action now if we want future generations to benefit from its resources.



Our environment is an intricate, dynamic system of elements from both nature and human society. It provides us with the resources we need to survive, but it is also a source of worry because our activities can have damaging effects on climate change. In order to make knowledgeable decisions about how we interact with the environment, we must understand that environmental questions are complex and multifaceted and do not lend themselves to a single or uniform approach. Economic approaches focus on the value of nature, its services, their measurable qualities and effects. These might include measuring health impacts of air pollution or assessing people's annoyance levels due to environmental issues such as noise. Engineering takes a more technical view, seeking solutions through technological advancements, while systems-based approaches aim to understand how different elements like natural resources, human activities, land use and climate interact with each other in order to grasp an issue's full complexity. It is clear that no single approach will be able to encapsulate all aspects of an issue nor provide comprehensive solutions; for this reason, it is important that all perspectives be considered when approaching any given

environmental question. In the forthcoming sections, an overview of the environmental topics will be given. A special attention will be given to the ways how individuals through their choices can impact the not only the immediate surroundings, but the environment at large.

## REFLECTION CORNER

Think about how you perceive the environment. What would your definitions of it be? Talk with your fellow peers or colleagues. Compare your definitions and views. Is it in line with the definition of the European Environment Agency or does it differ, and if so, in what way does it differ?

Due to the growing effects of global climate change, environmental issues have been pushed to the forefront of public discussions. The importance of taking action has become extremely emphasized, and it is vital to make well-informed decisions now more than ever. It is apparent that our planet is facing a severe environmental crisis that requires quick remedial measures to be taken, so we must take the right steps now in order to safeguard its future. This chapter explores the current ecological issues we face globally, researches the possible causes of these issues, and outlines how we can collaborate to solve them before they become irreparable. We will also look at how governments, businesses and individuals alike can take steps towards creating a sustainable future for generations to come.

## REFLECTION CORNER

Recall all the news reports on the environment and environmental topics you saw or read in the past week. How many were there? What were they about? Try to list as many environmental problems you can think about as possible before reading more about them down below. Encourage your colleagues to do the same. Compare the lists and discuss them.

Environmental problems are becoming increasingly prevalent in our world today. From rising sea levels to air pollution, it is evident that human activities have had a tremendous impact on the environment. Climate change is one of the most pressing environmental issues faced by humanity – its effects can be seen in droughts, floods, wildfires and extreme weather events across the globe. Pollution from industrial processes and vehicular emissions has caused widespread damage to ecosystems, resulting in depleted biodiversity. Deforestation continues to threaten many species with extinction as valuable habitats are destroyed for development purposes. In addition, increased plastic production and waste disposal has created vast amounts of non-biodegradable materials, which further pollute our oceans and landfills. It is clear that these environmental challenges need urgent attention if we are to ensure a sustainable future for ourselves and generations to come. The following sections will present the biggest environmental problems of 2023. The climate crisis is one of the largest environmental problems of our lifetime. It is a result of multiple factors, from deforestation and biodiversity loss to food waste and fast fashion. This textbook will explore two of the most significant issues and suggest potential solutions for them.

## REFLECTION CORNER

When talking about the negative trends connected to the environment and, to be more precise, the climate, the term that was until recently used widespread was “climate change”. However, in recent years, new terms “climate crisis” and “climate emergency” were coined and used by the media.

Think about the three terms presented to you. Provide your own definitions of them. Do you see any connection between them? Explain what terms do you prefer to use and why. Discuss these terms and their usage with your colleagues.

After self-reflecting, you can read up on the terms presented and how some journals use them in their reports about the environmental topics:

- <https://www.theguardian.com/environment/2019/oct/16/guardian-language-changes-climate-environment>
- <https://www.cleanenergywire.org/blog/climate-change-or-climate-crisis-whats-right-lingo>

Albeit serious, the effects of the climate change that led to the climate crisis are not irreversible, and the purpose of this handbook is not to discourage them, but to empower them to assume an active role in positively contributing to the surrounding environment.

For a general overview of facts about the climate emergency and ways how we can overcome the climate crisis, we recommend reading the following articles:

- <https://www.unep.org/facts-about-climate-emergency>
- <https://www.un.org/en/un75/climate-crisis-race-we-can-win>

In the following sections, some of the current environmental problems will be presented. Please note that such a list is not exhaustive and that some of the problems such as different types of pollution will be covered in the subsequent chapters. We encourage you to consult the resource boxes to gain more insight into the environmental issues at hand. Do not hesitate to stop by the reflection corners.

## RESOURCE BOX

For more information on the environmental problems the world is facing today, please consult the following reading:

- <https://www.conserve-energy-future.com/15-current-environmental-problems.php>
- <https://earth.org/the-biggest-environmental-problems-of-our-lifetime/>
- <https://www.euronews.com/green/2022/12/31/water-fossil-fuels-and-decarbonising-travel-what-will-be-the-key-climate-issues-in-2023>

**Global warming**, a by-product of human practices like the emission of greenhouse gases, presents the perhaps most notable and well-known environmental problem today. The data shows that the last time carbon dioxide levels on our planet were as high as today (418 CO<sub>2</sub> parts per million) was more than 4 million years ago. Compared just to the pre-industrial levels, due to global warming, the global temperature has risen by 1.5 degrees Celsius. The rise of temperature can be best observed in rising temperatures of the oceans and the Earth's surface, which in turn has devastating effects not just for humans, but for plant and animal life. Some of the disastrous events reported caused by the global warming include:

Australia and the US, experiencing some of the most devastating bushfire seasons ever recorded;

locusts swarming across parts of Africa, the Middle East, and Asia, decimating crops;

heatwave in Antarctica that saw temperatures rise above 20 degrees for the first time.

However, the climate emergency events are not limited to the three mentioned above, as they also include flooding, melting of polar ice caps, rise in sea levels and also unnatural patterns of precipitation such as flash floods, hurricanes, wildfires, drought, excessive snow or desertification. For these reasons, it is imperative to keep the temperature rising, i.e., carbon emissions, at bay. However, even if all greenhouse gas emissions were halted immediately, global temperatures would continue to rise in the coming years. To combat the climate crisis and mitigate its effects, a number of climate initiatives and (inter)national legislation has been passed. Some of them include the Paris Agreement, which represents an international treaty on climate change and the European Green Deal which represents a set of policy initiatives by the European Commission, both of which are aimed at combating the effects of the climate crisis. For this reason, it is crucial that we start now to drastically reduce greenhouse gas emissions, invest in renewable energy sources, and phase out fossil fuels as fast as possible.

## REFLECTION CORNER

Have you heard about the European Green Deal? If yes, what do you know about it? Could you be able to explain what is to one of your colleagues? If you do not know what it is, can you try to guess what it is about? Do you know any national legislature that deals with green topics?

Climate action is at the heart of the European Green Deal, an ambitious package of measures ranging from ambitiously cutting greenhouse gas emissions, to investing in cutting-edge research and innovation, to preserving Europe's natural environment:

- By 2030, Europe plans to further cut greenhouse gas emissions by 55%.
- By 2050, Europe aims to become the world's first climate-neutral continent.
- By 2050, Europe aims to be a climate-resilient society.

For more on the European Green deal and the EU's approach to climate, visit:

- [https://climate.ec.europa.eu/eu-action/european-green-deal\\_en](https://climate.ec.europa.eu/eu-action/european-green-deal_en)
- [https://climate.ec.europa.eu/index\\_en](https://climate.ec.europa.eu/index_en)

Have you heard of the Paris Agreement? Do you know if your country has joined it? Without reading the next paragraph, do you know what it is about and/or could you explain to one of your colleagues?

The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC) that was adopted in December 2015. It aims to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. The agreement also has provisions for adaptation, finance, technology development and transfer, capacity building, transparency measures and more which are meant to help countries reduce their emissions and adapt their societies and economies for a low-carbon future.

More on the Paris Agreement:

- <https://www.un.org/en/climatechange/paris-agreement>



**Loss of biodiversity** is an increasingly concerning environmental issue that has been caused by a variety of human activities. These include habitat destruction, illegal wildlife trade, pollution and climate change. As global populations continue to grow, the need for resources such as land or food increases and these activities become more prevalent. This leads to a decrease in the number of species inhabiting our planet, leading to less genetic diversity overall. The effects of this can be seen on local levels, with plants and animals becoming endangered or even extinct due to their inability to adapt quickly enough or relocate when necessary. On larger scales, we can see reduced productivity from natural ecosystems which provide us with things like clean air and water, as well as raw materials used by industry. Loss of biodiversity also reduces opportunities for potential new medicines derived from organisms that are being lost before they can be studied further. It is therefore essential that we take steps towards preserving existing habitats in order to reduce impacts on species worldwide, while actively seeking out ways in which each individual person can help protect our planet's precious flora and fauna. The Living Planet report 2022 by the World Wildlife Fund found that the population sizes of

mammals, fish, birds, reptiles and amphibians have experienced a decline of an average of 69% between 1970 and 2022. The report links the loss of biodiversity to a variety of factors, but mainly land-use change, particularly the conversion of habitats, such as forests, grasslands and mangroves, into agricultural systems. Animals like pangolins, sharks and seahorses are significantly affected by the illegal wildlife trade, with pangolins being critically endangered as the result.

## RESOURCE BOX

The Living Planet Report by WWF is an informative, comprehensive report on the state of our planet's biodiversity and how it has changed over time. The report has been published every two years since 1998. It looks at various indicators such as species populations, population trends, threats to species and ecosystems, conservation initiatives and more. The report also contains detailed analyses of global trends in biodiversity loss, the drivers behind these losses, economic valuation estimates for natural capital assets in different regions around the world, and ways that humanity can prevent further losses while promoting restoration efforts. It provides a clear picture of what actions need to be taken to protect threatened species and habitats so that we can build a future where humans live in harmony with nature.

Consult the web portal of WWF to find out more about the causes, impact, and solutions of the loss of biodiversity:

- <https://livingplanet.panda.org/>

## REFLECTION CORNER

Have you heard of a mass extinction event? Could you try to describe or explain what those would be? If you had to guess, do you think a mass extinction event occurred in Earth's history? If your answer is yes, how many such events do you think occurred?

A mass extinction event is an extensive loss of species in a relatively short period of time. These events have occurred several times throughout the history of life on Earth, with five of them being labelled as "Big Five" major extinction events. During these periods, it is estimated that anywhere from 75%-96% of all species were wiped out due to drastic climate changes or other factors such as asteroid impacts. In addition to causing major losses in biodiversity, mass extinctions can significantly alter the course of evolution by eliminating certain branches on the tree of life while allowing others to survive and flourish. As a result, they are considered one of the most significant natural disasters that can affect our planet.

The sixth mass extinction event of all life forms on Earth is well on its way, and it is accelerating. A 2020 analysis projected 515 species of land animals to be on the brink of extinction and are likely to be lost within 20 years. The researchers say that without the human destruction of nature, this rate of loss would have taken thousands of years. It is therefore imperative to take action to preserve the biodiversity.

Resources:

- <https://www.pnas.org/doi/10.1073/pnas.1922686117>
- <https://earth.org/sixth-mass-extinction-of-wildlife-accelerating/>



**Deforestation** is the process of removing trees, both legally and illegally, from forests. It has a negative impact on the environment because it reduces biodiversity, disrupts water cycles, increases soil erosion, contributes to climate change and affects local people's livelihoods who rely on forest resources. Deforestation can be caused by logging for timber production or clearing land for agricultural use such as cattle grazing or crops. Other causes include mining operations and urban development projects. Solutions to deforestation require an integrated approach that includes reforestation projects, sustainable forestry management practices and policies that encourage conservation of natural resources. Education campaigns are also necessary to help people understand why preserving our forests is important for our planet's future health.

## RESOURCE BOX

Did you know that every hour, forests the size of 300 football fields are cut down? By the year 2030, the planet might have only 10% of its forests, and if deforestation is not stopped, they could all be gone in less than 100 years. Read up about more facts about deforestation:

- According to satellite data from 2002 through 2019, global tropical forest loss averaged 3.36 million hectares (8.3 million acres) a year – an area larger than Belgium.
- More than half the world’s tropical forests have been destroyed since the 1960s.
- In 2019, the world lost an entire soccer field worth of primary rainforest every six seconds.
- Between 2001 and 2019, Brazil lost 565,000 square kilometres of tree cover – an area larger than France – to deforestation.
- Commercial agriculture – such as cattle ranching, soy cultivation and oil palm plantations – drives 40 percent of deforestation worldwide. Mining, infrastructure and urbanization are also key culprits.
- Globally, the formal forest sector provides 45 million jobs and about €540 billion in labour income. Estimates are likely much higher if the informal forest sector is included.
- Deforestation impacts 1.6 billion rural people worldwide, who rely on forests for their livelihoods – most live in extreme poverty.
- Forests release carbon dioxide when they are cleared or burnt. About 12 percent of global greenhouse gas emissions come from deforestation – roughly equivalent to emissions from all the cars and trucks on Earth.

Sources:

- <https://www.conservation.org/stories/11-deforestation-facts-you-need-to-know>
- <https://www.nationalgeographic.com/environment/article/deforestation>

## REFLECTION CORNER

One of the most effective strategies to combat deforestation is reforestation. This involves planting trees and other vegetation on land where deforestation has occurred in order to restore native ecosystems and promote biodiversity. Reforestation helps reduce carbon dioxide levels in the atmosphere by trapping the carbon dioxide within its leaves, roots, and branches. In addition to reducing carbon emissions, reforestation can also provide jobs for local people who help with tree-planting efforts, as well as economic benefits from timber harvesting or non-timber forest products like nuts or fruits grown in newly planted forests.

Do you know of any effort of reforestation in your country? Have you heard of any local, regional or national reforestation campaign? Have you participated in one?

**Ocean acidification** is a phenomenon that occurs when the ocean absorbs more carbon dioxide from the atmosphere, resulting in lower pH levels in the ocean. This process has been accelerated by human activities such as burning of fossil fuels and deforestation. As CO<sub>2</sub> dissolves in water, it forms carbonic acid which lowers the overall pH level of seawater, making it more acidic. Ocean acidification affects marine ecosystems through reduced calcification rates for many organisms that rely on calcium carbonate to build their shells or skeletons, including corals and shellfish. It also causes changes to food webs, since some species are unable to survive under these conditions while others may benefit from increased availability of resources caused by other organisms' decline. Additionally, ocean acidification contributes to climate change by reducing the amount of carbon dioxide removed from our atmosphere each year, which further increases global warming potentials.

## REFLECTION CORNER

Read the following facts about ocean acidity:

- our oceans absorb about 30% of the carbon dioxide that is released into the Earth's atmosphere
- the ocean acidity has increased in the last 250 years, but it may shoot up by 150% by 2100
- one of the biggest environmental problems from ocean acidification is coral bleaching and subsequent coral reef loss
- once pH levels reach too low, marine organisms such as oysters, their shells and skeleton could even start to dissolve

Were you aware of the described effects of the ocean acidity? Could you imagine and describe the domino effect ocean acidity has on the food supply chain and ecosystems?

The **depletion of natural resources** is another major environmental problem that the world is facing today. Human activities such as mining, logging, and fishing are causing a rapid decrease in the availability of essential materials for current and future generations. In fact, if we were to estimate our total resource use, it would require almost 1.5 Earths to cover all our needs. This overconsumption leads to many other issues like industrialization, overpopulation, loss of biodiversity, and pollution – which can have direct impacts on humans by reducing access to food sources or fresh water supplies. With the global population continuing to increase at an alarming rate every year, it is essential that we begin searching for more sustainable solutions for using natural resources. Otherwise, we could face dire ecological consequences soon enough. Thankfully, there are already efforts being made towards switching from traditional energy sources like coal and oil towards renewable forms such as solar

power, wind energy, biogas and geothermal energy - but this process must be expedited in order for us to reach sustainability goals faster. People need to become aware of their own consumption habits, so they can make informed decisions when selecting products or services in order to create a better future for everyone on the planet.

## RESOURCE BOX

The last section illustrated how imperative natural resources are in maintaining ecological balance. Down below, you can read up on 40 ways to save and conserve natural resources.

- Avoid using plastic and paper bags
- Celebrate World Conservation Day
- Control the number of cattle in a household to prevent overgrazing
- Cut packaging and food waste
- Eat less meat
- Ensure the recycling of waste
- Less travelling
- Make use of electronic mail
- Manage thermostat
- Manage water heater
- Plant trees to prevent soil erosion
- Planting trees in home compounds
- Practice crop rotation
- Practice judicious ways of conserving energy
- Practice judicious ways to conserve water in our homes
- Proper maintenance of vehicles
- Purchase hybrid cars instead of conventional cars
- Reuse old furniture
- Skip appliances if possible

- Use ceramic cups to consume the daily cup of coffee rather than using disposable mugs
- Use energy-saving fluorescent bulbs
- Use fewer vehicles
- Use of alternative sources of power such as solar and wind energy
- Use of biofuels
- Use of biogas in our homes
- Use windows instead of AC
- Water the lawns and farms in the evening

For more ways how to conserve natural resources, please visit:

- <https://www.conserve-energy-future.com/terrific-ways-to-conserve-natural-resources.php>

**Generating unsustainable waste** is an increasingly urgent environmental problem that has wide-reaching implications. As more and more materials are consumed, large quantities of waste are produced, which can be difficult to manage. The World Bank data shows that the world generates 2.01 billion tons of municipal solid waste annually, with at least 33 percent of that—extremely conservatively—not managed in an environmentally safe manner. Worldwide, waste generated per person per day averages 0.74 kilogram but ranges widely, from 0.11 to 4.54 kilograms. Though they only account for 16 percent of the world’s population, high-income countries generate about 34 percent, or 683 million tons, of the world’s waste. Unsustainable waste not only affects air quality, soil health, and water systems, but also contributes to climate change due to the release of greenhouse gases such as methane from landfills and carbon dioxide from incinerators. In addition, it can lead to the destruction of habitats for various wildlife species. The effects of generating unsustainable waste extend beyond

direct environmental impacts; it also harms public health due to exposure hazards such as hazardous chemicals in drinking water or toxic metals in dust particles released into the atmosphere. Furthermore, improper disposal of electronic devices leads to heavy metal pollution with potential long-term consequences on human health. To address this growing issue, governments must implement comprehensive policies including proper recycling initiatives and reducing consumption through encouraging sustainable practices among individuals, businesses and industry sectors alike.

## RESOURCE BOX

The world is expected to generate 3.4 billion tons of waste on an annual basis over the next 30 years, a huge increase from the 2.0 billion tons produced in 2018. High-income countries together are generating 34% of the world's waste, despite only accounting for 16% of the world population. This waste will continue to increase as the world becomes increasingly populated and urbanised.

For more ways how to tackle unsustainable waste, please visit:

- <https://www.becomecarbonnegative.com/unsustainable-waste.html>

Individuals can make a difference in the environment by taking simple steps that reduce their carbon footprint. This includes utilizing renewable energy sources such as solar, wind and geothermal power, conserving water, reducing waste by opting for reusable products instead of disposable ones and recycling materials whenever possible. On a larger scale, stakeholders such as governments or corporations can have an even bigger impact on the

environment. They can support green initiatives through investments in research into renewable energy sources, incentives for eco-friendly behaviour, and regulations that ensure individuals are aware of their environmental responsibilities. However, it is only when both individuals and stakeholders come together to create lasting change that we will be able to protect our planet's health and sustainability for future generations. Although this handbook will present some options how to impact the environment positively from an individual level, it is imperative that individuals are aware that they have the power to influence the stakeholders and also make an impact on that level as well.

Individuals can have a huge influence on stakeholders in tackling environmental problems. There are several ways they can do this, such as engaging with their local representatives through letter writing campaigns or attending public meetings to voice their opinions. Encouraging others to join them in taking action is also important, whether it be through social media or word of mouth. Another way to make an impact is by supporting organizations that work towards reducing the effects of climate change and other environmental issues. Individuals can also become personally involved in initiatives such as tree planting days, beach clean-ups, and conservation efforts for endangered species. By doing so, individuals help bring attention to the issues at hand and raise awareness among other stakeholders who may not otherwise take part in these activities. Finally, individuals should strive to incorporate sustainable habits into their own lives; this could include things like buying locally grown food when possible or utilizing mass transit instead of driving a car whenever possible – both actions that reduce an individual's carbon footprint while also having positive effects on wider society and the environment as a whole.

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# ENVIRONMENTALLY FRIENDLY BEHAVIOUR

**Environmental behaviour** is a holistic term that encompasses how people interact with their environment. It includes both individual actions, such as conserving resources or recycling materials, and collective efforts to advocate for policy changes or raise public awareness about environmental issues. These behaviours have direct implications on public health as air quality, water contamination and food safety can be affected by our decisions. By understanding why people engage in certain activities, we are better able to craft effective policies that promote sustainability and protect the planet's resources into the future. This is especially important for younger generations, who will be dealing with severe ecological problems caused by current practices if immediate steps are not taken now to curb carbon emissions and other forms of pollution. Environmental behaviour should not just encompass individual action, but also look at ways organizations can work together towards common goals, such as reducing energy consumption or raising awareness about climate change through education initiatives. Ultimately, it is up to all individuals on this planet to take responsibility for their own actions and adopt an environmentally conscious attitude so that future generations may continue living sustainably on this fragile yet beautiful planet we call home.

## REFLECTION CORNER

How would you describe your approach to the environment? What adjectives would you use to describe your environmental behaviours?

**Environmentally friendly behaviour** is all about doing our part to protect the environment and reduce our impact on it. This includes turning off lights, unplugging appliances when not in use, using renewable energy sources such as solar power or wind energy, reducing water consumption by fixing leaks and taking shorter showers, recycling materials whenever possible, avoiding pollutants and hazardous waste products that can contaminate air or water supplies, driving fuel-efficient vehicles with low emissions instead of gas guzzlers, and participating in eco-friendly practices such as composting organic waste rather than throwing it away or planting trees to offset carbon emissions. By making these small changes in our everyday lives, we can help protect our planet for future generations so that they too can enjoy a healthy natural environment.

## RESOURCE BOX

The steps how to become more environmentally friendly lean heavily on the anti-climate crisis measures introduced in the previous chapter. Read up on some of the practical tips that will help you display a friendlier behaviour towards the environment.

- Avoid using plastic and plastic products
- Become more aware of the resources
- Buy recycled products
- Change to LED light bulbs
- Change your travel habits
- Composting
- Conserve water
- Cut down your meat intake
- Educate others
- Join environment groups
- Plant trees

- Practice conservation
- Reduce the use of harmful chemicals
- Stop food waste
- Stop littering
- Switch to renewable sources of energy
- Use green cleaning products
- Use less fossil fuel-based products

Reference:

- <https://www.conserve-energy-future.com/15-easy-ways-to-become-environmentally-friendly.php>

Environmentally friendly behaviour and **zero waste** are two key ways how individuals can help to protect the environment. Zero waste in particular presents an approach to living that seeks to reduce one's environmental impact in a variety of ways. By reducing their consumption of goods, materials and energy, people can significantly reduce their environmental footprint. This means making a conscious effort to buy sustainable products such as organic food or those with minimal packaging, reusing items whenever possible (such as carrying reusable shopping bags), composting organic waste instead of throwing it away, recycling paper and plastic goods responsibly by sorting them correctly into designated bins, using renewable energy sources such as solar panels or wind turbines in the home for electricity generation instead of relying on fossil fuels – these are all examples of environmentally friendly actions that contribute towards achieving zero waste. Not only do these practices help preserve our planet's resources for future generations, but they also have a positive economic impact by saving money over time due to reduced spending on wasteful behaviours like buying single-use plastics or disposing rubbish unnecessarily.

## RESOURCE BOX

Commonly referenced in discussions about waste reduction and environmentally friendly behaviour are the 7 Rs that represent a set of principles aimed at promoting sustainable behaviour and waste reduction. These principles encourage individuals and organizations to adopt habits and practices that minimize the impact of their activities on the environment. The 7 Rs provide a mental framework how to live more sustainably, from reducing the amount of waste produced to repairing and repurposing items instead of discarding them. By incorporating these principles in our daily lives, we work towards creating a more environmentally friendly future for ourselves and generations to come. The 7 Rs include refuse, reduce, reuse, repair, repurpose, reclaim and recycle.

Refusing products that come with excessive packaging is one way we can help protect our planet. Reducing the number of products, we buy and the waste we generate and reusing products will prevent them from being discarded and instead find ways for them to go back in the use. Repairing items instead of throwing them away helps us save resources as well as money. Repurposing items such as turning old t-shirts into reusable bags gives new life to previously used materials so that they do not end up in landfills or oceans. Reclaiming resources means collecting rubbish from beaches and other areas before it has a chance to reach water sources like rivers or lakes, where it can harm wildlife and plants living there. Recycling plays an important role too; making sure that paper products are recycled instead of thrown away keeps them out of landfills, while reducing the demand for new trees being cut down for paper production.

All these steps combined make a big difference in preserving our planet's future health!

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- <https://zerowasteurope.eu/2019/05/a-zero-waste-hierarchy-for-europe/>



The **circular economy** is an economic model that places a strong emphasis on resource efficiency and sustainability. It seeks to replace traditional linear models which rely heavily on the wasteful extraction and disposal of natural resources with one focused on reusing, repairing, and recycling materials. This transition has many benefits, including reducing environmental impact while also increasing business efficiency and profitability. Individuals have an important role in making sure this shift towards a more circular economy is successful. Becoming informed about concepts such as product-service systems, resource recovery networks, extended producer responsibility schemes, material passports etc., will help them make better decisions when engaging with businesses who are transitioning or already working within these principles. There are numerous opportunities for individuals to engage with a circular economy today - from bike

sharing programs or clothing rental services to buying second-hand items instead of new; from upcycling projects or repair cafés to supporting local ethical brands; using refillable containers when bulk shopping products like cleaning supplies or food items, etc. Acting now can help ensure our future generations benefit from this sustainable way of life.

## RESOURCE BOX

What is the EU doing to become a circular economy?

In March 2020, the European Commission presented the circular economy action plan, which aims to promote more sustainable product design, reduce waste and empower consumers, for example by creating a right to repair. There is a focus on resource intensive sectors, such as electronics and ICT, plastics, textiles and construction.

In February 2021, the Parliament adopted a resolution on the new circular economy action plan demanding additional measures to achieve a carbon-neutral, environmentally sustainable, toxic-free and fully circular economy by 2050, including tighter recycling rules and binding targets for materials use and consumption by 2030.

In March 2022, the Commission released the first package of measures to speed up the transition towards a circular economy, as part of the circular economy action plan. The proposals include boosting sustainable products, empowering consumers for the green transition, reviewing construction product regulation, and creating a strategy on sustainable textiles.

In November 2022, the Commission proposed new EU-wide rules on packaging. It aims to reduce packaging waste and improve packaging design, with, for example, clear labelling to promote reuse and recycling; and calls for a transition to bio-based, biodegradable and compostable plastics.

Reference:

- <https://www.europarl.europa.eu/news/en/headlines/economy/20151201ST005603/circular-economy-definition-importance-and-benefits>

For an interactive infographic, visit:

- <https://www.europarl.europa.eu/thinktank/infographics/circulareconomy/public/index.html>

**Sustainability** and **sustainable development** are terms that refer to the need for current generations to meet their own needs without compromising the ability of future generations to do the same. To achieve sustainability, individuals, communities, and organizations must develop practices that promote economic growth while protecting the environment. This involves reducing consumption and waste, conserving natural resources such as water and energy, and preserving biodiversity. Sustainable development is a process by which stakeholders work together to ensure long-term economic growth and environmental protection through wise management of resources. It requires understanding how human activities affect our planet's ecosystems so that we can maximize benefits while minimizing negative impacts on our environment. The goal is to create a balance between social progress, environmental health, economic prosperity, and political stability to guarantee a sustainable future for all people around the world.

The European Union has long been devoted to sustainable development, which is the concept of meeting the needs of the present without compromising future generations' quality of life. It is an essential element of the European project and has been included in numerous treaties such as The Treaty of Amsterdam and The Treaty of European Union. Through these documents, its vision for a

sustainable Europe includes balanced economic growth, full employment, social progress and high levels of environmental protection. To further this commitment to sustainability, it has implemented several policies and initiatives like EU Sustainable Development Strategy (SDS), EU 2020 Strategy and 7th Environment Action Program. Additionally, it was instrumental in forming the 2030 Agenda for Sustainable Development Goals, which aims to unite all countries with common goals related to global sustainability issues. Going forward, the EU intends to lead by example by continuing their commitment to achieving these goals through collaboration with Member States as well as other stakeholders worldwide.

## REFLECTION CORNER

Sustainability and sustainable development are not exclusive to EU legislation. Look for policies and legislature on a national level to gain insight of how these topics are approached in your country. Look for any specific goals and strategies.

For more information on the EU's policies, consult the following references:

- <https://ec.europa.eu/environment/sustainable-development/>
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It is essential to understand the differences between environmentally friendly and environmentally unfriendly behaviours in order to make informed, responsible decisions. Environmentally friendly behaviours involve reducing waste, conserving energy, using renewable or alternative sources of energy, and protecting wildlife and ecosystems. Environmentally unfriendly behaviours include polluting air through burning fossil fuels for transportation or electricity production, overconsumption of water from natural waterways which can lead to drought conditions, wasting natural resources like trees for paper products or metals for consumer goods without considering the consequences down the line, disregarding conservation efforts to protect endangered species as well as ignoring the effects of climate change on our planet's health. Knowing about these differences can help us work together with a sense of urgency to reduce our environmental impact today, so we can preserve our planet's future health.

# ENERGY

FRIENDLY BEHAVIOUR	UNFRIENDLY BEHAVIOUR
Turning off lights when leaving a room	Leaving lights on when leaving a room
Using public transportation, carpooling, or biking instead of driving alone	Driving alone in a personal vehicle
Installing energy-efficient light bulbs	Using traditional incandescent light bulbs
Compost food and yard waste	Throw food and yard waste in the rubbish
Using a clothesline or drying rack to dry clothes instead of a clothes dryer	Using an electric or gas clothes dryer
Planting trees or installing shading devices to reduce air conditioning needs	Using air conditioning without consideration for natural shading or passive cooling
Adjusting the thermostat to a higher temperature in the summer and a lower temperature in the winter	Keeping the thermostat at a constant, comfortable temperature all year round
Turning off electronics and appliances when not in use	Leaving electronics and appliances on standby or plugged in when not in use
Investing in energy-efficient appliances	Using outdated, inefficient appliances
Using a programmable thermostat to regulate heating and cooling	Manually adjusting the thermostat throughout the day
Installing low-flow shower heads and toilets	Using traditional, high-flow shower heads and toilets
Sealing air leaks and adding insulation to reduce heating and cooling losses	Ignoring air leaks and insulation in a building
Planting a garden to provide food and reduce the need for transportation	Relying solely on imports for food and other goods
Recycling paper, plastics, glass, and metal	Throwing recyclable materials in the rubbish
Donating or selling gently used items instead of throwing them away	Throwing away still-useful items
Supporting renewable energy sources such as wind and solar power	Supporting non-renewable energy sources such as coal and oil
Installing solar panels on a home or business	Relying solely on non-renewable energy sources for electricity

Driving a fuel-efficient or electric vehicle	Driving a gas-guzzling vehicle
Planting native vegetation to reduce the need for watering	Planting non-native vegetation that requires excessive watering
Turning off the water while brushing teeth or shaving	Letting the water run while brushing teeth or shaving
Taking short showers instead of long baths	Taking long, luxurious baths
Using a broom instead of a hose to clean driveways and side walks	Using a hose to clean driveways and side walks
Collecting rainwater for watering plants and washing cars	Using potable water for outdoor water use
Installing a low-flow irrigation system for landscaping	Over-watering landscaping with a traditional irrigation system
Supporting conservation efforts to protect natural resources	Supporting the exploitation of natural resources for personal gain
Reducing meat consumption and supporting sustainable agriculture	Consuming large amounts of meat from industrial agriculture operations
Supporting companies with environmentally friendly practices	Supporting companies with environmentally unfriendly practices
Planting a wildflower meadow instead of a lawn	Maintaining a traditional lawn, requiring excessive water and chemicals
Installing a green roof to reduce heating and cooling needs	Ignoring the potential for green roofs to reduce heating and cooling needs
Using a manual push mower or electric mower instead of a gas-powered mower	Using a gas-powered mower to maintain a lawn
Using natural cleaning products instead of chemical-laden cleaners	Using chemical-laden cleaners for household cleaning
Supporting conservation of wetlands, forests, and wildlife habitats	Supporting the destruction of wetlands, forests, and wildlife habitats
Investing in energy-efficient windows and doors	Ignoring the potential for energy-efficient windows and doors to reduce heating and cooling losses
Using a backpack or bicycle instead of a car for short trips	Driving a car for short trips
Installing a grey water system to reuse household water	Discarding all household water without reusing it

Supporting local farmers and markets to reduce transportation-related emissions	Supporting imports from far-off lands without considering the transportation-related emissions
Installing a ground-source heat pump for heating and cooling	Relying solely on traditional heating and cooling systems
Using a fuel-efficient wood stove or pellet stove instead of an electric or gas stove	Using an electric or gas stove for heating
Planting a vegetable garden to reduce the need for transportation	Relying solely on imports for fresh produce
Supporting renewable energy research and development	Ignoring the potential for renewable energy sources
Installing a wind turbine for electricity generation	Relying solely on non-renewable energy sources for electricity
Using hand tools instead of power tools for gardening and yard work	Using power tools for gardening and yard work
Installing a rain barrel to collect rainwater for outdoor use	Discarding rainwater without collecting and reusing it
Supporting conservation of oceans and marine life	Supporting the exploitation and destruction of oceans and marine life
Using a bicycle or walking for exercise instead of driving to a gym	Driving to a gym for exercise
Using a rechargeable battery instead of disposable batteries	Using disposable batteries
Installing a living wall or vertical garden to provide natural shading	Ignoring the potential for living walls or vertical gardens to provide natural shading.

## FOOD

### FRIENDLY BEHAVIOUR

### UNFRIENDLY BEHAVIOUR

Buy locally grown food

Buy imported food

Grow your own food

Rely solely on store-bought food

Buy organic food

Buy non-organic food

Buy food in bulk to reduce packaging waste	Buy pre-packaged individual food items
Shop at farmer's markets	Shop at large grocery stores
Compost food waste	Throw food waste in the rubbish
Reduce meat consumption	Eat meat with every meal
Choose plant-based protein sources	Choose animal-based protein sources
Reduce food waste by meal planning and saving leftovers	Waste food by not planning meals and throwing out leftovers
Use reusable containers for food storage	Use disposable containers for food storage
Use reusable bags, containers, and utensils for meals on the go	Use disposable containers and utensils for meals on the go
Choose sustainable seafood options	Choose seafood with negative environmental impacts
Avoid processed foods	Consume a diet high in processed foods
Support local food systems	Support large-scale industrial food systems
Choose seasonal produce	Choose out-of-season produce
Choose environmentally friendly packaging for food	Choose non-environmentally friendly packaging for food
Reduce dairy consumption	Consume dairy with every meal
Reduce sugar consumption	Consume high levels of sugar
Avoid single-use packaging	Use single-use packaging frequently
Choose whole grains over processed grains	Choose processed grains over whole grains
Reduce food waste by preserving and canning	Waste food by not preserving or canning
Use reusable water bottles and coffee cups instead of disposable ones	Use disposable water bottles and coffee cups
Support restaurants that use sustainable ingredients	Support restaurants that use unsustainable ingredients
Reduce food waste by using food scraps in cooking	Waste food by not using food scraps in cooking
Choose environmentally friendly packaging for food	Choose non-environmentally friendly packaging for food

## WASTE & MATERIALS

FRIENDLY BEHAVIOUR	UNFRIENDLY BEHAVIOUR
Reduce waste by reusing items	Use disposable items frequently
Recycle household waste	Throw household waste in the rubbish
Buy products with minimal packaging	Buy products with excessive packaging
Use reusable bags, containers, and utensils	Use disposable bags, containers, and utensils
Donate usable items instead of throwing them away	Throw away usable items
Buy products made from recycled materials	Buy products made from new materials
Use rechargeable batteries instead of disposable batteries	Use disposable batteries
Use cloth napkins instead of paper napkins	Use paper napkins
Use cloth rags instead of paper towels	Use paper towels
Repair broken items instead of replacing them	Replace broken items instead of repairing them
Reduce the amount of junk mail you receive	Allow an excessive amount of junk mail
Use refillable pens and markers instead of disposable ones	Use disposable pens and markers
Choose digital communication instead of physical mail	Choose physical mail instead of digital communication
Choose products with biodegradable packaging	Choose products with non-biodegradable packaging
Buy in bulk to reduce packaging waste	Buy products in small packaging with excessive waste
Choose a reusable coffee cup instead of disposable cups	Choose disposable cups instead of a reusable coffee cup
Choose a reusable straw instead of disposable plastic straws	Choose disposable plastic straws instead of a reusable straw
Use reusable produce bags instead of single-use plastic bags	Use single-use plastic bags for produce
Use a cloth shopping bag instead of disposable plastic bags	Use disposable plastic bags instead of a cloth shopping bag

Choose biodegradable cleaning products	Choose non-biodegradable cleaning products
Properly dispose of electronic waste	Improperly dispose of electronic waste
Properly dispose of hazardous waste	Improperly dispose of hazardous waste
Reduce food waste by meal planning and saving leftovers	Waste food by not planning meals and throwing out leftovers
Buy durable, long-lasting products	Buy disposable, short-lived products
Choose environmentally friendly laundry detergent	Choose non-environmentally friendly laundry detergent

## RESOURCE BOX

For more on environmentally friendly behaviours and the examples, we recommend:

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- <https://www.goodenergy.co.uk/the-ultimate-20-step-guide-to-eco-friendly-living/>



Educating people of all ages about the environment and its preservation is a key step in improving environmentally responsible behaviour. Teaching children about topics such as recycling, reducing energy consumption, and water conservation helps create a sustainable future. Adults need to be educated as well, so they can pass on this knowledge to their children and set a good example. Schools could offer educational programs that provide students with a more in-depth understanding of our planet's resources and the consequences of not preserving them. Communities can also get involved by hosting seminars or workshops to discuss local environmental issues and potential solutions. As knowledge increases, better decisions will be made that will likely benefit the environment over time.

Individual action and active participation are two of the most effective ways to improve environmentally responsible behaviour. Everyone can make a difference by taking small steps such as reducing energy consumption, conserving water, recycling materials, or using public transportation when possible. Additionally, getting involved in local environmental initiatives and organizations is an excellent way to support sustainability efforts at a larger scale. Furthermore, encourage others around you - friends, family members, colleagues - to take part in these activities as well; collective action has been proven to be more successful than individual efforts alone. Finally, consider becoming an advocate for environmental protection through advocacy campaigns or by speaking out publicly about climate change and other pressing ecological issues.

Collective action and protest are an important way to improve environmentally responsible behaviour. By gathering together, individuals can have a greater impact than if they act alone. Events such as rallies, marches and protests can be effective ways of raising awareness about environmental issues that need attention or highlighting areas where progress needs to be made. Group activities such as beach clean-ups, tree planting days or litter picking initiatives also provide an opportunity for people to come together in support of the environment while having fun at the same time. Involving children in these activities is a great way to instil the importance of looking after our planet from an early age, so they become eco-conscious adults who will continue taking care of our environment in the future.

One of the most effective ways to improve environmentally responsible behaviour is by influencing policymakers and stakeholders. This can be done through lobbying, speaking at public meetings, writing letters to decision makers, attending town halls or forums, making donations to environmental organizations, participating in demonstrations and protests, engaging with other

community members via social media platforms such as Twitter or Facebook, and supporting political campaigns that focus on environmental issues. By taking these actions, individuals can help create meaningful change that will lead to a better environment for everyone. Additionally, it is important for people to do their part in educating themselves about environmental topics, so they are informed when discussing important issues with policymakers and stakeholders.

## REFLECTION CORNER

When trying to exhibit more environmentally responsible behaviour, it may be useful for you to consider the following areas:

- Taking part in sustainability education and environmental awareness
- Having an honest look into our behaviours
- Making small efforts towards more sustainable behaviour changes
- Creating support systems
- Maintaining the momentum and inspiring others

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# ENVIRONMENTAL POLLUTION CAUSED BY PACKAGING

**Environmental pollution** is a major problem in today's world, and it affects us all. It occurs when pollutants contaminate the environment, leading to negative effects on human health, ecosystems, and climate change. Sources of environmental pollution include:

air pollution from automobiles and factories;

water pollution from agricultural run-off and industrial waste;

soil contamination from pesticides, fertilizers, and hazardous materials;

noise pollution caused by construction or traffic;

light pollution from street lights or other sources;

thermal (heat) pollution created by power plants or other sources that release heat into the atmosphere.

All these forms of environmental contamination can have serious consequences for our health as well as for the entire ecosystem. Additionally, environmental pollutants released into the atmosphere contribute to global warming through their impact on greenhouse gas concentrations in the atmosphere, which leads to increased temperatures around the globe. The only way we can reduce this problem is by making changes in our lifestyles – reducing consumption levels, choosing sustainable practices over harmful ones such as burning fossil fuels instead of renewable energy sources like solar or wind power – so that we can lessen our impact on the environment and help preserve it for future generations.

## REFLECTION CORNER

Read and think about the following facts about the environmental pollution. Were you familiar with this data? How do you feel about reading them?

- 91% of the world's population are breathing in polluted air every day.
- 783 million people do not have access to clean water and around 2.5 billion do not have access to adequate sanitation.
- At least 1 in 10 people die from air pollution-related diseases.
- Over 1 million seabirds and 100,000 sea mammals are killed by pollution every year.
- Children contribute to only 10% of the world's pollution, but are prone to 40% of global disease.
- Plastic pollution led to the creation of the Great Pacific Garbage Patch, an island of plastic three times the size of France.

References:

- <https://earth.org/10-facts-about-air-pollution/>
- <https://www.dosomething.org/us/facts/11-facts-about-pollution>
- <https://www.livescience.com/22728-pollution-facts.html>
- <https://www.conserve-energy-future.com/various-pollution-facts.php>

**Packaging** plays a significant role in the environment due to its impact on natural resources, landfills, and pollution. Packaging materials are often made from petroleum-based plastics, which can be difficult to recycle or break down naturally. This means that packaging ends up in landfills or polluting our oceans and waterways. Additionally, the production of packaging requires energy, which contributes to global warming since much of this energy is generated by burning fossil fuels. In order to reduce our environmental footprint, it is essential for us to

reduce the amount of packaging we use as well as find more sustainable alternatives such as compostable or recycled materials when possible. Furthermore, educating ourselves about proper disposal methods for things like plastic bags can help ensure that these items do not end up in landfills or pollute our environment further.

## RESOURCE BOX

### Resources:

- <https://www.europarl.europa.eu/thinktank/infographics/circulareconomy/public/index.html>
- [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_7155](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7155)
- <https://zerowasteurope.eu/2022/07/blog-packaging-at-the-core/>

**Packaging pollution** is an increasing environmental issue caused by the excessive use of packaging materials such as plastic, cardboard and paper. These materials are often used to package everyday items we purchase, but they tend to be single-use and non-recyclable. This means that once these packages are discarded, they end up in landfills or waterways where they can take centuries to decompose. Packaging pollution also contributes significantly to climate change due to the production of greenhouse gases from their manufacture and disposal. It is estimated that over 50% of all solid waste produced globally comes from packaging materials alone! To combat this problem, it is important for consumers to reduce their reliance on single-use packaging whenever possible and opt for more sustainable alternatives when available. Additionally, companies should

make an effort to create products with minimal amounts of packaging or eco-friendly options like recyclable paper or biodegradable plant-based plastics. By taking small steps towards reducing our consumption and waste associated with packaging, we can help protect our environment from further damage caused by this growing problem.

## RESOURCE BOX

Brush up on your knowledge of how the most-used types of packaging are made!

The process of making paper packaging starts with the selection and procurement of raw materials. These include specific types of paperboard, such as linerboard and corrugated medium. The chosen material is then cut according to the design specifications for the package. Once cut, it is then printed with any desired graphics or text using either flexographic printing or lithography. After printing, several pieces are glued together to create a single piece that forms the packaging shape when folded. Finally, these packages are assembled manually or by a machine and inspected for quality assurance before being shipped out to customers.

The process of making plastic packaging begins with the selection of a suitable polymer material. Depending on the application, different types of plastics can be used, such as polyethylene, polypropylene, or PVC. The chosen material is then melted down and moulded into a desired shape using various methods such as injection moulding or thermoforming. This involves heating up the plastic to its melting point and forcing it into moulds with high pressure. Once cooled down, the plastic is cut to size and packaged for further processing. In some cases where colour is desired in the final product, additional steps may be required to add dyes and pigments before moving forward in production. Labels are also typically added at this stage so that customers will have information about what they are purchasing. Finally, quality control checks need to be conducted throughout all stages of production from beginning to end in

order to ensure that all products meet safety and performance standards before they are shipped out to customers.

The process of making bio plastic packaging involves combining a biopolymer such as corn starch, sugar cane or vegetable oil with other materials to form a base material. This base material is then heated and moulded into the desired shape. Once cooled, the bio plastic packaging is ready for use. The whole process takes place at much lower temperatures than conventional plastics, allowing manufacturers to produce more eco-friendly options without sacrificing strength and durability. Additionally, these materials are far less likely to leak harmful chemicals into foodstuffs like traditional plastic products can. Bio plastic packaging has become increasingly popular in recent years due to its environmentally friendly properties and ability to be recycled multiple times, making it an attractive choice for consumers seeking sustainable solutions when it comes to their everyday purchases.

The process of making textile packaging is a complex and multistep endeavour. It begins with the selection of suitable materials for the product, such as fabric, plastic or paperboard. The chosen material is then cut to size and shape according to the design specifications. Sewing machines are used to join pieces together, creating a single piece that can be sealed in place with adhesives or other sealants. Once complete, any additional decorations or embellishments may be added before the finished product is ready for shipment. In some cases, specialized processes such as machine embroidery may also be employed during this stage of production. Finally, quality control checks are conducted on all products prior to their being shipped out for sale or use in various applications – ensuring that only high-quality items leave the manufacturing facility.

The process of making mixed material packaging involves the combination of different materials to create a single, multifunctional package. This type of packaging can be used in many industries, such as food and beverage, pharmaceuticals, medical supplies, electronics and more. The first step is to choose the right materials that will complement each other in terms of strength, flexibility and other features. Once these have been decided upon, they are then cut into shapes according to the design specifications or requirements for the product being packaged. After these components are put together either manually or by machine depending on production volume needed. Different

types of adhesives may also be used during this phase for extra reinforcement when necessary. Finally, labels and branding elements can then be added if desired before packing it all up ready for distribution!

References:

- <https://zerowasteeurope.eu/2022/07/blog-packaging-at-the-core/>
- <https://packagingeurope.com/features/exploring-paths-to-full-circularity/8461.article>
- <https://www.bizongo.com/blog/different-types-of-packaging-products>
- <https://www.industrialpackaging.com/blog/what-are-packaging-materials>

Packaging types can be divided into three categories: primary, secondary, and tertiary. Primary packaging refers to the type of packaging that is in direct contact with the product itself; it encloses, protects, and preserves food or other items while they are being transported from a production facility to their final destination. Examples of primary packaging include cardboard boxes, cans, bottles, jars and bags. Secondary packaging involves additional protection for products after they have been placed in their primary packages; this could involve placing several items into cardboard boxes or onto pallets for bulk shipments. Tertiary packaging usually takes place at retail locations when multiple packages need to be bundled together for sale as one unit; examples include gift sets or multipacks with multiple identical items packaged together into one box.

Primary packaging does not only play an important role in marketing, as it can influence consumer choice by providing visual cues about the product within, but it also has an environmental impact that should be taken into consideration when selecting materials. For this reason, next will be presented advantages and disadvantages of different types of primary packaging.



## PLASTIC PACKAGING

### Some advantages

Highly functional

Protective

Robust and durable

Adaptable and versatile

Recyclable

Lightweight

Affordable

### Some disadvantages

Made out of not renewable fossil fuel

Contributes to marine and land littering

Breaks down to microplastics which contaminate air, water, and soil

Some types do not have established and easily accessible recycling infrastructures

Complex mixtures cannot be mechanically recycled

Takes centuries to fully dissolve in the nature

Often need specially made closures



## BIO-PLASTIC PACKAGING

### Some advantages

Smaller carbon footprint, up to four times compared to regular plastics

Made out of sustainable materials

Non-toxic

Recyclable and biodegradable

It can be designed to suit and present the product well

### Some disadvantages

Concern that resources are being diverted from food crops in favour of bio-plastic

Consumers may not know to recognize and separate the bio-plastic from regular plastic

Only a few countries have industrial scale composting infrastructures

Availability is dependent on good growing conditions of source crops

It has shorter durability and is more expensive to produce than regular plastic



## CORRUGATED CARDBOARD

### Some advantages

It is robust and maintains its structure

Offers protection to the contents

Adaptable to the shape and size required to accommodate the contents

In most cases, uses renewable sources in its production

It is recyclable and has a well-established recycling infrastructure

### Some disadvantages

Vulnerable to moisture

It can be crushed or become deformed

Prone to tearing

The production process uses considerable resources, raising the carbon footprint

Not infinitely recyclable



## TEXTILE PACKAGING / COTTON

### Some advantages

Fairly sustainable and reusable in many cases

Inexpensive in most cases

It can be handmade

Protects the contents from dirt

### Some disadvantages

Requires a significant amount of energy and raw material to be produced

Non-organic or irresponsibly sourced cotton is not very green

Limited as to what they can be used to package

Does not provide much protection from the external environment



## RIGID BOXES

### Some advantages

Strong build

It can be made by hand

It can be adapted to any shape and size

Generally recyclable

### Some disadvantages

Expensive

Not collapsible, which increases shipping costs

Requires additional packaging as an outer layer

Almost impossible to recycle when coated with non-recyclable material like glitter



## METAL PACKAGING

### Some advantages

### Some disadvantages

Provide a good barrier to outside influences	Certain metals can be prone to corrosion
Low toxicity levels	Metal tends to be relatively expensive
High-temperature resistance	It can be heavy and bulky
Durable	Requires investment in machinery
Recyclable	Acidic foods can cause deterioration
Adaptable	Can become damaged and dented
Storage and transit friendly	Its heft can restrict the number of contents placed inside



## GLASS

### Some advantages

Low migration risk from outside chemicals and matters

Stable packaging material

Abundance of raw material available to create it

Offers the visibility of the contents

Established recycling infrastructure

Infinitely recyclable as a mono material

### Some disadvantages

Relatively expensive and heavy

Prone to fracturing

Breakages represent a contamination hazard

The contents of the packaging may change colour due to light exposure

Specialised packing lines are required

It requires a secondary sealing component

## RESOURCE BOX

In the previous sections, we have presented some of the most used types of packaging. However, there are other types used every day. Check the following resources to learn more!

- <https://www.ahfesproject.com/app/uploads/2022/01/P5-M4-Selecting-the-Best-Packaging.pdf>
- <https://www.upwork.com/resources/types-of-packaging>
- <http://filtext.com/en/blog/materials-for-packaging-advantages-and-disadvantages>
- <https://www.sofeast.com/resources/importer-guide-to-9-types-of-packaging/>

Measured by weight, packaging accounts for over 3% of all waste generated in the EU. The packaging in question is made up of paper and cardboard (41%), plastic (19%), glass (19%), wood (16%) and metal (5%). These numbers strongly suggest that it is imperative that we approach packaging waste carefully and responsibly. Moreover, it is up to us to take steps to reduce our packaging footprint. Shopping habits have changed exponentially in the last decade, especially due to the COVID-19 pandemic. Customers increasingly do their shopping online, which has its advantages, as well as disadvantages when it comes to packaging production, use, and disposal. It is important to be mindful of the type, amount, and the sustainability of packaging when shopping, be it in-person or online. Some tips and advice that may help you regulate your packaging footprint include:

1. Say no to single use bags. Carry your own reusable bags, do not buy one each time you visit a store.



2. Reuse packaging. Whenever possible, reuse packaging products like paper and plastic bags, tins and wrapping paper.
3. Buy products with less packaging. When comparing similar items from two brands, choose the one that contains less packaging.
4. Avoid plastic packaging. While shopping, prioritize glass or paper packaging over plastic one. Avoid buying products wrapped in multiple layers and types of plastic.
5. Carry your own reusable containers. Bring your own reusable bags and containers for shopping. If you bring lunch to work, bring it in a reusable container and bring your own cutlery.
6. Buy in bulk and buy loose products. Buying in bulk reduces overall packaging, while loose products such as fruits and vegetables do not create packaging waste compared to pre-packaged packs.
7. Prioritize products that come in reusable or compostable packaging.

8. Avoid certain kinds of food products. Switching to a plant-based diet may help you reduce your overall carbon footprint.
9. Find alternatives to buying new products. Before heading to a store, check local and digital marketplaces for used goods. Also check if someone is giving away the product you want for free. In addition, check if you can make the product yourself.
10. Avoid, reuse, recycle! Avoid packaging as much as possible. Reuse your packaging as much as possible. Recycle your packaging as much as possible.

Before doing your shopping online, be sure to check if the product you are looking for can be bought locally and in-person. Before locking in your order, be sure to do your research. Check the forums or send the online retailer an e-mail inquiring about their packaging practices.

## RESOURCE BOX

To learn more about the European Green Deal and the EU's plans to combat wasteful packaging, and boost reuse and recycle, visit:

- [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_7155](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7155)

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# RECYCLING AWARENESS & ECO-ART

**Recycling** is the process of converting waste materials into new products or objects, usually to prevent them from ending up in landfills. Common items that can be recycled include paper and cardboard, glass bottles and jars, aluminium cans, plastic containers, steel cans and food scraps. Some types of plastics cannot be recycled due to their chemical composition; these should generally be avoided where possible. Materials such as wood, fabric or metal are often repurposed for a variety of uses, including furniture making and home décor projects. This helps extend the useful life of these materials while reducing the amount going to landfill sites. Reusing different materials can also help reduce energy consumption by eliminating the need for additional production processes.

## REFLECTION CORNER

In one of the previous sections of this handbook, 7 Rs were presented. Without reading up ahead, can you list all seven concepts? Is there another concept you think could be added to the list (does not necessarily start with the letter R)?

The concept of 7 Rs:

- refuse
- reduce
- reuse,
- repair
- repurpose
- reclaim
- recycle



## RESOURCE BOX

The data shows that the amount of waste generated in the EU is growing, now standing at around 3 billion tonnes a year, with 5 tonnes of waste is produced by the average European each year. Only 38% of waste in the EU is recycled, while over 60% of household waste still goes to landfill in some EU countries. It is imperative we change our approach to waste management. We all can start contributing more to lower the amount of waste not used or recycled properly. By making small changes in our daily lives, we can all do our part to protect the environment and create a more sustainable future. Here is some advice on how you can start managing your waste more efficiently:

REUSE	RECYCLE
<ul style="list-style-type: none"> <li>▪ Reuse paper! For rough work or a shopping list, use the back of a used sheet of paper rather than a new one.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Recycling saves energy and emissions. Recycling one aluminium can saves 90% of the energy needed to produce a new one. Recycling 1 kg of paper instead of landfilling it avoids almost 1 kg of CO<sub>2</sub> emissions, as well as methane emissions.</li> </ul>
<ul style="list-style-type: none"> <li>▪ Donate old electrical equipment, for example, to schools or community centres, so that others can reuse them.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Don't throw out electronic devices. Electronic products are made from valuable resources and materials that can be recycled, including metals, plastics, and glass, all of which require energy to mine and manufacture. Take them to a local collection point or back to the retailer.</li> </ul>
<ul style="list-style-type: none"> <li>▪ Buy rechargeable batteries, which can be reused for multiple charging cycles. Don't forget to recycle your batteries once they reach their end of life!</li> </ul>	<ul style="list-style-type: none"> <li>▪ Recycle your car battery when you need a new one. Old tyres can usually be recycled too.</li> </ul>
<ul style="list-style-type: none"> <li>▪ Swap, sell or donate clothes, furniture and household items you no longer need. Instead of buying new, consider borrowing, renting or buying second-hand.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check what types of waste can be recycled in your area. Remember to separate glass, paper, plastics and cans from the rest of your waste. Recycling facilities are now able to accept more and more kinds of plastic – check yours for details.</li> </ul>

- Choose products with minimal packaging and avoid single-use products. Support recycling efforts by purchasing products made from recycled material.

- Compost! Your organic waste – such as fruit and vegetables, eggshells or coffee grounds – is much better off in a compost heap at home than in a landfill site. In a compost heap, exposed to air, the waste decomposes and will become a natural fertiliser. In a landfill, without air, it ferments and then emits methane, a powerful greenhouse gas.

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- [https://environment.ec.europa.eu/topics/waste-and-recycling\\_en](https://environment.ec.europa.eu/topics/waste-and-recycling_en)

**Handicrafts** made from waste are a perfect way to repurpose everyday items and create something unique, beautiful, and useful. Waste materials such as paper, plastic bottles, cardboard boxes, fabric scraps, and old clothes can all be used to make decorative pieces of art or functional household items. These crafts help reduce the amount of waste going into landfills while providing an opportunity for people to express their creativity. Popular handicrafts created from recycled goods include jewellery making out of bottle caps or beads; creating origami sculptures with scrap paper; weaving baskets with strips of fabric or newspaper; making bird feeders out of old cans or plastic containers; and painting murals on walls using paint mixed with crushed stone. With a little bit of imagination and some creativity, even the most mundane objects can be transformed into something new!

## REFLECTION CORNER

Have you ever made a handicraft out of waste? If yes, what did you make? If no, what kind of handicrafts would you like to make? Discuss these topics with your colleagues.

Take a look at the table below, as you may find some inspiration for your next / first handicraft made out of waste!

### Plastic

- Plastic bottle jewellery
- Plastic bottle birdfeeder
- Spinning tops made from plastic bottle caps
- Colourful set for bowling
- Piggy bank

### Glass

- Mason jar snow globe
- Mason jar terrariums
- Vases
- Candleholders
- Recycled glass bottle garden edging

### Clothing

- Sock snowman
- Sock puppets
- T-shirt bag
- Waste textile quilt
- Cupboard organiser from old jeans

### Paper

- Braided paper pencil case
- Paper bag bracelets
- Rolled magazine photo frames
- Paper flower wreaths
- Bird house from carton

### Metal

- Tin can wind chime
- Tin can lantern
- Bottle cap necklace / pendant
- Tin can pencil case
- Aluminium foil mobile

### Household items

- Flowers from paper egg cartons
- Cork chess pieces
- Creative mirror frames
- Fragrant candleholder using old teacups
- CD casings as photo frames

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In an age where sustainability and eco-friendliness are becoming increasingly important, handicrafts made out of waste offer an artistic way to upcycle materials which would otherwise be discarded into landfills or would contribute to environmental pollution. These handicrafts provide a unique aesthetic quality due to the diverse range of textures, colours, shapes and sizes available through the use of recycled items. The concept behind **eco-art** is similar – creating artworks from found objects with sustainability at its core – but it differs slightly as it typically involves artworks on a larger scale. The term eco-art is therefore used to describe artwork that has an ecological or environmental focus. It can take many forms, from installations and sculptures using recycled materials to paintings and prints depicting scenes of nature or raising awareness about environmental issues. Eco-art often speaks to themes such as sustainability, conservation, climate change and pollution in order to engage viewers with the natural world around them. It may also explore our relationship with technology, industry and land use while striving for positive social change through its creation or message. As with all art, the worth of the art piece is in the eye of the beholder,

meaning that a simple handicraft for some, may represent a precious piece of eco-art for others. So do not be afraid to take the first artistic step and create your own handicraft out of waste. You do not need to be a professional handicraft maker to craft one, and you do not need to be a professional artist to do eco-art. Only the sky is the limit, and the future is bright and green!

## REFLECTION CORNER

Did you know that eco-art as an art form also has the most difficult problem other art forms also face? Can you guess what that problem is?

Eco-art faces the inauthenticity problem, i.e., fake eco-art presented as a real eco-art. Think about art in a more traditional sense. What would classify an artwork as a fake? How do you know if it is a fake? Think now about the concept of eco-art. How would you know if the eco-artwork is fake or real? What brought you to those conclusions?

Real eco-art is art that engages with the environment and its sustainability. This type of art can take many forms, from installations to sculptures, and often combines creative expression with environmental activism. It seeks to bring attention to a wide range of issues facing our planet today, including climate change, deforestation, species extinction, pollution, and overpopulation. The materials used in real eco-art are usually natural elements found in the environment, such as plants, rocks, soil or other organic elements. Eco-artists seek to generate awareness about these issues through their artwork by utilizing nature's beauty and reminding us how precious it is. In doing so, they hope to inspire people everywhere to take action in preserving our planet for future generations.

Fake eco-art is an unfortunate trend that has become increasingly popular in the art world. It consists of artwork made from recycled materials, but without any consideration for making a larger statement about sustainability or environmentalism.

This type of art is often created simply to be aesthetically pleasing, and can make it difficult to differentiate between real eco-art with a strong message and fake eco-art without one. Fake eco-art can also be found in commercial products such as furniture or trinkets, which are made of recycled materials but lack any meaningful commitment to sustainability or environmentalism. Unfortunately, this type of art sends out a false message that we are doing our part when it comes to being environmentally conscious, when really these pieces offer nothing more than aesthetic appeal and do not take into account conservation efforts on a larger scale.

References:

- <https://hrcak.srce.hr/clanak/205771>

Check the following sections for some of the examples of eco-art you can (re)create at home.



Soak and blend your waste paper. Form little shells and put wild flower seeds inside. Make bomb seeds you can use to grow flowers around your garden!

## RESOURCE BOX

For more information, please visit:

- <https://onelittleproject.com/diy-seed-bombs/>
- <https://www.theguardian.com/environment/blog/2011/apr/11/seed-bombs-derelict-land-flowers>
- <https://www.youtube.com/watch?v=CSb7XgO4-Ug>



Express your inner artist and instead of spray cans, use moss to draw beautiful art on your walls. You cannot miss with using green colour!

## RESOURCE BOX

For more information, please visit:

- <https://popsop.com/eco-graffiti-of-moss-a-substitution-for-a-toxic-paint/>
- <https://www.yatzer.com/eco-graffiti>
- <https://www.youtube.com/watch?v=GBslljmgm7o>



Breathe new life into your old clothes. Make natural colouring pigments from plants. Tie-dye your shirts or use a brush to draw an intricate design. Show your support for the environment on your sleeve!

## RESOURCE BOX

For more information, please visit:

- <https://diynatural.com/natural-fabric-dyes/>
- <https://www.fiberartsy.com/how-to-make-natural-dyes-from-food/>
- <https://www.youtube.com/watch?v=tBdNRNHEAwE>
- <https://www.youtube.com/watch?v=3RNlepVBujl>

Each of the partner countries on this project has a rich artistic history. This also extends to the discussions of the eco-art. In the following sections we will present some of the eco-art and eco-artists from Türkiye, Croatia, Spain and Lithuania. Do note that this list is nowhere near exhaustive, as there are a plethora of eco-artists and eco-art pieces out there. We encourage you to look for more information on-line, visit their exhibitions in person, and support the eco-artist in any manner you can.

## TÜRKIYE



### **Deniz Sağdıç – Ready-ReMade**

Deniz Sağdıç, in her 'Ready-ReMade' project, launched in 2015, tries to remake everyday objects abandoned by people, as well as all kinds of waste materials, as works of art in the world of art itself. The artist, with this technique, aims to encourage individuals to reconsider their consumption habits, to inspire people and institutions about 'sustainability', to take art closer to people by using everyday materials rather than anything that requires specialisation and skill, and to point out that art, like any other area or industry, is a matter of sustainability.

**More info:** <https://www.internationalairportreview.com/news/173328/new-0-zero-point-art-exhibition-uses-istanbul-airports-waste-materials/>

## CROATIA



### **Regeneracija – Carpet Art**

Regeneracija is a company that has been operating since 1954, when it was founded as a textile waste sorting company. As a company that has been involved in the recycling of textile waste from the very beginning, and today through Regeneracija as one of its members, throughout all these years and especially today, we place great emphasis on socially responsible business, sustainability, ecology and design. Recycling is the core business of the company, which in the circular economy model combines the business process through the collection of textile waste, its recycling, pulverization and production of finished products intended mainly for the export market of Western Europe. 6,000 tone of textile waste is collected and recycled per year and prevented from being disposed of in landfills.

**More info:** <https://www.regeneracija.hr/en/>

## SPAIN



### **Luzinterruptus**

Luzinterruptus created a 170 metre-long, three-metre-high labyrinth made from approximately 15,000 plastic bottles. Luzinterruptus, the anonymous Spanish art collective, designed a labyrinth of plastic waste in the middle of the Plaza Mayor in Madrid, Spain. The 170 metre-long, three-metre-high installation was created from approximately 15,000 plastic bottles collected from nearby universities, hospitals and other institutions over the course of a month. The installation also included a number of intricate paths and narrow passages that forced visitors to keep guessing the way out. The interior featured no reference points, and the smell of plastic enhanced the overall experience of the installation, according to Luzinterruptus.

**More info:** <https://www.waste360.com/plastics/look-labyrinth-spain-made-plastic-waste>

## LITHUANIA



### **Straw Art – Šiaudinukai**

Historically, Lithuania was an agricultural country. Most of the population lived and worked on farms. During months when there were no fresh flowers to decorate their homes, Lithuanians created their own decorations from straw, plentiful on every farm. In Lithuanian, these straw ornaments are called “šiaudinukai” (approximately pronounced as sheow-dih-nook-ay). Straw ornaments are made from wheat, oat or rye straw. Their forms reflect designs and motifs found in other types of Lithuanian folk art, such as woodcarving and weaving. They are constructed by stringing different lengths of straw on thin twine or thread, or by the appliqué method – cutting and gluing small pieces of straw into various geometric or organic shapes, or a combination of both. Some are simple, while others are very intricate, depending on the ingenuity and patience of the designer.

**More info:** <https://ltfai.org/lithuanian-folk-art/straw-art-siaudinukai/>

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## APPENDIX: SELECTED HANDICRAFT EXAMPLES

As part of the project, each partner organization collected and presented 3 pieces of handicrafts that were created from waste. In total, 12 examples of handicrafts were collected and are presented in this handbook. On the following pages, you can see the handicrafts at hand and read what materials were used and learn how to make them step-by-step. The first three handicrafts are presented by Pučko otvoreno učilište Čakovec. Next, LJC showcased three more examples of handicrafts. Lastly, OLTU provided three more handicrafts, with Spain exhibiting the last three examples. Partner organizations provided photographs of their collected handicrafts, respectively.



Title: Retro Chic Notebook Covers

Author: Petja Kolenko

Materials used: an old notebook cover, used plastic, foil, wrapping paper, different packaging materials

How to make it:

1. Clean your old notebook cover.
2. Cut the waste material to the desired shapes.
3. Put the cut shapes on the cover.
4. Put a baking paper on the top of it and inside the cresses.
5. Press a hot iron to make the waste paper stick to the notebook cover.
6. You can use a sewing machine to keep the shapes more in place.
7. Place a sheet of recycled paper inside the cover. Replace it when you fill up the pages.

Get inspired:

- <https://www.youtube.com/watch?v=bm9m77BRDD4>
- [https://www.youtube.com/watch?v=2LhCiE1zF\\_M](https://www.youtube.com/watch?v=2LhCiE1zF_M)
- <https://www.youtube.com/watch?v=6r8TltNyVro>



Title: Wood Waste Jewellery

Author: Domašinec Primary School group of pupils under the guidance of Renata Martinec

Materials used: wood scrapes, threads, paint

How to make it:

1. Collect wood scrapes from your other projects, or ask your local wood processing factory for scraps.
2. Clean the wood scrapes and sand them down, so they are smooth to the touch.
3. Arrange the wood scrapes into the desired shape.
4. Glue the pieces together, so the shape is formed.
5. Alternatively, use a thread or a wire to have them form the desired shape.
6. Put the shape on a thread and close the loop on the thread.

Get inspired:

- [https://www.youtube.com/watch?v=PaoNn\\_3GdZc](https://www.youtube.com/watch?v=PaoNn_3GdZc)
- <https://www.youtube.com/watch?v=TwBXZWBu3W4>
- <https://www.youtube.com/watch?v=nbR6Y9wscqY>
- <https://www.youtube.com/watch?v=sHyiFwoDvAc>



Title: Arm Sleeve Warmers

Author: participants of the "Heklice u knjižnici" workshop organized in Nikola Zrinski Čakovec library

Materials used: leftover wool, thread

How to make it:

1. Collect your materials. Be sure the wool is soft to touch.
2. Start crocheting a square 30x30cm.
3. Add some ornaments on the square. Make it more colourful and vibrant. Be sure those ornaments are soft to touch. Do not add ornaments made from hard materials, as they may fall off.
4. Be sure the ornaments are fixed in place. Sew them multiple times into the square just to be sure.
5. Once done embellishing, fold the square and make a tube.

Note: A group of participants of the 2022 Crochet program in the Nikola "Zrinski Čakovec" library made arm sleeves from recycled wool for people suffering from Alzheimer's disease and other types of psychological disorders. Such arm sleeves can reduce stress in patients, relax, occupy and calm them, but also stimulate their motor skills and cognition.

More info: <https://www.udruga-ozana.hr/isprepletimo-ruke/>.

Get inspired:

- <https://www.youtube.com/watch?v=y5t28G9HnVA>
- [https://www.youtube.com/watch?v=IDFUERNmi\\_w](https://www.youtube.com/watch?v=IDFUERNmi_w)
- <https://www.youtube.com/watch?v=v51d5rP6XDE>



Title: Apron made out of old jeans

Author: Milda Paukštė

Materials used: old jeans, needle, thread, scissors

How to make it:

1. Put the jeans in front of you. Cut along the seams.
2. Cut off the top of the jeans.
3. Place both jeans partially on top of each other.
4. Cut the corners of the future apron.
5. Use the ribbons to create a loop at the top of the apron and to tie the straps around the waist.
6. Play with patterns and cut-outs to create exciting designs!

Get inspired:

- <https://www.youtube.com/watch?v=ANntx5hAp6Y>
- <https://www.youtube.com/watch?v=RRoRWlfGyKI>
- <https://www.youtube.com/watch?v=VJVu9Bt7Bkw>



Title: Paper Weaving Box

Author: LJC

Materials used: old magazines, knife, knitting needle, glue, two cardboard circles

How to make it:

1. Cut the paper into strips.
2. Take the needle and wrap the paper on it, tilting it.
3. Use glue to fix the end of the rolled paper. Pull the needle out.
4. Make lots of strips.
5. Cut out two equal circles from the cardboard. Glue the studs to the first as sun rays.
6. Glue the second cardboard circle on top.
7. Start to braid.
8. Trim the ends leaving only a short tip.
9. Fix the tips with glue. Colour the box.

Get inspired:

- <https://www.youtube.com/watch?v=u78GEp7Kcw>
- <https://www.youtube.com/watch?v=1pwCLSf5A00>



Title: Keyboard Earrings

Author: LJC

Materials used: broken or discarded keyboards, wire, pliers, howl, two earring hooks

How to make it:

1. Take the keys out.
2. Make a hole with a howl.
3. Hook the earring part.

Get inspired:

- <https://en.paperblog.com/top-10-ways-to-recycle-and-reuse-computer-keyboards-1480487/>
- <https://www.youtube.com/watch?v=Hx7SN0H1o84>
- [https://www.youtube.com/watch?v=h9pzwKjx3\\_E](https://www.youtube.com/watch?v=h9pzwKjx3_E)



Title: Banana Fibre Bag

Author: Gökçe Kesgin

Materials used: Scissors, awl, banana fibre

How to make it:

1. Four chains are drawn and combined to form a ring.
2. After the ring is formed, two chains are drawn, one single crochet is made, and the next chain is double crocheted. When it comes to the beginning of the row, it is combined and moved to the third row.
3. The first chain starts with one single single crochet and continues as two double crochets. Then, the process is continued until the point where we started the chains with one single two single needle technique and the reassembly process is performed.
4. At this time, knitting is done until the beginning of the row as two doubles and one single, and the joining process is done and in the 5<sup>th</sup> row, one single two double knit stitches up to the 16<sup>th</sup> row in the form of one single two double crochet for the next row two double one single and the front of the bag is finished.
5. After finishing the front part of the bag, we start the back part as we started the front part and continue in the same order as we did in the front part at each stage and we do the finishing process. Then we stick fabric interlining with an iron so that our circular knitting will stand straighter.
6. We work a wide strip to connect the front and back rounds of the bag. First, we draw a 50 cm chain and go back and start the 3<sup>rd</sup> chain with dense needles, in this way we continue to knit until our starting chain. We also do the process in the 3<sup>rd</sup> row and we finish our strip knitting.

7. At the last stage, we sew our front round and the side chains of our strip knitting with the help of a needle and fibre, and we combine and finish in the same way on the back. You can decorate with a leather handle or a knit handle.

Get inspired:

- <https://www.youtube.com/watch?v=jJJY-Y6UDIE>
- <https://www.youtube.com/watch?v=tTRN0Ja2Q6U>
- <https://www.youtube.com/watch?v=jXUND1WH5k8>
- <https://www.youtube.com/watch?v=cG7ZgFePud4>
- <https://www.youtube.com/watch?v=Y9ECToHM1RI>



Title: Old Sweater Blankets

Author: Sultan Karabulut

Materials used: Scissors, crochet hook, long needle, needle, used sweaters and mats

How to make it:

1. Collect your old, unused sweaters.
2. Cut the sweaters to release the threads.
3. Roll the threads into balls of yarn.
4. Use the threads to start knitting. You should use 50 stitches.
5. Weave the first row in the back with the yarn.

6. Weave the second row of yarn in front.
7. The length of the knitting should be twice the width.
8. Once the length is completed, cut the knitting.
9. Fold the knitting in half and pin the four sides first.
10. Close the piece by pulling three chains on all four sides. In the second row pull four chains.
11. Repeat the process until you have an enough number of knitted pieces. Add all the pieces together and finish the blanket.

Get inspired:

- <https://www.youtube.com/watch?v=6mDUp8QDxH4>
- <https://www.youtube.com/watch?v=vOpQsGn4tO4>
- <https://www.youtube.com/watch?v=vPxpikMgJuM>
- [https://www.youtube.com/watch?v=umeX\\_bpljds](https://www.youtube.com/watch?v=umeX_bpljds)



Title: Scrap Metal Tortoise

Author: Hakan Demir

Materials used: Waste metals left behind by the industry, automobile scraps, a welding machine, electrodes

How to make it:

1. Collect metal scraps.
2. Weld the metal waste and create a sculpture.

Note:

In this workshop, the transformation of waste metal materials into art objects was based, and the waste metals left behind by the industry were combined by welding automobile scraps and ready-made metals, and sculpture works containing social messages were carried out with both figurative and abstract works. The artists, who saw that the increasing distance between nature and people would lead to great dangers, carried out various works to draw attention to this. In this study, Hakan Demir aimed to draw attention to the pollution of the seas caused by the increase in industrialization of Caretta Carettas, which are endangered in the seas, due to unconscious hunting, and to draw attention to the creatures that lost their lives after being caught in ghost nets.

Get inspired:

- <https://www.youtube.com/watch?v=-r5-7pxolPE>
- <https://www.youtube.com/watch?v=TC Ergi8BT6M>
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- <https://www.youtube.com/watch?v=6rUy63x1HBQ>
- <https://www.youtube.com/watch?v=en9xvcxET6w>



Title: DecoCD

Author: Òscar Tomàs Martí López

Materials used: old CD's, various handicrafts material

How to make it:

1. Take an old CD.
2. Draw something related to the party/celebration that you are going to celebrate (Christmas, Halloween, Easter...) on a paper shaped like a CD.
3. Glue the drawing on the CD.
4. Hang the decorated CD on the wall or wherever you want.

Note:

You can create a huge variety of decorations with CD's, e.g., breaking the CD and gluing it to the sides of a mirror, creating a dream catcher, etc.

Get inspired:

- <https://www.youtube.com/watch?v=tHZZ6U5BQM>
- <https://www.youtube.com/watch?v=e5QX5CHTinA>



Title: Jean Bags

Author: Òscar Tomàs Martí López

Materials used: old jeans, various handicrafts material, sewing material

How to make it:

1. Cut the jeans in a bag shape and also cut two strips.
2. Sew it to make the bag and add the two strips on the top to make the suspenders.
3. Decorate it with whatever you want, e.g., stickers, patches, etc.

Note:

You can also make a backpack by putting the suspenders from the top to the bottom, one on the left and the other on the right of the backpack.

Get inspired:

- <https://www.youtube.com/watch?v=qj-qeQgx51Y>
- <https://www.youtube.com/watch?v=vYZ2MchgQkw>



Title: Wooden Boxes

Author: Òscar Tomàs Martí López

Materials used: old pallets, nails, hammer, various handicrafts material

How to make it:

1. Disassemble a pallet by pulling out all the woods from it.
2. Depending on the size of the box, cut the wood in smaller pieces.
3. Varnish the wood in order to preserve it better.
4. Assemble the wood with nails to make the box.

Note:

You can also decorate your box by painting it or adding some stickers or other different material to it.

Get inspired:

- <https://www.youtube.com/watch?v=0SEsLsOfLuQ>
- <https://www.youtube.com/watch?v=4shGewHZqT0>

# SUMMARY

This handbook was created as part of the “Recycling of Waste with Handicrafts” project, co-funded by the Erasmus+ programme of the European Union. The handbook offers an insight into the environmental topics through an artistic lens. The first chapter of the handbook essential concepts vital to understanding the environment, the problems that have arisen, and solutions proposed were proposed. The second chapter dives into environmentally friendly behaviours, offering practical tips and advice on how to positively impact the environment. In the third chapter, a special focus was given on types of environmental pollution and packaging as one of the most spread consumer wastes. The fourth chapter explores the connection between the environment and art, providing insight into and examples of eco-art. Lastly, the appendix contains 12 examples from partner countries that depict handicrafts made out of waste. The handbook offers information about concepts and methods to increase environmental awareness, reduce negative impact on the environment and help readers to express themselves creatively. It should be used as a guide and a motivational tool for readers to explore more and apply more environmentally conscious steps in their daily lives.





## RECYCLING OF WASTE WITH HANDICRAFTS

2021-1-TR01-KA210-ADU-000034997

<https://handicrafts.pou-cakovec.hr/>



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**Lietuvos jaunimo centras**

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