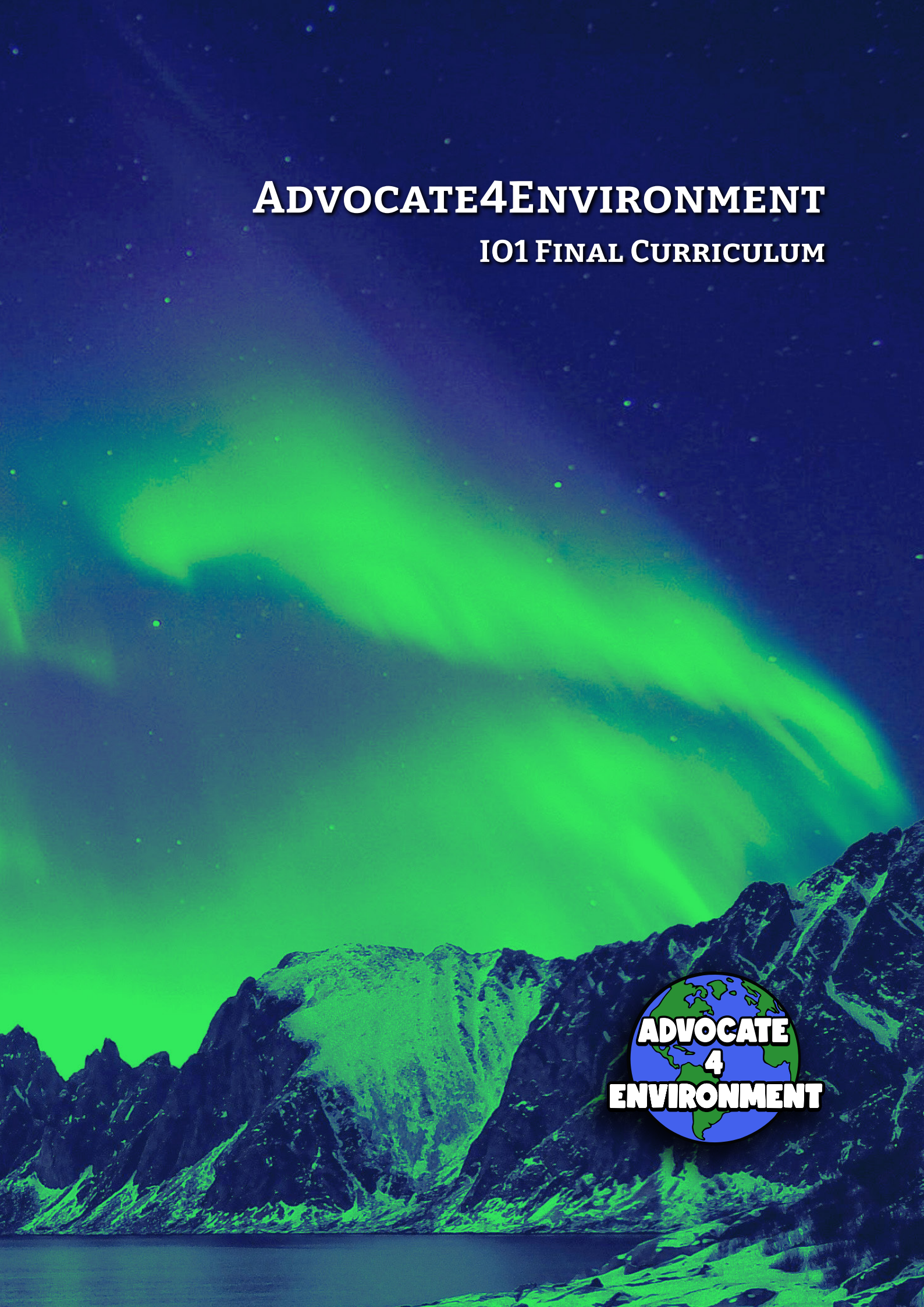
Advocate4Environment

IO1 Final Curriculum



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I. INTRODUCTION

The need to include young voices has become more pressing than ever as young people, whose futures are threatened by accelerating global heating, are increasingly demanding action towards a more just, equitable, and climate-resilient society.
The voices and contributions of the youth are notably essential for the effective implementation of the Sustainable Development Goals and the Paris Agreement.

Young people are increasingly aware of the challenges and opportunities that the necessary transition to low carbon growth entails, and many are joining the global dialogue on solutions, getting involved and taking action. As young people work across the globe to determine their future by acting on climate change, their actions inspire us all.
“Motivated young people all over the world are doing amazing work to address climate change on the ground and push their governments to do more. It is crucial to share information and experiences about the projects, programs and campaigns that work best so that others can learn from and replicate them without having to reinvent the wheel” said Connie Hedegaard, European Union Commissioner for Climate Action.

This material aims to promote the knowledge and understanding of concepts related to the environment and sustainability, and the development of conscious and critical individuals by strengthening advocacy practices. Environmental advocacy provides an opportunity to enhance entrepreneurial thinking, while engaging young people in a good cause. The material provides young people with information about e nvironmental advocacy, but also knowledge of how to engage young people, facilitating learning by focusing on a subject of importance to them.
The material was prepared with the financial support from the European Fund ERASMUS+ and with support from the project´s partners: Vejle Municipality, Right Challenge, Drustvo za razvijanje prostovoljnega dela Novo mesto, Region Örebro County and Future in Perspective.

So, if you are wondering how should we act to protect the environment?
Then you have come to the right place!

In the following section we introduce the learning material with an overall introduction to the theme about why we should work to protect the environment based on an understanding of the impact we have on the Earth’s environment as humans.

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Structure of the curriculum

The curriculum contains fifteen modules which are divided between the two units: advocacy and environmental protection. The two units are written in a way that allows the modules to correlate between each other and create a meaningful and practice-based curriculum.
Each module consists of a theoretical and practical part with additional material to be optionally read. The practical part can be done by team-work and individual practice.

The curriculum is created in a way to give the importance to some of the highly needed skills, knowledge, and attitudes for becoming a successful environmental oriented advocate. At the end of the curriculum, you will have the knowledge, skills, and attitudes you require to advocate. Through dynamic coursework, you will be empowered to gain a variety of experiences, and acquire a basic understanding of the environment, its associated problems, and the importance of advocacy.

You will be lead in a way to acquire the skills needed for identifying, solving, and advocating for environmental issues. And finally, the highlighted attitudes will help you to acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental protection and advocacy.

The learning outcome of each module will be gained through the combination of theoretical and practical parts. The assessment of the learning outcome will be measured through practical examples, case studies, group work etc. which may be supported with videos, articles, news etc. The activities and workshops will allow you to measure your knowledge. At the end of each module there is an appendix and materials for those who are eager to learn and know more about the topic.

Why are we talking about protecting the environment?

Human activity has influenced the environment for thousands of years, from the time of our very earliest ancestors. Since homo sapiens first walked the earth, we have been modifying the environment around us through agriculture, travel and eventually through urbanization and commercial networks. Today our impact on the environment is so substantial that scientists believe “pristine nature,” or ecosystems untouched by human intervention, no longer exist.
It is very important for us to protect our environment, so that we can continue to live on this planet - in a healthy and safe atmosphere. A clean environment is essential for healthy living. Air pollution can cause respiratory diseases and cancer, among other problems. Water pollution can lead to typhoid, diarrheal diseases, and other water-related diseases. Therefore, we should keep our environment clean and protected.
Young people constitute a large part of the world’s population, and they will have to live longer with the consequences of current environmental decisions than their elders. Future generations will also be affected by these decisions and the extent to which they have addressed concerns such as the depletion of resources, biodiversity loss, and long-lived radioactive wastes.

That is why young people can play an active role in protecting and improving the environment.
Think of it this way: All of us have created this problem by neglecting the environment. That must mean that all of us can fix the problem by protecting it!

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Figure 1: Source - National Geographic/Youtube

https://www.youtube.com/watch?v=B-nEYsyRlYo&t=6s

When we discuss the earth's environment, we are talking about the health of the atmosphere, forests, plants, animals, water, and each ecosystem. Everything from the roots of trees underground to the air we breathe is part of the environment, and the health of each part affects the health of the whole. There are many threats to the environment. These include climate change caused by greenhouse gasses, air and water pollution, deforestation, and more. Because of so many serious environmental threats, the earth is changing. Melting glaciers are destroying habitats; plants and animals are becoming extinct at a staggering rate. It is easy to look at that list and feel small and insignificant. After all, the earth has over 7 billion people.
In this material, you will find some suggestions about how you, or your group, can take action, after you learn about how your lifestyle may affect the environment. You will learn how you can make your home, school or your group more environmentally friendly by adopting environmentally friendly practices, recycling of different materials as well as preserving resources such as water and electricity. Engaging you or your group in environmental protection not only creates direct impact on changing behaviors and attitudes, but possibly influence parents, relatives, and friends.

Find out about threats to the environment in the ENVIRONMENTAL PROTECTION UNIT, module 3-9

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How do humans affect the environment?

Humans affect the environment in many ways, both positive and negative—and likely in more ways than you would even think. Human civilization and technology have affected our earth, altering our planet forever. In the following we present five tangible impacts that our species has had on the environment.[1]

The population bomb

Human overpopulation has been affecting the environment for hundreds of years. Overpopulation has grown since mortality rates have decreased, medicine has improved, and methods of industrial farming were introduced, thus keeping humans alive for much longer and increasing the total population.

Humans require space and lots of it whether it is for farmland or industries, which also takes up tons of space. Without enough trees to filter the air, CO_2 levels increase, which carries the potential to damage every single organism on Earth. Another issue is our dependency on coal and fossil fuels for energy, the larger the population, the more fossil fuels will be used. The use of fossil fuels (such as oil and coal) results in copious amounts of CO2 into the air- threatening the extinction of thousands of species, which adds to the effect that forest depletion already has.

Pollution

Pollution is everywhere. From the trash thrown out on the freeway, to the millions of metric tons of pollution pumped into the atmosphere every year- it is obvious: pollution and waste are inescapable.

Pollution is so bad that to date, 2.4 billion people do not have access to clean water sources. Humanity is continuously polluting indispensable resources like air, water, and soil, which requires millions of years to replenish.
Human activities affect the environment by contributing to air pollution, or the emission of harmful substances into the air. While it can be difficult to understand which pollutants are associated with specific effects on the environment or public health, it is generally accepted that air pollution can indeed cause public health problems and harm plant and animal life.
Pollution is not just limited to the air. It can affect soil or waterways and can come from human waste, industrial chemicals, and other sources. These toxins can exert tremendous effects on the natural world, leading to environmental degradation and problems like acid rain and harmful algal blooms in the ocean.

You can read more about pollution and find ways to advocate in Module 7.

[1] https://interestingengineering.com/11-ways-humans-impact-the-environment

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Global warming and climate change

Global warming has a massive impact on the environment. The biggest impact emanating through CO_2 levels from respiration issues to more detrimental causes like burning fossil fuels and deforestation.

As the temperature increases, arctic land ice and glaciers melt which causes the ocean levels to rise at a rate of 3.42mm per year, allowing more water to absorb more heat, which melts more ice, creating a positive feedback loop, which will cause the oceans to rise 0.3-1.2 m by the year 2100.

Climate change is closely connected to the historical development of industry and technology. Among the most critically impactful ways that humans have affected the environment is our extraction and consumption of fossil fuels and their CO2 emissions. Recent studies indicate that CO2 emissions contribute to the deterioration of the earth's ozone layer, which may, in turn, contribute to global climate change; this is especially true when emissions are combined with the loss of the carbon-sink effect of forest lands (due to deforestation) and existing particulate matter in the air. Though the scale and impact of such climate change is up for debate, the scientific community has reached a consensus that human activity does have some degree of impact on the global climate. As global temperatures increase, Earth's weather patterns will drastically change. While some areas will experience longer growing seasons, others will become barren wastelands, as water will deplete in vast areas, turning once floral regions into deserts. The increase will affect weather patterns, promising more intense hurricanes in both size and frequency, as well as intensifying and prolonging droughts and heatwaves. But air pollution does not just affect the environment. Evidence is mounting that poor air quality and rising temperatures are ruining delicate ecosystems, even leading to increased asthma and cancer rates in humans.

You can learn more and find ways to advocate on climate change in Module 3.

Deforestation and reforestation

With an exponential expansion in human beings, more food, materials, and shelter are being manufactured at stupendous rates, mostly stemming from forestry. Forests are cleared to make way for new humans, which in turn, makes more humans. You can see the problem.
According to international data, an estimated 18 million acres of trees are clear-cut each year to make way for new development and wood products- that is just under half of all the trees on the planet since the industrial revolution began.
With trees being one of the largest producers of oxygen, clearly that is not a good thing for humans- and especially not for the animals that call the forest home.

Please look at module 6 to find more about consumption.

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Agriculture, domesticated animals, and genetic modification

The demand to feed a growing human population demands more agriculture, which was the first major human innovation to enable our survival as a species. Early agriculture allowed hunter-gatherer cultures to settle in an area and cultivate their own food. This immediately affected the environment by transplanting non-native species to new areas, and by prioritizing the cultivation of certain plants and animals over others. Recently, genetic modification has raised concerns about the environmental impact of newly developed crops.
In particular, the domestication of livestock and other species, including dogs and cats, by early humans affected the environment by altering the land in significant ways. Grazing animals contributed to environmental change by depleting native grasses and contributing to soil erosion. And we now know that the rapid expansion of cattle numbers to meet human consumption demands has contributed substantially to changes in the composition of gases within the atmosphere.

The industrialization of agriculture in the last several centuries has exacerbated these effects, but it has also prompted a subsequent wave of counter-movements, which seek to undo the negative effects of human intervention. People today are increasingly aware of the impact vast factory farms have on the environment and seek to return to smaller farms and even urban gardens. As “eating local” rises in popularity, urban land is being reclaimed for traditional agriculture and the environment is once again altered due to human labor.

Why should we protect the environment? Here are some reasons:[2]

The environment helps in protecting the ecosystem: Changes affecting the ecosystem put multiple species in the danger of extinction necessitating the need of protecting the environment. Protecting the environment protects humanity: Pollution is one of the most hazardous factors affecting the environment. It affects the quality of water and food leading to the ingestion of toxic substances.

Biodiversity is a significant part of life in the world: Biodiversity not only consists of the animals living of earth but also the forests, grasslands, and tundra, which are important in maintaining the life cycle of the eco-system.

Trees, which are a significant part of the environment and help to keep the climate cool, play a critical role in the refilling of aquifers and they block the wind: Trees play a significant role in creating shades on the ground. Urban trees help buildings stay cool, reducing the need for electric fans or air conditioners, while large forests can tackle larger tasks. Rainwater that gets past their root's trickles down into aquifers, replenishing groundwater supplies that are important for drinking, sanitation, and irrigation around the world. Farming near a forest has many benefits, like bats and songbirds that eat insects or owls and foxes that eat rats. Nevertheless, trees can also serve as windbreakers, reducing wind speeds of wind-sensitive crops. In addition, beyond protecting those plants, less wind makes it easier for bees to pollinate them.

The environment is effective in generating a successful food chain: The sun provides light for the plants. The plants are food for the animals that are in turn consumed by other animals. Therefore, destroying the environment would destroy the food chain system. Maintaining the environment is critical in providing food for people: There are many healthy edibles found throughout the forest. Around the world, many people depend on forest food to live.

Environmental protection encourages better physical health: The quality of air found in the forest can help to improve lung health and there are many recreational activities to be found there as well. For example, taking a walk through the forest enhances one's physical endurance. Medicines can be found throughout the forests and environment: Medicines are found in the forest that can be used for a wide variety of health disorders. Medicines can be extracted to cure infections and a myriad of health problems.

Environmental protection reminds us to appreciate the beauty of nature: There is nothing quite like spending time in the forests to sightsee and enjoy a day filled with surprises that only nature can afford. The visual splendor of the forest is one of the things that make the Earth especially stunning and unique.

[2] https://www.conserve-energy-future.com/reasons-why-we-need-to-be-environmentally-conscious.php

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Toolkit – Ecological footprint

WHY DO WE NEED TO KNOW OUR ECOLOGICAL FOORTPRINT?

Many of our daily activities - such as using electricity, driving a car, or disposing of waste - cause greenhouse gas emissions. Together these emissions make up a household's carbon footprint. Ecological footprints are measurements of a persons of the consumption. We are absorbing about 157% of the natural resources on the planet, meaning that we need an Earth and a half to maintain our ecological footprint. To preserve our remaining resources, we need to reduce our consumption. So, how big is your carbon footprint? This is the most important first step to understand how to reduce your impact is to determine your ecological footprint.

Use a footprint to calculate your consumption and discuss what you would like to do about it (for individuals)

How to calculate your footprint

STEP 1: LOCATE AN ECO-FOOTPRINT CALCULATOR
Several environmental organizations, such as the World Wildlife Foundation (WWF) and The Nature Conservancy, offer online questionnaires and calculators that estimate exactly how much energy your home, business and lifestyle uses.

Once you locate an eco-footprint calculator, it will ask for your eating, driving, traveling and energy-using habits. Be as honest and factual as you can. The calculator app may ask follow-up questions about your lifestyle choices, such as how you spend your free time. All these factors are added into a formula that should give you an approximate calculation of how many resources you use on an annual basis.

FIND A CALCULATOR AND MEASURE YOUR CARBON FOOTPRINT:

Links to some of the calculators:
WWF: https://footprint.wwf.org.uk/#/
Carbonfootprint.com: https://www.carbonfootprint.com/calculator.aspx (more complex, better for longer exercise and older students).
Footprintcalculator.org: https://www.footprintcalculator.org/
https://www.nature.org/en-us/get-involved/how-to-help/carbon-footprint-calculator/

STEP 2: REFLECT ON YOUR FOOTPRINT. WHAT CAN YOU DO TO REDUCE IT?
Questions:

How high is your carbon footprint?

Which behavior contributes most to your footprint (CO2)?

Do the test again and try to change that behavior which contributes most, like change car to bike, or meat diet to vegetarian diet and see if it makes a difference. Change plane rides to train rides for the summer holiday and compare the differences.

What would it take you to change that behavior? Would it be difficult or easy?

STEP 3: MAKE A PLAN THAT WILL HELP YOU TO REDUCE YOUR CONSUMPTION

Once you have determined what your ecological footprint is, you can create a plan to reduce it. Try breaking down your consumption into categories: food, home, and travel. According to the WWF, food comprises 10% of the average person's eco footprint. Typically, people who eat meat and cheese have larger footprints than vegetarians and vegans. Most animal products come from large, industrial farms, which require a lot of energy and water to operate. These farms also use a lot of energy to ship from the farm to a processing plant to a grocery store to your table.

A tip for reducing consumption would simply be cutting back on meats and cheeses or buying them from a local, organic source.

How much energy you use at home makes up about 20% of your footprint. You can reduce this number by using energy-efficient products in your house and turning off lights, entertainment devices, electronic appliances, and water faucets when they are not needed.

Travel makes up the bulk (35%) of every person's ecological footprint. Planes and cars use a tremendous amount of fossil fuels, which emit carbon when burned. Taking public transportation and carpooling or buying and driving a flex fuel, hybrid, or electric car is also a great way to reduce your environmental impact.

STEP 4: MAKE A DIFFERENCE

The most important step is to understand how to reduce your impact. Once you have determined your ecological footprint, you can make a plan and make a difference. If you are not sure about your changes and the impact, you can try different ways and measure the impact. Try this for a week or a month and see what happens.

Once you have defined your goals, you can Invite your friends to do the same. Use a footprint to calculate your consumption and discuss what you will do about it (for groups).

Questions:
Can you see any differences in the high levels of your carbon footprints?

What would it take for you to change that behavior? Can you take a bus instead of a car, can you ride with someone; can you walk or bike? Do you throw out food? What do you eat; can you make a different diet? Find more ways to reduce your footprint here: https://get-green-now.com/reduce-your-ecological-footprint/

Is there one thing the members of your group could go home and change from today, that would help reduce your footprint (Co2). Try to see if you can do it, and measure the impact? Try again for a week or a month and see what happened. Repeat step 2 and find new changes you or your group can make.

STEP 5: SPREADING THE WORD

Good communication is an important part of making your project successful. Raising awareness about a person's carbon footprint in your group or your school can be an important action in itself but gaining publicity can also help you win support for your project. You may want to get members of the local community involved in your project, so use the media and let them know what is going on. You may also inspire individuals, other groups, and communities to follow your lead. Communication is so important in getting our voices heard.

Read more about it in Advocacy unit

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Appendix 1 - Additional resources

Resource Title:	National Geographic
What will you get from using this resource?	You will learn more about how the physical environment is affected by the human impact with these classroom resources from national geographic.
Link to resource	https://www.nationalgeographic.org/topics/resource-library-human-impacts-environment/?q=&page=1&per_page=25

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II. ADVOCACY

MODULE 1: THE PROTECTION OF THE ENVIRONMENT IN EVERYDAY LIFE: AN INTRODUCTION OF ENVIRONMENTAL ADVOCACY

Protecting the environment is everyone's responsibility, regardless of our age. Helping is crucial so that future generations can enjoy everything our planet has to offer, such as clean air, clean water and the variety of species that live here. To help save the planet may seem impossible and distant, but change starts from within our homes and within each one of us. There are several ways that you can help protect our planet. Simple and ordinary attitudes can make the difference not only in preserving the planet, but in restoring it.

According to one the UNICEF's Voices of Youth Lorina Fedorova[3], there are different ways to fight against environmental issues: by changing your personal habits or changing the system.
To change the system, you should go bigger and call for global action. These can be achieved by joining an environmental movement or becoming and environmental advocate.

Figure 2: Lorina Fedorova joined thousands of young people throughout the world to strike as part of the #FridaysforFuture movement. Source: UNICEF/2019/Perevodchik. All rights reserved.

[3] Fedorova, L. (2019). Why you have to join the environmental movement - and why small steps are not enough. Website. Retrieved from: https://www.voicesofyouth.org/blog/why-you-have-join-environmental-movement-and-why-small-steps-are-not-enough

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ACTIVITY TOOLKIT

Explore the stories of young advocates worldwide in UNICEF'S "Voices of Youth"!

Exercise for self-reflection:

Voices of Youth is a is a digital community for young people to come together to engage in discussions, to exchange ideas, to inspire, and to get inspired. This online space has a blog, inspiration board, tools, opportunities, and other resources to help you make a positive difference in the world. Why not start by submitting your own blog or video to Voices of Youth, for it to be published on the website? Check it out: www.voicesofyouth.org

It is said that there is an environmental movement when organisations and other actors, usually less formally organised, network and engage in collective actions to promote changes that affect the socio-environmental qualities of a given event, place, idea, object, or political scenario - with the aim of promoting sustainability.

The actions of environmental advocacy groups can be generalist or focused on the protection of a specific species or habitat. There are civil non-governmental organisations (NGOs) and political groups that fight air pollution, ocean pollution or the continued use of fossil fuels. Their actions are global and large-scale, which can make it difficult to coordinate protests. In addition, a great deal of cultural and legal adaptation work is required since each country has specific legislation and social vision associated with ecological issues. On the global scale of environmental actions, we can cite several environmentalist organizations, such as GreenPeace, the World Wildlife Fund and the Environmental Defense Fund. These NGOs have similar goals, working against pollution, hunting, and overfishing, and campaigning to protect endangered biomes and species vulnerable to extinction.

Figure 3: Source – Artem Podrez/Pexels

The individuals who are part of these organisations are referred to as **environmental advocates**. Advocates are people who believe that the world needs to change, and therefore devote time towards actions that enable such positive changes. As can be seen in young people, the structural, social, or economic barriers of society cannot stop anyone from going after what they believe in and to foster positive outcomes.

Becoming an environmental advocate **requires passion and dedication**, but it's easier than you might think. The most important thing is the willingness to make a difference. And, of course, the belief that the environment should be protected under all circumstances.

Environmental advocates usually have a wide range of communication skills to develop and participate in face-to-face and online campaigns. In fact, what connects each one of us in the movement is our desire to see change in the world. We must build a network of committed people to increase the impact of our actions. For that, you need to be an assertive communicator in every situation and environment.

Figure 4: Source - Lara Jameson/Pexels

ACTIVITY TOOLKIT

"I couldn't disagree more!"

Exercise for group discussion:

1. Ask everyone in your group to **write down a statement** about the issue you are working on that they believe strongly.
2. Get into pairs and **swap statements with the person you're paired with**.
3. Ask each pair to **read out the statement to their partner** and ask the partner to respond by saying: **"I couldn't disagree more...."** And then to argue against that statement.
4. After a few minutes, **switch and do the same again for the other partner**.

What have you learnt about your issue and other views on it? What arguments do you need to prepare for? Prepare several alternatives. Be ready!

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Have you ever thought of participating in an online advocacy campaign?

As the number of young people using social media continues to rise, these platforms are giving them a voice. By being constantly connected, they can support worthy causes and highlight any injustice or mistreatment, often in very creative ways. **#Challenge22**, **#FridaysforFuture**, **BlackLivesMatter** and **#MeToo** are other examples of using social media to generate global discussion on key issues. In online campaigning, you can use social media such as Facebook, video sharing, online petitions, virtual marches, and more. Advocacy through social media can be a great way to educate and raise awareness about environmental issues. Nowadays it is very easy for anyone to engage with a cause in the digital world. All you need is a profile on social media to share statements, use hashtags and sign petitions.

Online campaigns have the following benefits:

• Technology is developing fast and there are more and more ways to get people involved.

• You can easily respond to news and events, send messages to supporters, and share information.

• Social media helps connect your supporters to each other. This makes them feel part of a community and motivates them as part of something bigger.

Figure 5: Source - Fauxels/Pexels

ACTIVITY TOOLKIT
Brainstorm online campaign actions

Exercise for group discussion:

Try a 1-minute brainstorm with your friends of all the possible campaign actions you could take to raise awareness about environmental protection in your school or neighbourhood. Even with a small group you should get lots of ideas!

Appendix 1: Additional resources

Self-directed Learning #1

Resource Title:	How to Save Our Planet
Introduction to the resource:	Sir David Attenborough explains how humans can take charge of our future and save our planet.
What will you get from using this resource?	A Netflix original documentary series and groundbreaking collaboration between WWF, Netflix and Silverback Films, Our Planet showcases the world's natural wonders, iconic species and wildlife spectacles that remain. We're all a part of this amazing planet, but we're changing it like never before. Discover the story of the one place we all call home.
Link to resource	https://www.youtube.com/watch?v=0Puv0Pss33M

Self-directed Learning #2

Resource Title:	Advocacy Through social media: Why Trending Topics Matter
Introduction to the resource:	Hashtags like #RefugeesWelcome, #BlackLivesMatter, and #PrayForParis have allowed for individuals across the world to create and become part of larger a conversation about the important events of the present day. It is through these conversations that many individuals have been able to advocate for the rights of others and for trending topics to influence political conversations including the upcoming Presidential election.
What will you get from using this resource?	You will learn about the impact of social media in spreading and advocacy campaign message.
Link to resource	https://www.youtube.com/watch?v=o4sGLLaLq-Q

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MODULE 2: WHAT DOES IT TAKE TO BECOME AN ENVIRONMENTAL ADVOCATE?

Regardless of the type of advocacy, it is known that youth-led advocacy is about supporting young people to speak up and helping them to actively take part in the decisions that affect their lives (UNICEF, 2019). When young people stand up for their beliefs and understand the impact of their voices, they can represent their families and communities with pride, courage, and ability (Fletcher, 2015). Therefore, this unit will help you to understand how you can begin to act as an environmental advocate in your community or even globally. Remember that advocacy isn't always about large-scale-scale advocacy projects. You can make a huge difference in your own communities, even more so than global campaigns ever could.

How do you begin to act?

1. Pick the issue that you want to tackle

To figure out what you want to campaign on, you'll need to explore a problem or issue affecting you or young people in your community. It can also be an issue you care about most. You must answer to the following questions:

- What do you care about? What is the problem?
- What do you want to happen?
- Research and analyse the issue that you want to tackle. To begin your research, explore where you first learned about the issue – did you read about it online? Was it on the news? Is it something that was discussed at your school or workplace or talked about with your friends or family? As you are reading, begin gathering evidence: evidence can include case studies of other people who have been affected by or campaigned on the issue; this will help you show how important your issue is.

Figure 6: Source - Karolina Grabowska/Pexels


Figure 7: Source - Vlad Chetan/Pexels

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2. Set goals and outcomes

Environmental advocacy goals should be SMART:
Specific, Measurable, Achievable, Results-Oriented and Time-Bound.

SPECIFIC: Who needs to do what?
• Language used should be simple and clear. Avoid confusing language!
• Be clear that your focus is to mobilise young people for environmental advocacy.
• Be aware of words with multiple meanings. If you use them, be specific about their meaning.

MEASURABLE: How will you track progress?
• Be as exact as practical and credible about who, what, where, when and how.
If possible, estimate who you are helping, how many people are being helped, what they will be able to do as a result, and the geographical range of your effort.
• Outcomes with words like 'empower' are hard to measure because their definitions are imprecise. When using these words, ask yourself: What does it mean to be empowered? What does an empowered person do? Use the answers to formulate your outcomes more clearly.

ACHIEVABLE: Is this possible to achieve?
• The clearer you are about who, what, where, when and how, the more achievable your goals and outcomes will be.

RESULT-ORIENTED: will your objective help you achieve your vision? How?
• Goals and outcomes should be achievable in the planned time frame and
reflect the limits of your staff
• Make sure that the interim outcomes will be sufficient to achieve your advocacy goal.
• Be realistic when you decide how many people you plan to change or influence.

TIME-BOUND: Set a deadline
• Goals and interim outcomes should include a clear time frame within which change should be achieved. Change within that time frame must also be realistic.

3. Select your target-groups

To move your campaign forward, you will need to identify key people who have the power to help with your issue – the 'decision-makers'. To figure out who your targets and influencers should be, make a list of all the people or organisations in your community who are involved in this issue or care about the issue.

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4. Time to act. Find your key message!

According to UNICEF (2019), your message should appeal to the heart, head, and hands of your target:

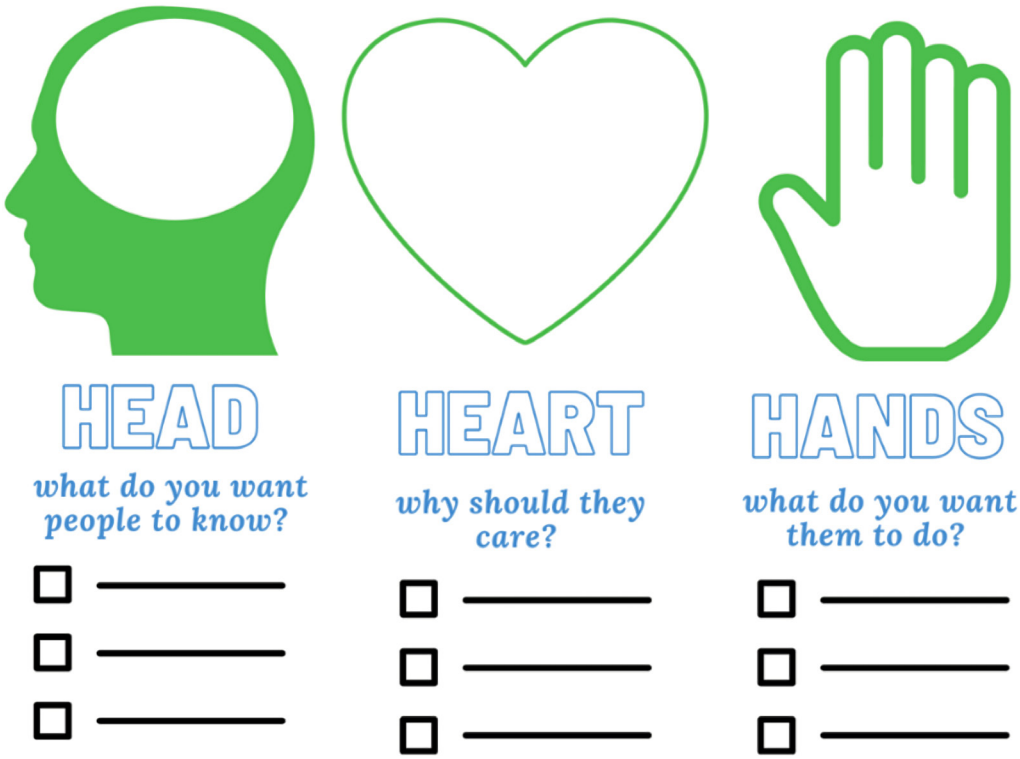

Figure 8: Source - Adapted from UNICEF (2019)

It's important to know that value-based messaging is a must in environmental advocacy plans and campaigns. Demonstrating shared values and goals will resonate with most people. It gives us an opportunity to appeal to people in a relatable way on an emotional level. Appealing to people using only facts is ineffective. Because if the facts don't align with someone's core belief, they're easily dismissed. We need to take the facts and change how we frame them to trigger their core values in a different way.

ACTIVITY TOOLKIT
How to find your key advocacy message

Group exercise:

Step 1 - Answer to the following questions:

What is the problem you are trying to tackle?
Evidence of the problem (Facts, Stories, Statistics)
Why is your message important?
What needs to happen to make the change?
What is the target-audience of your advocacy campaign?

Step 2: Analyse at least two to three main targets that you wrote above.
Can you write a specific key message for each of them?

Step 3: Test your message! Ask for friends, family and/or teachers for feedback about the message. Are the facts clear, and correct? Did the message move and persuade them?

After you find your advocacy message, it is time to start pitching your advocacy campaign.

ACTIVITY TOOLKIT
Pitching your advocacy campaign

Exercise for group discussion:

Imagine you are in an elevator with another person. You only have 30 seconds to summarise a campaign to them before they reach their floor. How can you sum up what the campaign is about, what the solutions are and the call to action in that time? Keep practicing until you think you've got it summed up well in that amount of time.

Don't forget that the ability to effectively mobilise people towards a common goal is one of the most common traits of environmental advocates. The leader is always prepared to solve problems, manage conflicts assertively, stimulate learning and build a good collaborative environment. A transformational leader has the following qualities:

- Charisma: Being able to arouse the admiration and respect of people around them.
- Vision: Being able to anticipate and act proactively, avoiding losses, failures, or delays.
- Inspiration: Being a source of inspiration for the entire team. These leaders are always searching for challenges, demonstrate technical knowledge, persuasiveness, planning skills, and humility, empathy, and persistence.

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Appendix 1: Additional resources

Self-directed Learning #1

Resource Title:	How These Youth Climate Activists Are Changing the Future
Introduction to the resource:	In world news and current events today, these 4 youth climate leaders sat down to talk about climate change and how young people can change the future.
What will you get from using this resource?	Tough she started the Fridays for Future Climate Strike; Greta Thunberg is not the only young people fighting against global warming. As the United Nations held the climate action summit to address one of the worst global issues of our time, these young people continued the fight against the climate crisis in the streets.
Link to resource	https://www.youtube.com/watch?v=QR0QDS9_6NY&t=1s

Self-directed Learning #2

Resource Title:	How Young Climate Crisis Activists Changed the World.
Introduction to the resource:	One of the biggest moments of 2019 was when teen climate activist and Fridays for Future founder Greta Thunberg spoke at the United Nations. This became known as the Greta Thunberg's "How Dare You" speech and launched many Greta Thunberg "How Dare You" memes and GIFs.
What will you get from using this resource?	Thunberg launched one of the biggest climate strikes, the global school strike 4 climate. In the fight against global warming one of the biggest global issues today also referred to as the climate crisis, no action was too small.
Link to resource	https://www.youtube.com/watch?v=XU0PnoCOXpU&t=7s

Self-directed Learning #3

Resource Title:	Young People are the Solution to Climate Change.
Introduction to the resource:	Vish Dhar talks about how young people are the solution to the climate change crisis and how their influence is impactful.
What will you get from using this resource?	His Ted Talk speech is centred around the fact that man-made climate change can no longer be debated because, without cutbacks in emissions, the world is quickly going to reach the point of no return.
Link to resource	https://www.youtube.com/watch?v=wvitLULPAqc&t=133s

Appendix 2:
"What does it take to become an environmental advocate?

Famous young environmental advocates to keep you inspired:

Greta Thunberg - *Sweden*

Born in Stockholm, Sweden, Greta first heard about climate change and global warming at the age of 8 during primary school lessons. Her first actions as a climate advocate happened in August 2018. Greta, who was 15 years old, started to protest outside the Swedish Parliament.

Greta's protests started the "School Climate Strike" movement: students took to the streets in more than 500 cities around the world against current climate policies. Greta's solo protest made the news and inspired young people around the world to mobilise every Friday to get politicians and world authorities to meet greenhouse gas emission targets.

Greta and the causes that she defends have mobilised millions of young people on the streets, who are fascinated by her determination. That is why young people throughout the world have chosen her as their spokesperson for concerns about climate change. She ended up becoming the symbol of young people's resistance to climate change. **The famous Spanish newspaper El País called this phenomenon the "Greta Generation" of children, adolescents and young adults concerned about the future of the planet.**

Figure 9: Source - Wikipedia.org

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Mary Copeny - *USA*

Mari Copeny was born in the city of Flint, Michigan, USA. She witnessed the water contamination in the so-called Flint Water Crisis in 2014.

Two years after the Flint water crisis, Copeny wrote a letter to President Obama asking him to come to Flint to discuss the future of clean water. In the letter, Mari also questioned why Flint's 100,000 residents were drinking contaminated water, which had to be cleaned with so much chlorine that the substance even bleached engine components at a local General Motors factory.

As she continues her efforts to clean up Flint's water, Mari has started the #WednesdaysForWater project, in which she aims to highlight, each Wednesday, locations in the United States that suffer from water contamination. Furthermore, Mari's message touched the whole country and people started looking for long-term solutions. Three young female engineers, inspired by NASA technology, decided to create a transparent water filter so that people could see the purification process.

Figure 10: Source - GoFundMe.com

> *I am one of the children that is affected by this water, and I've been doing my best to march in protest and to speak out for all the kids that live here in Flint.*

Lilly Platt - *Netherlands*

Lilly Platt is a British-born Dutch environmentalist. It all started when, after a walk with her grandfather, they found 91 pieces of plastic - in a 15 or 20-minute walk. They took a photo and posted it on social media, to let more people know how much plastic there is in the world. Then, she first heard about the case of a whale that was found dead after having swallowed 30kg of plastic. Her concern for preserving the environment prompted her to create her own pick-up waste campaign– the Lilly's Plastic Pickup.

Since she was 8 years old, Lilly has been trying to inform people about disposable plastic and how people can stop using it. Lilly has organised several clean-ups in her community where she recruits even her friends. Due to her hard work to protect environment since she was 8 years-old, she became the Youth Ambassador for the Plastic Pollution Coalition and worldwide charity HOW Global.

Figure 11: Source - Earth.org

> *"I started picking up trash after seeing the effect it had on wildlife. I knew that every piece I picked up was one less piece that could harm a living creature."*

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III. ENVIRONMENTAL PROTECTION

MODULE 3: CLIMATE CHANGE: CAUSES AND CONSEQUENCES

We are the last generation that can end climate change. We can and we will.

- Khishigjargal, 24, *Mongolia*[4]

[4] Khishigjargal Enkhbayar is a former Coordinator at the UN Youth Advisory Panel in Mongolia.

Figure 12: Source - Francesco Ungaro/Pexels

Climate change is here. As its impact intensifies over time, it is the children and young people of today who will face the worst effects.
However, far from being passive victims, young people all over the world have begun to fight back on a scale never seen before. Take Greta Thunberg. In 2018, the 15-year-old from Sweden sparked a global movement of school-age students demanding greater action from governments to fight climate change. Now millions are marching to demonstrate their support.

How and why does climate change influence your life?

Watch the movie, where nine young activists explain how climate change is affecting their lives and who inspires their efforts to make our planet a better place. Greta Thunberg (*Sweden*) is joined by Alexandria Villasenor (*USA*), Catarina Lorenzo (*Brazil*), Carlos Manuel (*Palau*), Timoci Naulusala (*Fiji*), Iris Duquesn (*France*), Raina Ivanova (*Germany*), Raslene Jbali (*Tunisia*) and Ridhima Pandey (*India*).

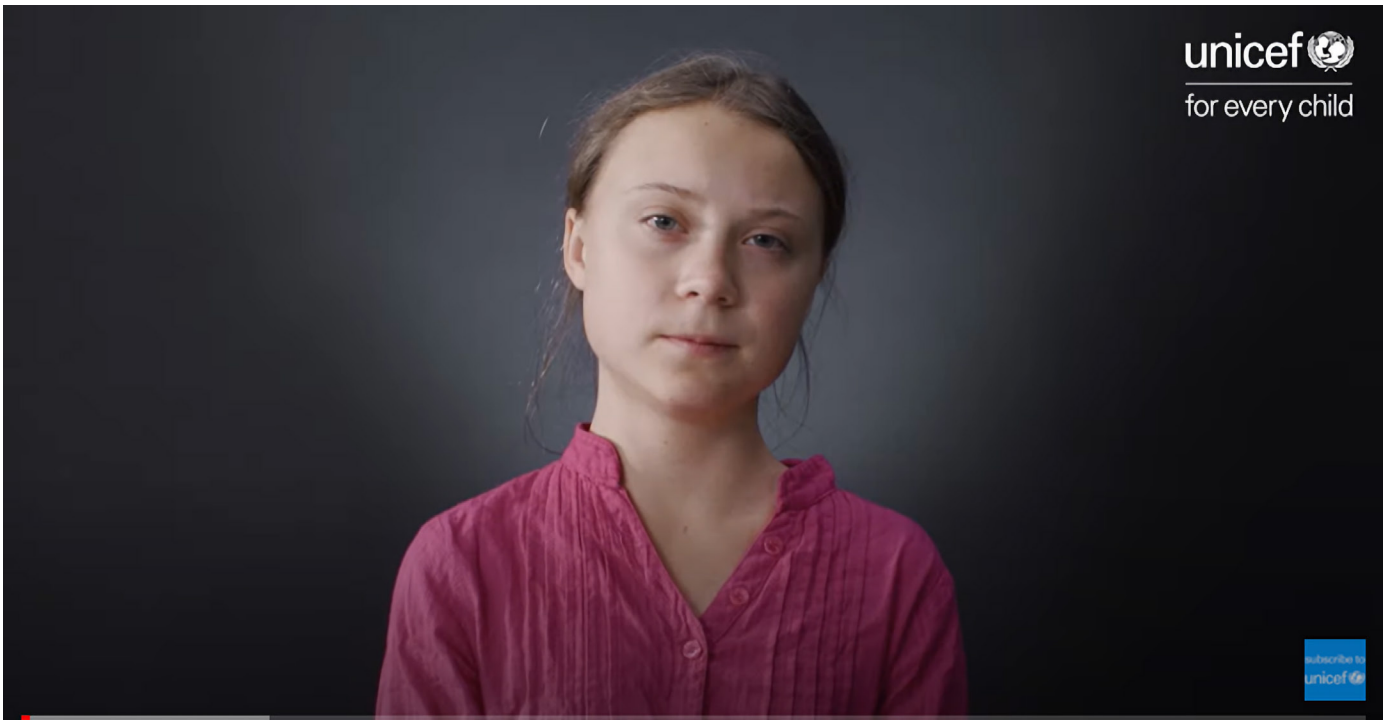

Figure 13: Source - Unicef.org

Around the world, young people are demanding action on the climate crisis to secure a just, sustainable future. As the youngest generation, their lives are most at stake. Young people have put the climate emergency on the global political agenda, demanding that global leaders respond and take action in an equitable and just way.
With this module, we aim to introduce you to the topic of climate change, as a global issue but also its impact at a local level. Understanding climate change will help you, as an individual or a group of young people, to act in response to climate change. For this matter, we present a short introduction to facts about climate change and a step-by-step **Activity toolkit** supplied by **Appendix 1-7**, that show how collective actions can be organized the local community to prevent causes of the climate change or to prevent further consequences. In this material, you will also find a Glossary (Appendix 8) and **Additional resources** (Appendix 9).

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What you need to know about climate change?[5]

The Signs of Climate Change[6]

The average temperature of the Earth is rising, but that is not the only way we can tell that the climate is changing. In fact, the signs are all around us! Observations and measurements from all over the world provide strong evidence that the climate has already started to change.

Effects on People and the Environment

Global climate change will affect people and the environment in many ways. Some of these impacts, like stronger hurricanes and severe heat waves, could be life threatening. In addition, some effects, like longer growing seasons for crops, might even be good! However, as the Earth keeps getting warmer, the negative effects are expected to outweigh any positive ones.

Understanding climate change in a local context

How we live and work together in communities and cities can have a huge impact in tackling climate change. Energy efficient buildings, low carbon public transport and encouraging cycling and walking are essential to cutting CO2 emissions. Greening cities with parks and gardens reduce CO2 and helps cool urban areas and reduce flooding. Thinking and acting at a local level helps communities fight climate change and build resilience to climate impacts. For instance, producing goods and food locally can lower the cost of transportation, reduce waste, and help local economies.

The more we learn about how climate change will affect people and the environment, the more we can see why people need to take action to reduce the greenhouse gas emissions that are causing climate change.

The goal is simple. Carbon dioxide is the climate's worst enemy. It is released when oil, coal, and other fossil fuels are burned for energy—the energy we use to power our homes, cars, and smartphones. By using less of it, we can curb our own contribution to climate change while also saving money.

[5] Learn more about the evolution of Climate change in Appendix 1
[6] https://archive.epa.gov/climatechange/kids/impacts/signs/index.html

ACTIVITY TOOLKIT[7]

What can you or your youth group do to reduce the impact of climate change in your community?

To reduce the impact, you must think about what actions you or your group can take. The actions will be determined by:

- The challenges your community faces
- The concerns and ideas of you or your group members
- The skills you or your group already have the activity toolkit describe activities/steps that you can use with the young people you work with. They are a 'toolkit' because you can select the tools you need for your group, varying what you do depending on the size of the group, the time, space, and resources you have, and what works best for you and your group.

Step 1: GETTING STARTED: Find out more about climate change:
Before taking action to tackle the causes or consequences of climate change, it is important for your group to understand more about the greenhouse effect and the impact of a changing climate on your community. This section suggests several ways that you or your group can carry out this research, depending on your existing knowledge, priorities, and the resources you have available.

Gather information about climate change (use the appendix, the internet, resource books, interviews with community elders or local experts).

Point out the problems you have discovered with young people in your community

List all the hazards your community faces and select which are related to the weather and climate

Map the community (strengths and weaknesses – put on your climate glasses and draw a map outlining potential impacts; think of things like flooding, sea level rise, erosion, drought, water availability, food sources, etc.)

N.B. Read about the climate change facts in **Appendix 1** - a basic introduction to climate change, briefly explaining the science behind the process and the impact on our planet and lives. You may use this information to answer young people's questions. Keep in mind that information about climate change is continuously being updated so it is critical to consult expert sources in addition to this appendix for updated facts.

[7] This activity toolkit is inspired from https://www.ifrc.org/Global/Publications/youth/AYCEOs_climate-change_take-action-now_EN.pdf

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Step 2: IDENTIFYING the problem and linking it to the current work
Now that you discover the impacts of climate change on your community, try to identify a problem that you would like to work on. Create a list of possible actions, you and your group could work with. Remember to include, if possible, all kinds of people with different skills and knowledge from your community. You could also list all the issues and then take a vote.
It is time to investigate further. What is the problem? Why it is a problem? Who is affected by the problem?

Identify existing projects in your community. It is critical to know what the community has already done and is doing to address the problem so that the actions of your group are in tune with them and can gain the support of the community. Who is doing what already? What are your skills? How can these match with the problem at hand? How can you be a part of what is already underway?

Use **Appendix 2 – Identifying the problem** to build up this step. Identify a single problem.
The group may have already identified the challenge they feel is most important to their community in Step 1. If not, ask the group to recall a few key issues that came out of the discussions and then take a vote to decide which problem they would like to tackle. When making the decision, the group should also consider the extent to which they think they can make a difference.

Step 2: PLANNING YOUR ACTION[8]
Once your group has identified and researched a problem, you can begin to plan your activity. A successful plan of action is one that is developed, implemented, and 'owned' by young people in partnership with you and other adults in the community.

Ask yourselves:

- Start by defining your **ACTION**
- Why is the **ACTION** important and how can it be solved in the best way?
- What do you want to achieve?
- Whom do you want to target?
- Where is the best place to run the ACTION?
- When will you run the ACTION and for how long?
- What skills/knowledge are needed?
- Who can implement the ACTION? If this is not you, how can you persuade the relevant person to carry out the action? Her you can incorporate your own or your group's different skills.
  How effectively did you work, or how well did your group worked together? Did everyone have a
- sense of participation? Did the group share decisions and responsibilities?
  What resources will be required? (Think about money, technology, people, expertise, and other materials)
- Can you link with an existing **ACTION** /project/initiative in the area?
  If other resources (money) are needed, how can we get it?

Identify key people, resources and skills needed. Use **Appendix 3** to identify strength and weakness. **Identify key people, resources and skills needed. Set a time – frame for the work.**

[8] See more in Advocacy unit

Step 3: TAKING ACTION

Once you or your group have defined your goals, planned a strategy, and enlisted the necessary resources and support from the community to carry out their project, the next step is implementation.
In **Appendix 4**, you can find some effective ways each one of us can use to make a difference. Choose one or two ways and talk about what you can do. Then make a plan:

- Raising awareness about climate change
- Actions to prepare for the impacts of climate change
- Persuading those with power to make a change (advocacy)

Step 4: SPREADING THE WORD

Good communication is an important part of making your project successful. Raising awareness about climate change issues through the media can be an important action but gaining publicity this way can also help you win support for your project. You may want to get members of the local community involved in your action, let them know what is going on, or secure funding for the project. You may also inspire individuals, other groups, and communities to follow your lead. Communications are so important in getting our voices heard.
How will you get the messages across? Drama, community radio, television, internet, video, artwork, photographs, word of mouth, home-made posters?
In **Appendix 5**, you will find more about how you can raise awareness through media.

Step 5: HOW DID WE DO?

Questions for reflection. The following questions may help you or your group to think about the successes of your project and what could have gone better. Remember, even if you think the project didn´t go overly well, reflection is a time to debrief, and lessons learnt for next time.

How did you feel about taking part in the project?
What was successful about the project? Did it achieve its goals? Did it create any lasting changes? Were there any lasting changes? Where there any unexpected outcomes?
How many people heard about your project? Whom did you tell about it? How many people heard through the media?
What surprised you? What do you think you have learnt? Do you think the project has changed your views on anything or your actions in the future?
Did your project have an impact on any of the problems you identified in step 2?
Was anything about the project unsuccessful? Did it create new problems?
If you were to repeat this project, what would you do differently?
How effectively did you work, or how well did your group worked together? Did everyone have a sense of participation? Did the group share decisions and responsibilities?
Let people know about your success.

Let people know about your success.

In **Appendix 6**, you will find more questions for reflection each one of us can use.

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Step 6: NEXT STEPS

Following through on your project. Your group´s action may have been short – term. However, it is possible that there are actions you need to take to sustain what you have started.

Developing your action. If your group´s action was successful, how can they build on what they did?

Start again from step 2. Another option is to go back to the list of challenges your group created in Step 2. Now that they have made a difference to one of these problems, they could consider choosing another challenge to work on.

Inspire others. Your group´s experience, motivation and passion for change could inspire other young people to act themselves. Challenge your group to consider which other individuals, organization, or groups they could target.

Figure 14: Source - Alena Koval/Pexels

Tips to save our seas and... money![9]

Our oceans are in serious trouble right now - climate change is taking its toll, and marine pollution is reaching unprecedented levels. Sea levels are rising; oceans are increasing in acidity - putting people and wildlife at serious risk of illness and even death.

Now WAIT, you may be thinking you do not have the time or money to save our planet. However, what if we had simple solutions to tackle both challenges. Look no further for tips to save the seas and cash!

1. Tips - Please, no more plastic!

By 2050, there will be more plastic by weight in the ocean than there will be fish! Because plastic doesn't biodegrade it stays around clogging up our natural environment on land and at sea - this causes serious harm to humans and wildlife.

So, if you prefer to eat fish for dinner rather than a plastic bag, we suggest you act by reducing your plastic usage! How about buying a cheap reusable water bottle over the one you end up throwing away, taking a reusable straw around with you and rejecting one-use plastic straws, or taking your own reusable bags for shopping instead of the in-store plastic ones? By using reusable products, you keep our oceans clean and save yourself from buying plastic products again and again and again...

2. Tips - Seriously, shop for seafood sensibly.

Overfishing is having a huge impact on fish populations around the world; 70% are experiencing drastic losses in numbers and are bordering on the brink of extinction. To combat this, we need to choose seafood that is caught using non-destructive methods.

It's a complete myth that eating sustainably needs to be expensive, in fact, it could save you money! When buying seafood, make sure to look out for certification of sustainability logos on the label before buying. Try and visit your local markets to buy seafood that is caught locally and on a smaller scale- this is likely to be cheaper. Also, try and explore new food choices! You might discover a new favorite food, plus you'll be reducing pressure on popular species such as cod and salmon.

3. Tips - Watch your Watts!

If you look carefully at the amount of waste you create in a week, from food packaging to throwing away old clothes, it's probably a lot more than you need to! The items that you waste, particularly plastic, end up polluting our environment.

So before throwing them out, consider other ways you can use it. For example, why not turn that jar into a cool container for jewellery rather than throwing it away? Or get creative and cut up that old t-shirt and turn it into a cool cushion cover! Save money from buying new things by revamping your old ones!

[8] https://www.voicesofyouth.org/blog/8-ways-save-our-seas-and-cash

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4. Tips - Litter less, please!

Believe it or not, that lamp you left on at home today is contributing to the massive destruction of our oceans. The energy used to light your lamp, and all your electrical appliances, is produced by the burning of fossil fuels which is a significant contributor to ocean acidification.

Why not take two seconds (literally) to unplug your appliances once you are done using them? Or how about investing in some candles and having a nice meal with your housemates by candlelight rather than with the lights on? This is going to save you pennies and the planet!

5. Tips - Turn trash into treasure.

Wherever you live, that gum wrapper you dropped on the sidewalk makes its way to our oceans and ends up harming the marine life!

Figure 15: Source - Ricardo Esquivel/Pexels

Get into the habit of keeping a small bag or container on you personally or in your car, so you never have any excuse to drop litter if there is no bins around! Try to buy items with less packaging to reduce waste levels. If you are lucky enough to live by a beach or coastal area, try to find out if there are any beach clean-ups happening, or organize your own one with your friends! So, okay, for this tip you might not be saving cash, but c'mon let us be real, no one likes a litterer!

Appendix 1 - General understanding of climate change

This appendix provides a basic introduction to climate change, briefly explaining the science behind the process and the impact on our planet and lives. You can for example use this information to start designing the advocacy actions you or your group want to start or use the information to inspire other young people to act. Keep in mind that information about climate change is continuously being updated so it is critical to consult expert sources in addition to this fact sheet for updated facts.

UN SDG goal 13: Take urgent action to combat climate change and its impacts[10]

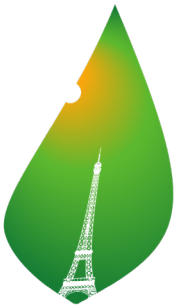
The UN SDG goal no. 13 is to limit global warming to well below 2, preferably to 1.5 degrees Celsius. To achieve this long-term temperature goal, countries aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate neutral world by mid- 21st century.

There is no country that is not experiencing the drastic effects of climate change. Greenhouse gas emissions are more than 50 percent higher than in 1990. Global warming is causing long-lasting changes to our climate system, which threatens irreversible consequences if we do not act.

The annual average economic losses from climate-related disasters are in the hundreds of billions of dollars. This is not to mention the human impact of geo-physical disasters, which are 91 percent climate-related, and which between 1998 and 2017 killed 1.3 million people and left 4.4 billion injured. The goal aims to mobilize 100 billion Euro annually by 2020 to address the needs of developing countries to both adapt to climate change and invest in low-carbon development.

Supporting vulnerable regions will directly contribute not only to Goal 13 but also to the other SDGs. These actions must also go hand in hand with efforts to integrate disaster risk measures, sustainable natural resource management, and human security into national development strategies. It is still possible, with strong political will, increased investment, and using existing technology, to limit the increase in global mean temperature to two degrees Celsius above pre-industrial levels, aiming at 1.5°C, but this requires urgent and ambitious collective action.

[10] https://www.un.org/sustainabledevelopment/climate-change/



The Paris Agreement sets out a global framework to avoid dangerous climate change by limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C. It also aims to strengthen countries' ability to deal with the impacts of climate change and support them in their efforts.

Historical perspective

Earth's climate has changed dramatically many times since the planet was formed 4.5 billion years ago. These changes have been triggered by the changing configuration of continents and oceans, changes in the Sun's intensity, variations in the orbit of Earth, and volcanic eruptions.
Just in the last 650,000 years there have been seven cycles of glacial advance and retreat, with the abrupt end of the last ice age about 11,700 years ago marking the beginning of the modern climate era — and of human civilization.
The history of the scientific discovery of climate change began in the early 19th century when ice ages and other natural changes in paleoclimate were first suspected and the natural greenhouse effect was first identified.
The planet is warming, from North Pole to South Pole. Since 1906, the global average surface temperature has increased by more than 0.9 degrees Celsius—even more in sensitive polar regions. And the impacts of rising temperatures aren't waiting for some far-flung future–the effects of global warming are appearing right now. The heat is melting glaciers and sea ice, shifting precipitation patterns, and setting animals and people on the move.
It was Guy Callendar, eighty years ago, who built the first climate change model to predict the effects of greenhouse gases. The greenhouse gas with the greatest impact on warming is water vapour. But it remains in the atmosphere for only a few days. Carbon dioxide (CO_2), however, persists for much longer. It would take hundreds of years for a return to pre-industrial levels and only so much can be soaked up by natural reservoirs such as the oceans.
Most man-made emissions of CO_2 come from burning fossil fuels. When carbon-absorbing forests are cut down and left to rot, or burned, that stored carbon is released, contributing to global warming.
Guy Callendar collected world temperature measurements and suggested that this warming was related to carbon dioxide emissions." This became known for a time as the "Callendar Effect". Now his successors are plotting ways to reengineer the air.

Global context

Many people think of global warming and climate change as synonyms, but scientists prefer to use "climate change" when describing the complex shifts now affecting our planet's weather and climate systems. Climate change is not only rising average temperatures but also extreme weather events, shifting wildlife populations and habitats, rising seas, and a range of other impacts. All these changes are emerging as humans continue to add heat-trapping greenhouse gases to the atmosphere.

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Scientists already have documented these impacts of climate change:

- Ice is melting worldwide, especially at the Earth's poles. This includes mountain glaciers, ice sheets covering West Antarctica and Greenland, and Arctic Sea ice. In Montana's Glacier National Park, the number of glaciers has declined to fewer than 30 from more than 150 in 1910.
- Much of this melting ice contributes to sea-level rise. Global sea levels are rising 3.2 millimeters a year, and the rise is occurring at a faster rate in recent years.
- Rising temperatures are affecting wildlife and their habitats. Vanishing ice has challenged species such as the Adélie penguin in Antarctica, where some populations on the western peninsula have collapsed by 90 percent or more.
- As temperatures change, many species are on the move. Some butterflies, foxes, and alpine plants have migrated farther north or to higher, cooler areas.
- Precipitation (rain and snowfall) has increased across the globe, on average. Yet some regions are experiencing more severe drought, increasing the risk of wildfires, lost crops, and drinking water shortages.
- Some species—including mosquitoes, ticks, jellyfish, and crop pests—are thriving. Booming populations of bark beetles that feed on spruce and pine trees, for example, have devastated millions of forested acres in the United States.
- In Europe the distributions of many terrestrial animals have recently shifted to higher elevations. In Britain, the distributions of spiders, ground beetles, butterflies, grasshoppers, and allies have shifted to higher elevations at a median rate of 11 m. per decade, and to higher latitudes at a rate of 17 km per decade, but with substantial variability across and within taxonomic groups.[11]

DIFFERENCES BETWEEN MITIGATING AND ADAPTING TO CLIMATE CHANGE

Until recently, the international community had focused on trying to limit CO2 emissions. However, based on the latest data, it has diversified its efforts, promoting climate change adaptation and mitigation policies to help minimize the effects of this phenomenon, whose consequences are already being seen across the world. Both strategies complement each other, and although they present different challenges, the end goal is the same.
The difference between climate change mitigation strategies and climate change adaptation is that mitigation is aimed at tackling the causes and minimizing the possible impacts of climate change, whereas adaptation looks at how to reduce the negative effects it has and how to take advantage of any opportunities that arise.

MEASURES FOR MITIGATING AND ADAPTING TO CLIMATE CHANGE

Climate change is an uphill battle, but with our combined efforts and suitable mitigation actions we can minimize the damage it causes:
Improving energy efficiency and opting for renewable energy over fossil fuels.
Promoting public transport and sustainable mobility by increasing the numbers of trips in towns by bicycle, reducing the number of flights and taking more trips by train or in shared cars.
Promoting ecological industry, agriculture, fishing and livestock farming, food sustainability, responsible consumption and the 3Rs rule (reduce, reuse, recycle).

1. By taxing the use of fossil fuels and CO^2 emissions markets.
2. Alongside mitigation measures to stem global warming, measures for adapting to climate change also need to be encouraged.

[11] https://www.eea.europa.eu/data-and-maps/indicators/distribution-of-plant-species-2/assessment

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3. Erecting buildings and infrastructure that is safer and more sustainable.
4. Replanting forests and restoring damaged ecosystems.
5. Diversifying crops so that they are better able to adapt to changing climates.
6. Investigating and developing innovative solutions to prevent and manage natural catastrophes. Developing action plans for climate emergencies.

WORKSHEET 1

Finding out more about the impact of climate change

- If you are carrying out reseach in your community, try talking to members of your family or finding resources in your community such as staff at a local nature centre or a science teacher at your school, so you can answer the following questions specifically about your community.

- If you are carrying out research on the internet, what can you find out about the following questions at a global level? The answers will not be the same for all parts of the world, but can you see any patterns? Can you find more detail and specific facts and figures to illustrate the answers?

How can climate change cause or add to problems with food supplies?
How has it done so already?
What damage do floods cause to crops? What about droughts? What impact does this have on supplies of food? And food prices? When children do not get enough to eat, how and their health and education affected?

How can climate change cause or add to problems with water supplies?
How has it done so already?
Which people have water supplied to their homes, workplaces and schools?
Where do these water supplied come from and how is it delivered? What is the quality of the water used for domestic supply? Is it safe to drink and wash in?

Is there enough water for drinking and adequete hygiene to meet everyone's needs?
What impacts do drought, sea level rise and flooding have on groundwater supplies (aquifers and springs) and surface water supplies? How do water levels and water quality respond to rainfall and pumping?

How can climate change cause or add to the impact of disease?
What effects has it already had?
Do people get sick from yusing water for cooking, drinking and washing? How do they get sick? Why have diseases such as malaria, dengue fever and yellow fever become more common in some places? Why have diseases reduced in frequency or disappeared in some area?

Appendix 2 - Identifying the problem

Use a situation analysis as a simple way of examining the problem. You could begin by answering the following questions:

1. What are the local impacts of climate change?
   Regional effects of global warming vary in nature. Some are the result of a generalized global change, such as rising temperature, resulting in local effects, such as melting ice. In other cases, a change may be related to a change in a particular ocean current or weather system.

2. What is causing climate change locally?
   The evidence is clear: the main cause of climate change is burning fossil fuels such as oil, gas, and coal. When burnt, fossil fuels release carbon dioxide into the air, causing the planet to heat up.

3. How will local climate change affect us?
   Health. Human health is vulnerable to climate change. The changing environment is expected to cause more heat stress, an increase in waterborne diseases, poor air quality, and diseases transmitted by insects and rodents. Extreme weather events can compound many of these health threats.

4. How do you fight climate change?
   You can talk about:
   Learn more about your carbon emissions.
   Commute by carpooling or using mass transit.
   Plan and combine trips.
   Drive more efficiently.
   Switch to "*green power*". Switch to electricity generated by energy sources with low—or no—routine emissions of carbon dioxide... and much more

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Appendix 3 - Planning your activity

Identify the best action/activity for you and your group. To do this, you will need to consider your strengths and weaknesses. A SWOT analysis is one possible tool (SWOT stands for Strengths, Weaknesses, Opportunities and Threats). Strengths and weaknesses refer to the situation within your group and the resources your group already has, while opportunities and threats are things that are happening outside your group that might support or get in the way of your project.

Your group's SWOT analysis might look like the following:

Figure 16: Source - SWOT analyse, [https://www.ifrc.org/Global/Publications/youth/AYCEOs_climate-change_take-action-now_EN.pdf]

Appendix 4 – Taking action[12]

Here are some effective ways each one of us can make a difference. Choose one or two ways and talk about what you can do. Make a plan.

Speak up!

What is the single biggest way you can make an impact on global climate change?
Talk to your friends and family, and make sure your representatives are making good decisions. By voicing your concerns—via social media or, better yet, directly to your elected officials—you send a message that you care about the warming world. Encourage your local municipality or politicians to work for new laws that limit carbon emissions and require polluters to pay for the emissions they produce.

Power your home with renewable energy.

Find out if you have a utility company that generates at least half its power from wind or solar and has been certified as "Green Energy Company". Choose to change the company, if possible. If that is not possible for you, look at your electric bill: many utilities now list other ways to support renewable sources on their monthly statements and websites. Choose if possible green energy to power your home.

Weatherize, weatherize, weatherize.

Building heating and cooling are among the biggest uses of energy. Indeed, heating, and air-conditioning account for almost half of home energy use. You can make your space more energy efficient by sealing drafts and ensuring it is adequately insulated. You can also claim for many energy-efficiency home improvements by involving your family or your school.

Invest in energy-efficient appliances.

Energy efficiency is the lowest-cost way to reduce emissions. Talk about it next time your family are shopping for refrigerators, washing machines, and other appliances. Look for the Energy Star label. It will tell you which are the most efficient.

Reduce water waste.

Saving water reduces carbon pollution, too. That is because it takes a lot of energy to pump, heat, and treat your water. So, take shorter showers, turn off the tap while brushing your teeth, and switch to Water Sense-labeled fixtures and appliances if possible.

Actually eat the food you buy— and consume less meat

Food waste, that scourge that sends more than a third of our food supply to rot and is a major contributor to climate change, seems like it should be easy to address.
Waste less food, advocates cry, and you can save money! You can save time! You can save farmland and fuel, and, since agriculture drives habitat loss, you can even help save the tiger.
If you are wasting less food, you are likely cutting down on energy consumption. And since livestock products are among the most resource-intensive to produce, eating meat-free meals can make a big difference, too.

Buy energy efficient bulbs.

LED lightbulbs use up to 80 percent less energy than conventional incandescent. They are also cheaper in the end: For example, a 10-watt LED that replaces your traditional 60-watt bulb will save you about 125 EUR over the lightbulb's life.

[12] https://makingprosperity.com/solutions-details/speak-up-by-educating-people-on-climate

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Pull the plug(s).

Taken together, the outlets in your home are likely powering about 65 different devices—an average load for a home in the U.S. or other developed countries. Audio and video devices, cordless vacuums and power tools, and other electronics use energy even when they are not charging. So don't leave fully charged devices plugged into your home's outlets, unplug rarely used devices or plug them into power strips and timers, and adjust your computers and monitors to automatically power down to the lowest power mode when not in use.

Drive a fuel-efficient vehicle and maintain your ride.

Gas-smart cars, such as hybrids and fully electric vehicles, save fuel and money. Also, before you buy a new set of wheels, compare fuel-economy performance here. If all people kept their tires properly inflated, we could save 4.5 billion liters of gas each year. A simple tune-up can boost miles per liters anywhere from 4 percent to 40 percent, and a new air filter can get you a 10 percent boost.[13]

Rethink planes, trains, and automobiles.

Choosing to live in **smart-growth** cities and towns with quality public transportation leads to less driving, less money spent on fuel, and less pollution in the air. Smart growth cities and towns have well-defined boundaries, a range of housing options, a mix of residential and commercial buildings, and accessible sidewalks, bike lanes and public transportation. Less frequent flying can make a big difference, too. Air transport is a major source of climate pollution, if you can take a train instead, do that.

Appendix 5 - Spreading the Word

Raising awareness about climate change. Getting the media interested.

When you or your group have planned your action and are ready to go, invite a reporter from your local newspaper to meet your group. Make him or her feel welcome and ask advice on how to promote your action/project. Send a press release to local newspapers, radio, or television stations. Identify a media team within your group whose job it will be to establish links with the local and national media. It is empowering for young people to take responsibility for all aspects of the project – but young voices may also be more appealing than adults.

Identify a spokesperson or people in the group who will speak to journalists. These young people should make sure they are very familiar with the topic and are comfortable talking about it. Identify media organizations that may be particularly interested in your story and target them. Think about: any government-supported youth radio or television stations in your country; an environment column in a local paper; the school or community newsletter; youth websites such as UNICEF Voices of Youth (www.unicef.org/voy) or TakingITGlobal (www.takingitglobal.org), which are run by youth staff. Tailor your message to the interests and target audience of each media channel.

Get someone prominent to endorse your message: teachers, religious leaders, politicians, and celebrities can all be influential.

[13] https://www.nrdc.org/stories/how-you-can-stop-global-warming

Appendix 6 – How did we do?

Reflecting on the success of an action can allow more effective action in the future. Evaluation, or assessing the strengths and weaknesses of an action/project, might come after a short-term action has been completed. If you are working on a longer project, it is important to monitor progress while the activities are ongoing so that ideas for improvement can be incorporated as you go along. Either way, evaluation is not something you should start thinking about at the end of a project; it should be incorporated into your planning right from the start. If you had the role of a facilitator or choose one from your group to be a facilitator than you can reflect on the role of a facilitator.

"If you want to build a ship, don't drum up people together to collect wood and don't assign them tasks and work, but rather teach them to long for the endless immensity of the sea"
— **Antoine de Saint-Exupery,** The Wisdom of the Sands.

Now that you know much more about climate change and about the needs of your community, we hope that you will want to continue with your interests, to learn more, to take further action and to inspire others to act. Your action/project may be the start of something that becomes much bigger.

Appendix 7 - Next Steps

It only takes a drop of water to create a wave of change — the ripples of change that your group created can go far and wide if you are open to the possibilities.

Role of the facilitator
Reflect on your own role as well as supporting your group to evaluate what they have done, you, as the facilitator, should also reflect on your role and the part you played.
You could ask the young people in your group to give you feedback too. The following questions might help you:

- Was I open-minded towards young people's opinions, attitudes, and behaviors?
- Was I honest?
- Did I foster trust within the group? How?
- Was I observant? Did I respond to needs I saw in individuals and the group?
- Was I sensitive?
- Did I communicate effectively? Did I get across to the group any necessary information? Did I also listen?
- Was I flexible? Was I firm in the face of any unacceptable behavior, such as aggression?

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Appendix 8 – Glossary

Climate change describes a change in the average conditions — such as temperature and rainfall — in a region over a long period of time. For example, 20,000 years ago, parts of the Earth were covered in glaciers. Today, we have a warmer climate and not so many glaciers.
Global climate change refers to the average long-term changes over the entire Earth.
These include warming temperatures and changes in precipitation, as well as the effects of Earth's warming, such as:

1. Rising sea levels
2. Shrinking mountain glaciers
3. Ice melting at a faster rate than usual in Greenland, Antarctica, and the Arctic
4. Changes in flower and plant blooming times.

Earth's climate has constantly been changing — even long before humans came into the picture. However, scientists have observed unusual changes recently. For example, Earth's average temperature has been increasing much more quickly than they would expect over the past 150 years.

Appendix 9 - Additional Resources

Resource Title:	Effects of global warming
What will you get from using this resource?	You can use this video to learn more about Climate change
Link to resource:	https://www.nationalgeographic.com/environment/article/global-warming-effects

Resource Title:	There is no planet B
What will you get from using this resource?	Listen to young people rising awareness about climate change
Link to resource:	https://www.voicesofyouth.org/topic/environment

MODULE 4: THE IMPORTANCE OF RENEWABLE NATURAL RESOURCES

As the life on this Earth is going faster day by day and the world population is rising very fast, human life requires a big number of resources. These resources vary, and over the time many different have been used to serve human needs.
In this module, we are going to look at the importance of the renewable natural resources.

Can renewable natural resources save our planet?

Natural resources occur naturally in the environment and are able to be exploited by humans. It means that human life rely on resources. The natural resources are both renewable and non-renewable.

What are renewable resources?

Renewable energy is energy derived from natural resources that replenish themselves in less than a human lifetime without depleting the planet's resources. These resources – such as sunlight, wind, rain, tides, waves, biomass, and thermal energy stored in the earth's crust – are available in one form or another nearly everywhere. They are virtually inexhaustible. And what is even more important, they cause little climate or environmental damage.[14]

What are non-renewable resources?

Fossil fuels such as oil, coal, and natural gas on the contrary are available in finite quantities only. As we keep extracting them, they will run out sooner or later. Although produced in natural processes, fossil fuels do not replenish as quickly as we humans use them.[15]

SDG 7: Affordable and clean energy

One of the sustainable goals for more resilient global community is also the access and use of sustainable energy. In 2017, only 17% of all energy used in the Earth was renewable. To access health care, which was one of the main issues of 2020 and ongoing, energy is needed. This energy is expensive.
A lot of global money does not even reach rural area and little municipalities; therefore, it is important that we apply the use of renewable energy or at least save with every in our daily lives, in our community, in our homes.

Read further to learn how you can do this.

[14] Learn more about renewable resources in Appendix 1
[15] See more about non-renewable resources in Appendix 2

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ACTIVITY TOOLKIT
Creating a watermill

Beside many types of hydropower plants, we know big, small, and micro hydropower plants. Some people who live near the river or a canal in a nature, create their own hydropower plant. To have a better understanding of how hydropower plants produces energy, challenge yourself by making a micro hydropower mill.

Make a watermill paying attention on the number of branches of the mill. You can make a few of them using different number of branches.
Why is this important? You will see the difference of the speed and the power of energy to be produced with different types of watermills.
You can also make a watermill that lifts the weight by attaching a string to the axis of the watermill on which hangs a light weight. The mill lifts it by turning it. You will be able to see what energy work does water and how it produces it.

Find the instructions for making a windmill here:

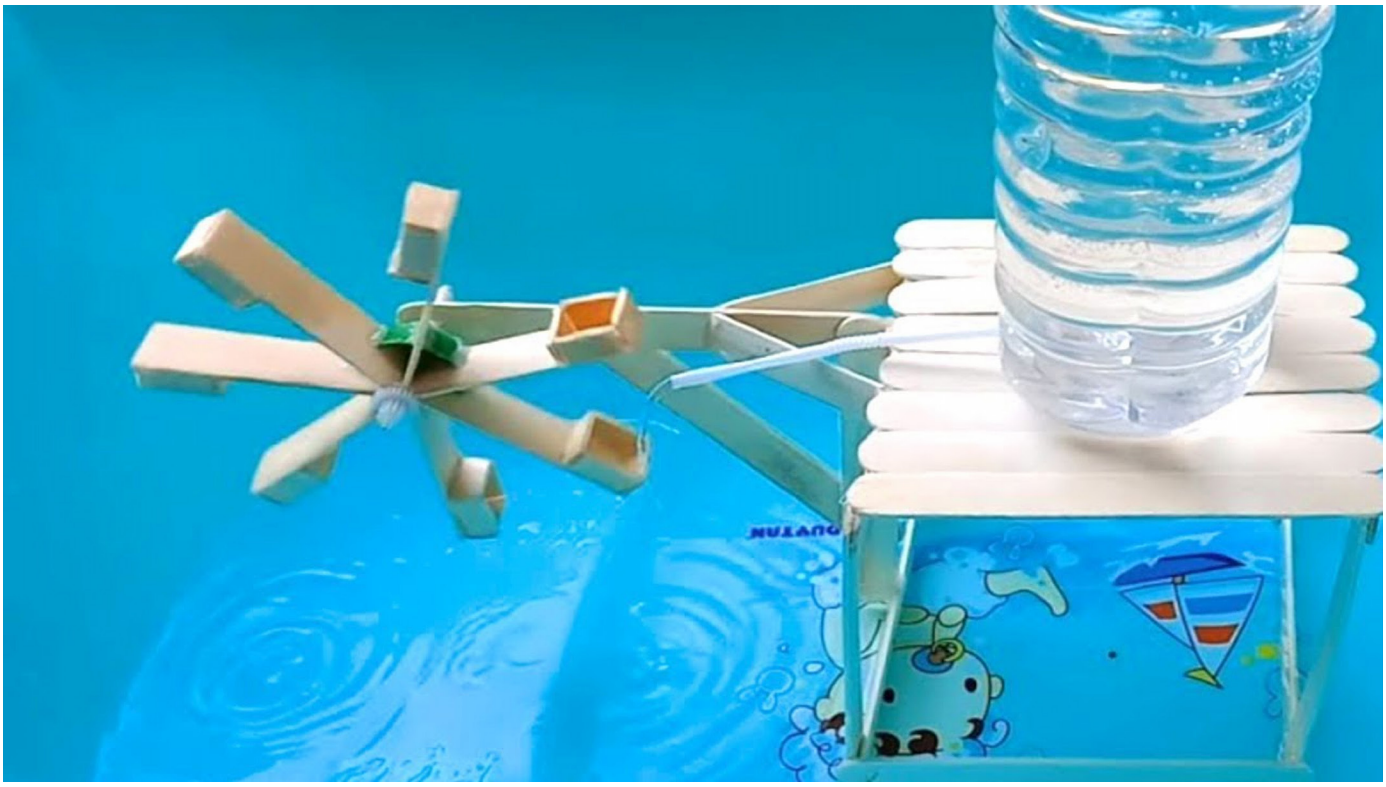

Figure 17: Source - DIY Art TV, Youtube [https://www.youtube.com/watch?v=a2MnqXxgeTg]

There are many ways to make a windmill at home, depending on how strong electricity you wish to produce. For most of these windmills you need some products like generator and some sharp subjects (read more[16]). What we wish to receive from this workshop is, to understand how the windmill works and to see what power the wind has.

In the video attached you will find the instructions for creating a windmill:

Figure 18: Source - Backyard Crafts, Youtube [https://www.youtube.com/watch?v=ioaO7PZ6pdg]

[16] https://www.motherearthnews.com/renewable-energy/homemade-wind-generator-zmaz86jazgoe (available on 5th February 2021)

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ACTIVITY TOOLKIT
Plant a tree

The aim of this is to plant and care for trees. Following the example of others, we would like to introduce Tree Day - a day of the year when individuals and organisations across countries plant trees and organise events to raise awareness of the connection between people and trees.

Why planting a tree?
As we went through this lecture, we have been able to realise the importance of the natural resources, one of which is also the wood.
"Trees are vital. As the biggest plants on the planet, they give us oxygen, store carbon, stabilise the soil and give life to the world's wildlife. They also provide us with the materials for tools and shelter."

Key benefits of renewable energy for people and the planet[17]

Like any human activity, all energy sources have an impact on our environment. Renewable energy is no exception to the rule, and each source has its own trade-offs. However, the advantages over the devastating impacts of fossil fuels are undeniable: from the reduction of water and land use, less air and water pollution, less wildlife and habitat loss, to no or lower greenhouse gas emissions.

In addition, their local and decentralised character as well as technology development generate important benefits for the economy and people:

Renewable energy emits no or low greenhouse gases. That is good for the climate.
The combustion of fossil fuels for energy results in a significant amount of greenhouse gas emissions that contribute to global warming. Most sources of renewable energy result in little to no emissions, even when considering the full life cycle of the technologies.

Renewable energy emits no or low air pollutants. That is better for our health.
Worldwide increases in fossil fuel-based road transport, industrial activity, and power generation (as well as the open burning of waste in many cities) contributes to elevated levels of air pollution. In many developing countries, the use of charcoal and fuelwood for heating and cooking also contributes to poor indoor air quality. Particles and other air pollutants from fossil fuels literally asphyxiate cities. According to STUDIES BY THE WORLD HEALTH ORGANISATION, their presence above urban skies is responsible for millions of premature deaths and costs billions.

Renewable energy comes with low costs. That is good for keeping energy prices at affordable levels.
Geopolitical strife and upheavals often come with increasing energy prices and limited access to resources. Renewable energy is less affected by geopolitical crises, price spikes or sudden disruptions in the supply chain, as it is often produced locally.

Renewable energy creates jobs. That is good for the local community.
The largest part of renewable energy investments is spent on materials and workmanship to build and maintain the facilities, rather than on costly energy imports. Renewable energy investments are usually spent within the continent, frequently in the same country, and often in the same town. This means the money citizens pay on their energy bill stays home to create jobs and fuel the local economy.

[17] https://www.ren21.net/why-is-renewable-energy-important/

Renewable energy makes the energy system resilient. That is important to prevent power shortages.
Renewables make urban energy infrastructures more independent from remote sources and grids. Businesses and industry invest in renewables to avoid disruptions, including resilience to weather-related impacts of climate change.

Renewable energy is accessible to all. That is good for development.
In many parts of the world, renewables represent the lowest-cost source of new power generation technology, and costs continue to decline. Especially for cities in the developing world, renewable energy is the only way to expand energy access to all inhabitants, particularly those living in urban slums and informal settlements and in suburban and peri-urban areas.

Renewable energy is secure. That is good for stability.
Evolving energy markets and geopolitical uncertainty have moved energy security and energy infrastructure resilience to the forefront of many national energy strategies. Security of supply is a serious concern in energy markets worldwide, from the European Union and the United States to Egypt and India.

Renewable energy is democratic. That is good for acceptance.
In recent years, the number of community energy projects using renewable sources have surged in various parts of the world. Although community energy is frequently associated with Northern European countries such as Denmark and Germany, such projects are emerging in other parts of the world including Thailand, Japan, and Canada. This trend confirms that democracy is an important driver for the change to renewables.

Where can renewable energy be used?

We can use renewable energy everywhere: from power production and thermal comfort in buildings to industry and transport.
Heating and cooling in buildings. Examples of the use of renewables in buildings include solar thermal water heaters, biomass boilers and geothermal direct heat. Renewable electricity can also provide heat through efficient heat pumps. Reducing the energy demand of buildings is key to transitioning to a renewable-based energy system. Therefore, an integrated policy approach to renewable energy and energy efficiency is fundamental.

Industrial process heat[19], such as food processing and pulp and paper, can also be run on renewables. Biomass provides most of the renewable heat in industrial processes; renewable electricity also can provide heat. Hydrogen produced with renewable electricity is beginning to meet the needs of energy-industrial processes in the cement, iron and steel, and chemical industries. Reducing energy demand in industrial processes is key to substituting fossil fuels with renewables, as in buildings.

[18] https://www.ren21.net/gsr-2020/chapters/chapter_01/chapter_01/#sub_2

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In transport[20], renewables can be used in the form of sustainable biofuels, high-percentage biofuel blends and drop-in biofuels. Renewable electricity also can power the world's growing fleet of electric vehicles. We can use car batteries as storage units so that the electricity can be used later. Renewable electricity also can be used to produce electro-fuels, such as hydrogen to fuel long-haul transport, aviation, and shipping. Reducing overall energy demand in the transport sector is critical and can be accomplished through policies that promote energy efficiency and conservation.

Worldwide, renewables already supplied roughly 26% of electricity at the end of 2017. Yet, outside of electricity, good news is still hard to come by. Electricity only represents 17% of the world's energy needs. About half of the energy is used for heating and cooling, one-third goes to the transport sector. With less than ten percent renewables, these two sectors are both lagging far behind in decarbonisation.

ACTIVITY TOOLKIT

Find renewable energy at home

Sometimes it's difficult to do big changes at first, but small steps lead to big changes. In this way, your audience can be your parents, grandparents, siblings, or neighbours. So, what you or/and your group can do daily to save energy?

Step 1: GETTING STARTED: Discover and learn about energy in your home
Before taking action, learn about renewable and non-renewable energy that will help you to get to the next step.
Gather information about renewable and non-renewable energy that you can find in your surrounding or community.
Point out some issues non-renewable energy can play in your community/ surrounding/ home.

Step 2: IDENTIFYING the non-renewable energy used at your home
After discovering environmental controversial (non-renewable) energy you will need to find out what that energy can be in your home and find the potential solution.
Identifying and define the controversial energy or other resource that you are using at home. (This is important for proceeding to the next step)
Find a potential solution for absenting to use this energy or resource.
Identifying the energy or resource that can replace currently used one.

Step 3: PLANNING YOUR ACTION
Think of how and with what, can you replace already used energy or resource. Find out what renewable resource or energy you can use to replace existing one. And finally, address your audience to use this resource or similar one.
Define the renewable resource. Now that you identified and defined the resource or energy that need to be replaced, you need to define the energy or resources that you wish to use as replacement. (Make sure the energy is sustainable and environmental friendly.)
Make a plan. In order to address your audience successfully, you need to answer those questions: why is using the energy or rehouse you suggest better and sustainable?, what is the benefit for the users/ audience to use this energy/ resource?, how can they use it or implement in their place/ surrounding?, what are the costs of using it?

Step 4: ADDRESSING THE AUDIENCE

It is the time now to address the audience in order to have a more successful and effective effects.
Define your audience. The easiest way is to start with your family, parents, grandparents etc.
Present the renewable energy or resource. Explain and convince them into the use of this resource. (Help yourself with the questions you answered above).
Make sure that they replace exiting energy or resource with the one you suggested or similar renewable resource.

EXAMPLES:

1. Lower water consumption - use water saving option, shower shorter, turn off the water when brushing etc.
2. Choose to use already used raw material - do not buy plastic jars or other plastic utilities, replace those with jars or bags that you receive when buying packed food. Use also canvas shopping bag instead of plastic ones
3. Compost - reuse of organic waste in the home garden, reduces erosion soil (less water use), reduce soil pollution with chemical agents for spraying and the environment because you don't buy the food that would be in a plastic packaging.
4. Drying the laundry in the wind, sun - no need to use the drying machine at least in spring/ summer days.
5. Sustainable mobility in Ljubljana - cycling, walking, efficient and flexible public transport[21]
6. Urban gardening, student community gardens - Student dormitory Ljubljana[22]
7. Recycling - using recycled paper, separate waste, reuse[23]
8. Control the thermostat wisely - combine apartment heating with daylight and direct solar energy
9. Ecovillages - Findhorn (Scotland)[24], Krishna Volgy (Hungary) Eco Valley[25], Simhacalam (German farm)[26], Villa Vrindavan (Florence, Italy)[27]
10. Learning ground for self-sufficiency in the village of Dole in the municipality of Poljčane - permaculture, eco-habitats[28]

[19] https://www.ren21.net/gsr-2020/chapters/chapter_01/chapter_01/#sub_3
[20] https://www.ren21.net/gsr-2020/chapters/chapter_01/chapter_01/#sub_4
[21] https://www.ljubljana.si/en/ljubljana-for-you/transport-in-ljubljana/sustainable-mobility/ (available on 11th Febraury 2021)
[22] https://naturvation.eu/nbs/ljubljana/urban-gardening-ljubljana (available on 11th February 2021)
[23] https://balkangreenenergynews.com/slovenia-ranks-third-on-list-of-top-10-countries-with-most-recycled-waste/#:~:text=Slovenia%20is%20recycling%2042.52%25%20of,states%20producing%20most%20household%20waste. (availabe on 11th February 2021)
[24] https://www.ecovillagefindhorn.com/ (availabe on 11th February 2021)
[25] https://ecovalley.hu/krishna-valley-excellent-in-sustainability/ (availabe on 11th February 2021)
[26] https://simhachalam.de/ (available on 11th February 2021)
[27] https://villavrindavana.org/english-home/ (available on 11th February 2021)
[28] http://www.socialneinovacije.si/biti-samooskrben-na-enem-hektarju-ucni-poligon-za-samooskrbo-dole-poljcane/ (available on 11th February 2021)

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Appendix 1 - Renewable natural resources

Renewable resources are easily replenished or reproduced. They are known as those that never run out. These resources produce clean energy, fight against pollution, and contribute to climate change. Some of the natural resources, like water, animals, soil, and plants must be used and managed carefully, in the sense of the quality and future generations.
Having said, we cannot exploit renewable natural resources but, we need to be aware of the right use of the renewable natural resources, since their destruction can cause results in our environment. Thus, sustainable use of the renewable natural resources is highly important for the future of humankind. Using resources quicker than they can be replaced or renewed is not sustainable way of using resources. Vice versa, sustainable way of living is to use natural resources in a way that they are of same quality and amount for the next generation as well.

Renewable natural resources are transforming into other types of energy by various conversions. In everyday life, we find them in multiple ways. For instance, we are using power for heating, for lights, for using transportation, in the kitchen etc.
The use of renewable natural resources contributes to the reduction of climate change and greenhouse gas emissions, sustainable development, energy security and the development of a knowledge-based economy.

However, the natural resources are not always environmentally friendly. For instance: wind turbines that occupy space, make noise, and endanger birds, some solar cells contain toxic substances, reservoirs of hydroelectric power plants flooding settlements and agricultural plains, construction dams require a large consumption of cement.
Therefore, we are obliged to use renewable natural resources responsibly.

Water

Water is the source of life. Human body is more than 70% created by water. Human being can survive without water for no longer than three days. We all depend on water. But the question is, how do we take advantage of water. Do we pollute it, or do we use this most important natural resource for drinking clean water, washing, showering etc. wisely? And possibly, can we use water as a source of energy?

Hydropower

Water driven by the sun, constantly moves around the Earth, through a vast global cycle, evaporating from oceans, lakes, rivers and during back down onto the ocean, river, lakes, and soil. When flowing water is captured and turned into electricity, it is called hydroelectric power or hydropower.[29] It represents a major renewable source for electricity generation at the global level. In Slovenia, hydropower plants produce more than 30% of all electrical energy.[30]

Most commonly, we find the hydropower as hydropower plants. There are various types of hydropower plants (read more[31]), but most common is the one we see by rivers. These large systems use dam to store river water into a reservoir. Water released from the reservoir flows through a turbine, spinning it, which in turn activates a generator to produce electricity. The water may be released either to meet changing electricity needs or to maintain a constant reservoir level.

[29] https://www.energy.gov/eere/water/how-hydropower-works (available on 4th March 2021)
[30] http://193.2.74.246/fileadmin/Datoteke/CRSN/PKP_3/Gradivo_voda_in_veter.pdf (available 4th March 2021), page 3
[31] https://www.energy.gov/eere/water/types-hydropower-plants (available on 4th March 2021)

Figure 19: Source - Chih Mlng Huang/Pexels

Geothermal energy

"Geothermal energy is the heat that comes from the sub-surface of the earth. It is contained in the rocks and fluids beneath the earth's crust and can be found as far down to the earth's hot molten rock, magma. To produce power from geothermal energy, wells are dug a mile deep into underground reservoirs to access the steam and hot water there, which can then be used to drive turbines connected to electricity generators." [32]

In everyday life we can find it as hot springs or geysers. (Read more[33])

[32] https://www.power-technology.com/features/what-is-geothermal-energy/ (available on 4th March 2021)
[33] https://www.total-slovenia-news.com/travel/796-klevevz-take-a-warm-water-bath-in-nature

Figure 20: Source - Pixabay/Pexels

Ocean Energy

Ocean energy is an energy derived from the sea. For using the ocean and producing the ocean energy there are three types of technology used. This type of energy is mainly used in Australia, Korea and other rich countries surrounded by the ocean. (Read more[34])
Nevertheless, some European countries like the Netherlands (Dutch Polders, read more[35])

[34] https://arena.gov.au/renewable-energy/ocean/ (available on 4th March 2021)
[35] https://www.oceanenergy-europe.eu/ocean-energy/

Figure 21: Source - Kammeran Gonzalezkeola/Pexels

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Wind

Wind is just like water and sun a natural resource that can never be run out. Often wind does not play a big and important role in our life, unless we think of producing an energy. We can think of windmills or sailing boat. Maybe we also think of the products that measure the speed of the wind and warns us of the dangers wind can cause.

Wind energy

Wind is a clean and renewable energy source that does not release carbon dioxide or any other emissions into the atmosphere during energy production and is therefore more environmentally friendly.

Figure 22: Source - Expect Best/Pexels

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Soil

Soil is a material composed of five ingredients — minerals, soil organic matter, living organisms, gas, and water.[36] It forms at the surface of the Earth. Soil serves as the base for the growth of plants and trees. It also means a home for many animals and insects. It absorbs, holds, and releases the water. Soil can also modify the atmosphere by emitting and absorbing gasses and dust. The function of soil is therefore varied.

Figure 23: Source - Lisa/Pexels

Forest

Forest consists of variety of fauna and flora and thus create rich biodiversity, which is fundamental for the environmental stability and ecological balance. The first is not only important for providing an oxygen and has a meaningful role in weather actions but, it also provides home for many animals. Moreover, human beings depend on the benefits that the forest creates as well. Forests, therefore, play an inescapable role for the protection of a sustainable environment.[37]

Figure 24: Source - LilArtsty/Pexels

Biomass

Biomass refers to the use of organic material to produce energy. And bioenergy is the process of creating the energy from biomass. To say it simpler, biomass is just any material made by plants or animals. It can be wood, crop, garbage, alcohol fuel etc. These things can be used to produce an energy.
This important way of producing energy is nowadays not so used anymore, but it was the primary use before the industrial revolution. Of course, it depends on the region where the organic materials are to be found.[38]

Figure 25: Source - Deneen LT/Pexels

[36] https://www.nature.com/scitable/knowledge/library/what-are-soils-67647639/ (available on 5th February 2021)
[37] http://www.spc.tn.gov.in/tenthplan/CH_12_1.PDF (available on 5th March 2021)
[38] https://studentenergy.org/source/biomass/ (available on 5th March 2021)

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Sun

Without sun the Earth has no light. And without light, there is no life. We can never run out of sun. Depending where on the Earth we live, the sun can become an important factor for producing energy.

Solar energy

Sun produces an energy in a form of solar radiation. This radiation is given to Earth daily. Why would we only use the sun as a light, if we can use it also for producing an energy? Many technologies, like solar heating and others are created to take use of the sun energy. This natural resource is completely sustainable and inexhaustible.

Figure 26: Source - Lisa/Pexels

Appendix 2 - Non-renewable Resources

In the section above, we found out what non-renewable energy is. It is a source of energy that will run out. What is more, this kind of resources have bad impact on environment and human health. It is used for all kinds of things but in majority the industrial processes are using it.

We also use it for electricity, heating, manufacturing and transportation.

Why in fact, do we easy cut down on non-renewable resources, if they are bad for our environment?

Human find out and create easy and fast accessible resources that can fast and effectively make our lives easier and meets our great needs for energy use.

Many of these resources are hence non-renewable. They are easy available. They are not only there, but they are easy to find For example: fossil fuels can be found all over the world. They are also very efficient as they can generate a lot every and usually simple to transport. Last but not least, they can be set up at any place.[39]

Appendix 3 - Glossary

Resource - a stock or supply of material or other asset that can be used or exploited by individuals, organisation or a country.

Energy - power derived from certain resource for providing electricity for light, heat or anything similar.

[39] https://www.solarschools.net/knowledge-bank/non-renewable-energy (available on 6th June 2021)

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Appendix 4 - Additional resources

Resource Title:	21 tips: no-cost ways to save electricity
Introduction to the resource:	Examples and good practices of ways to save electricity.
What will you get from using this resource?	Examples and good practices of ways to save electricity.
Link to resource	https://www.bchydro.com/powersmart/residential/savings-and-rebates/everyday-electricity-saving-tips.html?WT.mc_id=rd_21tips

Resource Title:	Natural resources and waste
Introduction to the resource:	Learn more about natural resources in Europe.
What will you get from using this resource?	You will learn how much waste is used in Europe and how the use of natural resources can help in the reduction of this.
Link to resource	https://www.eea.europa.eu/soer/2010/synthesis/synthesis/chapter4.xhtml

MODULE 5: RESPONSIBLE CONSUMPTION AND PRODUCTION

Responsible consumption and production are a growing social movement. More and more people base their purchasing decisions on the effect or impact of the product on the environment, health, and society. By this impact, we should understand the entire life cycle of products, from their extraction, the waste created during their manufacture and processing, up to their disposal and recycling. It also includes the importance of individual decisions and actions in the process of transforming society.

In fact, responsible consumption and production is one of the 17 Sustainable Development Goals that were set in 2015, as part of the UN 2030 Agenda for Sustainable Development. Different countries worldwide collectively pledged to eradicate poverty, find sustainable and inclusive development solutions, ensure everyone's human rights, and generally make sure that no one is left behind by 2030. According to the United Nations, sustainable consumption and production is about doing more and better with less. It is also about decoupling economic growth from environmental degradation, increasing resource efficiency, and promoting sustainable lifestyles.

The efficient management of our shared natural resources, and the way we dispose of toxic waste and pollutants are important targets to achieve this goal. Encouraging industries, businesses, and consumers to recycle and reduce waste is equally important, as is supporting developing countries to move towards more sustainable patterns of consumption by 2030.

Responsible consumption

In a globalised world driven by capitalism, consumption is directly linked to the development of society. In theory, the more we consume, the greater the economic stability of each state and region should be. But that's not quite what happens. Consumerism spreads, but we increasingly see financial problems affecting people and governments. In fact, some studies point out that the causes of consumerism reflect the several economic crises the world has already faced and still faces. Today's society recognises that consumption is synonymous with happiness and well-being, and even prestige and status.

Have you ever stopped to analyse your consumption habits? Can you identify the criteria that usually make you decide to buy (or not) a certain item? As Incredible as it may seem, many people face difficulties in answering these questions. For these and other reasons, responsible consumption has been increasingly discussed!

Responsible consumption is a set of habits and practices that aims to reduce social inequality and environmental impact. It seeks to improve production, distribution and acquisition of products and services by encouraging collaborative practices. It's the implementation of ethical attitudes for the joint construction of a new social, economic, and environmental panorama.

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In other words, responsible consumption happens when we stop and think before we buy something. For example, when buying a jacket, before rushing to the shop we should think about the following aspects:

- Do I really need to buy this?
- How many coats do I have at home?
- Can I buy a second-hand jacket?
- Can I exchange one coat for another?

It is important to note that the simple act of consuming is not a problem. Consumption is needed to survive. To breathe we need to consume air; to stay hydrated, we must consume water; to grow and stay healthy, we need food. The same happens with other species that share this planet with us. These are natural actions that have always existed and that we need to stay alive. The problem is when consumption becomes excessive, leading to overexploitation of natural resources and disturbing the balance of the planet.

ACTIVITY TOOLKIT

Circular Economy – the experience of a sailor

Exercise for self-reflection:

In 2005, the sailor Ellen MacArthur travelled around the world alone in a boat. As well as breaking the world record, she drew a very interesting conclusion about her experience: Only carrying everything she needed with her – she came back with new insight into the way the world works, as a place of interlocking cycles and finite resources, where the decisions we make today affect what's left for tomorrow. She proposes a bold new way to see the world's economic systems: not as linear, but as circular, where everything comes around. Watch her amazing insight of travelling alone on a boat in the following Ted Talk: (https://www.youtube.com/watch?v=ooIxHVXgLbc) and ask yourself... If you were isolated from the world on a boat like Ellen was, how would you use and manage your resources (including food)?

Figure 27: Source - Andrea Piacquadio/Pexels

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Responsible production

Responsible production involves the production of goods and services in an ethical way which involves the minimisation of waste and pollution. In other words, responsible production is the creation of products and services with systems that are:

- Non-polluting
- Economically viable
- Safe for communities and consumers
- Conserving of energy and natural resources

Consequences of overconsumption and overproduction

Overproduction is the production of goods that exceeds the needs of the consumers.
Did you know that almost a fifth of all food available to consumers globally is wasted or over-eaten? A study by the University of Edinburgh reveals that the world population consumes 10 per cent more food than it needs and that 9 per cent of food is thrown away.

Overconsumption is what happens when an ecosystem can no longer sustain the use of its resources. It strips the earth of natural resources, such as forests, fish, soil, minerals, and water, which collapses ecosystems, ruins habitats, and endangers the survival of countless species that contribute to an intricate, vibrant circle of life.

Overproduction and overconsumption add to the already-high levels of pollution and toxic gases that contribute to global warming. When we overproduce and overconsume, we also harm the economy. In the last decade, numerous industries have grappled with the disastrous effects of producing more than people can afford to buy. These industries include:

- Fashion
- Agriculture
- Manufacturing
- Automobile

For western societies, overproduction and overconsumption may not be immediately apparent. For the most of us, potable water, a plentiful variety of food, access to medicine and healthcare and sanitary living conditions are the norm. But in some non-developed countries, being able to afford things that are being overproduced and not having access to resources that are overconsumed can be threatening. Many of those people will suffer from malnutrition and dehydration, and many more will die of diseases that could easily be prevented or cured with proper healthcare and healthy living conditions.
Furthermore, as a society, some of our least effective consumption occurs in the form of self-soothing habits. When we're feeling bad, or anxious, or bored, we often seek relief in impulsive shopping. Overconsumption won't get you happier or in life. In fact, overconsumption habits will let you fill with emptiness and regret.

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Group work exercise 1:

In this activity, a series of videos are used as a stimulus for discussion about how environmental goals could be aligned with economic goals. There are eight videos, and each is no longer than 1 minute. We suggest you watch them in advance and read the notes below, so you are prepared for the discussion. The videos are available here: http://tinyurl.com/seeingthebiggerpicture.

- **Video 1** question: We can't sustain this "take-make-dispose" model - what's the solution?
- **Video 2** question: What would have to change to make recycling work better?
- **Video 3** question: What would have to change your overconsumption levels?
- **Video 4** question: Could longer lasting products work? How?
- **Video 5** question: What would we have to change to make efficiency helpful?
- **Video 6** question: Although many green products are moving in the right direction, what does the destination look like?
- **Video 7** question: How can we change things to make the next generation feel welcomed on our planet?
- **Video 8** question: What are the rules [for benign production]?

Group work exercise 2: Greed vs Need

This activity aims to learn what can happen to a commonly held resource (e.g., a grazing area, forest, or fishery) without careful management.
Procedure: Divided in teams of 4 youngsters, each group must have 16 pieces of popcorn. Each piece of popcorn represents the team's supply of renewable resources (e.g., fish, trees, wildlife, grass for livestock) that is replenished after each round of play.
The team should follow the rules below:

In the first round, each group can take freely from their team's popcorn pile (every group member must take at least one). Players should record how many pieces they have taken and how many are left in the team pile.
Then, each group will have half that amount in new pieces. For example, if a team has 6 pieces of popcorn, now they can have an additional 3 pieces. Play three or four more rounds, stopping after each to find out if any the players didn't "survive."
After four or five rounds, all players must share what happened in their teams. In which teams did all the players survive? Which kids have the most popcorn in their personal supplies? Which team had the most popcorn in its collective pile? Which teams think they would be able to keep eating popcorn forever as long as the resource kept renewing itself? On these teams, how many pieces were these players taking each round?

Discussion questions:

1. What are the advantages and disadvantages of using a resource in a sustainable way?
2. What are the advantages and disadvantages of using a resource in an unsustainable way?
3. In this demonstration, the population of each group stayed the same. However, the human population is increasing rapidly. What would have happened if one or two additional people had been added to your group?

Consequences of How small actions can cause a big impact in our consumption patterns: the 3R principle

The principle of reducing waste, reusing, and recycling resources and products is often called the "3Rs." Waste minimisation can be achieved in an efficient way by focusing primarily on the first of the 3Rs, "reduce," followed by "reuse" and then "recycle."

You can find out more in the human impact on the environment section.

Appendix 1 - Additional resources

Self-directed Learning #1

Resource Title:	Goal 12: Ensure sustainable consumption and production patterns
Introduction to the resource:	The Sustainable Development Goals are a universal call to action to end poverty, protect the planet and improve the lives and prospects of everyone, everywhere. The 17 Goals were adopted by all UN Member States in 2015, as part of the 2030 Agenda for Sustainable Development which set out a 15-year plan to achieve the Goals. One of the 17 SDG is the SDG N12, dedicated to Responsible Consumption and Production.
What will you get from using this resource?	You will discover the main targets, facts and figures about the SDG 12- Responsible Consumption and Production.
Link to resource	https://www.un.org/sustainabledevelopment/sustainable-consumption-production/

Self-directed Learning #2

Resource Title:	Explaining the Circular Economy and How Society Can Re-think Progress
Introduction to the resource:	There's a world of opportunity to re-think and re-design the way we make stuff. As a society, we can change the way of thinking, so that we can operate a circular economy.
What will you get from using this resource?	'Re-Thinking Progress' explores how through a change in perspective we can re-design the way our economy works - designing products that can be 'made to be made again' and powering the system with renewable energy. It questions whether with creativity and innovation we can build a restorative economy.
Link to resource	https://www.youtube.com/watch?v=zCRKvDyyHmI

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Self-directed Learning #3

Resource Title:	How Does the Circular Economy Club Aim to Inspire Young Leaders?
Introduction to the resource:	By 2050, we will have around 10 billion people living on this planet. Individual actions can sometimes seem irrelevant, while collaborative and collective change appears to have no limits. This is exactly what the Circular Economy Club (CEC) and and WEAll Citizens have demonstrated.
What will you get from using this resource?	This video will show how the Circular Economy Club have helped connect and motivate thousands of individuals and organisations behind the goal of developing long-term solutions in local and global communities.
Link to resource	https://www.youtube.com/watch?v=yhQ3Zc61juc

Self-directed Learning #4

Resource Title:	Why is clothing so cheap? - A film about sustainable consumption
Introduction to the resource:	This resource is short and informative film that explains the clothing industry and its impact on our planet.
What will you get from using this resource?	With this video, you will have an insight of the impacts and consequences of fast and cheap fashion in the economy and the environment.
Link to resource	https://www.youtube.com/watch?v=YLcCjS6bsZw

MODULE 6: POLLUTION AND THE EFFECTS ON THE ENVIRONMENT

Did you know that being exposed to air pollution over a long period of time can change our brain structure and lower our ability to do well in school and focus during exams?[40]

Pollution is a cold topic that nobody really feels comfortable talking about, but it exists. Currently, pollution has reached a point where it has started to affect the daily life of every being on the planet and has already made the lives of the future generations questionable.

Why should we stop pollution?

Watch the movie and ask yourself what will happened if we do not stop polluting?

https://www.youtube.com/watch?v=19uqNL9UYcY

Figure 28: Source - Alfred's World/Youtube

Young people are inheriting a world filled with problems that they did not create. Luckily, some are using this as an opportunity to fight for better, cleaner, and more just alternatives.

With this module, we aim to introduce you to the topic of pollution, as a global issue but also its impact at a local level. Understanding pollution will help you, as an individual or a group of young people, to act in response to how pollution affects our daily life.

For this matter, we present a short introduction to facts about pollution and a step-by-step **Activity toolkit** supplied by **Appendix 1-3**, that show how collective actions can be organised at the local community to prevent causes of the pollution or to prevent further consequences. In this material, you will also find **Additional resources** (Appendix 4).

[40] https://ensia.com/features/air-pollution-brain-damage-disease-regulations/

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What you need to know about pollution?

Pollution is the process of making land, water, air or other parts of the environment dirty and not safe or suitable to use. This can be done through the introduction of a contaminant into a natural environment, but the contaminant does not need to be tangible. Things as simple as light, sound and temperature can be considered pollutants when introduced artificially into an environment.

The three major types of pollution are air pollution, water pollution, and land pollution[41]

Air pollution is caused by solid and liquid particles and certain gases that are suspended in the air. When we think of air pollution, we think about the smog outdoors and the small particulates that make the air we breathe toxic, even if we can't see or smell it. Especially close to factories, highways and other high-traffic areas are affected by outdoor air pollution. Outdoors, the air quality can change within one block or a couple of streets, with different weather and at different times of the day – making it hard to get a clear idea how safe the air we breathe is. Air pollution occurs as well from natural sources as pollen, volcanoes, and wildfires.

Water pollution occurs when harmful substances—often chemicals or microorganisms—contaminate a stream, river, lake, ocean, aquifer, or other body of water, degrading water quality and rendering it toxic to humans or the environment. Almost everywhere in the world the preservation and protection of water is key, as it is the very life source. Pure and clean drinking water can't be taken for granted. In New York, large areas have encountered problems with their drinking water – from lead that comes from old pipes in most cities in the US, to the industrial waste that contaminated the drinking water in Hoosick Falls, Petersburgh, and Bennington or in Long Island. As there are so many compounds that industries use, and of which we do not know their effects on our health, testing sufficiently the quality of the water we drink is increasingly difficult.

Land pollution is the degradation of the earth's surface because of human activity and waste. Some common examples include soil erosion or drastically changed climate patterns, particularly where it concerns agriculture. From the soil in your garden to the forest floor. Soil (next to water) is most extensively tested for contamination. Some people test their soil in their gardens and back yards for lead, as this is a hazardous substance found in a lot of places – also due to the industrial past (the factories that existed all along the river) of the area. But not only lead is a problem: fertilizers, pesticides, volatile organic compounds, PFC, PFO or Chlorine-based chemicals that were (and still are) used in industrial production and in the household are also a problem.

Trash is another form of land pollution. Around the world, paper, cans, glass jars, plastic products, and junked cars and appliances mar the landscape. Litter makes it difficult for plants and other producers in the food web to create nutrients. Animals can die if they mistakenly eat plastic.

Garbage often contains dangerous pollutants such as oils, chemicals, and ink. These pollutants can leech into the soil and harm plants, animals, and people.

[41] https://www.nationalgeographic.org/encyclopedia/pollution/

Understanding the pollution in a local context

To understand pollution and its threats in a local context we will need to look at some global facts that can affect the pollution in our community. Those facts may surprise you:

- **Pollution is one of the biggest global threats.** Toxic pollution is one of the most underfunded global problems despite the huge number of people affected. Toxic pollution from contaminated sites affects over 200 million people worldwide, with tens of thousands poisoned each year.[42]

- **Pollution is the leading cause of death in low- and middle-income countries** (like India, Afghanistan, or countries from South America). Of the 9 million people killed by pollution worldwide in 2012, 8.7 million deaths occurred in low- and middle-income countries. They are the poisoned poor. Pollution is the silent killer of millions in poor countries.

- **Pollution exacts a greater toll than even some of the most dangerous diseases**. Pollution killed two-thirds more people than malaria (625,000 deaths), HIV/AIDS (1.5 million deaths), and tuberculosis (930,000 deaths) combined.

- **Children are particularly vulnerable.** While children under six make up only 20% of the world's population, over 40% of the global burden of disease falls on them. Toxic pollution has a bigger impact on their smaller bodies, interfering with their development, inflicting damage that can last a lifetime. Children can be poisoned just by running around barefoot in their homes or villages.

Despite these facts there is hope:

- **Pollution is a global problem that can be managed in our lifetime**. Life-threatening pollution has already been eliminated in much of the developed world through different initiatives. The technology and know-how to clean up toxic pollution already exists.

- **The Global Alliance on Health and Pollution (GAHP) is the first international coalition of its kind dedicated to addressing the threat of toxic pollution on a global scale.** The GAHP has created one of the world's largest platforms for coordinating resources and launching efforts to fight toxic pollution. Any low- or medium-income country can approach the GAHP for help with pollution issues.

- **Most current international programs regulate the production and use of select toxins and the trans-boundary movement of waste rather than the mitigation or remediation of existing pollution.** It is a global problem that is just emerging on the international radar screen. Pure Earth is the leading organization active in toxics cleanup on a global scale also in Europe: https://www.youtube.com/watch?v=kHst_v_kuRk

Learn more about Europa's most polluted countries here:
https://www.greenmatch.co.uk/blog/2018/11/mapped-europes-most-and-least-polluted-countries

[42] https://www.pureearth.org/blog/pollution-15-facts-that-might-surprise-you/

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ACTIVITY TOOLKIT

What can you or your youth group do to reduce the pollution in your community?

Step 1: GETTING STARTED: Find out more about pollution

Before taking action to tackle the causes or consequences of pollution, it is important for your group to discuss how the three major types of pollution are present in your country and what has been done to reduce the impact. This section suggests several ways that you or your group can carry out this research, depending on your existing knowledge, priorities, and the resources you have available. Get inspired by Melati Wijsen and Isabel Wijsen, two Indonesian climate activists. The two sisters are known for their efforts to reduce plastic consumption in Bali: https://www.youtube.com/watch?v=bDYZyAn4XYk

Choose which type of pollution you want to approach and gather more information (use the appendix, the internet, resource books, interviews with community elders or local experts).

Point out the problems you have discovered with young people in your community

List all the hazards your community faces and select which are related to the pollution.

Map the community (strengths and weaknesses – put on your "pollution glasses" and draw a map outlining potential impacts; think of things like traffic, waste, plastic, etc. which are the main reasons for the pollution).

N.B. Read about the **Air pollution facts** in **Appendix 1** - a basic introduction to air pollution. You may use this information to answer other young people's questions if you choose to work with air pollution. Keep in mind that information about air pollution is continuously being updated so it is critical to consult expert sources in addition to this appendix for updated facts.

Step 2: IDENTIFYING the problem and linking it to the current work

Now that you know more about the impacts of pollution on your community, try to **identify a problem** that you would like to work on. Create a list of possible actions you and your group could work with. Remember to include, if possible, all kinds of people with different skills and knowledge from your community. You could also list all the issues and then take a vote.

It is time to investigate further. **What is the problem? Why it is a problem? Who is affected by the problem?**

Identify existing projects in your community. It is critical to know what the community has already done and is doing to address the problem so that your or the actions of your group are in tune with, and gain the support of the community. **Who is doing what already? What are your skills? How can these match with the problem at hand? How can you be a part of what is already underway?**

Use **Appendix 2 – think about the problem** to build up this step. Identify a single problem.

The group may have already identified the challenge they feel is most important to their community in **Step 1**. If not, ask the group to recall a few key issues that came out of the discussions and then take a vote to decide which problem they would like to tackle. When making the decision, the group should also consider the extent to which they think they can make a difference.

Step 3: PLANNING YOUR ACTION

Once your group has identified and researched a problem, you can begin to plan your activity. A successful plan of action is one that is developed, implemented, and 'owned' by young people in partnership with you and other adults in the community.

Activate your family, your friends, or your class

It is important to understand how to talk to your friends, class, or local communities about the global impact of pollution through the issues that affect those most. Air pollution could be the big problem in the cities, but communities living in the countryside might be more concerned about fertilizers, trash in the nature or microplastics in water. Do you have any products in your home that include microplastics? Can you replace it?

STEP 4: MAKE A DIFFERENCE

Once you or your group have defined your goals, planned a strategy and enlisted the necessary resources and support from the community to carry out their project, the next step is implementation.

Invite your friends to participate in World Cleanup Day!

Here are the ways you and your youth organization can participate at **World Cleanup Day**: https://www.worldcleanupday.org/get-involved/

In **Appendix 3**, you can find more examples of how you can **take action and make a difference**.

Step 5: SPREADING THE WORD

Good communication is an important part of making your project successful. Raising awareness about pollution through the media can be an important action in itself but gaining publicity this way can also help you win support for your project. You may want to get members of the local community involved in your action, let them know what is going on, or secure funding for the project. You may also inspire individuals, other groups, and communities to follow your lead. Communications are so important in getting our voices heard.

How will you get the messages across? Meet **Terrific Teens** and get inspired to find solutions for your local actions against pollutions.

https://www.greenpeace.org/usa/stories/meet-terrific-teens-pollution-solutions/

See more in Advocacy unit

Step 6: EVALUATE REMEMBER:

Reflecting on the success of an action can allow more effective action in the future. Evaluation, or assessing the strengths and weaknesses of an action/project, might come after a short-term action has been completed. If you are working on a longer project, it is important to monitor progress while the activities are ongoing so that ideas for improvement can be incorporated as you go along. You line up goals from the beginning and use them to see who you are doing in your process and then, in the end of the project evaluate on them. You can also evaluate on impact or change in relation to the problem, cooperation, being heard, challenges and lessons learnt for next project.

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Appendix 1 - A basic introduction to air pollution[43]

This appendix provides a basic introduction to air pollution. You can for example use this information to start designing the advocacy actions you or your group want to start or use the information to inspire other young people to take action. Keep in mind that information about pollution is continuously being updated so it is critical to consult expert sources in addition to this fact sheet for updated facts.

1. Why is the air around me important?

Air is invisible, yet it is all around us! Air is a mixture of gases, mostly oxygen and nitrogen, which plants, animals, and humans all need to survive.

2. Where does air pollution come from?

Air pollution happens when harmful substances (pollutants) are released into the air - inside our homes or outside. This can damage our bodies and even increase our chances of getting certain diseases.
Air pollution can happen from natural sources like wildfires, dust, and volcano eruptions. But mostly, our human actions cause pollution from things like power plants that burn fossil fuels (coal, oil, natural gas), fertilizers and animal waste from farming, wood burning stoves, driving cars, flying planes, and more...

3. 1.8 billion people under the age of 15 breathe air that is so polluted it risks their health and development.

Our actions as humans not only contribute to climate change but also directly affect our health. Pollutants in the air can enter our lungs and blood system, which increases our risk of heart diseases, respiratory diseases, and lung cancer.
Being exposed to air pollution over a long period of time can change our brain structure and lower our ability to do well in school and focus during exams.

4. Since air is invisible, it may be tricky to see air pollution.

Here are three other signs you can look for:

- Dryness/ irritation in your eyes, headache, fatigue, allergies or shortness of breath.
- Does your neighborhood have factories, cars, trucks, or power plants? If so, then you are probably exposed to high levels of air pollution.

If you live with an asthmatic person, you might witness them having more severe asthmatic attacks, shortness of breath, chest pain, coughing, or wheezing.

5. Did you know that children and young people are more affected by air pollution than adults?

This is because you breathe faster than adults and take in more pollutants. Also, because your brains and bodies are still developing, and these pollutants can harm you while you're still growing.
Meeting the goals of the **Paris Agreement** could save around 1 million lives per year worldwide by 2050, just by reducing air pollution!
This means that we have a lot of work to do but it is possible to make our environment and our health better.

6. So, how is the air quality around me?

Air Quality Index (AQI) is a tool that can tell us what the quality of the air around us is like. Higher AQI means worse air pollution.

[43] https://www.voicesofyouth.org/learning-module-2-air-pollution

7. How else can we measure air pollution?

Fine Particulate Matter (PM2.5) is a common way we can measure air pollution. PM2.5 is so small that it is around the same size as one thirtieth the width of a strand of human hair! Yes, it is that small! So, we cannot really see PM2.5 but it is dangerous to our health.

8. Positive progress is happening.

In 2020, the world's largest platform for air quality data was launched[44], this will hold our leaders accountable and encourage us all to advocate for better air quality monitoring.
More countries are monitoring air pollution and taking action to reduce air pollution than ever before. So do your part and be air aware!

Appendix 2 – Think about the problem

Use a situation analysis as a simple way of examining the problem. You could begin by answering the following questions:

How can you reduce air pollution?
Think about how you transport yourself. Do you use a bike or a car on your way to school or work?

How does your family heat your house?

How can you reduce water pollution?
Think about how you contribute to water pollution and what you can do about it?[45]

How does your family hand cleaning and toxic chemicals? Try to avoid buying products that contain persistent and dangerous chemicals in the first place. Nowadays, companies are selling non-toxic cleaners and biodegradable cleaners and pesticides.

How much plastic are you using in your house? It is possible to reduce some. Whenever you buy something that is not recyclable, such as plastic, it is better to reuse this item as many times as possible.

How can you reduce land pollution?
Find out which is the most important pollutant on soil and what can you do about it?

Soil degradation is a complex problem that requires governments, institutions, communities, and individuals to take joint measures.

Do you ever think about eating sustainable foodstuffs, properly recycling batteries, or producing homemade compost?

[44] https://www.unep.org/news-and-stories/press-release/worlds-largest-platform-air-quality-data-launched-tenth-world-urban
[45] https://www.conserve-energy-future.com/25-simple-and-easy-ways-to-reduce-water-pollution-now.php#30_Simple_and_Easy_Ways_to_Reduce_Water_Pollution_Now

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Appendix 3 – Taking action

Everyday Choices: Here are some examples of actions that assist in the recovery or preservation of an ecosystem that has been degraded, damaged, or destroyed or actions that reduce resource inputs and emissions per unit of output through technological change and consumer purchasing, use and disposal behaviors. The following examples are actions that also lead to reduced carbon footprint or use of natural resources:

1. Clean up litter at local beaches, parks, or school grounds: Find inspiration in Plastic pirates – Go Europe. Teaming up against plastic waste! https://www.plastic-pirates.eu/en
2. Assist local estuaries, parks, or other natural areas with planting or restoring protective vegetation or trees. You can also choose to support Plant a tree : https://www.worldlandtrust.org/appeals/plant-a-tree/
3. Restore a local green habitat: https://www.iucn.org/news/forests/201704/voices-future-involving-youth-restoration
4. Start or expand a recycling program at home or school and measure the effect of the change: take a look at "how to start a recycling program": https://stlcityrecycles.com/community-programs/at-school/how-to-start-recycling-at-your-school/
5. Monitor and save water in the face of potential drought or reduction in available water: Here you have 20 ways of saving water at home: https://www.youtube.com/watch?v=SKFMgHkls8c
6. Upcycle discarded materials: Thrash to treasure: https://www.youtube.com/watch?v=Jg_H6GhQ4jk
7. Compost food or yard waste: In this video, you will learn the easiest method of making kitchen waste compost at home: https://www.youtube.com/watch?v=eFlhYS-_tpY
8. Reduce waste in a cafeteria and measure the impacts on the school or local community: https://www.youtube.com/watch?v=qlp-KghZxfQ
9. Research and implement energy efficient strategies or energy alternatives at school and/or at home: https://www.youtube.com/watch?v=eHZJ6ZPRe4g
10. Inspire students to live more sustainably: https://www.youtube.com/watch?v=Ww43LKLdEYc

Appendix 4 – Additional resources

Resource Title:	Pollution
What will you get from using this resource?	You can learn more about the pollution with these classroom resources from national geographic.
Link to resource	https://www.nationalgeographic.org/encyclopedia/pollution/

Resource Title:	Pollution
What will you get from using this resource?	Use those videos to learn more about how human activity has a negative impact on Earth:
Link to resource	Air pollution: https://www.youtube.com/watch?v=e6rglsLy1Ys Water pollution: https://www.youtube.com/watch?v=zBKGxuxFn1E Land pollution: https://www.youtube.com/watch?v=WSP8cp__Lco

MODULE 7: BIODIVERSITY

What makes one ecosystem strong,
and another week in the face of change?
The answer, to a large extent, is biodiversity.

Figure 29: Source - Helena Jankovičová/Pexels

Why is biodiversity important?

One million plant and animal species are at risk of extinction. The problem is that without biodiversity, humans are in trouble. But WHAT ON EARTH IS BIODIVERSITY? Watch the movie and reflect on why biodiversity is so important for the health and resilience of us and our planet.

https://www.youtube.com/watch?v=NjwtneQ9cd8

Figure 30: Source - Conservation International/Youtube

Nature is our home, our food, our comfort, our culture, our health, our medicine, our safety, our recreation, and our inspiration – it is our life support system.
To protect biodiversity, we need real transformative change - for humankind to realign priorities, values, behaviours, and actions. Let us reinvent our systems, equitably and sustainably. If our generation is to have hope for a future built on peace and harmony with nature, we all need your leadership now.[46]
Youth MANIFESTO #ForNature to #StopTheSame

With this module, we aim to introduce you to the topic of biodiversity, as a global issue but also its impact at a local level. Understanding biodiversity will help you, as an individual or a group of young people, to act in response to how the loss of biodiversity affects our daily life and what can be done to reverse the negative development

[46] https://www.ourfuturewithnature.org/?fbclid=IwAR3rQEo7bhqmOmesDXxT-mmL1-tJW1U7LsJuiNdnvqqV81oM3Ve2dk-8ldE

For this matter, we present a short introduction to facts about biodiversity and a step-by-step **Activity toolkit** supplied by **Appendix 1-3**, that show how collective actions can be organized at the local community to improve biodiversity. In this material, you will also find **Additional resources** (Appendix 4).

What you need to know about Biodiversity?

Biodiversity refers to all the different kinds of living organisms within a given area. Biodiversity includes plants, animals, fungi, and other living things and can include everything from towering redwood trees to tiny, single-cell algae that are impossible to see without a microscope. Biodiversity can also refer to the **variety of ecosystems** or **genetic diversity**. Areas with high numbers of endemic species are called **biodiversity hotspots**. Scientists and communities are making a special effort to preserve biodiversity in these regions.

Healthy ecosystems provide us with many essentials we take for granted. Plants convert energy from the sun making it available to other life forms. Bacteria and other living organisms break down organic matter into nutrients providing plants with healthy soil to grow in. Pollinators are essential in plant reproduction, guaranteeing our food production. Plants and oceans act as major carbon sinks.

In short, biodiversity provides us with clean air, fresh water, good quality soil and crop pollination. It helps us fight climate change and adapt to it as well reduce the impact of natural hazards.

Since living organisms interact in dynamic ecosystems, the disappearance of one species can have a far-reaching impact on the food chain. It is impossible to know exactly what the consequences of mass extinctions would be for humans, but we do know that for now the diversity of nature allows us to thrive.

Key Facts[47]

Biodiversity provides many goods and services essential to life on earth. The management of natural resources can determine the baseline health status of a community. Environmental stewardship can contribute to secure livelihoods and improve the resilience of communities. The loss of these resources can create the conditions responsible for morbidity or mortality.

Biodiversity supports human and societal needs, including food and nutrition security, energy, development of medicines and pharmaceuticals and freshwater, which together underpin good health. It also supports economic opportunities, and leisure activities that contribute to overall wellbeing.

Land use change, pollution, poor water quality, chemical and waste contamination, climate change and other causes of ecosystem degradation all contribute to biodiversity loss and can pose considerable threats to human health.

Human health and well-being are influenced by the health of local plant and animal communities, and the integrity of the local ecosystems that they form.
Infectious diseases cause over one billion human infections per year, with millions of deaths each year globally. Approximately two thirds of known human infectious diseases are shared with animals, and most recently emerging diseases are associated with wildlife.

[47] https://www.who.int/news-room/fact-sheets/detail/biodiversity-and-health

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Understanding the biodiversity in a local context[48]

Biodiversity is not only what you see and find deep in the forest, in the ocean or in a coral reef. Biodiversity also includes many different species that make their homes in our villages, towns or cities. That means near you, in gardens, streams, local bushes and even in the school grounds. Making a short investigation of the living things we can find in our local environment is a good way to start understanding biodiversity. A focus on locally found plants and animals can be relevant because it gives the opportunity to learn, respect and take action regarding the local environment.

Where do I look? What might I find?

Tip 1: it is a good idea to start your search for biodiversity in different habitats near you. Habitats may include a patch of grass, decaying leaf litter, soil, under a pile of rocks, a rotting log, under the bark of trees, a pond of water or a patch of flowering plants.
Tip 2: Think small. Many animals can be small, such as insects, spiders, millipedes and even crabs. Look out after different types of flies, bees, wasps, beetles, and butterflies that may be searching for the flowers.
Tip 3: Get your hands dirty! Many animals (predators) shelter during the day to avoid the attention of things that might want to eat them. If you carefully turn over the rocks, you may find a lot of them. Do not forget lichen and fungi and remember always that plants provide the food and shelter that support animals. In respect for the animals, return the things in the same ways you found it.
Tip 4: Remember the plants, they are an important part of biodiversity. They have many different shapes and sizes.
N.B. Bio blitz can be very useful here.

[48] https://livelearn.org/assets/media/docs/resources/Discovering_Biodiversity.pdf

ACTIVITY TOOLKIT

What can you or your youth group do to prevent the loss of biodiversity?

You can participate in biodiversity conservation by increasing your knowledge of environmental issues, increasing your awareness of the impacts of biodiversity loss, and increasing support for government policies and actions that conserve our valuable ecosystems. You can become role models as stewards of the environment by aiding in the recovery of species at risk and preventing other species from becoming at risk.
This toolkit aims to develop values, attitudes and skills that can help you or your group to take action to conserve biodiversity. The actions may need to involve a group working together with members of the local community. You should be encouraging your group to make lifestyle choices that may have positive impacts on the environment.

Step 1: GETTING STARTED: Find out more about biodiversity

Before acting, it is important for your group to increase your knowledge about biodiversity and discuss which kind of biodiversity loss is present in your country and local community and what has already been done to reduce the impact. This section suggests several ways that you or your group can carry out this research, depending on your existing knowledge, priorities and the resources you have available.

Choose which type of conservation of biodiversity you want to approach and gather more information (use the appendix, the internet, resource books, interviews with community elders or local experts).
Point out the problems you have discovered with other young people in your community.
List all the hazards your community faces which are related to biodiversity.
Map the community (strengths and weaknesses – put on your "biodiversity glasses" and outline potential impacts; think of things like which are the main reasons for the loss of biodiversity in your community).
Mapping Biodiversity – learn to make your one biodiversity map.

N.B. Find more about **Biodiversity** in **Appendix 1** - a basic introduction to the biodiversity. Use **Appendix 1** to learn how to make your one biodiversity map. You may use this information to answer other young people's questions. Keep in mind that information about biodiversity is continuously being updated so it is critical to consult expert sources in addition to this appendix for updated facts.

Step 2: IDENTIFYING the problem and linking it to the current work

Now that you know more about the biodiversity in your community, try to **identify a problem** that you would like to work on. Create a list of possible problems; you and your group could work with. Remember to include, if possible, all kinds of people with different skills and knowledge from your community. You could also list all the issues and then take a vote.

It is time to investigate further. **What is the problem? Why it is a problem? Who is affected by the problem?**
Identify existing projects in your community. It is critical to know what the community has already done and is doing to address the problem so that you or the actions of your group are in tune with, and gain the support of the community. **Who is doing what already? What are your skills? How can these match with the problem at hand? How can you be a part of what is already underway?**

Use **Appendix 2 – Think about the problem** to build up this step. Identify a single problem. The group may have already identified the challenge they feel is most important to their community in Step 1. Analyse which are the best ways to increase biodiversity in your urban landscapes:

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Step 3: PLANNING YOUR ACTION

Once your group has identified and researched a problem, you can begin to plan your activity.[49] A successful plan of action is one that is developed, implemented, and 'owned' by young people in partnership with you and other adults in the community.

Activate your family, your friends, or your class

It is important to understand how to talk to your friends, class, or local communities about the global impact of the loss of biodiversity.

Step 4: MAKE A DIFFERENCE

Once you or your group have defined your goals, planned a strategy and enlisted the necessary resources and support from the community to carry out their project, the next step is implementation.

Invite your friends to participate in Counting Species through Citizen Science or invite your group to be a part of Global Youth Biodiversity Network (GYBN) and learn more about how you can make a difference: https://www.facebook.com/thegybn/

While protecting the rainforests sounds like a daunting task, there is a lot you can do to promote and preserve local biodiversity at home.

- Support local farms
- Save the bees!
- Plant local flowers, fruits, and vegetables.
- Respect local habitats
- Know the source that cause the loss of biodiversity

In **Appendix 3**, you can find out how you can organize a **Counting Species through Citizen Science.**

Step 5: SPREADING THE WORD

Good communication is an important part of making your project successful.[55] Raising awareness about biodiversity through the media can be an important action in itself but gaining publicity this way can also help you win support for your project. You may want to get members of the local community involved in your action, let them know what is going on, or secure funding for the project. You may also inspire individuals, other groups, and communities to follow your lead. Communications are so important in getting our voices heard.

Step 6: EVALUATE REMEMBER

Reflecting on the success of an action can allow more effective action in the future. Evaluation, or assessing the strengths and weaknesses of an action/project, might come after a short-term action has been completed. If you are working on a longer project, it is important to monitor progress while the activities are ongoing so that ideas for improvement can be incorporated as you go along. You line up goals from the beginning and use them to see who you are doing in your process and then, in the end of the project evaluate on them. You can also evaluate on impact or change in relation to the problem, cooperation, being heard, challenges and lessons learnt for next project.

[49] *See more in Advocacy unit*
[50] *See more in Advocacy unit*

Appendix 1- a basic introduction to the biodiversity

This appendix provides a basic introduction to the biodiversity. You can for example use this information to start designing the advocacy actions you or your group want to start or use the information to inspire other young people to take action. Keep in mind that information about biodiversity is continuously being updated so it is critical to consult expert sources in addition to this fact sheet for updated information.

GENERAL UNDERSTANDING OF THE TOPIC

Historical perspective

Interactions between people and wildlife, both plants and animals, can be problematic. In many cases and across all continents, the human footprint is evidenced by catastrophic change and mass species extinctions. In the past hundred years, biodiversity around the world has decreased dramatically. Many species have gone extinct. Extinction is a natural process; some species naturally die out while new species evolve. However, due to deforestation, intensive mono-culture due to agriculture, urbanization, direct exploitation such as hunting and over-fishing, climate change, pollution and invasive alien species are main reasons for the destruction of natural habitats and the loss of biodiversity. Warmer ocean temperatures damage fragile ecosystems such as coral reefs. A single coral reef can shelter 3,000 species of fish and other sea creatures such as clams and sea stars.

The fields, forests, and wetlands where wild plants and animals live are disappearing. Land is cleared to plant crops or build houses and factories. Forests are cut down for lumber and firewood. Between 1990 and 2005, the amount of forested land in Honduras, for instance, dropped 37 percent. Honduras is in the heart of Central America, surrounded by high tropical mountains. Due to the diversity of climate Honduras has rainforests, cloud forests, mangroves, savannas, mountain ranges with pine and oak trees and the Mesoamerican Barrier Reef System.
European countries face the same problem. Recently, over 40,000 Europeans have signed a petition to the EU against the burning of forests and food for energy. The European Union needs to stop treating the burning of biomass as carbon neutral in its renewable energy standards and in its emissions trading system[51].

Today because of human-induced climate change[52] for example, the loss of biodiversity may be even worse than previous impacts. Yet despite the damaging impacts of people on the environment and its ecology, it is clear that in pre-industrial, often subsistence societies there is an intimate long-term relationship between people and nature. Indeed, much of the ecology which we now value is present because of the continuity of traditional management approaches over hundreds and sometimes thousands of years.
As habitats shrink, fewer individuals can live there. The creatures that survive have fewer breeding partners, so genetic diversity declines.

[51] https://www.dropbox.com/s/hdmmcnd0d1d2lq5/Scientist%20Letter%20to%20Biden%2C%20von%20der%20Leyen%2C%20Michel%2C%20Suga%20%26%20Moon%20%20Re.%20Forest%20Biomass%20%28February%2011%2C%202021%29.pdf?dl=0

[52] ***Read more about climate change in module 3***

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Biodiversity can also be harmed by introduced new species. When people introduce species from one part of the world to another, they often have no natural predators. These non-native species thrive in their new habitat, often destroying native species in the process. Brown tree snakes, for instance, were accidentally brought into Guam, an island in the South Pacific, in the 1950s. Because brown tree snakes have no predators on Guam, they quickly multiplied. The snakes, which hunt birds, have caused the extinction of nine of the island's 11 native forest-dwelling bird species. In Europe only 23% of species and 16% of habitats under the EU Nature Directives are in good health.[53] In May 2020, the European Commission released the EU Biodiversity Strategy to 2030.[54] This strategy, along with the EU Farm to Fork Strategy, is a **potential game changer for EU's nature, food, and farming policies**. The strategies propose a new wave of essential and long overdue targets on topics such as protected areas, restoration of nature, organic farming, and the reduction of agricultural chemicals.

Global context

Talking about biodiversity in a global context is about understanding and measuring different types of biodiversity. A common way to measure biodiversity is to count the total number of species living within a particular area. Tropical regions, areas that are warm year-round, have the most biodiversity. Temperate regions, which have warm summers and cold winters, have fewer biodiversity. Regions with cold or dry conditions, such as mountaintops and deserts, have even less.

Generally, the closer a region is to the Equator, the greater the biodiversity. At least 40,000 different plant species live in the Amazon rain forest of South America, one of the most biologically diverse regions on the planet. Only about 2,800 live in Canada's Quebec province.

The warm waters of the western Pacific and Indian Oceans tend to be the most diverse marine environments. The Bird's Head Seascape in Indonesia is home to more than 1,200 species of fish and 600 species of coral. Many of the corals build coral reefs, which are home to hundreds more species, from tiny seaweeds to large sharks.

Some places in the world have many endemic species—species that exist only in that place. The Cape Floristic Region in South Africa is home to about 6,200 plant species found nowhere else in the world. Areas with high numbers of endemic species are called biodiversity hotspots. Scientists and communities are making a special effort to preserve biodiversity in these regions.

Biodiversity can also refer to the variety of ecosystems—communities of living things and their environments. Ecosystems include deserts, grasslands, and rain forests. The continent of Africa is home to tropical rain forests, alpine mountains, and dry deserts. It enjoys a high level of biodiversity. Antarctica, covered almost entirely by an ice sheet, has low biodiversity.

Another way to measure biodiversity is genetic diversity. Genes are the basic units of biological information passed on when living things reproduce. Some species have as many as 400,000 genes. (Human beings have about 25,000 genes, while rice has more than 56,000.) Some of these genes are the same for all individuals within a species—they are what make a daisy a daisy and a dog a dog. However, some genes within a species are different. This genetic variation is why some dogs are poodles and some are pit bulls. Its why some people have brown eyes, and some people have blue eyes.
Greater genetic diversity in species can make plants and animals more resistant to diseases. Genetic diversity also allows species to better adapt to a changing environment.

[53] https://www.wwf.eu/what_we_do/biodiversity/
[54] https://www.wwf.eu/what_we_do/biodiversity/?uNewsID=363733

Understanding biodiversity on a local context
Biodiversity is important to people in many ways. Plants, for instance, help humans by giving off oxygen. They also provide food, shade, construction material, medicines, and fiber for clothing and paper. The root system of plants helps prevent flooding. Plants, fungi, and animals such as worms keep soil fertile and water clean. As biodiversity decreases, these systems break down.
A healthy biodiversity provides several natural services for everyone:

1. ECOSYSTEM SERVICES, SUCH AS:

Protection of water resources: Water is required to support biodiversity. Without sufficient water, stress on species increase global biodiversity losses. Biodiversity supports water and nutrient cycling in soils and therefore plants, including all food crops. Together these processes control land erosion and regulate water quality.

Soils formation and protection: Soil protection by maintenance of biological diversity can preserve the productive capacity of the soil, prevent landslides, safeguard coastlines and riverbanks, and prevent the degradation of coral reefs and coastal fisheries by siltation. Trees and other vegetation also assist in soil formation.

Nutrient storage and recycling: Ecosystems perform the vital function of recycling nutrients. These nutrients include the elements of the atmosphere as well as those found in the soil, which are necessary for the maintenance of life.

Pollution breakdown and absorption: Ecosystems and ecological processes play an important role in the breakdown and absorption of many pollutants created by humans and their activities. These include wastes such sewage, garbage, and oil spills. Components of ecosystems from bacteria to higher life forms are involved in these breakdown and assimilative processes.

Contribution to climate stability: Biodiversity management can help mitigate the effects of climate change by sequestering carbon and increasing energy efficiency measures.

Maintenance of ecosystems: Biodiversity boosts ecosystem productivity where each species, no matter how small, all have an important role to play.

Recovery from unpredictable events: Maintaining healthy ecosystems improves the chances of recovery of plant and animal populations from unpredictable natural catastrophic events such as fire, flood, and cyclones and from disasters caused by humans.

2. BIOLOGICAL RESOURCES, SUCH AS

Food: Biodiversity is essential to food and agriculture. It supplies many vital ecosystem services, such as creating and maintaining healthy soils, pollinating plants, controlling pests, and providing habitat for wildlife, including for fish and other species that are vital to food production and agricultural livelihoods.

Medicinal resources and pharmaceutical drugs: Looking to nature for medicine is nothing new – we have been doing it for tens of thousands of years. Nature is and will always be an important source of useful compounds and inspiration. This ongoing loss of biodiversity is altering ecosystem functions and the ability to provide goods and services for human health and well-being. In the case of drug discovery, according to some estimates, our planet is losing at least one important drug every two years.[55]

[55] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5735771/

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Wood products: Wood production and biodiversity conservation are rivals. Because forests are the main natural ecosystems in Europe, it is crucial to understand the extent to which forest landscape management delivers functional green infrastructures.

Ornamental plants: Have a wide spectrum of uses in aesthetic function by creating attractiveness for human environmental management

Breeding stocks, population reservoirs: Some habitats protect crucial life stages or elements of wildlife population that are widely and profitably harvested outside these habitats. In Croatia for example, the existence of the reservoirs is crucial for the large biodiversity on Cres Island and contributes to the preservation of the Griffons.

Future resources: nobody knows the precise number of living species. Scientist have counted 1.7.mil living organisms, but the planet´s total number is estimated to be between 5 and 30 million. Microorganisms are important in the production of extensive ranges of agrochemicals, protein for animal feed, enzymes, and biopolymers. Diversity in genes, species, and ecosystems

3. SOCIAL BENEFITS, SUCH AS

Research, education, and monitoring: Natural areas provide excellent laboratories for how to use biological resources, to maintain a genetic base of harvested biological resources and how to rehabilitate degraded ecosystems.

Recreation, tourism, and cultural values: Biodiversity plays different roles in different types of recreation and tourism. All tourism – even in city centers – relies on natural resources for supplies of food, clean water and other 'ecosystem services' that ultimately depend on biodiversity.

That is quite a lot of services we get for free! The cost of replacing these (if possible) would be extremely expensive.

MAPPING BIODIVERSITY – LEARN TO MAKE YOUR OWN BIODIVERSITY MAP

Select and map an area. Then practice finding direction, determining scale, and identifying natural and human features.
You can use google maps to make your one map: https://www.google.com/maps/about/mymaps/

Or you can just draw your own simple map.
How to do it?

Try to imagine the following scenario: There are birds flying above your town. They look below to locate food, water, and a safe place to build a nest. They depend on natural resources to survive. To understand and map the biodiversity you will need to use a **birds'-eye view** to make maps of the earth. This is how scientists who study biodiversity work. On the maps, scientists mark the locations of natural resources and the species that live nearby.

Create a model of your map.
Choose an area to map (you can do it by yourself or with your group). Contact local experts for help if you need more information.

- Think about the space or area you are mapping.
- Questions: *Is it small or large? Is it a city block, a land, or a continent?*
- Determine the scale of your mapping. Maps of smaller areas contain more detail than maps of larger areas.
- Check direction (north, south, east, west) using a GPS unit or compass. On your map, add a north arrow or a compass rose.
- Add details such as land and water features, vegetation, signs of animals, and signs of human influence.

Example: Michéle's step-by-step tutorial shows you how to draw a biodiversity/habitat map of your garden so that you can record where the different garden species are located. Your map can help you plan improvements to increase the biodiversity of your garden or your community.

https://www.youtube.com/watch?v=9kkwadM-MY0

Figure 31: Source - Andrew Neil/Pexels

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Appendix 2 – Think about the problem

Use a situation analysis as a simple way of examining the problem. Analyse which of the following are the best ways to increase biodiversity in your urban landscapes:

1. Provide wildlife corridors and connections between green spaces
Providing options for wildlife to travel and find new food sources, water sources, and mates are extremely important to urban biodiversity. The hedgerow in England, for example, has been a part of the English Garden aesthetic for many hundreds of years. The bush or shrubbery provides a physical barrier for larger animals and people but allows small animals to pass under, trough, or along the roots of the hedgerow from garden to garden. Recently, though, with the increase in popularity of impassable fences lining garden boundaries, hedgehog populations in England have drastically dropped.

2. Use organic maintenance methods and cut back on lawns
Urban biodiversity can be supported by avoiding chemical fertilizers and pesticides. Bees can be sensitive to pesticides, both organic, and chemical. In addition, a shorn lawn does not provide food or shelter for most wildlife, even down to the bacterial level if pesticides are liberally applied.

3. Use a native plant palette and plant appropriately
The locations of cities are not random; spaces were chosen for future urbanity for the same reason that many plants and animals colonized them first; proximity to the ocean, estuaries, major rivers, and land with enough nutrients to support diverse plant life. Because of this pre-existing relationship with the land, it is easier to support those same species even now long after the estuary was dredged, and the river straightened. With bones of a native ecosystem still buried under the concrete, it is easier to bring that system back to (certainly modified) life. Generally, planting native plants is the best way to support a habitat's natural wildlife because the birds and bugs are already built to eat and use them. Choosing location-appropriate plants ties into the fundamentals of good planting design. However, planting just natives alone will not necessarily increase biodiversity to its fullest potential. It is important to have an idea of how many and what kinds of species can be supported, as well as how many benefits a plant offers to the ecosystem.

4. Utilize existing green apace connections
Incorporating existing forest, wetlands, and even water retention ponds within a site or nearby space that likely already supports wildlife is a great starting point for discovering what kind of diversity you should design for. The design team for Clos Layat Park in Lyon, France[56], did just this when incorporating an existing forest into the south side of its plan by continuing the forest into the park. They also included a meadow and dedicated a part of the park to a pollinator garden. The new park of Clos Layat was a forgotten place before the city administration decided to provide the three bordering neighborhoods of 7th, 8th districts and Vénissieux with the open space their communities were lacking. The strategic decision to "put nature in the heart of the neighborhood" was made by the city leaders despite the real estate pressure in the area and is of great importance for the public space structure of Lyon. The Park adds its 3 hectares to the surrounding sports terrains, which make altogether 10 hectares that complete Lyon's green belt.

5. Be Mindful of Non-Native Predators
Housecats alone are responsible for between 1.4 billion and 3.7 billion songbird deaths each year. When designing in residential neighborhoods, keep in mind not just the problems local wildlife has in terms of habitat and food availability, but how likely it is that they will become food for non-native predators. Biodiversity in urban areas includes much more than rats and pigeons; we can decide how supportive our urban spaces are to different kinds of life rather than grudgingly accepting only the most adaptable species.

[56] https://land8.com/how-clos-layat-park-is-bringing-biodiversity-back-to-the-city/

Appendix 3 – Taking action

Counting Species Through Citizen Science
Use Biobliz to count species in your local community:

A BioBlitz is an event that focuses on finding and identifying as many species as possible in a specific area over a short period of time. At a BioBlitz, scientists, families, students, teachers, and other community members work together to get a snapshot of an area's biodiversity. These events can happen in most any geography—urban, rural, or suburban—in areas as small as a backyard or as large as a country.

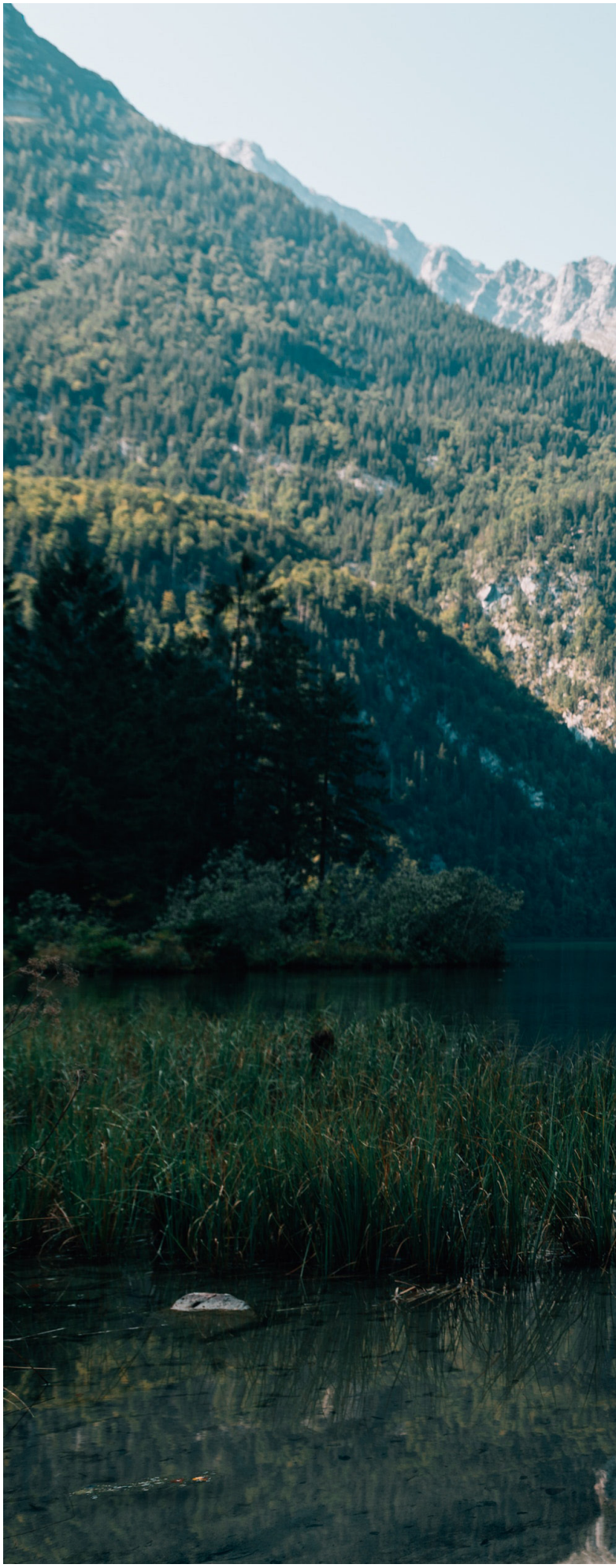
Smartphone technologies and apps such as iNaturalist make collecting photographs and biological information about living things easy as part of a BioBlitz. High quality data uploaded to iNaturalist become part of the Global Biodiversity Information Facility, an open-source database used by scientists and policy makers around the world.

Do-It-Yourself BioBlitz

A BioBlitz is easy when you know what you need and where to start!
BioBlitz is a species inventory that involves observing, recording, and documenting living things in a short period of time.

Want to conduct a BioBlitz? Want to know how, what you will need, and where to start?
This video guide will help you plan a BioBlitz in your schoolyard, a local park, or even your parking lot:
https://www.nationalgeographic.org/media/do-it-yourself-bioblitz/

Get help to plan a BioBlitz with this sheet:
https://media.nationalgeographic.org/assets/file/2019_BioBlitz_Guide_-_Planning_Worksheet.pdf



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MODULE 8: ENVIRONMENTAL ETHICS

The relationship between society and the environment has been globally discussed in the past decades. The high rate of consumption is draining the planet resources, which took millions of years to build. Environmental problems have been around for a long time, since the industrial revolution in Europe and North America, which increasingly added pressure on the planet. Environmental problems have worsened, due to unbridled population growth and their desire to live in an industrial and technological world. The biggest problem of the planet today is to understand and solve the Man-Earth relationship, so that we can live in harmony and balance with the Planet.

Figure 32: Source - Enviro S Mijag/Pexels

What is Environmental Ethics?

Environmental ethics seeks to promote environmental awareness and the improvement of the quality of individual and collective life. The relationship between ethics and sustainability involves a concern for future generations, ensuring that we do not spoil the living conditions of those who will come. There is a need to think of sustainable development as a priority.

Furthermore, environmental ethics is clearly of great importance today. Increased awareness regarding the environment makes increasingly clear the impacts caused by human action in nature and shows how disastrous the results can be in the absence of an appropriate ethical sense. Environmental ethics is interconnected with environmental awareness. Therefore, we should reflect: what does a simple everyday attitude cause in the local ecosystem? What impact can the disposal of household waste in a river have on the fauna and aquatic animals living there?

Being environmentally aware means understanding the environment in its fullness and the consequences that certain everyday actions can have on it; it means understanding that ecosystem survival depends on the collective effort. Furthermore, being environmentally aware requires the search for information. For, it is essential to keep informed to know which attitudes, products and habits are ecologically correct. Thus, individuals will know which means of transport are less polluting, how to make selective collection, opt for biodegradable packaging, etc.

Human-Environment Relationships

In the simplest environmental language, there are at least four broad perspectives that define humans' understanding of the human-environment relationship: the anthropocentric, biocentric and eco-centric mindsets.

Anthropocentric Mindset

Anthropocentrism is a worldview that considers human beings as the most important being in the world. The conservation of the earth is only relevant since it sustains human society. Nature only exists for the welfare of humankind and humans are supposed to be above all of nature's organisms. In the anthropocentric mindset, most people seem ignorant of the concern now being expressed about the environment and climate change. Many people have done little to change their lifestyle, even though they may acknowledge the environmental crisis.

Biocentric Mindset

In the biocentric mindset, people acknowledge the interdependence and fostering equity between human and non-human beings. For example, a tree's life would be considered just as important as a human's life. This contrasts with an anthropocentric view in which the lives of humans are given the greatest value.

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Eco-centric Mindset

In the eco-centric mindset, people believe in the importance of an ecosystem. They attribute equal importance to living and non-living components of ecosystems when making decisions regarding their treatment of the environment.

Therefore, biocentric and eco-centric mindsets have a lot in common. Both are adopted by people who have concern for the environment and its well-being. Both theories place great importance on the lives of all creatures and value the preservation of life over human gains in power and financial wealth. It can be difficult to find common ground during heated environmental debates, but it helps to remember that people with different philosophical beliefs often have similar goals.

In conclusion, you should consider which ethical mindset guides you. Do your decisions come at a cost other? Recognising the importance and interdependence of the environment and ourselves is a win-win situation; there is no long-term loss for anyone to preserve the environment.

ACTIVITY TOOLKIT

To reflect of your behaviour with the environment that surrounds you, we prepared a Personal Environmental Survey, which aims to help you discover which personal actions you can take to improve the quality of your communities' environment. In the table below, you will find a series of behaviours that are beneficial and harmful to the environment. Answer as truthfully as possible. Good luck!

	YES	NO
1. When I see trash that someone else has thrown on the ground, I usually leave it there because I didn't put it there.		
2. I separate recyclable materials, such as aluminum cans and plastic soda bottles, from ordinary trash to recycle them.		
3. I sometimes throw trash on the ground.		
4. Do you buy cruelty-free products that do not harm animals?		
5. Would you speak up if you would see someone hurting an animal?		
6. I don't pick flowers in the community so other people can enjoy them.		

Once you're done with the survey, answer the following questions:

1. Which activities are "good" for the environment? Which ones are "bad"? Why?
2. Looking at this list, can you think of any actions you would like to do more or less? What might be standing in your way and making it hard to do this?
3. Which activities do you think people in the community commonly do? Which ones do people not do?

After completing the Personal Environmental Survey, it's time to gather with your friends for the next exercise. This task is called "What would you do?" and it is based on a real-life story. Good luck!

Image that you live near a wooded area where you like to watch wildlife and enjoy the shade from the many tall trees. One day you discover that your neighbours are planning to cut down all the trees. You ask them nicely not to cut down the trees so the trees can serve both as shade and as homes for different types of animals. They laugh at you and say no.

In this situation, what would you do?

O Plead with them again to preserve the area for wildlife, etc.
O Move to a different place.
O Replace the trees cut down with baby trees.
O Use this educational opportunity to tell them about the importance of trees in the environment
O Do nothing
O Do something else. If so, be specific!

Discussion questions:
1. Is the cutting down of trees a problem in your community? If yes, how?
2. How does cutting down trees affect your personal environment?
3. What problems does cut down trees create for other members (including animals) of your community?
4. What can you or other members of your community do about this problem?

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Appendix 1: Additional resources

Self-directed Learning #1

Resource Title:	Environmental Humanities MOOC - 10 What is anthropocentrism?
Introduction to the resource:	This video explains the difference of anthropocentrism and ecocentrism through a real case scenario that happened in Australia, with the Sea Shepperd Campaign.
What will you get from using this resource?	This video provides insights into values and perceptions of society and how they shape environmental outcomes.
Link to resource	https://www.youtube.com/watch?v=uvgPh4leo8A

Self-directed Learning #2

Resource Title:	Why humans are so bad at thinking about climate change?
Introduction to the resource:	This video explains that the biggest problem for the climate change fight isn't technology – it's human psychology.
What will you get from using this resource?	In this video, the conservation scientist M. Sanjayan explains that we need to change the way we talk about climate change.
Link to resource	https://www.youtube.com/watch?v=DkZ7BJQupVA&t=12s

IV. APPENDIX

MODULE A: INTERNATIONAL EVENTS ON ENVIRONMENTAL PROTECTION

Today's world and daily actions show that we need to take care of our environment more than ever. As much as we make our life easier, use more technology, faster transportation, moving without limitations, this fast and very active life dangers our environment. Some international organisations and initiatives have been established for this purpose. It is crucial to protect an environment to reduce the destruction of eco-systems and potentially human life. International events address many global environmental issues, such as air pollution, global warming, smog, acid rain, wildfires, and others.

What are some of the most important global environmental events and why do they matter?

Global events, rules and law reflect actual and current happenings in the world. They are established because particular action raised in human lives. The events, rules and laws are here to regulate, determine and set goals for running those actions in a successful way or provide better standard of living.

One of the most important events nowadays are Sustainable Development Goals introduced by United Nations. More precisely, on 2015 United Nation General Assembly set the collection of 17 global goals for achieving a better and sustainable future for all. They are intended to be achieved by the year 2030. There are specific goals set for the protection of environmental issues, and these are the following: clean water and sanitation (SDG 6), affordable and clean energy (SDG 7), industry, innovation, infrastructure (SDG 10), sustainable cities and communities (SDG 12), responsible consumption and production (SDG 13), climate action (SDG 14), life below water (SDG 15), life on land (SDG 16) and partnership for the goals.

Other events concerning environmental protection are events and festivals which aim to inspire environmental action and positive opportunities to network. Some most important of this kind are:

Global Recycling Day - *18 March*
Water Day - *22nd March*
Earth Day - *22nd April*
Environment Day - *5th June*
World Soil Day - *5th December*

[57] ***Learn more about the Sustainable Development Goals in Appendix 1***
[58] ***Learn more about some important actors about the environmental protection in Appendix 2***

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What can you do in your youth group, your class or even alone to improve understanding of the historical truths about environmental protection?

Step 1: GETTING STARTED: Find out more about international events
Before taking action to apply certain international event or SDG, it is important for you or/ and your group to understand more about the SDGs purpose and the impact it is suppose to have in your local community. This section suggest some ways that you or/and your group can carry out to get to this outcome, by using research, existing knowledge, priorities and the resources available.

Gather information about SDGs (use appendix 1, internet, academic articles, UN website etc. to learn more)
Point out some problems in your local community that each particular SDG point out (use local relevant sources)
List the relevant actions already held in this matter (search on internet, local newspapers, websites, contact relevant organisations, institutions)
Map the community (taking into account all gathered information, point out strengths and weaknesses)

Example: Sustainable cities and neighbourhoods.

Step 2: IDENTIFYING the challenges and linking it to the current work
Now that you discover the application of international events/ SDGs on your local community, try to identify at least one challenge that you would like to work on. Create a list of possible actions to work on. Remember to include all kids of people, professionals, institutions, schools etc. in your community. In case of doubts who certain SGD would apply to certain challenge, communicate with your team/ group/ professor or an expert and start to investigate further. What is the challenge? Why is this the challenge? How is this challenge already tackled? How can you be part of what is already going on in this matter?

Identifying already existing initiatives/ projects/ actions regarding your chosen challenge It is crucial to be aware of what is already going on regarding your chosen challenge so you can become supportive in this way, join already existing initiatives. Who is doing what already? What are your skills and knowledge? How can you be helpful, how can your ideas match to this already existing initiative?

Example: town is the largest consumer of energy and the largest producer of waste and carbon emissions.

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Step 3: PLANNING YOUR ACTION

Once you or/ and your group identified and researched a challenge it is a time to take action.
A successful plan of action is one that is developed, implemented and 'owned' by young people in partnership with other adults in your community.

To do it so, ask yourself:

- Define your ACTION.
- WHY is this action important for tackling chooses challenge?
- WHAT do you want to achieve? (set very exact goal(s))
- WHO do you want to target?
- WHERE is the best place to take action? (in schools, in an NGO, on the local streets, in a part, in particular companies, in municipality hall, in cultural place, etc.)
- WHEN will you run an action and for HOW LONG?
- WHAT skills, knowledge, resources do you need? IDENTIFY key factors for your action!
- WHO can implement and action? (you, your group, school class etc define possible actors)
- Can you relate your ACTION to any already existing initiative that is still running or is finished?
- HOW will you acquire skills or/and resources if not adequate for fulfilment of your action?

Example of potential action: empowering relevant institutions in investing in renewables, waste management, sustainable and green infrastructure.

Step 4: TAKING ACTION

It is time now to implement your planned strategy in order to reach goals.
Here are some examples of what you can do:

- **Raise awareness** about the potential dangers of choose challenge to the relevant stakeholders (it can be municipality, relevant private companies, institutions, NGOs etc.)
- **Create small initiatives** to address local population about the chosen challenge (for reaching number of people of local community, get in touch with local NGOs, schools, youth centres, trade union etc.)
- **Pursuing goals** with the use of your skills, knowledge, resources, contacts, interviews all for the purpose to make a change (advocacy
-

Step 5: SPREADING THE WORD

Reaching as big amount of locals as possible is important for both, raising awareness as you're taking action, as getting the potential members to get involved into your action.
For this reason, you ay want to use social media, local media, network of relevant local stakeholders, using words, photos etc.

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Appendix 1 - Sustainable Development Goals

In this Appendix, you will be introduced by SDGs that are applicable to the protection of the environment: Clean Water and Sanitation - Ensure availability and sustainable management of water and sanitation for all.
Sustainable management of water resources and access to safe water and sanitation are essential for unlocking economic growth and productivity and provide significant leverage for existing investments in health and education. The natural environment e.g. forests, soils and wetlands contributes to management and regulation of water availability and water quality, strengthening the resilience of watersheds and complementing investments in physical infrastructure and institutional and regulatory arrangements for water access, use and disaster preparedness.
Water shortages undercut food security and the incomes of rural farmers while improving water management makes national economies, the agriculture and food sectors more resilient to rainfall variability and able to fulfil the needs of growing population. Protecting and restoring water-related ecosystems and their biodiversity can ensure water purification and water quality standards.

Affordable and Clean Energy - Ensure access to affordable, reliable, sustainable, and modern energy for all
Lack of access to energy supplies and transformation systems is a constraint to human and economic development. The environment provides a series of renewable and non-renewable energy sources i.e. solar, wind, hydropower, geothermal, biofuels, natural gas, coal, petroleum, uranium. Increased use of fossil fuels without actions to mitigate greenhouse gases will have global climate change implications. Energy efficiency and increase use of renewables contribute to climate change mitigation and disaster risk reduction. Maintaining and protecting ecosystems allow using and further developing hydropower sources of electricity and bioenergy.

Decent Work and Economic Growth - Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Preserving the environment is key to support sustainable economic growth as the natural environment plays an important role in supporting economic activities. It contributes directly, by providing resources and raw materials such as water, timber and minerals that are required as inputs to produce goods and services; and indirectly, through services provided by ecosystems including carbon sequestration, water purification, managing flood risks, and nutrient cycling.

`Natural` disasters directly affect economic activities leading to very high economic losses throwing many households into poverty. Maintaining ecosystems and mitigating climate change can therefore have a great positive impact on countries` economic and employment sectors

I**ndustry, Innovation, and Infrastructure - Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation**
Constructing new greener infrastructures, retrofitting, or reconfiguring existing infrastructure systems and exploiting the potential of smart technologies can greatly contribute to the reduction of environmental impacts and disaster risks as well as the construction of resilience and the increase of efficiency in the use of natural resources.

Sustainable Cities and Communities - Make cities and human settlements inclusive, safe, resilient, and sustainable

There is a strong link between the quality of life in cities and how cities draw on and manage the natural resources available to them. To date, the trend towards urbanization has been accompanied by increased pressure on the environment and accelerated demand for basic services, infrastructure, jobs, land, and affordable housing, particularly for the nearly 1 billion urban poor who live in informal settlements. Due to their high concentration of people, infrastructures, housing and economic activities, cities are particularly vulnerable to climate change and natural disasters impacts. Building urban resilience is crucial to avoid human, social and economic losses while improving the sustainability of urbanization processes is needed to protect the environment and mitigate disaster risk and climate change. Resource efficient cities combine greater productivity and innovation with lower costs and reduced environmental impacts, while providing increased opportunities for consumer choices and sustainable lifestyles.

Responsible Consumption and Production - Ensure sustainable consumption and production patterns

One of the greatest global challenges is to integrate environmental sustainability with economic growth and welfare by decoupling environmental degradation from economic growth and doing more with less. Resource decoupling and impact decoupling are needed to promote sustainable consumption and production patterns and to make the transition towards a greener and more socially inclusive global economy. To ensure sustainable consumption and production practices necessarily entails to respect the biophysical boundaries of the planet and to reduce current global consumption rates to fit with the biophysical capacity to produce ecosystem services and benefits.

Climate Action - Take urgent action to combat climate change and its impacts:

Climate change is increasing the frequency and intensity of extreme weather events such as heat waves, droughts, floods and tropical cyclones, aggravating water management problems, reducing agricultural production and food security, increasing health risks, damaging critical infrastructure, and interrupting the provision of basic services such water and sanitation, education, energy, and transport.

Life Below Water - Conserve and sustainably use the oceans, seas, and marine resources for sustainable development

The oceans cover more than 70 per cent of the surface of our planet and play a key role in supporting life on earth. They are the most diverse and important ecosystem, contributing to global and regional elemental cycling, and regulating the climate. The ocean provides natural resources including food, materials, substances, and energy.

Marine Protected Areas contribute to poverty reduction by increasing fish catches and income, creating new jobs, improving health, and empowering women. Increasing levels of debris in the world's seas and oceans is having a major and growing economic impact.

Life On Land - Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Terrestrial ecosystems provide a series of goods, raw materials for construction and energy, food and a series of ecosystem services including the capture of carbon, maintenance of soil quality, provision of habitat for biodiversity, maintenance of water quality, as well as regulation of water flow and erosion control, therefore contributing to reduce the risks of natural disasters such as floods and landslides, regulate climate and maintain the productivity of agricultural systems. Maintaining those ecosystems greatly support climate change mitigation and adaptation efforts.

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Appendix 2 - Important actors on global and regional level for the protection of the environment

An environmentalist ("greenie"; "tree-hugger") is a person who is concerned with and/or advocates for the protection of the environment. An environmentalist can be considered a supporter of the goals of the environmental movement - a political and ethical movement that seeks to improve and protect the quality of the natural environment through changes to environmentally harmful human activities. An environmentalist is engaged in or believes in the philosophy of environmentalism.

- **Alexander von Humboldt** (the first environmentalist – early 19th century)
- **Rachel Carson** - Silent Spring, 1962 (author and marine biologist) – She sounds the alarm on the ill effects of DDT and other pesticides in this best-selling book, which kick-starts the modern environmental movement.
- **Al Gore** - An Inconvenient Truth, 2006 (politician, former Vice President of the United States) – He educated people about global warming and spurs widespread awareness of human contributions to climate change.
- **Chico Mendes** (conservationist and activist) – He and Marina Silva led demonstrations in the 1980s to protect the rainforest from government control. He fought to preserve the Amazon rainforest and advocated for the human rights of Brazilian peasants and indigenous peoples. 1988 he was assassinated by a rancher. The Chico Mendes Institute for Conservation of Biodiversity (Instituto Chico Mendes de Conservação da Biodiversidade or ICMBio), a body under the jurisdiction of the Brazilian Ministry of the Environment, is named in his honor.
- **Wangari Maathai** (political and social activist and environmentalist) - In 1977, Maathai founded the Green Belt Movement, an environmental non-governmental organization focused on the planting of trees, environmental conservation, and women's rights.
- **Vandana Shiva** (Indian scholar, environmental activist, food sovereignty advocate, and anti-globalization author) – Founder of Navdanya, a research institute that aims to protect the diversity and integrity of native seeds while also promoting fair trade practices. Shiva is one of the leaders and board members of the International Forum on Globalization.
- **Isatou Ceesay** (Gambian activist and social entrepreneur)- She started the recycling movement called One Plastic Bag in the Gambia. Through this movement, she educated women in Gambia to recycle plastic waste into sellable products that earned them income.
- **Greta Thunberg** (Swedish environmental activist) - She is internationally known for challenging world leaders to take immediate action against climate change. Thunberg's activism started after convincing her parents to adopt several lifestyle choices to reduce their own carbon footprint. ("The world is waking up, and change is coming, whether you like it or not.")- Fridays for Future movement.

Appendix 1 - Additional resources

Resource Title:	Earth Day
Introduction to the resource:	An initiative that helps you to learn more about international earth day.
What will you get from using this resource?	You can learn more about Earth Day.
Link to resource	https://earthday.maps.arcgis.com/apps/opsdashboard/index.html#/8d15cc3da12d4338a109c7d64c97c02a, https://www.earthday.org/earth-day-2020/ https://www.bbc.com/future/article/20200420-earth-day-2020-how-an-environmental-movement-was-born

Resource Title:	Five environmentally aware events to have in your radar
Introduction to the resource:	UN environment programme, Sustainable Development Goals on the issue of environment
What will you get from using this resource?	You can read more about environmentally aware event.
Link to resource	https://www.unep.org/news-and-stories/story/five-environmentally-aware-events-have-your-radar

Resource Title:	Young champions of the world
Introduction to the resource:	Learn about initiative that encourage and give opportunities to young people in the fight for saving our world.
What will you get from using this resource?	You can read more about young champions of the Earth.
Link to resource	https://www.unep.org/youngchampions/

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HISTORICAL FRAMEWORK ON ENVIRONMENTAL ADVOCACY

Environmental advocacy may represent an individual or collective action based on some social, political, personal philosophical believes. Defending environment and environmental rights has its roots far in the history of humankind.
How, why, and when it all started, will be explained in this module. You are invited to walk through the module to get broader insight of the historical truths about environmental advocacy.

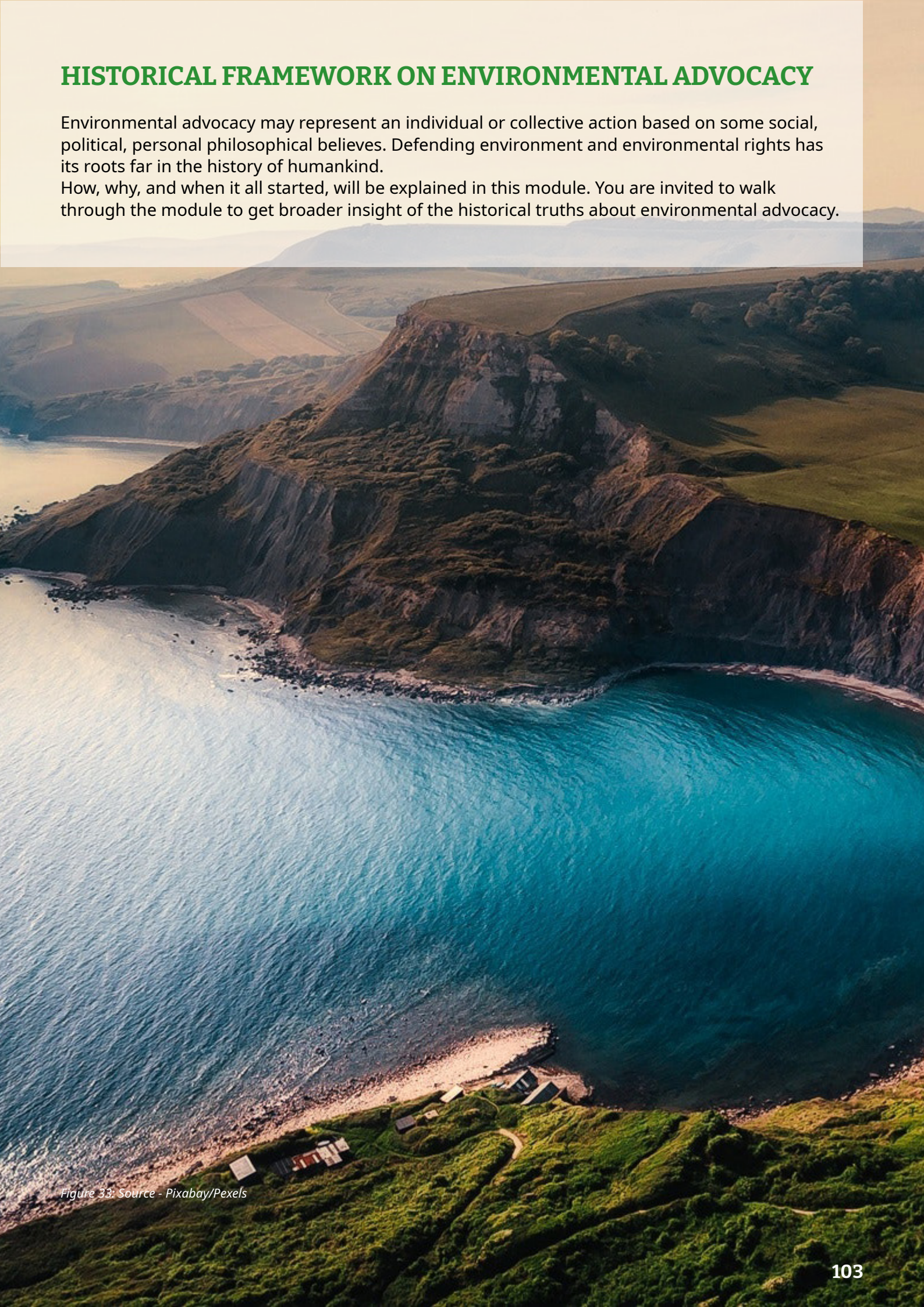

Figure 33. Source - Pixabay/Pexels

How and when it all started?

It all started in 6th Century BC with Jainism's teaching on the symbiosis between all living being and five elements – earth, water, air, fire and space – form the basis of environmental sciences today. In times of industrial revolution the origins of the environmental movement lay in the response to increasing levels of **smoke pollution in the atmosphere**.

In 19th Century some **first laws and acts** were written for the protection of the environment (birds and Swiss and Siberian glaciers). The efforts to **save wildlife** has started in 20th Century. In 1970 the environmental movement gained rapid speed around the world as a productive outgrowth of the counterculture movement. Later that year on 22nd April, the **International Earth Day** has been established in order give the importance of the environment. And here we are, in 21st Century, fighting for environmental protection, countries evolving to face up to new issues such as **global warming, overpopulation, genetic engineering, and plastic pollution**.

Watch the movie, where an environmental activist addresses the issue of plastic pollution. Even if you throw a little plastic bag or bottle into the local river, it will end up in ocean. And where then?

https://www.youtube.com/watch?v=9-dpv2xbFyk

Figure 34: Source - James Roberts/Youtube

Why are historical truths important?

Knowing history allows us to understand today's world, helps us to evaluate the current environmental status, the evolution of environmental pollution and disorder. Environmental activists and data they came up with help us to understand some happenings in today's every day life.

Through the history some important rules have been created for the protection of the environment. This first row is **conservation**.[59]

[59] ***Learn more about the conservation in Appendix 1***

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Environmental protection history in local context?

To improve your environmental protection knowledge, you need to transfer the global environmental protection values onto the local environmental issues. You would simply need to apply gained knowledge into the local case. For doing it so, you can follow the next steps.

Activity toolkit

Now you understand why knowing history is important for your advocacy of environment. It is the time to look up to what you can do in your youth group, your class or even alone to improve understanding of the historical truths about environmental protection? Challenge yourself with the following activity.

Step 1: Find out more about the importance of environmental history

Gather information get familiar with relevant historical truths based on particular environmental issue.
Apply the successful historical case on the relevant current environmental issue and try to solve the issue applying the same methods, or
Adjust the methods to the current environmental status based on historical truths and environmental laws
Map the community; map the potential actions from good practices in history in order to prevent the potential hazards.

Step 2: GETTING INTO ACTION

By the following activity, you will be able to practice your knowledge about history of environmental advocacy and movement. It is best to be practiced by a group but it can be done in individually as well.
Set a group. The group should find the most high-profile movements and campaigns for the selected continent and the case highlighted, and introduce them (for instance: Chipko movement)
Ask yourself or a group the following questions to address the thinking:

- **What** does the movement **advocate**? (for instance: slowing down the rapid deforestation, exposing ownership interests of multinationals and industry, increasing social awareness and the need for solutions trees, raising ecological awareness and demonstrating the viability of humans)
- **What are the characteristics** of the movement? (For instance: non-violent protest, men and women play an active role)
- **What tools** were used to expose the problem? (For instance: hugging trees, workshop - manufacture of agricultural implements for local use)

Think of how can you applicate considered historical advocacy action or movement on today's environmental issues in your local community or, how these actions or movements impacted today's environmental situation.
Previous activity where you analyse certain action or movement will be a good start for your environmental advocacy in other modules, where you learn more about the environmental advocacy itself.

Appendix 1 - Environmental laws: Conservation

Environmental conservation is the protection, preservation, management, or restoration of natural environments and the ecological communities that inhabit them. Conservation is generally held to include the management of human use of natural resources for current public benefit and sustainable social and economic utilisation.

There are several types and methods of environmental conservation:

- Forest conservation - Afforestation and reforestation help in conserving the forests, which are responsible for trapping absorbing a huge amount of carbon dioxide from reaching the atmosphere. (activities: planting trees as much as possible)

- Soil conservation - Soil conservation helps control erosions and improves the soil for agricultural purposes. (activities: planting more trees, protect pasture lands, and grow cover crops which regulate the blowing away of soils, minimise the use of chemicals, use compost fertilisers and terrace farms on sloppy lands)

- Managing waste - Solid waste is produced by market areas, industries, homes, settlement areas and many other locations. (activities: manage solid wastes and help keep the environment healthy, conduct programs that manage solid wastes, designating litter bins all over the towns and collecting the waste regularly, teach ourselves how to manage our waste without littering all over)

- Recycling - Glass, paper, plastic and even metal are reusable, and should not be thrown away after its original use. About 90% of all plastic bottles do not reach recycling units and this is unfortunate. They are not biodegradable and about 500 billion of them are used every year. Reusing these bottles, containers, bags and more will help in environmental conservation. (activities: to learn to recycle everything what it can be recycled for as long as it is possible)

- Reducing our water consumption - Clean, fresh, and safe water is precious and not easily available. It is therefore very crucial to save as much water as possible, and prevent water pollution, otherwise, it will be scarce in years to come. (activities: reduce the number of baths, take showers, use the washing machine only, do not discard waste in bodies of fresh water, and recycle)

- Control pollution - Using rechargeable batteries helps the environment as we will not be prone to throwing them away once they are empty. Composting also avoids littering, and not only does it protect the environment, but is also a reliable source of natural manure. Avoid chemical fertilizers, herbicides, pesticides, and insecticides that pollute the environment. (activities: maintain cars and leave them at home for as much as it is possible as they are a primary source of air pollution, composting)

- Create public awareness - Make people aware of the consequences of our activities through the various means available such as social media, seminars, and the traditional media. (activities: discuss environmental protection with friends and family members, other people)

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Appendix 2 - Environmental movements

The environmental movement (sometimes referred to as the ecology movement), also including conservation and green politics, is a diverse philosophical, social, and political movement for addressing environmental issues. In its recognition of humanity as a participant in ecosystems, the movement is centered on ecology, health, and human rights. The environmental movement is an international movement, represented by a range of organisations, from enterprises to grassroots and varies from country to country. Due to its large membership, varying and strong beliefs, and occasionally speculative nature, the environmental movement is not always united in its goals. The movement also e compasses some other movements with a more specific focus, such as the climate movement. At its broadest, the movement includes private citizens, professionals, religious devotees, politicians, scientists, nonprofit organisations, and individual advocates.

Appendix 3 - Glossary

Genetic engineering - direct manipulation of organism genes using biotechnology.

Appendix 4 - Additional Resources

Resource Title:	Environmental victories in pictures
Introduction to the resource:	Historical truths into pictures.
What will you get from using this resource?	You will be able to picture better the environmental situations and actions.
Link to resource	https://www.nationalgeographic.com/environment/article/environmental-victories-in-photos

Resource Title:	Environmental History
Introduction to the resource:	Read more about historical truths and events on environmental protection.
What will you get from using this resource?	You will be able to learn more about history of environmental protection.
Link to resource	https://environmentalhistory.org/

CONCLUSION

Currently there is an urgent need to raise awareness among the population about the damage caused to nature. The whole structure of a society depends on nature, and we are all aware of this, although our behaviour does not match this knowledge. In fact, as we witness the unprecedented increase in pressures that threaten the environmental protection agenda, young people around the world are awakening to the fact that without passionate demands for concrete actions to decision-makers, the planet earth has little chance of guaranteeing them a good quality of life.

It is time for a change of mentality and habits to facilitate and improve the situation for future generations. Hundreds of examples that we know of, but do not always put into practice, contribute to a more sustainable planet. The best legacy we can leave to future generations is a habitable planet. The education of the new generations is everyone's responsibility. The young people of today will be world leaders of tomorrow and will have to deal with major environmental challenges and make crucial decisions for humanity. The future is in your hands!

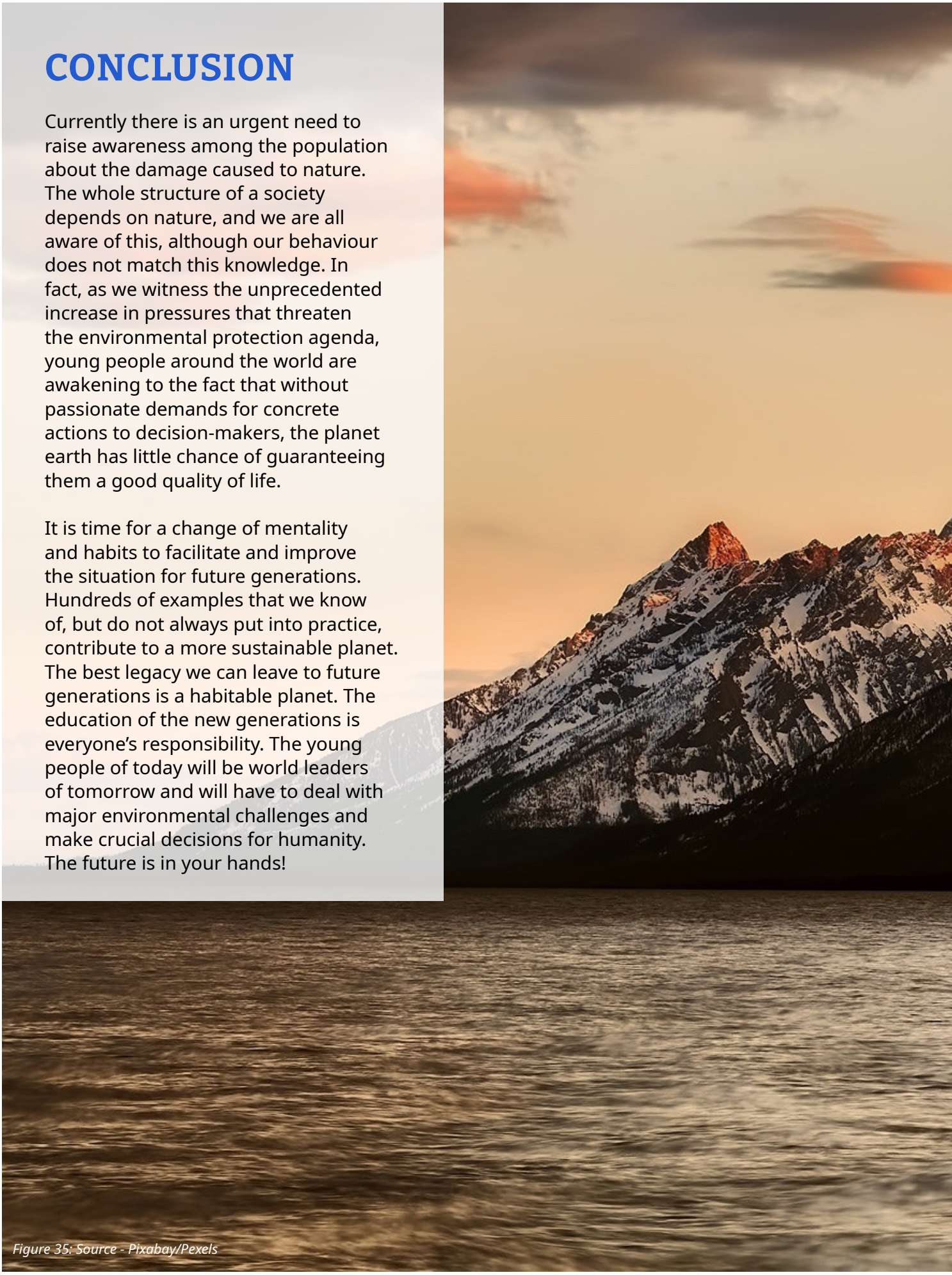

Figure 35: Source - Pixabay/Pexels

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LEARNING GOALS OF EACH MODULE

Module 1: THE PROTECTION OF THE ENVIRONMENT IN EVERYDAY LIFE: AN INTRODUCTION OF ENVIRONMENTAL ADVOCACY

Knowledge:
- Basic information on how to implement environment advocacy
- List of opportunities to get involved in the daily advocacy actions

Skills:
- Developing skills to be creative problem-solver.
- Developing skills to be an active advocate.
- Exercise on how to continue advocacy actions – make or join an association/NGO/group and make a plan. Try out activities. Evaluate.

Attitude:
- Making environmental protection your personal value.
- Getting involved into daily advocacy actions
- Awareness on the importance of collective participation

Module 2: WHAT DOES IT TAKE TO BECOME AN ENVIRONMENTAL ADVOCATE?

Knowledge:
- Basics on advocacy and how it impacts attitudes and actions (including some facts on basic psychology)
- Basics of the needed skills, competencies, and roles of an advocate for environmental protection

Skills:
- Skill to inspire others for the environmental protection (role model)
- Excellent understanding of environment and sustainability but also awareness of current issues
- Leadership skills, in a way to persuade and lead others in environmental protection
- actions
- Cooperation skills
- Communication skills
- Discussion and reflection on practical cases of advocacy for environmental protection.
- What makes it effective?
- Discuss how to be a powerful advocate and how to make an effective advocacy
- campaign.
- Exercise: Develop, research, and collaborate with peers to create your own advocacy project.

Attitude:
- Willingness to get involved with environmental and advocacy organisations in an NGO or school
- Volunteering in local sustainability plan
- Act responsibly - Demonstrate integrity in their everyday decisions and actions
- Willingness to take responsibility for protecting the environment – locally or globally
- Willingness to be a role model or a leader for others
- Willingness to volunteer or get involved with local environmental protection organisations

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Module 3: CLIMATE CHANGE: CAUSES AND CONSEQUENCES

Knowledge:
- Basics on the connection between environment and climate
- Basics on climate mitigation and adaptation,
- Introduction to UN SDG goal no. 13 about climate
- Understanding climate change as a global issue, which can be tackled collectively and individually in the local community

Skills:
- Case study on a particular climate change and its effects and the impact on the future environmental status,
- Reflect on what an individual or a group of young people can do to assist in response to climate change
- Recognise the causes and effects of climate change

Attitude:
- Willingness to take collective actions within the local community to prevent causes of the climate change or to prevent further consequences,
- Willingness to get involved in civil society
- Understand the methods people use to cope with climate change including by taking collective action.
- Act with ethics and sustainability when making decisions that might impact climate change

Module 4: THE IMPORTANCE OF RENEWABLE NATURAL RESOURCES

Knowledge:
- Basics on natural renewable resources
- Basics on some historical truths/ situations
- Human attitude on the use of these resources
- Basics on potential more sustainable ways of the use of natural resources

Skills:
- Recognising the difference between renewable and non-renewable resources and the options for using renewable resources – globally and locally.
- Exercise: Cultivation of a plant in the class or outdoor, planting a tree, discussing how much green space we have around us and doing the research

Attitudes:
- Willingness to use less water and energy when possible or taking a bike instead of car - choosing sustainable options
- Saving natural resources

Module 5: RESPONSIBLE CONSUMPTION AND PRODUCTION

Knowledge:
- Knowledge of the concept and characteristics of overconsumption/overproduction.
- Basics on overconsumption and overproduction, and the consequences.
- Knowledge of main characteristics of the SDG 12 - ensure sustainable consumption and production patterns
- Basics on the impact of personal consumption and consumer habits, and the influence of individual actions.

Skills:
- Defining ratio on the actual needs and the production and consumption
- Recognise that overconsumption causes limitless pressure on natural resource
- Identify the causes and effects of overconsumption on the environment
- Recognise the need to engage in waste reduction practices in everyday life
- Exercise to measure impact of individual consumer habits
- Group or individual work: case study to define how to use less to fulfil same needs

Attitudes:
- Awareness of impact of individual behaviour
- Respect and value of the resources used
- Understanding the importance of buying sustainable products
- Willingness to avoid unnecessary purchase, and alternative satisfaction of needs
- Acknowledging the relationship between consumer and producer
- Act with ethics and sustainability when making decisions about their own consumption habits

Module 6: POLLUTION AND THE EFFECTS ON THE ENVIRONMENT

Knowledge:
- Basics on global pollution
- Basics on the different types of pollution and ways to combat them
- Basics on the effects of the pollution on environment and health
- Basics on the global and regional actions to combat pollution

Skills:
- Group or individual work: Reflect on the risks of pollution
- Group or individual work: Identify a local practical case of pollution and what has been done or can be done to combat it.
- Recognise the negative impact of pollution on the environment

Attitudes:
- Acceptance of the responsibility to act.
- Awareness of the impact of collective and individual action taking.
- Act on creative ideas to make a tangible and useful contribution to fight against pollution in everyday life
- Willingness to transfer awareness and knowledge into practice, such as cleaning neighbourhood
- Willingness to recycle

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Module 7: BIODIVERSITY

Knowledge:
- Basics about biodiversity globally and in local environment
- Basics of the importance of biodiversity
- Basics of what affects biodiversity and the role of humans in this
- Basics on what actions can protect biodiversity with long-term results

Skills:
- Gathering and analysing information about biodiversity in the local community
- Understand the importance of biodiversity for the environment
- Understand he main threats to biodiversity
- Evaluate the existing actions and attitudes in local environment towards biodiversity
- Case work: Identify a local biodiversity issues and possible actions that has been done or can be done to protect the species in danger.

Attitudes:
- Willingness to act
- Openness to address local decision makers and stakeholders and to get involved in the decision-making process

Module 8: ENVIRONMENTAL ETHICS

Knowledge:
- Basics on the environmental ethics - why we are obligated to protect the environment and the dilemmas and issues related to it.
- Basics on global issues and how to put the environmental knowledge into practice

Skills:
- Environmental sensitivity and awareness
- Recognising the relation between freedoms and obligations
- Developing attitude for the sustainable future

Attitudes:
- Individual behaviour as predominant attitude in the environmental protection
- Understanding the importance of collective participation
- Consuming and cleaning habits
- Appreciation of the environment (recognising your obligation to act responsibly)

Appendix module A: INTERNATIONAL EVENTS ON ENVIRONMENTAL PROTECTION

Knowledge:
- Basics on current and already existing events concerning environmental protection
- Basics on some important actors on global and regional level for the protection of the environment
- Introduction to the UN Sustainable Development Goals.
- Basics on other sustainable initiatives – in EU and globally.

Skills:
- Reflections on potential actions in the local community and engagement in international events/ movements. Work with local case:

Attitudes:
- Becoming open to acting in the local community or participating in events, addressing the major goals of international movements
- Openness to address relevant stakeholders for greater impact of your actions

Appendix module B: HISTORICAL FRAMEWORK ON ENVIRONMENTAL ADVOCACY

Knowledge:
- Basic overview on the facts and data on advocacy in the field (the correlation between climate change and environment)
- Basic knowledge on conservations
- Recognising movements
- Recognising sustainable development

Skills:
- Group or individual work: discuss how already existing movements and actions impact today's environmental advocacy

Attitudes:
- Building on understanding of the difference between environmental and climate change advocacy

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