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TEACHERS GUIDE FOR GOING GREEN IN ENTREPRENEURSHIP EDUCATION

JA Estonia
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I INTRODUCTION

In an ever-changing world, entrepreneurship education stands at a crossroads, facing the dual challenges of preparing future business leaders and addressing the pressing environmental concerns of our time. The "Going Green in Entrepreneurship Education" project is a visionary initiative aimed at reshaping the landscape of entrepreneurship education in four countries: Estonia, Cyprus, Lithuania, and Portugal. Guided by the shared mission of advancing innovative and sustainable entrepreneurship education, this project is a collaborative effort between Junior Achievement (JA) organisations, recognized as pivotal actors in entrepreneurship education within their respective countries.

While traditional entrepreneurship education has historically emphasised profit as the primary goal of businesses, the impact of business operations on the environment has increasingly taken centre stage. The global discourse surrounding the environmental footprint of businesses has prompted major companies to revise their practices, weaving environmental responsibility into their production and marketing strategies. However, the integration of environmental considerations into entrepreneurship education still requires a more comprehensive and integrated approach, beyond mere rhetoric, into actionable initiatives that can deeply influence the mindsets of future business leaders.

The "Going Green in Entrepreneurship Education" project is a response to this need. It seeks to develop a systematic and holistic approach to infuse a green perspective into every facet of entrepreneurship education. This transformation will be achieved through a dynamic blend of hands-on activities, simulations, business games, group work, and case studies. By creating or adapting these instructional materials specifically for this purpose, the project aspires to offer a cohesive program that can be integrated into existing entrepreneurship education curricula. Extensive research suggests that students need to engage with environmental topics for a minimum of 100 hours to significantly alter their thinking patterns. Our project, with a focus on hands-on activities, aims to fulfil at least 35 of those crucial hours. When combined with JA programs that currently offer approximately 70 hours of entrepreneurial studies, a transformative double impact – both entrepreneurial and environmental – will be achieved in nurturing a new generation of environmentally conscious young entrepreneurs.

Crucially, the project also underscores the importance of empowering educators to effectively deliver this green entrepreneurship curriculum. To this end, teacher trainers from all participating countries will undergo comprehensive preparation during the programme, with teacher training sessions subsequently organised in each participating country. These teacher training initiatives aim to equip JA teachers, who represent the majority of entrepreneurship instructors in the participating countries, with the skills and knowledge required to effectively utilise the project's innovative simulations and materials. Ongoing feedback from teachers throughout the project will inform any necessary adjustments, ultimately culminating in the creation of a comprehensive teachers' guide, accessible to educators across all participating nations.

As we embark on this journey, each participating country will contribute its unique expertise in teaching entrepreneurship with a sustainable focus. Together, we envision a future where entrepreneurship education not only equips young minds for business success but also empowers them to lead the charge in building a more environmentally responsible and sustainable world. The "Going Green in Entrepreneurship Education" project represents a dynamic step forward in this inspiring endeavour.

Environmental Entrepreneurship Definition:

Environmental entrepreneurship, a subset of social and sustainable entrepreneurship, encompasses a business approach centred on tackling environmental challenges while also weighing the social and economic implications. This niche field has gained prominence due to the urgent global demand for environmental sustainability and the acknowledgment that **businesses can significantly contribute to achieving environmental objectives.**

Environmental entrepreneurship is a type of entrepreneurship, exercised to resolve environmental challenges, towards the efficient operation of the market and for the enhancement of ecological sustainability (Dean and McMullen, 2007). It focuses on identifying opportunities that arise from environmental degradation and involves the process of identifying, assessing, and exploiting economic prospects inherent in environmentally significant market failures (Dean and McMullen, 2007). Its goal is to generate both economic and ecological advantages (Thompson, Kiefer and York, 2011).

It is important to note that environmental entrepreneurship does not establish a separate field of study but rather resides within the broader entrepreneurship domain. However, it raises its own unique questions and emphasises distinct phenomena within entrepreneurship.

The European Commission, in its Green Entrepreneurship Training (GET- UP Project, IO6 – Policy Paper, 2016), outlines several **key qualities often found in environmental entrepreneurs**. Let's delve into each of these attributes:

- ➔ **Self-Belief and Focus:** Successful entrepreneurs, including those in the environmental sector, typically exhibit a strong self-belief in their abilities. This self-confidence empowers them to persevere through challenges and setbacks, and their unwavering focus on their goals keeps them motivated and on the right track.
- ➔ **Open-Mindedness and Adaptability**: Being open-minded and adaptable is essential in the ever-evolving entrepreneurial landscape. Environmental entrepreneurs, in particular, often operate in innovative and environmentally conscious sectors where new ideas and technologies constantly emerge. They recognize that mistakes are a natural part of the learning process and are unafraid to experiment with novel concepts.
- ➔ **Embracing Change**: Environmental entrepreneurs are forward-looking individuals who eagerly embrace change and innovation. They understand that the world is constantly evolving and aim to stay at the forefront of these changes. This mindset is critical for

remaining relevant and sustainable in a rapidly changing environmental and business environment.

- ➔ **Competitiveness and High Standards:** While financial gain may not be the sole motivator for many environmental entrepreneurs, they often possess a competitive spirit and set high standards for themselves and their businesses. They strive to make a positive impact on the environment and society, and their pursuit of excellence drives them to achieve their sustainability goals.

Green entrepreneurs demonstrate a steadfast commitment to success, overcoming obstacles with unwavering determination. They exhibit resourcefulness and creativity, continuously seeking innovative approaches to enhance sustainability. Moreover, they are characterised by their abundant enthusiasm and motivation, often fueled by a deep and passionate dedication to creating a more equitable and improved society.

Primarily, green entrepreneurs are effective leaders who have the capacity to inspire and guide others in effecting change and progress. Alongside these qualities, successful environmental entrepreneurs often possess attributes such as a genuine passion for environmental sustainability, a deep understanding of the environmental issues they address, effective networking and communication skills, and the ability to take calculated risks.

Becoming an environmental entrepreneur may present challenges, but with the right combination of these qualities and a steadfast dedication to their cause, individuals can make a meaningful impact on the environment and achieve their goals in the green business sector.

ACTIVITY 1.1.

Based on the Green Entrepreneurship Training (GET- UP Project, IO6 – Policy Paper, 2016) of the European Commission some **key qualities often found in environmental entrepreneurs** are the following:

1. Self-Belief and Focus
2. Open-Mindedness and Adaptability
3. Embracing Change
4. Competitiveness and High Standards

Form small groups of 4-5 students and discuss why these qualities are important. Ask students to present their opinions.

II RESOURCES

Slogan: Everybody knows that resources are limited, but…

When making a green turn in entrepreneurship education it is necessary to turn students' attention to resources used for production or delivering service. In this project for giving a systematic approach and for being consistent also with traditional entrepreneurship studies the classical approach to entrepreneurship is taken as a basis of analysis and development into a more environmentally friendly one. So it is based on three main resources: 1) natural resources, 2) human resources, 3) capital resources.

1. For natural resources it is important to point out four key words:

1.1. Refuse
1.2. Reduce
1.3. Reuse
1.4. Recycle

1.1. The first goal is to minimise the amount of waste we generate. Learning to **refuse waste** (or low quality materials) can take some practice, but incorporating this step into the business' strategy is the most effective way to minimise waste. If it is possible not to use some resource (e.g. for packaging or for not necessary design) consider this option. Do not buy not recyclable materials, think about the future of your product.
1.2. **Reduce the amount of resources** by using materials, energy, water, etc. more efficiently. Think through all steps of production, marketing, transportation from this aspect. Print your documents double-sided, Often the solutions are not only good for the environment, but also for your business profit.
1.3. **Reuse** the same packages over and over again, reuse water when it is suitable in the process. Sometimes, even often, it is possible to reuse waste and scrap materials for other purposes. Creativity in this field can help to save our planet and in many cases also increase the profitability of business
1.4. **Recycle materials** of your own and of other businesses for producing your own product. It is cheaper for you and also for your donor business, so usually this cooperation is a win-win situation. And the third winner is our planet. Go for win-win-win!

There are more important suggestions for using natural resources in an environmentally friendly way. We will continue with:

- ➔ Use **local resources** as much as possible. It reduces transportation distances and gives work for your neighbourhood.
- ➔ When buying resources look for **certified materials** to be sure that they are in compliance with green standards.

- ➔ In addition to recycling materials of other businesses, use **upcycling** – look for residuals from other companies. It is again a win-win-win deal!
- ➔ **Downcycling** materials is recycling of waste where the recycled material is of lower quality and functionality than the original material. Still, it is worth doing it. When upcycling increases the value of the product you have recycled and downcycling decreases the value but still will be able to be reused and not just go straight to landfill.
- ➔ Use **renewable materials** instead of non-renewable natural resources. They can be even more expensive at the moment but think about the future!
- ➔ Last but not least: if possible, think about using **biodegradable materials**, so that when the life-cycle of your product comes to an end, it can disappear without having harmful effects on our environment.

2. For Human Resources (leadership and employees of a company) it is necessary to turn attention to three aspects.

2.1. Environmentally awareness of leadership and employees
2.2. Development of leadership and employees.
2.3. Creativity for solving problems

2.1. Environmental **awareness** includes three steps: **knowledge, attitudes and behaviour.** They all can be changed but methods can be different. If people do not have knowledge, they can act environmentally harmful without noticing it, even if they have the right attitude. If people have knowledge but they do not believe in the possibility of green turn, deny it, or are simply selfish and do not care, their attitude has to be changed step-by-step, and if it is not possible, those people cannot work in a sustainable business. Very often even knowledge and a right attitude do not help: people know and even feel that acting in an environmentally friendly way is correct, but they are under the influence of other people or postpone changing their behaviour or are too lazy for it. The only way out of it is systematic education, motivation – development.

2.2. **Development of leadership and employees** is a permanent process and never ends also in the field of green entrepreneurship. The easiest part is delivering new data, giving more facts about the necessity of going green. Changing attitudes takes more time and energy and the first people who have to have the right attitude are the leaders of the organisation. Sometimes motivation for acting green comes from governments by awards and punishment, but education has a leading role here. The younger people start to think in an environmentally friendly way, the more stable the result (as with all attitudes). Education and motivation to act green is a permanent activity of any leadership. The most important way for it is to become a role model and act always in a sustainable way.

2.3. **Creativity** – let your team think of solutions for green options themselves. Train them in creativity, and create an open atmosphere for being creative. If people find solutions themselves, they are more eager to go for them. It is also a great way to motivate people to act in a green way.

3. Capital Resources are those durable produced goods that are in turn used as productive inputs for further production. For an environmentally friendly use of capital resources it is important to take into consideration the following aspects:

3.1. Quality and long life cycle
3.2. Repairability
3.3. Recyclable
3.4. Renting not buying

3.1. When a company is buying capital resources (e.g. machines) it has to think about the **quality** of the machines – what material is used to produce them and how long will they function. The time of depreciation is important but very often machines can be used also after this time. If your company does not need a machine anymore, it can still be possible to sell it or donate to someone else to use it for a longer time.
3.2. Think about repairability of the capital resources you are going to buy some. Is it possible to do it, are the parts available, is there enough competence for changing parts in the neighbourhood and what is the cost of it? Try always to choose repairable ones – even if you are not going to repair them, the next owner can do it.
3.3. Let's go back to the first point: material of your machines. If their lifecycle is really over, is it possible to **recycle** them – what is their material? It's also a very important point for making your buying decisions – for businesses but also for your domestic machines.
3.4. If it is possible, do not buy machines, **rent** them. It is possible if you do not need them every day without breaks. Then less machines are needed in the community as a whole as other people and businesses can use the same machines when you do not use them. It is also more cost efficient for a company.

ACTIVITY 2.1. Environmentally Friendly LEGO Tower

(Instead of the well-known spaghetti tower)
Using LEGOs also enables a teacher to be environmentally friendly and use the blocks several times with different groups.

The goal of the game: to find a balance by completing the task of building the highest tower, while minimising the resources used: time and materials. Competencies are also involved: team working, problem solving and communication skills.

Students should plan, design, calculate cost to maximise the positive impact and construct a tower made from Lego bricks.

The phases are:

- ➔ Challenge setting
- ➔ Planning phase

- ➔ Dismantling and submitting the tender
- ➔ Timed building
- ➔ Judging and feedback

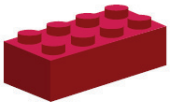
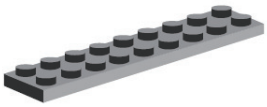
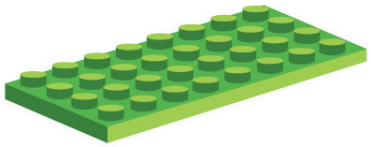
Resources Required

For facilitator:

- ➔ PowerPoint presentation with introduction, task and graphs (optional)

For participants per small group/team:

- ➔ 1 set of Lego bricks per team (in box or container)

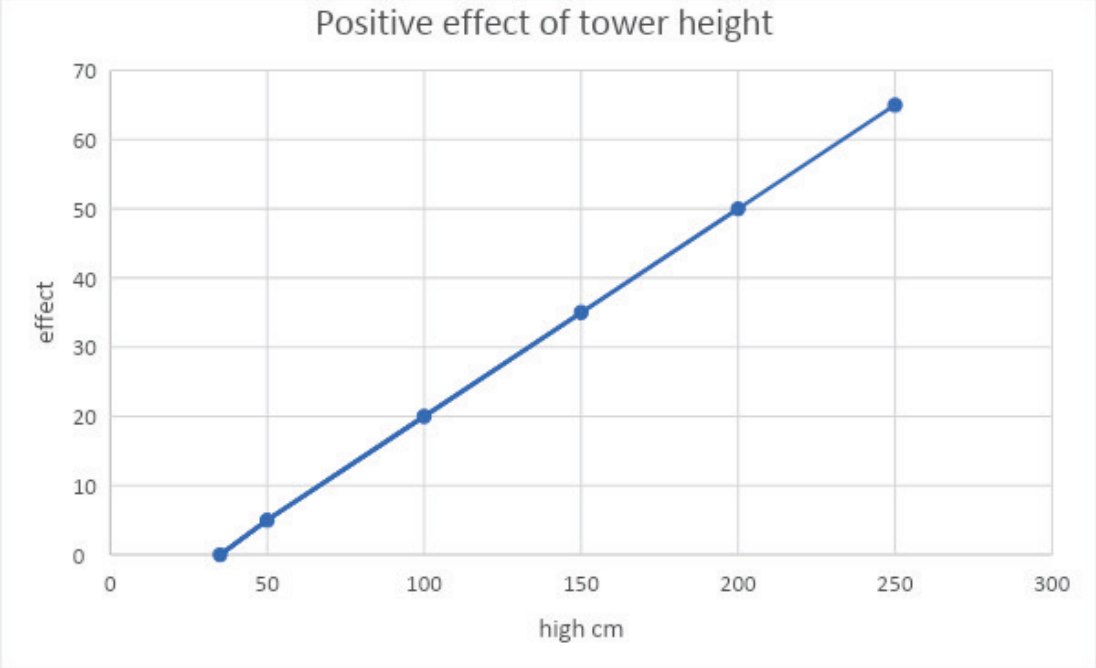
Brick 40 of (2 x 2) Design ID: 3003		Quantity x 40
Brick 50 of (2 x 3) Design ID: 3002		Quantity x 50
Brick 100 of (2 x 4 Design ID: 3001		Quantity x 100
Plate 10 of (2 x 10) Design ID: 2445		Quantity x 10
Plate 1 of (8x16) Design ID: 92438		Quantity x 1

- ➔ 1 participant brief per team
- ➔ 1 measuring tape per team
- ➔ 1 stopwatch per session
- ➔ Prizes (optional)

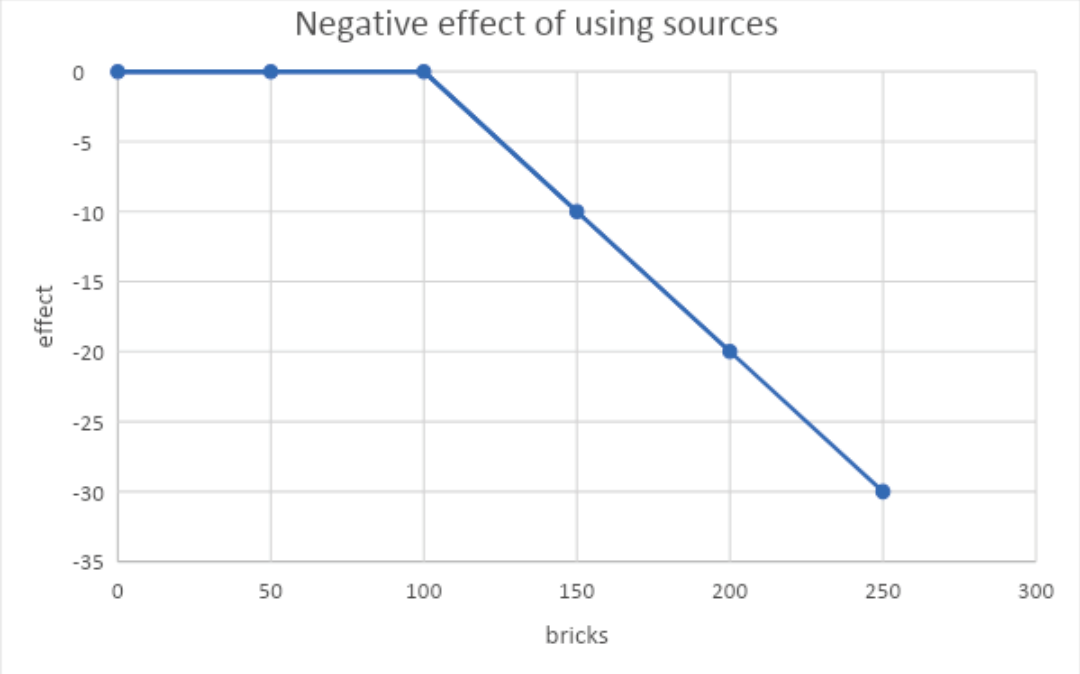
Introduction:

Participants are given the task of building a tower. The higher the tower, the greater the positive effect on the environment: it takes up less space, the overall costs of a large building are lower than for many small buildings and it is possible to see farther (can be used as a fire protection tower, etc.)

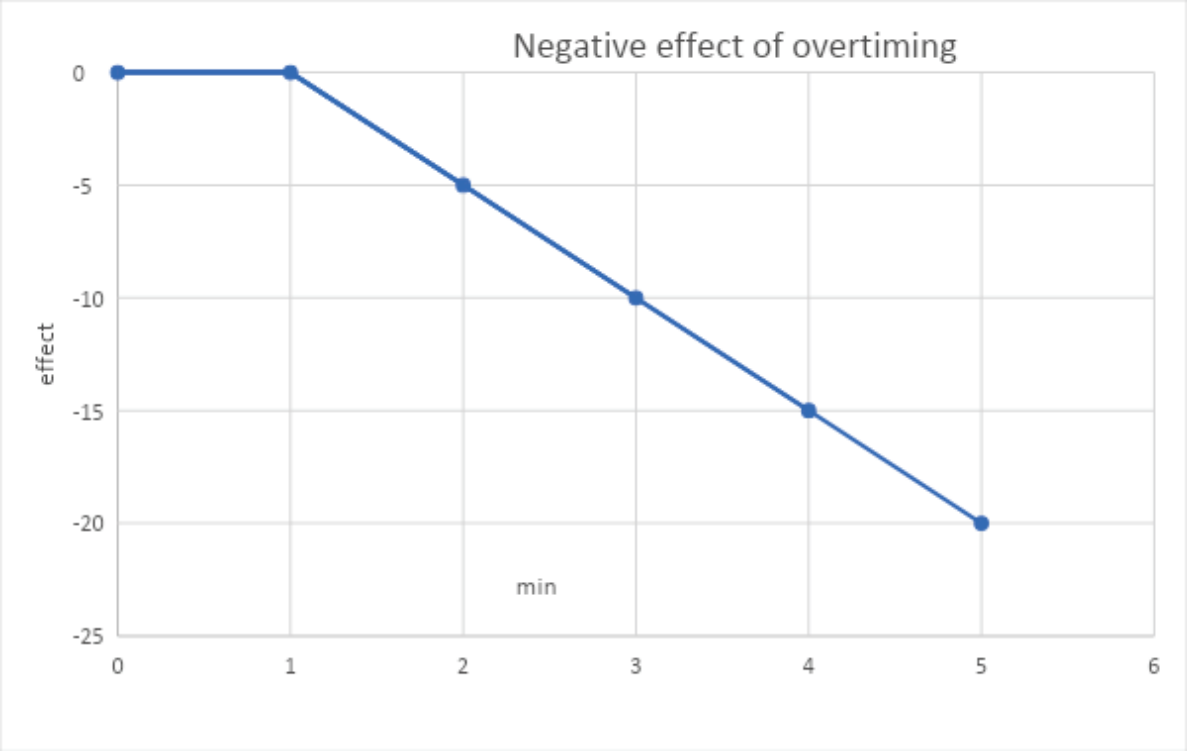
The positive effect of building height is shown in the following graph:



But there are also negative effects during construction. The more resources are used, the higher the negative effect. The production of these resources has a negative impact on the environment.
The graph shows the negative effect depending on the amount of resources used:



Also, the long time spent on construction can negatively affect the environment.
The graph shows the negative effect of overtiming:



In the planning stage (30 minutes), the participants check their resources, graphs of negative and positive effects and try to build a tower. At the end of this stage, they fill out a tender sheet and give it to the leader.

	planned		real	
	quantity/ meters/ minutes	effects	quantity/ meters/ minutes	effects
Bricks				
Hight				
Time				
Penalty/Bonuses				
Total				

Construction stage. Depending on the number of teams, the teams can build their towers simultaneously or one after another, so that the leader (judge) can observe and time the construction. Alternatively, one participant from each team is appointed as a judge and goes to check time and observe the work of the other team.

After the towers are built and measured, the judge or participants themself fills out a tender sheet with real data and calculates the positive or negative effect.

Depending on the group, penalties or bonuses can be added and also disqualification conditions.
If there are prizes, you can reward the winning team.

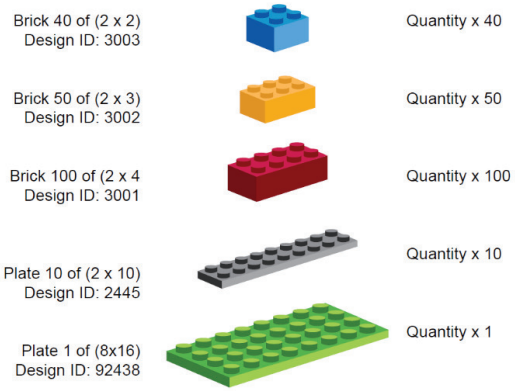
Attachments for activity 2.1.

Participant brief

The planning phase (30 minutes)

- ➔ Your team is working as a construction company.
- ➔ A client requires a tower to be built which will have both retail and residential use (shops and apartments).Using the Lego bricks provided, your company must plan, design and tender for this work.
- ➔ You can build your tower to any design, but it must be free-standing and stable enough to be measured.
- ➔ Give your company a suitable name.

1. Check the materials that have been delivered to you. You should have the following quantities and types of bricks (colours may differ).
2. Discuss and try out various designs of towers within your team.
3. Use the profit graphs to help you maximise positive impact.
4. Draw your final plan.
5. Complete the tender sheet
6. Dismantle all building work, making sure that no bricks are still connected and that they are not touching each other.



The base brick is free and does not need to be accounted for on the tender.

The construction phase (5 minutes)

- ➔ Under controlled conditions, and in front of a judge, your team will build the tower according to your plan and tender. The tower must remain standing for sufficient time for it to be measured.

Judging and feedback

- ➔ After the towers are built and measured, the judge fills out a tender sheet with real data and calculates the positive or negative effect of each tower.
- ➔ Penalties or bonuses can be added by judge(s)
- ➔ The company making the maximum positive impact will win.

Tender Sheet

Company name _____ Group number _____

	planned		real	
	quantity/ meters/ minutes	effects	quantity/ meters/ minutes	effects
Bricks				
Hight				
Time				
Penalty/Bonuses				
Total				

Please use the space below to draw a rough sketch of your tower.

ACTIVITY 2.2. Fishing Game

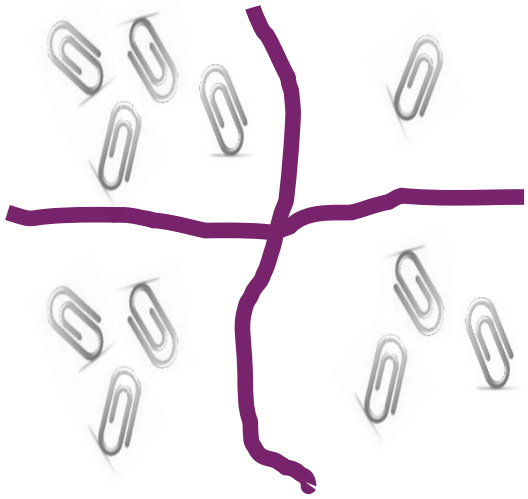
Explain to students that the main problem to be solved in economics is SCARCITY of resources and this problem is actual equally for rich and poor people and rich and poor societies. The fishing game consists of three stages.

First round: Ask four or nine volunteers to come in front of the classroom. The number of volunteers is your own choice and you can also use another number of participants but then you have to use your creativity in dividing the „lake" space into equal territories in the second round. How you draw the playing space on the floor depends on the number of players but it will be important for the second round, not for the first one.
For this game you need 30 paper clips or paper pellets made from used paper. You can reduce or increase the number of clips if you want to. You have to draw a circle or a square to the floor with chalk or use adhesive tape (preferable from paper) to mark the territory. Tell students that this is the lake where fishes live and all families get their income from fishery. The volunteers stand around the square or circle. Teacher tells them that the clips are fishes and throws the clips on the floor. The clips that fall outside the marked territory are dead and not eatable, so it is prohibited to pick them up.
The teacher writes on the board the simple principle of how the price of fishes varies depending on the fishing time.

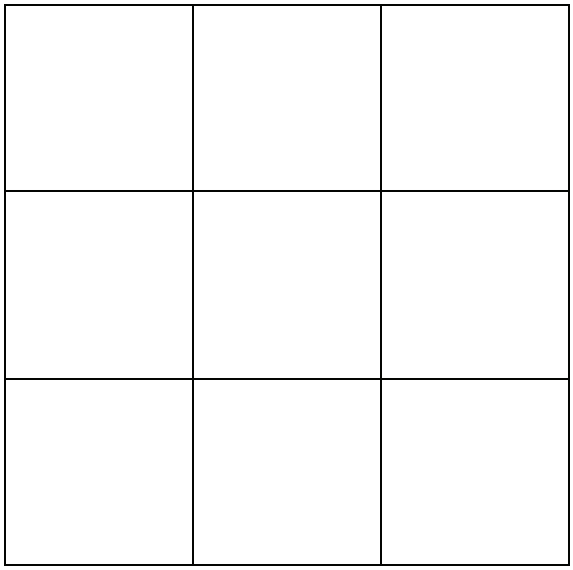
First 20 seconds – 5 cents
Next 20 seconds – 10 cents

The teacher is free to change the fishing time and also the cost of fishes but the periods have to be with equal length and money doubled during the next period. You can also replace money with small candies or some other award.
When the teacher says: START, students are allowed to start picking clips, i.e. fishing When the time is over, the teacher buys the fishes from fishermen.
Students are not allowed to speak. What happens? Almost always all clips are picked up during the first period and there will be no second one. Ask students why it has happened and analyse it. Usually people are rational and self-interested as economics assumes. As the first person has picked up a clip, others are afraid to get nothing and also rush to pick them.

The second round. Use the same volunteers or ask for new ones. It is better to use the old ones as then it is sure that the result does not depend on the individual characteristics of people, but you may also invite other students to increase their involvement. Now divide the marked territory into almost equal parts.



For 4 players



For 9 players

Each player gets their own territory and is not allowed to pick clips from outside it The other rules remain the same. Throw the clips up again. What happens now?
Usually nobody picks clips during the first period, and everything is picked up during the second one. So it is more efficient for the economy. But – the result is unequal as clips do not fall down equally to all sectors. Here it is possible to discuss the difference between private property and commonly owned property. And also the difference of resources owned by private people and countries. It happens that these students whose "lake" was empty like more the public property as there they got at least something.
The last question to students in this round will be: but what was left for the next generation? You have taken all the fish out of the lake!

Third round: Discussion of students how to motivate fishermen not to take all fish out of the pond even if they own them and are free to do what they want. Is it possible to convince all private people to keep some of them also for the future? Who has to do it? What is the role of government? Education?

ACTIVITY 2.3. Generations

This activity explores the effect of using the non-renewable resources on future generations.

Have a large bag of candies for each group of twelve participants. Put about half the candies in one paper bag and half into another—however, put no one kind of candies ("brown" ones) in the second bag. Make a set of index cards with two of each for the following roles: grandchildren, children, parents, grandparents, great-grandparents and great-great-grandparents. Divide the roles between participants so that each generation will have 2 members. If you have more participants, form a group of 3 people for great-great grandparents and grandparents and pairs for children.

To begin discussing the difference between renewable and nonrenewable resources that humans rely on for survival. Next, explain that the candies in the first bag represent those resources humans need to survive. And don't forget to say that the amount of candies that they take describes their living standard – the more the better they live. Now the game starts.

- ➔ Tell the great-great grandparents to take as many candies (i.e., resources) as they want without looking in the bag—but not to eat them until the end of the game.
- ➔ Have each generation pass the bag to the next younger generation, each taking as many as they want, until each generation has had a turn, or the bag is empty. It is possible that some participants will not get any candies. If that happens, don't worry! (Remember you have a second bag full of "renewables" in reserve.) Ask "What would happen to the next generation to be born if the bag is empty?"
- ➔ After discussing the ramifications of running out of resources (i.e., candies), explain that "brown" candies are non-renewable and the other colours renewable, and that to stay in the game, a player must have at least one brown candy.
- ➔ Explain that to acquire more candies participants can trade with each other at whatever exchange rate they agree upon. Allow several minutes to pass as trades are conducted.
- ➔ At the end of trading, participants without any brown candies are eliminated (they get to keep their pile candies) unless a generation before them wills them an inheritance that include brown candies.
- ➔ Offer to trade with the remaining players (from the reserve bag of candies) at a fixed exchange rate of 1 brown for 4 of any other colour.
- ➔ After trading any player without brown candies is eliminated (they get to keep their pile of candies). This concludes the "game" portion of the activity.

Continue by discussing which type of trading the participants preferred—unregulated or fixed rate. Then discuss the value of the brown candies or non-renewable resources. [Historically, metals and gemstones have had the greatest value, while coal and oil were less valuable.]
Follow up with a discussion of leaving an inheritance for future generations.
Lastly, ask participants, "What is the value of clean air and fresh water?"
Share the remaining candies with the group and enjoy.

ACTIVITY 2.4. Ancestral Heritage

Give students a list of typical needs and wants. Do not tell them yet that these numbers demonstrate the resources needed to satisfy their needs. They must estimate on which level of the scale they want to be, it is the living standard that they choose.

Scale is from 1 (only the basic needs) to 30 (luxury, all comforts and the highest choice and quality). They can choose any number from 1 to 30 or 1-10.

Housing (the scale 1– 30)
Food (1-30)
Clothing (1-30)
Transportation (1-30)
Travelling (1-30)
Entertainment (1-10)
Health (1-10)
Hygiene and cosmetics (1-10)
Communication (1-10)
Pets (0-10)

Divide students into groups of 5 people (Great grandparents, Grandparents, Parents, Children, Grandchildren). If the number cannot be divided to 5, add one person to Great grandparents, then one to Grandparents, and one to parents. If one is still odd, add 2 great grandparents.

All students in groups write down their decisions. Maximum is 200 for one person. Ask them to add the numbers of one group together (maximum 1000 per 5 students, 1200 per 6 student group, etc.) and say that you have non-renewable resources only for 500 points (you may change this number). If ancestors have used all of them nothing is left for children and

grandchildren and there is a great tragedy. Now give them another 5 minutes to rethink their needs and make a new calculation.

Discuss the current situation and the need to economise, give up some of their wishes and make a difference between a want and a need for maintaining important resources also for the future generations.

ACTIVITY 2.5. Human Resources:My Knowledge, Attitudes And Behaviour About Going Green

Describe students the role of a manager in going green in the organisation. Iti s important that the manager creates conditions for green turn, is the role model, follows the implementation of green turn process and motivates the team in it.

The first thing is to determine the knowledge, attitude and behaviour of the team.So for a short simulation ask students to work in small groups.

Ask them three questions.

1. Is the green turn necessary? They have to:

➔ write down all pros and cons *(10 minutes)*
➔ present them *(2 minutes)*
➔ their final decision in one sentence
➔ answer to the questions of other teams

2. What am I doing for green turn?
   They work individually, writing shortly down their actions. A facilitator may present some fields to make their work a bit easier (for example_ describe your morning before coming to school, what transportation you use, your clothing – what do you wear? Your leisure time and travelling, etc.) *(15 minutes)*
   Then let them work in teams and discuss their typical behaviour and assess it from the ecological point of view.

3. Now three questions in one: What more must I do? Or What must I do differently? What must I give up doing? *(15 minutes and then discussions in pairs)*

ACTIVITY 2.6. Dreams And Reality

Ask students to take 10 minutes to write down their wishes. Write them down.
After that give them 5 more minutes to write down what they would do if they got 100.000 euros? Or if money was not important for them at all?
Now ask them to take 10 minutes to analyse all their wishes allocating them into three columns.

My dreams and wishes

ENVIRONMENTALLY FRIENDLY	ENVIRONMENTALLY NEUTRAL	ENVIRONMENTALLY HARMFUL

ACTIVITY 2.7. My Days Go Green

Ask students to follow their day writing down their main activities and then dividing them into three categories.

ENVIRONMENTALLY FRIENDLY	ENVIRONMENTALLY NEUTRAL	ENVIRONMENTALLY HARMFUL

Or write down their main activities *(15 minutes)* and then evaluate them on scale

0_____5_____10

Environmentally harmful | Environmentally neutral | Environmentally friendly

ACTIVITY 2.8. Using Forests

Overusing forests is a problem that is widely discussed. Timber is a renewable material and very often it is said that timber can replace plastic in many places. Still cutting trees has also a huge impact on our environment if it is done abruptly, too actively, in sensitive places and without clever strategy. Tell students that they are going to work in groups and discuss what kind of using forests has to go on and what has to be ended. They have to think about forests as a resource, about entrepreneurship, users' needs, and about the environment.

Divide students into groups of 4-6 persons. They all get a set of cards with a description of one use of forest on each. The fields of use are: Paper Industry, Timber as a building material, Grazing, Medicine Industry, Charcoal, Firewood.

Students read the descriptions and then make a row from the cards so that the field of use that has to go on for sure (the most important one) will be at one end and the one that can be finished or used much less is at the other end. For this they may need about 15 minutes as they have to read the information and then discuss with each other what to do.

When they have finished, each group makes their presentation and then they will decide as a whole class which activities are definitely needed and which ones can be replaced with other materials to keep our environment healthy.

Descriptions on the cards

Paper ➔ Loss of forests, risk of extinction of species. ➔ Air, water, land pollution ➔ Paper recycling - also pollution - from ink liberation. ➔ However, 35% less water pollution and 74% less air pollution than in newspaper production. Fewer landfills - 1 ton of recycling - 3 m2 less landfills ➔ During decomposition – methane, greenhouse gases. **Additional information:** Every year 4 billion trees are cut for the paper industry in the world. For the Sunday edition of the New York Times – 400 ha of forest is cut.	**Timber** ➔ Lowest embodied energy as a building material. ➔ Logging has an environmental impact. ➔ Clearcutting - harmful impact of wind and rain; destroys valuable wildlife; and causes soil to become dry and overheated - increases the risk of fire or interfere with seedling growth. **Additional information:** Forecast: demand is increasing about 30% per cent in 10 years.

Grazing

- ➔ Bringing in new species for hunting, removal of top predators (wolves, etc.).
- ➔ Fire-tolerant species of trees have been replaced with fire-sensitive ones. – Fires that cause dry wastelands.
- ➔ Grazing cattle reduces plants that outcompete tree seedlings
- ➔ increasing tree density,
- ➔ greater vulnerability to insects and pathogens,
- ➔ more intense wildfires.
- ➔ Damages forest soils and streams, and contaminates waterways with faecal waste.
- ➔ Affects biodiversity negatively.

Additional information: Large plant eating animals have been a natural part of landscapes.
Happy cattle living outside.

Charcoal

- ➔ Earlier – one of the main reasons for deforestation. Now – more results in natural degradation.
- ➔ Producing high quality charcoal - global warming through the production and emission of greenhouse gases (carbon dioxide (CO2), methane (CH4)).
- ➔ Byproducts of making charcoal - , methane, hydrogen, and tar – can be allowed to escape as gases and other volatiles in the smoke

Additional information: More and more byproducts are recaptured, condensed, and converted to useful byproducts.
In tropical ecosystems charcoal production and use can significantly contribute to poverty reduction and environmental sustainability by providing energy in accordance with sustainable development goals.

Medicine

- ➔ Extracts of many forest plants are used as the basis of modern drugs.
- ➔ 19 North American medicinal native plants as “at risk” and an additional 22 plant species make the “to watch” list.

Reasons:

- ➔ habitat destruction,
- ➔ bioprospecting,
- ➔ biopiracy,
- ➔ overharvesting.

Additional information: About two-thirds of the top 150 prescription drugs are based on natural sources. Also traditional medicine is based on them.

Firewood

Smoke (fine particles, but also toxic air pollutants)

- ➔ health problems,
- ➔ smog,
- ➔ acid rain, etc.

Open fireplaces – the most pollution.
Wood pellets (dramatic increase) – often good quality wood, but also leftovers of sawmills (branches, saw dust), etc.
Additional information: Approximately one-third of the world’s population relies on firewood for heating and cooking.

Sport and recreations ➔ Soil erosion and compaction ➔ Damage to vegetation ➔ Littering ➔ Disturbing wildlife ➔ Water pollution ➔ Forest fires ➔ Vandalism ➔ Noise **Additional information:** Happiness increases Better health (physical activities, D-vitamin, body weight decreases, etc.) The people's livelihood Learning about nature	**Your own field of using forests**

NB! There are no absolutely right or wrong answers. Everything depends on reasoning. All ideas have to be analysed from the ecological point of view. And developed. For this different active learning methods can be used.

III PRODUCT

In the European Union, the circular material use rate has been growing, but progress remains very slow (8.2% in 2004 to 11.8% in 2019). Demand for recycled materials remains low: only 9.5% (0.7 billion tonnes) of materials processed from 2010-2018 were from recycled materials. Also, the share of market demand met by secondary materials also differs starkly: 50% or over for lead and copper, while for plastics it is only 6% (of which only 2% is represented by single-use plastics), and for materials such as indium, used in the touch screens of smartphones, it is well under 10%. To summarise, up to 80% of a product's environmental impacts can be determined at the design phase.

In this regard, it is important to note that, not only companies, but also consumers, are more and more interested in the development of greener products. For organisations, the benefits of adopting such a strategy are as it follows:

- ➔ Cost Savings
- ➔ Enhanced Brand Reputation
- ➔ Building A Competitive Edge
- ➔ Regulatory Compliance
- ➔ Talent Attraction and Retention
- ➔ Access To Financial Incentives

At the same time, when discussing "green characteristics" in relation to a product, it typically means considering the environmental sustainability and eco-friendliness of the product. Here are some aspects and features that can make a product more environmentally friendly or "green":

1. **Energy Efficiency**: Products that consume less energy, such as energy-efficient appliances or LED light bulbs, are considered greener because they reduce overall energy consumption and greenhouse gas emissions.
2. **Recyclability**: Products that are made from recyclable materials or can be easily recycled at the end of their life cycle are more environmentally friendly. This reduces the amount of waste in landfills.
3. **Sustainable Materials**: Products made from sustainable or renewable materials, like bamboo or organic cotton, are considered greener because they reduce the impact on natural resources.
4. **Low Toxicity**: Products with low levels of toxic or harmful chemicals are better for the environment and for the health of consumers. This applies to things like paints, cleaning products, and textiles.
5. **Reduced Packaging**: Minimal or eco-friendly packaging reduces waste. Packaging that is easily recyclable or biodegradable is also more environmentally friendly.
6. **Water Efficiency**: Products that use water efficiently, such as low-flow faucets and showerheads, can help conserve water resources.

7. **Durability**: Longer-lasting products reduce the need for replacements and ultimately reduce waste.
8. **Transportation Efficiency**: Products that are manufactured and transported with energy-efficient methods or closer to the point of sale have a smaller carbon footprint.
9. **Certifications**: Products with recognized environmental certifications.
10. **Repairability**: Products that are designed to be easily repaired rather than discarded when they break are more sustainable.
11. **Biodegradability**: Biodegradable products break down naturally and do not contribute to long-term waste.
12. **Fair Trade and Ethical Practices**: Products that support fair trade and ethical labour practices in their production are often considered greener because they promote social and economic sustainability.

It's important to note that different products have different environmental impacts, and what is considered "green" can vary depending on the context and specific environmental goals. Nevertheless, it is more than imperative to embrace environmentally friendly processes and practices in an effective way to adjust our collective mindset, set a good example and encourage others to get on board. Making changes that reduce waste, promote sustainable practices and lower energy usage can create a more eco-conscious mindset both within and outside of companies and organisations.

A green product is designed with the protection of the environment in mind and its conception was done with less impact on the planet's resources. There are multiple ways in which a company can adopt greener ways of working and producing goods, including investing in research, lowering energy consumption, improving energy efficiency, reviewing the product life cycle, recycling, decreasing pollution and preserving natural resources. As well as helping to protect the environment, an eco-friendly product is the result of a process that aims to save costs and lower material costs.

ACTIVITY 3.1. Entrepreneurs of Future

Step 1. Participants write individually how they imagine their life environment in 20 years. They describe how our nature has changed, about fashion, technical environment, lifestyle of people, travelling, work environment, living conditions, standard of living, people's life expectancy, etc. *(5-10 minutes)*

Step 2. Participants work in pairs and combine their descriptions together into one logical one. *(5 minutes)*

Step 3. Participants work in groups of 4-6 people and write one description about their future environment based on the two descriptions (made in pairs). *(10 minutes)*

Step 4. Groups think out one product or service that fits into their imaginary environment and describe it. Various brainstorm methods can be used. *(25-35 minutes, depending on the brainstorm method, for thinking, 4-5 minutes for presentations per group)*
Feedback from the facilitators. *(10 minutes)*

On-line version
It is easy to take this activity on-line. The time schedule remains the same. Give the task to students and let them work alone. Then they need different rooms for working in pairs and then two pairs are joined into one. For the next task you can visit the groups or invite them together to the big room again. Presentations are made in the big room at the end. They can draw their products and show them to others.

ACTIVITY 3.2. Green Creativity Brainstorm

Step 1. Ask your students to form teams of 3-5 persons. Give them three large problem fields about green entrepreneurship, for example:

- ➔ Waste management at home
- ➔ Traffic pollution
- ➔ Energy

Let them choose one and write down all specific problems that they can find in this field. (Ordinary brainstorm principles are valid) *(10 minutes)*
Now ask them to choose one. *(3-5 minutes)*

Step 2. Determine all groups of people who are involved in this problem and make a list of them

Step 3. Ask them to brainstorm for solutions, i.e. PRODUCTS or SERVICES (again, ordinary principles are valid) *(10 minutes)* and then point out one.

Step 4. Students draw a prototype. *(10 minutes)*

Step 5. Let them decide who your customer is (they have to go back to step 2 and make their choice). They have to describe the target group as specifically as possible. It is their Avatar. They can draw a picture about their best customer and name him or her.

Step 6. They will make a list of problems this target group can have when using their product. Think how to solve them.

Step 7. Ask students to go to the street and try to find somebody from their target group and tell him/her about their product to get their opinion.

Step 8. Ask them to make amendments and build a prototype.

Step 9. The last step is to make a presentation to others.

On-line version:
Here Tricider method can be used (see below) for all steps of the brainstorm but also it can be done in different virtual rooms where student teams list their ideas, discuss them and choose the best ones. During step 7 ask students to show the drawing of their product on-line to their contacts using Instagram, Facebook, and other channels that they use daily. For the last step everybody returns to the big virtual room and all teams make their presentations to everybody.

ACTIVITY 3.3. Brainstorm with LEGO blocks

It can be done separately for finding an idea and also only for building a prototype for the previous brainstorms as then students see that no material is wasted even for their brainstorms.

Experience says that LEGO blocks release creativity from people and it is easy to think about the future with LEGOs (build from LEGOs your future nature, etc.) but also use them for solving problems (build a tool for cleaning seas, air, planning a green city, etc.). When building their prototype it is possible to start with individual work, then look at each other's work and build together one group solution. It is also possible to start building the group work together already from the very beginning.

On-line version is not possible.

Instead of LEGOs drawings may be used but it does not give such a release of a free idea storm as LEGOs do.
When the idea is found the next step – evaluation has to be done. For this different activities and methods can be used.

ACTIVITY 3.4. SCAMPER Technique

For Product Development into a more Environmentally Friendly one.

The SCAMPER Technique is a team brainstorming technique used to develop or improve products or services. SCAMPER is an acronym for Substitute, Combine, Adapt, Modify/Magnify, Purpose, Eliminate/Minimise and Rearrange/Reverse.

- ➔ **S**ubstitute: What can be replaced? (for example, components, materials, people)
  Example: if you were making covers for bicycle saddles to protect them from rain, you might substitute plastic with tent fabrique that lasts long but is more environmentally friendly.
- ➔ **C**ombine: What can be combined? (for example, what else can be used for protecting bike saddles or how else these covers can be used in addition to protect bicycle saddles)
  Example: Shopping bags can be used instead of these covers and these covers can be used also for protecting phones from getting wet.
- ➔ **A**dapt: What can be added? (such as new elements or functions)
  Example: Locks can be added to protect stealing them.
- ➔ **M**odify, Magnify, maximise, minimise: What can be modified?
  Example: These covers can be from reflecting materials and can be used as traffic reflectors when riding.
- ➔ **P**ut to other use (purpose): Could you put the product to a different use, or use it in another industry?
  Example: The covers can be used as caps when driving in the sun.
- ➔ **E**liminate or minimise: What can be removed or simplified?
  Example: removing the lower part of the cover and protecting only the upper side of the saddle).
- ➔ **R**everse, reengineer, or rearrange: What would happen if you reversed the product's production process? What can be swapped or flipped?
  Example: Start analysing using the saddle covers from the moment when you take them away after driving. What is comfortable and what is not? Maybe you can turn it into a small package for putting it into your bag. Maybe it stays wet for too long and you have to think something out to improve it. When everything is OK, take one step back: sitting on it? And then putting it to the saddle? Maybe to change the rope for fixing it to the saddle? So you can reach the first step and make the product much better and more eco-friendly.

A great way to start implementing SCAMPER is to play a warm up game with it. Grab a few random objects: a funny hat, a belt, a chair, some craft items, etc. Gather your team in a room

and throw the objects on the floor (or if virtual, show them on camera). Have them start to ask questions based on SCAMPER.

Now try it on your real project! Take a product, an aspect of a product, or a process and run it through SCAMPER. The answers will probably be diverse and will typically include ideas that are not practical, do not suit, or even are silly. That's ok and is actually good! The goal is to generate as many ideas as possible, and often the most brilliant ideas can come from them.

You might also find that you can reduce some of your work, reuse elements of what you already have, recycle ideas into a new purpose… or reinvent a solution based on the old.

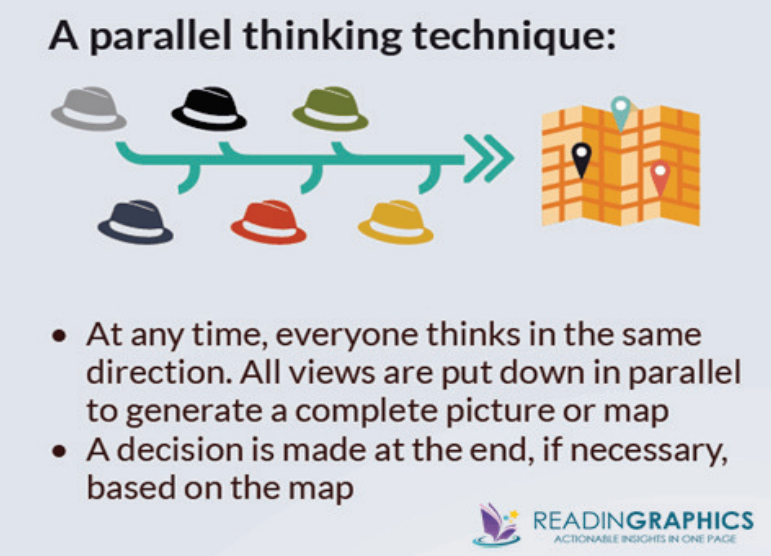
ACTIVITY 3.5. De Bono's Six Thinking Hats

This is a marvellous method for analysing an idea, a process, product, etc. in all possible aspects. In this project we focus more on the environmental side of a product.

Each thinking style is represented by a different hat:

1. Blue Hat: organisation and planning.
2. Green Hat: creative thinking.
3. Red Hat: feelings and instincts.
4. Yellow Hat: benefits and values.
5. Black Hat: risk assessment.
6. White Hat: information gathering.

It is possible to organise this exercise in the classroom as on-line using for example miro platform. https://miro.com/templates/six-thinking-hats/
Here we use a parallel thinking technique. A hat means what we focus on when thinking.



All participants use the same hat at the same time. The person organising the meeting (the leader of a student group) asks everybody to use the Blue Hat to set out a sequence of hats that sets the agenda for the meeting when the exercise starts. The following template uses a preset sequence for evaluating and developing ideas but depending on the process and participants the sequence can also be different.

1. **Blue Hat: The Conductor's Hat.** Everybody thinks about the thinking process and managing it. The blue hat is the control hat. In the beginning the blue hat sets the agenda, focus and sequence of hats. When the process needs rethinking, the blue hat is used again.
2. **White Hat: The Factual Hat.** The white hat is all about information. What information do you have, what information you need and where to get it. Everybody is thinking about information without emotions and evaluations. The information is listed and all emotions are left aside (The Conductor has to be attentive here!).
3. **Red Hat: The Hat For the Heart.** The red hat is about gut reactions, feelings, intuitions and instincts at a particular point in time. The red hat invites feelings without justification.. This is important because feelings can change over time. Again, all participants can express their feelings here, and it is even important that they do it.
4. **Yellow Hat: The Value Hat.** The yellow hat is for a positive view of things. It looks for the benefits and values.
5. **Grey Hat: The Judge's Hat.** The grey hat identifies risk. It is used for critical judgement and must give logical reasons for concerns. It is one of the most powerful hats.
6. **Green Hat: The Creative Hat.** The green hat is for creative thinking and generating new ideas, alternatives, possibilities and new concepts.
7. **Blue Hat: The Conductor's Hat (at the end of the sequence).** The blue hat at the end of the sequence is for summaries, conclusions, decisions and plans for action.

Here are some important things to note:

- ➔ The hats can be used on your own or in a group.
- ➔ In group discussions, it is essential that everyone uses the same hat (mode of thinking) at the same time. This is to avoid personal preferences and conflicts between modes of thinking.
- ➔ Training in the use of hats includes how to structure the hats into sequences to address different situations. This provides a structure and direction for thinking, leading to more productive and enjoyable discussions.

IV MANAGEMENT, PRODUCTION AND WASTE

According to the Environment Program of the United Nations, the definition of sustainable production and consumption relates to the "use of services and related products, which respond to basic needs and bring a better quality of life while minimising the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardise the needs of future generation".
The truth is that our planet is running out of resources, but populations are continuing to grow. If the global population reaches 9.8 billion by 2050, the equivalent of almost three planets will be required to provide the natural resources needed to sustain current lifestyles.
In that sense it's in businesses' interest to find new solutions that enable sustainable consumption and production patterns. A better understanding of environmental and social impacts of products and services is needed, both of product life cycles and how these are affected by use within lifestyles. Innovation and design solutions can both enable and inspire individuals to lead more sustainable lifestyles, reducing impacts and improving well-being.

In order to achieve a greener production, there are a few processes and principles that companies need to follow.

- ➔ **Resource Efficiency**: The need to use resources (raw materials, energy, water) more efficiently and reduce waste. This includes practices like recycling, reusing, and reducing material inputs;
- ➔ **Energy**: The importance of making a transition to clean and renewable sources of energy, such as solar, wind, and hydropower, to reduce greenhouse gas emissions and environmental impacts;
- ➔ **Innovation**: It's essential to incorporate innovative technologies to create products and processes that have a lower environmental footprint. This includes using sustainable materials, designing for disassembly, and reducing toxicity. Companies should invest in research and development to discover new technologies and methods that can further advance sustainable production;
- ➔ **Models**: Implementing closed-loop or circular economy models that emphasise reusing and recycling materials, reducing waste, and extending product life cycles;
- ➔ **Do Diligence** – making sure that suppliers and partners also adhere to sustainable practices, then guarantying that the entire supply chain follows eco-friendly principles.

Looking into the latest reports from the OECD, we might say that we're facing a challenge about green growth. Green growth means fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies. Green growth is not a replacement for sustainable development. Rather, it provides a practical and flexible approach for achieving concrete, measurable progress across its economic and environmental pillars, while taking full account of the social consequences of greening the growth dynamic of economies.

In this regard, it is important to note that, in order to contribute to a green production, there are strategies to minimise waste generation and reduce pollution, such as emissions control and wastewater treatment. The most important strategies would be:

- ➔ **Lean Manufacturing**: To adopt lean production methods to streamline processes, reduce excess inventory, and optimise resource use;
- ➔ **Environmental Management Systems**: to implement management systems such as ISO 14001 to systematically track and improve environmental performance;
- ➔ **Regulatory Compliance and Continuous Improvement**: Comply with local, national, and international environmental regulations and standards. Regularly monitor and measure sustainability performance and strive for ongoing improvement;
- ➔ **Life Cycle Assessment (LCA)**: Assess the environmental impacts of a product or process throughout its entire life cycle, from raw material extraction to production, transportation, use, and disposal. This helps identify areas for improvement. (Audit);
- ➔ **Eco-Labeling and Certification**: Obtain certifications to showcase a commitment to sustainability and provide consumers with information about a product's environmental and social attributes.

In fact, we might sum up the action steps for sustainable production as it follows, suggested by the OECD:

1. **Preparation**:
    a. Map your impact and set priorities: Bring together an internal “sustainability team” to set objectives, review your environmental impact and decide on priorities;
    b. Select useful performance indicators: Identify indicators that are important for your business and what data should be collected to help drive continuous improvement.
2. **Measure**:
    a. Measure the inputs used in production: Identify how materials and components used into your production processes influence environmental performance;
    b. Assess operations of your facility: Consider the impact and efficiency of the operations in your facility (e.g. energy intensity, greenhouse gas generation, emissions to air and water);
    c. Evaluate your products: Identify factors such as energy consumption in use, recyclability and use of hazardous substances that help determine how sustainable your end product is.
3. **Improve**:
    a. Understand measured results: Read and interpret your indicators and understand trends in your performance;
    b. Take action to improve performance: Choose opportunities to improve your performance and create action plans to implement them.

When it comes to waste management, we might ask why is the EU acting now? Basically, there's a 70% increase in waste generation foreseen by 2050. Also, over 90% of biodiversity loss and water stress is caused by resource extraction and processing, at the same time that up to 80% of a product's environmental impacts can be determined at the design phase.

There are various ways to use waste more sustainably, and these approaches generally fall into several categories, including reduce, reuse, recycle, and recover. Here are some examples:
Reduce: It's all about minimization and how to reduce the generation of waste at the source. This can involve using fewer disposable items, choosing products with minimal packaging, and being mindful of consumption.
Product Design: Design products with a focus on durability, repairability, and recyclability to extend their lifespan.
Reuse: Basically, to encourage the use of second-hand markets for items that are still functional but no longer needed. But also refillable containers for products like cleaning supplies and personal care items to reduce packaging waste.
Recycle: Material Recycling, as in collect and process materials like paper, glass, metal, and plastic so that they can be used to create new products. At the same time, E-waste Recycling, as in properly dispose of electronic waste through specialised recycling programs to recover valuable materials and prevent environmental contamination.
Composting: To compost organic waste, such as food scraps and yard trimmings, to create nutrient-rich soil for gardening and agriculture.
Energy Recovery: Use technologies that convert non-recyclable waste into energy through processes like incineration or anaerobic digestion.
Upcycling: Transform waste materials into new products of higher value through artistic or practical means.
Waste Audits: Conduct waste audits to make assessments and understand the composition of waste generated and identify opportunities for improvement.
Extended Producer Responsibility (EPR): Implement policies that hold manufacturers responsible for the entire life cycle of their products, including disposal and recycling.
Biodegradable Alternatives: Explore and use biodegradable alternatives to traditional plastics to reduce the environmental impact.
Education and Awareness: Raise awareness among the public about the importance of waste reduction and sustainable practices.
Circular Economy: Transition towards a circular economy where products are designed to be reused, repaired, or recycled, minimising waste.
Zero Waste Initiatives: Set goals for waste reduction and work towards achieving zero waste by implementing sustainable practices at individual, community, and organisational levels.

Combining these strategies can contribute to a more sustainable approach to waste management, reducing environmental impact and promoting resource efficiency.

ACTIVITY 4.1. Cooperation With Green Or Blue Enterprises

Take your students to the businesses that are focused on green or blue (dealing with environmental problems related to sea) entrepreneurship. There they can learn about the problems and see some solutions to them. As people working there are usually really enthusiastic they are almost always anxious to help students not only in finding their ideas but through the whole process of their entrepreneurial studies. Very often they also have scientific backgrounds so that students can take their ideas to a higher level than working alone with their teachers.

On-line version:
If real visits to green or blue companies are not possible those can be replaced with virtual visits. Students research the webpages of green and blue companies, find out their mission, values, main principles of activities, their social responsibility, products and services, etc. They send an email or call to the company and ask their managers or specialists to meet them in Teams or Zoom where they can speak about their company, demonstrate their products, answer students' questions and give them advice. If students are involved in the Company Programme, students can ask them to become their green or blue volunteering mentors.

ACTIVITY 4.2. Green Marshmallow Challenge

Marshmallow Challenge is a well-known exercise for teaching creativity and entrepreneurship. In the Green Creativity project we have taken the standard Marshmallow exercise as a basis and added the green aspect – using less resources.

Short summary:
The marshmallow challenge is a simple **design exercise** and team-building activity for small groups.
The groups have to **build the tallest free-standing structure** from some **spaghetti** sticks and tape and place one whole marshmallow on the top. Running the challenge requires 18 minutes.
The exercise teaches essential **lessons about the creative product development process** and the nature of collaboration.
The **rules are easy**; in 18 minutes, each group can use 20 sticks of spaghetti, one meter of adhesive tape, and one marshmallow to build the tallest free-standing structure with the entire marshmallow on the top.

In our green game we have added that height is not the only criteria for winning the competition. Also efficient use of materials will be taken into account. When the building is ready, it is measured and **each spaghetti used will reduce their result in one cm** and **two centimetres of tape will do the same**. So they are encouraged to build as small as possible with as few resources as possible. A **Marshmallow is considered to be a renewable resource and does not cost anything**.

The teams can break the spaghetti and cut the tape into any sized pieces.
The exercise should be done indoors, and each team should have a steady table.
This challenge needs to be **friendly and encouraging**. However, the following three instructions need to be strictly respected.

1. Entire Marshmallow has to be used. It mustn't be split into smaller pieces and must be placed on the top of the structure.
2. The structure has to be free standing.

The groups can hold the structure until the end of the exercise. After that, the structure **with the marshmallow on the top must stand on its own**. The team with the tallest built structure measured with the smallest amount of resources is the **winning team**. (Height – number of spaghettis – cm-s of tape)

3. Building has to stop when the time runs out.

The exercise is 18 minutes long. Therefore, the teams **must stop working on their structure at the 18-minute mark**.
After the building activity the discussion has to focus on why these conditions about using less resources are added. Why is it important to keep quality and achieve our goals, but still act in an environmentally friendly way?

No on-line version for this activity.

ACTIVITY 4.3. Green Card Game

This game is traditionally about leadership, communication and vision. For the Green Creativity project we added green entrepreneurship aspects throughout the whole business process. The main principles of the game will stay the same as they are in the traditional communication game. Change is made in the cards used for the game. Usually it is played by ordinary playing cards with King, Queen, Soldier, etc. These cards are replaced with different aspects of green entrepreneurship.

A minimum of 5 players can play one game. It is recommended to play with 7-9 people. In the Green Card Game we cannot have more participants than 9.

First, the CEO and two deputies (Middle Managers) are appointed. The rest are simply Employees who report to the middle managers. There could be 2-3 employees per a middle manager. With a large number of players, it is worth thinking about making two groups.

Have the players sit behind each other like in a classroom. The CEO sits in front of everybody, two Middle Managers (his/her Deputies) sit behind the CEO. Behind them the Employees take their seats, divided into two departments. Half of them sit behind one Middle Manager, another half behind another.

You tell them that they have a task to complete and all the information that the players need is in their envelopes. You do not say that the envelopes have different information for each level. Besides the information they also have four cards in the envelope, preferably different (Check to make sets of four cards). Players (except the CEO) initially do not know that they have to collect four similar cards (originally four aces, kings, etc.) – in green game four Marketing, Four Production or four other stages of business. They collect them by changing cards with others.

Only the CEO knows what is the goal of the game, but she/he does not know that others do not have this information.

Give the players small pieces of paper – you can cut A4 into 8 pieces (reuse the paper that has already something printed on one side). You tell the players that they are not allowed to talk to each other, all information must be transmitted only in writing. Letters can only be exchanged up and down the direct hierarchy ladder. The two Middle Managers are not allowed to communicate with each other, they do it only through the CEO. Nor are the workers allowed to communicate with each other, they do it through their direct boss – their Middle Manager.

Look how long it takes for all the team to have four similar cards.

When the goal is achieved, start a discussion about what happened. Why was it difficult to fulfil the task? Usually they say that they did not know what to do. Let them explain how they still got things going. Emphasise what happens if only the leader has the VISION and she/he expects others to share the same one, but others even do not know the leaders vision. Does it motivate them to work hard?

When you have finished discussing the leadership part of the game start with the environmental aspect. Ask students what is written to the cards and why it is important. Let everybody read the text out loud and comment on it. Students may want to argue that some

of these activities are not possible, etc. Let others explain to them why it is important for businesses to start thinking and acting environmentally friendly.

If you have less than 9 persons playing, you have to decide which field of business activities are excluded from the game. There must be as many fields as there are players, so that everybody can collect one type of card.

TEXTS in the envelopes (individual instructions)

CEO (1 copy per game)

You are a CEO in an environmentally minded company. You have two Middle Managers who report to you, and both of them have Employees who report to them.
Everybody has four random cards. The goal of the game is that everybody has four cards which express the green activities of one field (e.g. Marketing, Production, etc.) at the end of the game.
You may communicate ONLY by written messages only with your Middle Managers, who may communicate in written only with you and with their Employee(s). Middle Managers are allowed to communicate with each other only through you.
You must get back as many cards at once as you give away, and vice versa. So you must have four cards all the time.
Good luck!

Middle Manager (2 copies per game)

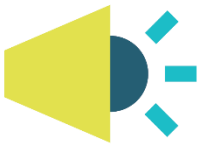
You are a Middle Manager.
You have Employee(s) who report(s) to you. Everybody has four cards.
You are allowed to communicate with your CEO and Employees only in written. You may change cards with your CEO and also with your Employees. You must get back as many cards at once as you give away, and vice versa. So you must have four cards all the time.
Good luck!

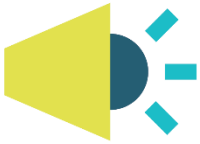
Employee (all the others, but not more than 6 in the green game)

You are an Employee.
Everybody has four cards.
You are allowed to communicate only with your direct boss (Middle Manager) only in written. You may change cards only with him/her. You must get back as many cards at once as you give away, and vice versa. So you must have four cards all the time.
Good luck!

Green Cards for the game (below)

Resources Local 	Production Material efficient 	Transport Electric vehicle 
Resources Residuals from other companies 	Production Waste free 	Transport Big deliveries 
Resources Recycling 	Production Energy efficient 	Transport Short distances 

Resources Biodegradable 	Production Water efficient 	Transport Optimised trips 
Packaging Naked package 	Production waste Biodegradable 	Marketing No plastic ads 
Packaging Reuse 	Production waste Zero waste 	Marketing No or few printed materials 

Packaging Biodegradable 	Production waste Recyclable 	Marketing Sustainable on-line marketing 
Packaging Minimal packaging 	Production waste Used for other products 	Marketing No promotional gifts 

Office Paper free 	Product Repairable 	Selling Not aggressive, too active 

Office Garbage sorting 	Product Long lifetime 	Selling No false arguments 
Office Reasonable use of electricity 	Product Environmentally friendly 	Selling Addressed to the real target group 
Office Remote work 	Product Satisfies a real need 	Selling Promoting green lifestyle 

ACTIVITY 4.4. A Blog House Factory

This is a simulation of a factory that produces log houses which are assembled in the factory and then transported to the customer. The simulation includes several actors:

1. Customer (independent, out of factory)
2. Customer service (1 person)
3. Manager of the factory (1 person)
4. Storehouse (1 person)
5. Supplier (1 independent)
6. Three production units (3 persons)
7. Quality controller (1 person)
8. Bookkeeper (1 person)
9. Logistics (1 person)

The company has a very good reputation for its quality and in time delivery of the houses. Now they have opened a new factory and hired new employees. The factory has three production units, which produce their parts of log houses from different materials. Each production unit has competence to work with two types of materials.
The customer wishes to get the house in 4 minutes.
The working process is the following.

1. All Assembly stations have to decide how many blocks they order from the store house.
2. The store house orders the blocks from the supplier.
3. The Storehouse sends information about the stock to the bookkeeper.
4. The customer comes to customer service and gives them an order on paper for the type of house their family needs. The customer expects the order to be fulfilled in 2 minutes.
5. The Service department calls for Logistics and Logistics brings the order to the Manager.
6. The manager calls back the Logistics and sends the order to the Assembly Station, who has the competence to work with the blocks needed for the basement.
7. If the Assembly station does not have enough blocks, they send an order with Logistics to the warehouse.
8. When the basement is ready the Assembly Station calls the Logistics and sends the unfinished product (basement) with the order back to the Manager.
9. The Manager decides who has the competence to build the walls, calls the Logistics and sends the unfinished product and the order to the next Assembly Station.
10. If the Assembly station does not have enough blocks, they send an order with Logistics to the warehouse.

11. When the second Assembly station has built the walls, they call the Logistics who brings the order and the unfinished product back to the Manager.
12. The Manager sends the order and the unfinished product with Logistics to the last assembly station for building the roof.
13. If the Assembly station does not have enough blocks, they send an order with Logistics to the warehouse.
14. When the product is ready, the last assembly station calls the Logistics and sends the product and the order to Quality Control.
15. IF the Quality Control has approved the product, it puts the CA certificate into the house, calls the Logistics and sends the finished product with Logistics to the customer service.
16. If the Quality Control does not approve the product, he/she sends it back to the Manager (using Logistics) and adds a Claim Form.
17. Customer Service uses the Logistics for sending the product to the Customer with an invoice.
18. Customer checks the product and if he/she is happy about it, they bring the approval (it means money) to the bookkeeper.
19. The warehouse can call the Logistics and order products from supply at any time.
20. Each time when the warehouse orders products or sends them to Assembly Stations, it also sends the copy of the deal to the bookkeeper.

In twenty minutes the facilitator says that the time is over. Then the conclusions are made:

- ➔ How many houses were ordered
- ➔ How many orders were fulfilled?
- ➔ How many orders were fulfilled in time?
- ➔ How many waste products were produced?
- ➔ What was the income of the factory?
- ➔ What were the costs in this period?
- ➔ What was the profit?
- ➔ What was the profit per person?
- ➔ Production time per unit?

Then they have 15 minutes time for discussion and rearranging their production. They can move tables, think through the movements, paperwork, change positions or fire people, etc. The only persons who must stay are the Supplier and Customer.

Then the new round starts.

Description of houses:

There are two types of houses built in this factory:

1. Window on the side of the wall

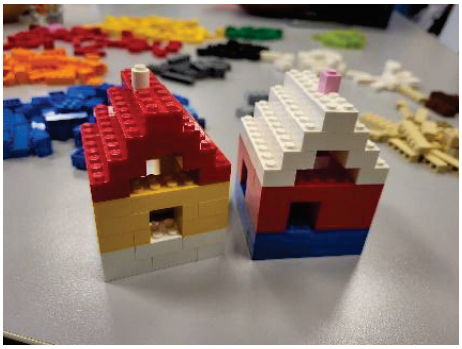
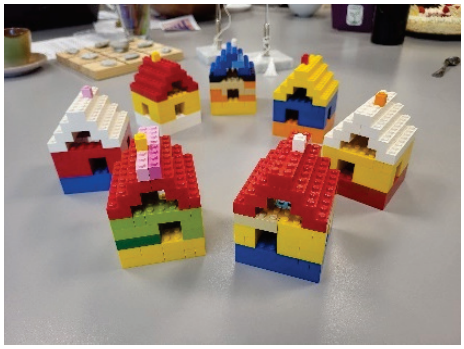
2. Window in the middle of the wall

Measures:

1. Length of the wall from outside: 8 LEGO block buttons
2. Height of the basement 2 LEGO blocks
3. Height of the wall: 3 LEGO blocks
4. Height of the roof: 4 LEGO blocks

The Customer chooses colours of all levels and places of the windows and doors.

Some examples of the houses:


MATERIAL NEEDED

Simple LEGO BLOCKS of 6 colours

Trolley for Logistics (can be replaced by a wagon, box, etc.)

Clock or Stopper for taking time (2)

Step counter for Logistics

Forms:

- ➔ Material order form (for production units, for Storehouse)
- ➔ Claim form (for Quality Control and Customer)
- ➔ Storehouse's invoice
- ➔ Profit and Loss Statement
- ➔ Invoice to the customer
- ➔ CE Certificate

When the round has been finished, the facilitator asks participants to speak about their feelings. Then they take a 30 minute break and discuss how to reorganise the work to be more efficient and environmentally friendly. The second round lasts also 30 minutes and is organised by participants themselves. They can change everything except Customer and Storehouse. After the second round they will talk again, sharing what they have improved and how it is related to the concept of going green in entrepreneurship.

Attachments to the simulation presented in the end of the Guide:
Attachment 1: Instructions for the Facilitator
Attachment 2: Job Description for the Manager
Attachment 3: Job Descriptions for Production Units.
Attachment 4: Job Description for Quality Control
Attachment 5: Job Description for Rework Station
Attachment 6: Job Description for Logistics
Attachment 7: Job Description for Customer Service
Attachment 8: Job Description for Bookkeeping
Attachment 9: Job Description for Storehouse
Attachment 10: Work Instruction for Customer
Attachment 11: Material Order Form
Attachment 12: Product Order Form
Attachment 13: Invoice for Materials
Attachment 14: Invoice for Houses
Attachment 15: Storehouse Register
Attachment 16: Profit and Loss Statement form
Attachment 17: CE Certificates
Attachment 18: Rework Order
Attachment 19: GPI calculation
Attachment 20: Room Arrangement

V PACKAGING

What is packaging?

Packaging is about making sure products stay safe and look good in containers or wraps. It's important because it protects products from damage and keeps them in good condition until they're sold. Plastic packaging has advantages like being versatile, cheap, light, clear, and durable, but it's also causing big environmental problems.

Plastic became popular after World War II because it's useful and cheap. But, it's been causing pollution since the 1930s, and it's hurting marine life. Single-use plastics became common in the 1960s, especially for things like food and drinks. These plastics end up in the oceans, forming big areas of floating trash made of tiny plastic pieces. This harms marine animals by getting eaten or tangled up in it.

Concerns about plastic pollution started in the 1970s, and global agreements to protect the environment have been made since the 1990s. Social media and groups like The Ocean Cleanup helped spread awareness. Some places have started banning single-use plastics, and some companies are trying to be more sustainable by using less plastic and better recycling.

The problem of plastic waste is now a big part of global discussions, and there are many efforts to deal with it and promote better plastic use.

It's important to note that the choice of plastic packaging depends on the specific requirements of the product, including its contents, intended use, and environmental considerations. Many efforts are being made to develop more sustainable and eco-friendly packaging options, including biodegradable and recyclable materials, to reduce the environmental impact of plastic packaging.

ACTIVITY 5.1. Group Activity

Plastic packaging is widely used for various products due to its versatility, durability, and cost-effectiveness. Identify the key concepts.

1. Ask students to bring different types of plastic packaging (e. g. package of chips, bottle of water, etc.).
2. Introduce students to different types of plastic packaging.
3. Share cards with descriptions of plastic packages.
4. Ask students to sort out plastic packages they brought to the class according to descriptions.

ACTIVITY 5.2. Pitch Battle: Why Plastic Is Better Than Paper?

(Attachment No. 1)

Divide students into groups: plastic usage vs. paper usage

1. Each of student group has to prepare arguments (pross & cons of plastic/paper usage
2. Each student group has 1 minute to pitch their argument with explanation & provided with alternative solutions
3. The team with more arguments wins the battle

TYPE	PROS	CONS
PLASTIC	• Low costs • Excellent durability • Long lasting • Light weight • Great versatility • Low GHG footprint	• Dependency on fossil fuels • Single-use nature • Long lasting • Non-biodegradable • Chemical leaching
PAPER	• Recyclable • Sustainable • Reusable • Printing and design capabilities • Cost savings • Extended storage	• Less durable • Stacking difficulties • Moisture damage • Recycling rate • Energy used during production • Bigger footprint during transportation • Global deforestation

WHAT WILL BE YOUR FOOTPRINT?

Circularity and recyclability in plastic packaging refer to the design and production of packaging materials with a focus on minimising waste, conserving resources, and reducing the environmental impact.

Achieving circularity in plastic packaging involves several key principles and practices:

Design for Recycling: The design of plastic packaging should consider its end-of-life recovery and recycling. This means using materials that are easily recyclable and avoiding complex combinations of different plastics that are difficult to separate and recycle. Labels and adhesives should be chosen with recyclability in mind.

Material Selection: Opt for plastics that are readily recyclable, such as PET and HDPE, which have well-established recycling processes. Additionally, explore the use of recycled content in packaging materials to reduce the demand for virgin plastic.

Recycling Infrastructure: An effective recycling infrastructure is crucial for achieving circularity in plastic packaging. Adequate collection, sorting, and processing facilities are needed to ensure that plastic packaging can be efficiently recycled. Collaboration between government, industry, and consumers is essential to improve recycling systems.

Closed-Loop Systems: Implement closed-loop recycling systems where possible. This involves collecting and recycling used plastic packaging back into new packaging materials. Such systems reduce the need for raw materials and minimise waste.

Education and Consumer Engagement: Educating consumers on proper recycling practices is essential. Clear labelling on packaging, along with public awareness campaigns, can help consumers understand how to recycle effectively.

Innovation and Alternative Materials: Research and invest in innovative materials and technologies that can improve the recyclability of plastic packaging. This includes biodegradable plastics, compostable materials, and alternative packaging solutions that reduce the environmental impact.

Extended Producer Responsibility (EPR): Implement EPR programs that hold manufacturers responsible for the entire lifecycle of their products, including their packaging. This encourages producers to design more sustainable and recyclable packaging.

Waste Reduction: Strive to reduce the amount of plastic packaging used through innovative design, lightweighting, and the use of packaging alternatives. Consider the "reduce" and "reuse" aspects of the waste hierarchy in addition to recycling.

Energy and Resource Efficiency: Optimise the production process to minimise energy consumption and resource usage. This includes efficient manufacturing techniques, reduced emissions, and resource-efficient supply chains.

Life Cycle Assessment (LCA): Conduct LCAs to evaluate the environmental impact of plastic packaging materials and identify opportunities for improvement. LCAs consider the entire lifecycle of a product, from raw material extraction to disposal.

By incorporating these principles into the production and use of plastic packaging, the industry can move towards a more circular and sustainable approach. This benefits both the environment and the economy by reducing waste, conserving resources, and decreasing the carbon footprint associated with plastic packaging.

ACTIVITY 5.3.

Discuss the following:

1. Analyse what materials you use in your business activity?
2. Think on how you can change with alternative materials your plastic usage?
3. Which of the circularity and recyclability principles can be applied to your business?

INEVITABLE PLASTIC USAGE: 10 CATEGORIES OF PRODUCTS

Plastic packaging is often considered inevitable in various types of products due to its unique characteristics, including its durability, flexibility, and ability to protect and preserve items:

1. Food and Beverage Products

Plastic packaging is widely used for packaging food and beverages to provide protection against contamination, extend shelf life, and ensure freshness. Plastic packaging supports the safe distribution of food over long distances and minimises food waste by keeping food fresher for longer, and it provides a barrier against bacteria.

Examples include plastic bottles, jars, containers, and packaging films.

For example, 1.5 g of plastic film wrapping a cucumber can extend its shelf life from three to 14 days, and selling grapes in plastic bags or trays has reduced in-store wastage of grapes by 20%. However, 40%, or 9 million tonnes, of all food packaging ends up in landfills.

The way to reduce plastic packaging is to create shorter food supply chains and ensure that food is consumed sooner before it goes to waste. Having shorter food supply chains means reducing the number of intermediaries between where the food is farmed and where it is bought and consumed. This change will encourage a shift towards more seasonal diets, and that it will place an emphasis on the rise of community-based growers where consumers can see where their food comes from.

2. Pharmaceuticals and Healthcare Products

Many pharmaceuticals, medical devices, and healthcare products are packaged in plastic containers to maintain sterility, prevent tampering, and ensure product integrity.

3. Household and Cleaning Products

Plastic packaging is common for cleaning supplies, detergents, and household products due to its resistance to chemical corrosion and its ability to protect against spills.

4. Electronics and Gadgets

Electronics are often packaged in plastic to protect against damage during shipping and handling. The transparent plastic packaging used for small electronic components is known as blister packaging.

6. Hardware and Tools

Plastic packaging is used to package tools and hardware items to prevent rust and damage during storage and transportation.

7. Automotive Parts and Accessories

Plastic packaging is used for automotive components to protect them from environmental factors, dust, and scratches.

8. Clothing and Textiles

Many garments are sold in plastic bags to protect them from dirt and moisture and to allow customers to see the product.

9. Industrial and Bulk Products

Plastic packaging is used for transporting and storing bulk materials, such as grains, chemicals, and liquids, due to its durability and resistance to moisture.

10. E-commerce and Online Shopping

Many products purchased online are shipped in plastic packaging, including bubble mailers and plastic bags, to protect them during transit.

💥 **Boom of Sustainability!**

The biggest sustainability boom in packaging has been a gradual trend that gained significant momentum in the late 2010s and continued to grow into the 2020s. This period saw a considerable shift in consumer and industry focus towards more sustainable and eco-friendly packaging solutions. Key factors driving this trend include increased environmental awareness, regulatory changes, consumer demand for eco-friendly products, and the need to reduce plastic waste.

Some specific milestones and trends within this sustainability boom in packaging include:

➔ **Reduction in Single-Use Plastics:**

Many countries and regions started implementing bans or restrictions on single-use plastics like plastic bags, straws, and disposable containers.

➔ **Biodegradable and Compostable Materials:**

The development and adoption of biodegradable and compostable packaging materials as alternatives to traditional plastics.

➔ **Recyclable and Recycled Packaging:**

The emphasis on designing packaging that is more easily recyclable and the use of recycled materials in packaging production.

➔ **Sustainable Packaging Innovations:**

The introduction of innovative packaging solutions, such as reusable packaging systems, edible packaging, and packaging made from alternative materials like mushroom mycelium.

➔ **Brand Commitments to Sustainability:**

Many consumer brands and companies made public commitments to reduce their environmental footprint through sustainable packaging practices.

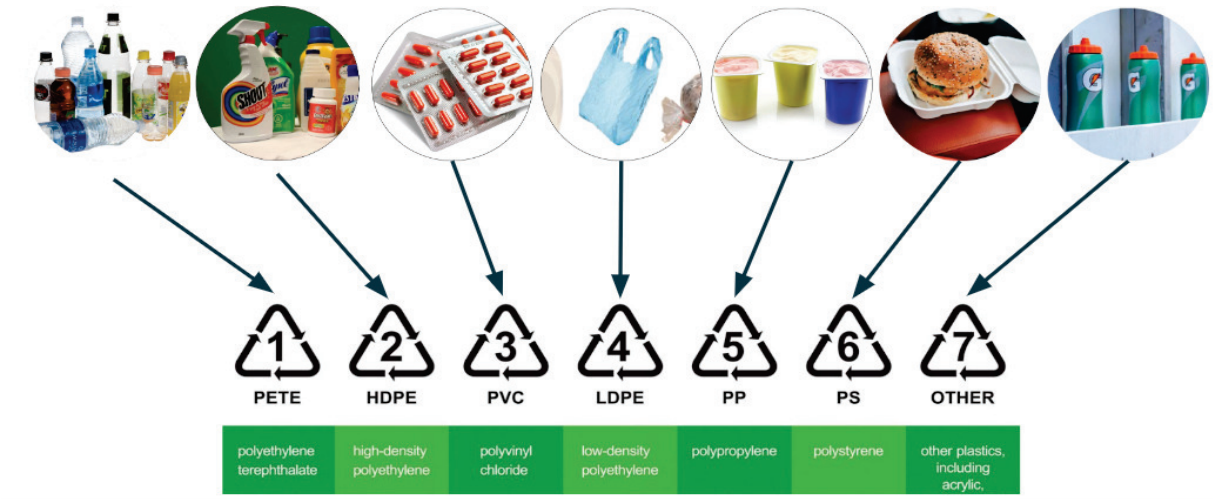
➔ **Consumer Awareness and Demand:**

Increased consumer awareness and demand for products with sustainable packaging, leading to more companies adopting eco-friendly packaging practices to meet consumer expectations.

While it's challenging to pinpoint a single year or period as the "biggest" sustainability boom in packaging, the movement towards more sustainable packaging practices continues to evolve and gain traction. The years from the late 2010s into the 2020s have been significant in shaping the sustainability landscape in packaging, and this trend is expected to continue to grow in the coming years.

ATTACHMENT NO 1. CARDS OF TYPES OF PLASTIC PACKAGING

Plastic packaging is widely used for various products due to its versatility, durability, and cost-effectiveness. Common types of plastic packaging include:



PET – Polyethylene Terephthalate:

This type of plastic is one of the most widely recycled plastics in the world and is used in a lot of food containers. Clear PET, in particular, has one of the highest recycling market values, as it can be turned into products of similar quality and form. Additionally, the recycling process is simple and it can commonly be recycled onshore.

You may sometimes also see PET, which means that the container is made from recycled PET. Wherever possible, we encourage people to select products that are packaged in #1 plastics over other plastics, since they can be widely recycled.

HDPE – High-Density Polyethylene

HDPE is another widely recycled plastic worldwide and is one of the few plastics where there is likely to be an onshore recycling centre. It’s a durable, hard plastic that can withstand most solvents. Because of this, it’s most commonly used for cleaning or personal care products. Since it’s not usually used for food products (except milk bottles), it has a high market value and can be recycled more times than many other types of plastics.

A 2018 study by ESE World B.V. found that non-contaminated HDPE can be recycled up to 10 times, which is an impressive number. This is why it's always important to rinse your recyclables and follow local requirements on lids.

PVC – Polyvinyl Chloride

PVC is a durable plastic that is not easily impacted by sunlight, water, or other harsh conditions. Due to this, it is commonly used across different industries including construction, plumbing, and transport. While it is durable, it has been known to leach chemicals over time, so it is not as safe for food use.

While PVC recycling is slowly increasing, there is less of a market for recycled PVC as it's not as durable. Even though it's long lasting, most PVC is not collected kerbside and many places do not have the facilities to do so.

LDPE – Low-Density Polyethylene

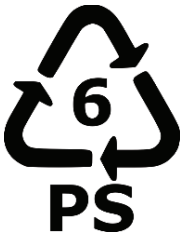
LDPE is used to create most soft plastic products around the world. It is a lightweight plastic that is less toxic than other plastics, which makes it popular for food use. However, due to the flimsy nature of the plastic, it is often only for single-use applications and continues to receive a lot of public attention.

It's not accepted in kerbside collections, as it is difficult to sort from other materials and very difficult to fully recycle, though it can be upcycled into fence posts or other materials. Given this, many governments have banned single-use grocery bags and have introduced soft plastic recycling schemes with drop-off collection points.

PP – Polypropylene

PP is a tough and lightweight plastic that is known for its excellent heat resistance, which makes it popular to use in takeaway shops. Additionally, it is considered safe for continued reuse as it's unlikely to leach chemicals and break down over time.

It's a durable plastic with many uses and many kerbside collections have started accepting PP to be recycled. We even use 50-80% post-consumer recycled materials in our Method bins.



PS – Polystyrene

Polystyrene, also commonly known as styrofoam, has a variety of uses but is falling out of general use across the world as it's hard to recycle and has been known to leach chemicals when heated. Polystyrene can be hard to identify as it comes in two forms: the hard, compressed PS that is often used in food packaging and expanded polystyrene (EPS) which is the lighter "puffed' version.

Polystyrene isn't easily recycled and is generally not collected in kerbside recycling. It often breaks down into small pieces that can harm wildlife and our ecosystem. There is limited use for recycled EPS in manufacturing insulation and other industrial applications, however, it can't be recycled for its original purpose.

Other – Miscellaneous

#7 plastics is a catchall for all other types of plastics that don't fall into the other categories, including bioplastics. #7 plastics are almost never recycled, as it's not one specific type, which makes it hard to source separately.

One material that falls into this category is bioplastics. **Poly Lactic Acid (PLA)**, a common form of bioplastics, are a relatively new form of packaging that has entered as a #7 plastic. They're commercially-compostable plastics made from natural materials such as corn starch, sugarcane, or tapioca.

Bioplastics, though, aren't recyclable – they're designed to break down in commercial composting facilities under specific conditions. This process doesn't occur in a landfill or if littered. As with all forms of recycling/organics, check with your waste provider about what they accept in their organics collection, as not all commercial composting facilities are able to process bioplastics.

Sources

1. https://foodprint.org/issues/the-environmental-impact-of-food-packaging/
2. https://www.swiftpak.co.uk/insights/plastic-vs-paper-packaging-the-pros-and-cons

VI TRANSPORTATION

When students are planning their companies theoretically on paper or digitally or also practically organising their simulation companies, they have also to think about transportation and logistics. It is possible to use transportation management systems for quicker and cheaper deliveries but most of these systems do not consider environmental impact. For thinking about green turn in getting materials, delivering goods to customers, going to meetings, trade fairs, etc., it is inevitable to think about decreasing emissions, shortening distances, optimising trips, and preferring big deliveries to small ones.

Parametres that have to be considered are:

- ➔ Fuel consumption
- ➔ Distances:
  - ◆ For getting supplies
  - ◆ For travelling to meetings, trade fairs, etc.
  - ◆ For delivering products to customers.
- ➔ Fuel consumption per product
- ➔ CO2 emission.

Students have to understand **some of the main reasons** for ecologically harmful transportation:

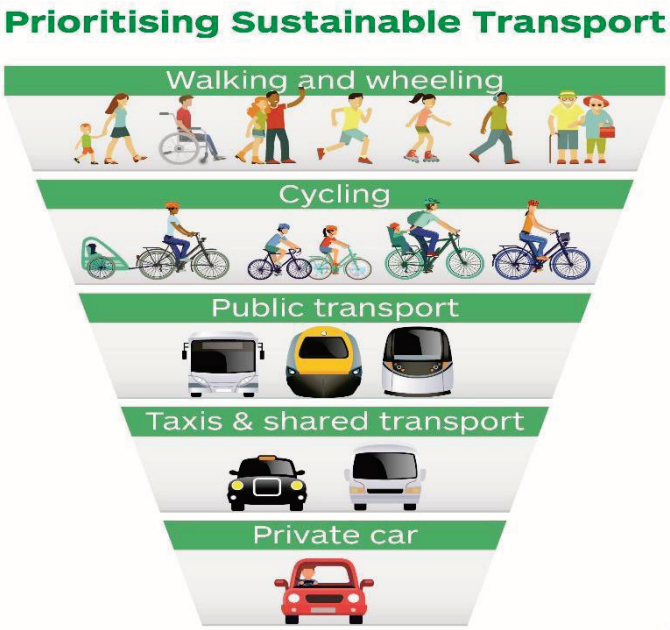
- ➔ Cheap products from China
- ➔ Still too cheap fuel for motivating to choose more eco friendly delivery and transportation means and shorter distances.
- ➔ Uncomfortable public transportation
  - ◆ Slow
  - ◆ Infrequent
  - ◆ Not available everywhere, etc.
- ➔ Low awareness of people, comfort zone and harmful habits.

Evaluate significance

- ➔ The source of energy in transportation sector is still oil that is not sustainable from the point of view of environment and economy
- ➔ Air quality – EU has to decrease the emission of harmful gases 60 per cent compared to the year1990.

For **decreasing the harmful impact of transportation** there are several options that depend on certain situations:

- ➔ Zero emission policy is necessary to be implemented on each level, starting with governments, enterprises and individuals.
- ➔ Businesses have to use big deliveries instead of small ones (less transport at roads)
- ➔ Buy and sell more locally (cut distances)
- ➔ Optimised trips and using a transport service who optimises trips and delivers goods of different companies.
- ➔ Using bicycles or walking for smaller deliveries and shorter distances.
- ➔ Using public transportation where possible.
- ➔ Use parcel machines for sending and getting goods (organised optimised service).
- ➔ For longer distances preferring trains and shipping, not flights – sacrificing your time, you extend the lifetime of our planet!



ACTIVITY 6.1. Green Ball Game

It is good to play it with at least three groups (approximately 7-10 members). Each group gets a ball.

Task: to keep the ball moving so that one person touches it once at a time and it is touched by one person at a time. The ball must start and finish moving in the same place. The ball cannot be given to a person by your side (right, left, back or in front of you) – to your closest person. The quickest team wins! Three minutes are given for planning.

When the team has finished, somebody calls: DONE! The time has to be written down!

Now one more minute is given for thinking and then the game is repeated. Was there any difference?

Now give the task to do the same with three balls. 2 minutes for thinking. What was the time?

Now with six balls. 2 minutes for thinking. What was the result?

Explain the process: PLAN - ACT – REVIEW – CONCLUDE – PLAN

When the game is over, discuss with students why it is played in the lesson of green creativity in business. The answer is: all groups who were successful cut the distance their ball had to pass through. It was useful for nature but also for business. It happens that even six balls go through the hands of all people quicker than the first ball did and it is only due to optimization of the process. Discuss with students how it is possible to cut the distances from where your materials come or where you send your products. If it is not possible to do it, how is it possible to make transportation more eco-friendly?

ACTIVITY 6.2. Who Will Serve Whom? (Transportation Exercise)

Divide your class into small groups. Ask three volunteers who are going to act as customers. They stand in front of the classroom in different places.
Give each team the same task with the following description.
Your company owns three timber production factories. You have just got three new customers who are making furniture from your timber. They are situated in different places around the country and roads to them from your factories are different. The distances from your factories are the following.

FACTORIES	*Customer 1*	*Customer 2*	*Customer 3*
Alfa	*150 km*	*180*	*70*
Beeta	*220 km*	*180*	*120*
Gamma	*240*	*200*	*180*

Give each team three pieces of paper with a factory name on each. Ask them to also write their team name on it and bring it to the customers. Who will give in the best deal for the company in the shortest time, is the winner.
Ask them to explain their decisions.
The correct answer is: Alfa – Customer 3, Beeta, Customer 2, Gamma – Customer 1.
Explain to students how important correct planning is for decreasing the total distance of transportation.
The other option of this exercise is to divide the whole class into businesses and customers and give them more options, but it is more complicated.

ACTIVITY 6.3. An All-Inclusive Quiz

This is a fun activity for repeating what students have learned during their studies about green entrepreneurship. No grades are given but everything can be discussed once more. Some questions are added that can be used but every teacher is welcomed to create their own quiz to make the activity more useful and interesting.

Divide your class into two equal groups. If the number of students is odd, ask somebody to come to help you with counting the points.
Explain the rules. When you have asked the question, students who know the answer, stand up. The group whose member was the first one to stand up, gets the right to answer. But – it is not sure that the first one who obtained the right for the group to answer will be the one to do it. The teacher selects randomly one student from this group who stands to give the

answer. If the answer is correct the group gets so many points as many students stood up. If the answer is wrong, they get as many minuses.
Students are not allowed to speak with each other. They have to decide silently to take the risk or not if persons are not sure that they know the correct answer. It is like business work: who takes the risk, can get more profit, but can also lose a lot!
Green side here is only the questions, but this method works well. Sometimes you have to explain the answers once more.

Some possible questions with answers (but create also your own ones):

➔ Which economic activity is the major consumer of energy?

Transportation is a major consumer of energy, primarily from the burning of fossil fuels, which contributes to air pollution and global warming
https://en.wikipedia.org/wiki/Environmental_effects_of_transport

➔ Which kind of transportation is the largest contributor to global warming?

Road transport is the largest contributor to global warming within the transportation sector.
https://en.wikipedia.org/wiki/Environmental_effects_of_transport

➔ What is the rate of the contribution of the transport sector to global CO2 emissions?

Global CO2 Emissions: The transport sector accounts for about 23- 25% of global CO2 emissions, with the majority coming from road traffic
https://tnmt.com/infographics/carbon-emissions-by-transport-type/

➔ What is the rate of global oil consumption by transportation?

Transportation accounts for about 64% of global oil consumption.

➔ What is the rate of all energy use by the transportation sector?

27% of all energy use https://www.iisd.org/articles/deep-dive/road-sustainable-transport

➔ How many metric tons does the aviation sector emit approximately CO2 into air per year?

CO2 Emissions: The global aviation sector emitted approximately 915 million metric tons (Mt) of CO2 in 2019
https://bing.com/search?q=impact+of+aviation+on+environment+numeric+data&form=SKPBOT so about 1 billion Mts.

➔ Please name at least six zero or little polluting transportation means.

Here's a list of transportation means that are generally considered to have a lesser environmental impact:

1. Walking: It's the most eco-friendly mode of transportation as it produces no pollution.
2. Bicycling: Also produces no emissions and has a minimal ecological footprint.
3. Public Transit: Buses and trains can be more efficient and less polluting per passenger than cars.
4. Carpooling: Sharing rides reduces the number of vehicles on the road, leading to lower emissions.

5. Electric Vehicles (EVs): They produce no tailpipe emissions, although the environmental impact depends on the electricity source.
6. Hybrid Vehicles: Use less fuel than conventional vehicles, resulting in lower emissions.
7. Sailing: Boats powered by wind have a negligible impact on the environment.
8. Horse-Drawn Carriages: While not practical for modern transportation needs, they do not produce emissions.
9. Skateboarding and Rollerblading: These modes are emission-free and require human energy.
10. Electric Scooters and Bikes: These are becoming more popular and are less polluting than gasoline-powered scooters.

Now ask the last answering team to ask a question about sustainable transportation from another team.

And now is the turn for another team to ask their question.

➔ The last question: name at least 3 other harmful impacts of transportation besides air pollution.

ACTIVITY 6.4. World Trade Puzzle

This game can be played with students from elementary school but also with upper secondary level students. SImply the interpretation has to be more complicated and discussions have to be more serious. Still the basic understanding about as positive as negative aspects of world trade can be discussed already with kids in their quite early age.

1. Divide your students into groups of 3-5 persons
2. You must have 5-6 world map puzzles.
3. Take 3-6 pieces of each puzzle away. These pieces have to be different in each set.
4. Put these pieces into other sets
5. Give each group a puzzle and ask them to solve it.
6. When students discover that they have some odd pieces and some are missing and tell you about the problem, tell them that you are not able to solve it because you do not have any reserves.
7. They ask for an opportunity to trade or give them advice to do it if they do not understand it.
8. The quickest team to solve the problem can get an award.
9. Start a discussion about the necessity to have trade. Let them write down all benefits of trade.
10. Now ask them to point out all the weak points of trade, starting with ecological ones.
11. Ask them to write them into two columns: Benefits and harmful impact.
12. Ask them how to decide upon each export-import necessity.

VII GREEN AND SUSTAINABLE MARKETING

Green marketing, also known as environmental or sustainable marketing, promotes products based on their eco-friendly or sustainable qualities. It aims to encourage environmentally responsible choices by highlighting a product's positive impact on the environment, such as being energy-efficient, non-toxic, recyclable, or less harmful compared to alternatives.
The principles of green marketing guide companies in promoting environmentally friendly products with transparency and authenticity. Key principles include a genuine environmental commitment, transparency, highlighting environmental benefits, using recognized certifications, educating consumers, considering product life cycles, sustainable packaging, corporate social responsibility, engaging consumers, continuous improvement, crisis preparedness, market research, innovation, and collaboration. These principles help build trust, demonstrate commitment to sustainability, and drive positive environmental change.

Green Marketing vs. Sustainable Marketing
While both terms are often used interchangeably, there is a difference between green marketing and sustainability marketing. Green marketing focuses on strategies that promote environmental awareness and protection. Sustainable marketing, on the other hand, is a little broader. It encompasses green marketing but it also includes practices that go beyond the environment, like social and economic issues.
Business leaders should link their company mission to a sustainable cause, as these initiatives can lead to long-term benefits, such as brand recognition, customer loyalty, innovation and cost savings. Business and marketing leaders should not view sustainable marketing as a short-term way to boost sales. Instead, they should view it as a long-term commitment. Organisations that want immediate benefits from a sustainability initiative often abandon these practices after they achieve some business benefits, such as increased brand recognition or sales. Organisations with sustainable marketing strategies should educate consumers on their company's mission. An organisation should integrate its sustainable marketing strategy across the whole organisation to create a unified, consistent message regarding its commitment to sustainability.
Greenwashing could be defined as using accurate environmental facts to tell an inaccurate environmental impact story.
Greenwashing – term used to describe when a company or organisation exaggerates or falsely claims to be environmentally friendly in order to appear more socially responsible than they actually are.
When comparing green marketing vs. greenwashing, marketing is when a company *honestly* lives up to its green and sustainability claims. It's honest and transparent. Greenwashing is when a company does *not live up* to (or is perceived to live up to) its green and sustainability claims.

Differences between green marketing and traditional marketing

Parties	traditional marketing	Green marketing
Targets	The firm and the consumer	The firm, the consumer and the environment
Corporate responsibility	Consumer satisfaction	Consumer satisfaction
Environmental requirements	Enterprise interest	The interest of the enterprise,
Green pressure groups	Legal obligations	least damage to the environment

ACTIVITY 7.1. Discussion: Why Is It Happening?

Examine the cause and effect of green marketing/green washing.

1. Choose the cause and explain the effect with real-life examples.

CAUSE	***WHY?***
Environmental Awareness	*Growing concerns about climate change, pollution, resource depletion, and habitat destruction drive demand for eco-friendly products.*
Consumer Demand	*People actively seek products that align with their environmental values and support sustainability.*
Regulatory Pressures	*Governments worldwide enforce environmental regulations that encourage eco-friendly practices.*
Corporate Social Responsibility (CSR)	*Businesses use green marketing to show their commitment to environmental and social responsibility.*
Competitive Advantage	*Offering eco-friendly products differentiates businesses, attracting environmentally conscious consumers.*
Innovation and Technology	*Technological advancements make it easier to develop and promote sustainable products.*
Cost Savings	*Green initiatives like energy efficiency offer economic benefits, which green marketing can highlight.*
Market Research	*Data supports the growing market for green products, guiding businesses to invest in sustainability.*
Media and Communication	*Digital media helps spread information about environmental issues and green products to a broader audience.*
Supply Chain Sustainability	*Companies focus on responsible supply chains and sustainable sourcing of materials.*
Global Awareness	*Climate change and environmental concerns have gained global attention, prompting businesses to adapt to changing consumer values and global sustainability goals*

ACTIVITY 7.2. Green Marketing Or Greenwashing: Explain Why?

1. Prepare cards with company's name & case
2. Give 1 card to each student
3. Each student has to explain why a given business case can be considered as a green marketing case or greenwashing case.

Green Marketing Cases Cards

Company name	Case	Arguments (teacher's notes)
IKEA	IKEA, a global home furnishings retailer, emphasises sustainability and green practices in its product design and marketing efforts.	IKEA's "People and Planet Positive" strategy outlines goals for using sustainable materials, reducing waste, and promoting energy-efficient products. Their marketing materials often showcase these efforts.
Tesla	Tesla, an electric vehicle (EV) manufacturer, is a prominent example of green marketing in the automotive industry. They emphasise the environmental benefits of EVs, such as reduced emissions and energy efficiency.	Tesla's marketing materials and website highlight the carbon savings and energy efficiency of their electric vehicles compared to traditional gasoline-powered cars.
Patagonia	Patagonia, an outdoor clothing and gear company, is renowned for its commitment to environmental responsibility. They have embraced green marketing by promoting sustainable practices and transparency.	Patagonia's "Don't Buy This Jacket" campaign encouraged consumers to think twice before making a purchase and focused on reducing consumerism. They also repair and recycle old clothing, reducing waste and promoting a circular economy.
Coca cola company	Coca-Cola's "World Without Waste" initiative is a significant green marketing campaign aimed at addressing the environmental impact of its packaging and promoting a circular economy.	This "World Without Waste" initiative exemplifies how Coca-Cola combines its environmental efforts with green marketing strategies. By emphasising sustainability and circular economy principles, Coca-Cola aims to reduce the environmental impact of its products and engage consumers in responsible consumption and recycling practices. These efforts demonstrate the company's commitment to environmental responsibility while promoting its sustainability initiatives to a global audience.

Apple	Apple, an American technology company, has been working on reducing its environmental impact.	They use their "Apple Renew" program to encourage customers to recycle their old Apple devices responsibly, highlighting their commitment to sustainability and recycling.

Company name	Case
Volkswagen	In 2015, Volkswagen was found to have cheated emission tests by making its diesel cars appear far less polluting than they are. The car manufacturer admitted to installing 'defeat devices' in a variety of vehicles.
McDonald's	In 2019, the fast-food chain started an initiative to reduce the usage of single-use plastics in its restaurants. The main objective was to completely replace all plastic straws in its UK restaurants with recyclable paper alternatives. Nevertheless, the company's new paper straws, which have replaced the previous plastic ones, are still not recyclable.
IKEA	A 2020 analysis by NGO Earthsight burst IKEA's environmental bubble. From this report, it emerged the main partner used by IKEA for wood approval and certification, the Forest Stewardship Council, is actually guilty of greenwashing. This is because the Council allegedly did not act upon the use of illegal timber imported from Ukraine. IKEA also needs a lot of wood to keep the business going – utilising over 21 million cubic metres of it in 2019 – heavily contributing to deforestation and damaging eco-habitats.
H&M	H&M, a global fast-fashion retailer, has faced criticism and allegations of greenwashing in the past. The company has made efforts to promote its sustainability initiatives and eco-friendly practices. H&M has launched a number of sustainability programs and campaigns, such as the "Conscious Collection" and "H&M Conscious," which are aimed at offering more environmentally friendly and ethically produced clothing items. However, some critics have accused H&M of greenwashing because, despite its sustainability efforts, the fast-fashion industry as a whole is associated with high levels of waste, overproduction, and unethical labour practices. These critics argue that the company's claims of environmental and social responsibility may not fully align with its overall business model. It's important to note that H&M, like other companies in the fast-fashion industry, has made efforts to improve its sustainability practices over the years, such as investing in recycling and circular fashion initiatives. However, the debate about whether these efforts are sufficient and whether they offset the negative impacts of the fast-fashion industry continues.

Evaluate Significance

Green marketing holds great significance as it reduces environmental impact, addressing issues like climate change and pollution. It educates and empowers consumers to make eco-conscious choices while helping businesses stand out and attract environmentally conscious customers.
By ensuring compliance with environmental standards, it reduces legal risks and enhances brand reputation, building consumer trust. Green marketing also drives innovation, reduces costs, and boosts competitiveness. It prepares businesses for changing consumer values and regulatory landscapes, aligning with global sustainability goals and promoting environmental awareness and responsible consumption.
However, green marketing also comes with challenges, such as meeting customer expectations, complying with regulations, and avoiding greenwashing. Some companies use it for the wrong reasons or fail to predict potentially negative outcomes.

However, green marketing also comes with challenges. Challenges and potential drawbacks of green marketing include high expenses, which can be cost-prohibitive for small businesses and lead to higher costs for consumers. Skeptical consumers are wary of greenwashing, where companies make false claims about environmental benefits. Unintended consequences may arise from well-intentioned eco-friendly trends, such as increased demand for specific resources leading to issues like water shortages.

Remember, green is a *trend*, sustainability is a *mindset*.

Sources:

The 11 worst examples of greenwashing | 2023 (theecoexperts.co.uk)

To achieve real results in turning enterprises into more environmentally friendly ones, it is not enough to promote only environmentally friendly products , but it is vital to think also through all the stages of business (and teach them also to our young generation) for turning the whole marketing process into a more environmentally friendly one.
As this is a very new thinking pattern, it needs a great paradigm change. When looking at data from the internet and speaking with widely known green enterprises, the system for doing marketing in an environmentally friendly way is missing. That is why the activities for teaching it were created by the members of our consortium.

ACTIVITY 7.3. Four P-s as Green Marketing Tools

We have composed an activity relying on commonly known 4 P-s of marketing.

Four Green P-s of Marketing

If students have not studied marketing before, give them a short introduction into 4 P-s of marketing: Product, Price, Place and Promotion.

Four Green P-s of Marketing are focusing on not adding waste by marketing activities and directing customers to buy more eco friendly products.

Here Brainstorming is again a good method. To learn something new and use IT in the classroom (or deliver the lesson on-line) you can use the platform of **Tricider**

https://www.tricider.com/

The free option enables you to make very good anonymous brainstorms that fit well for more introverted or shy students.

➔ Let's start from **Product**:

Ask them to think about **Product Development**

What can be changed to make your product more environmentally friendly?

Brainstorm

Ask students to think about different aspects like:

1. Materials: which ones to use.
   Make a list.
   Then assess as a group: Advantages / Disadvantages
   Make decisions.
2. Size of the product: (List, assess, decide)
3. Design: What else to change?

➔ **Price**

Compare Ordinary price and Green product price.

Which is higher? Why? Pros and Cons of the higher price.

Is it possible to make people buy eco-friendly products if they are more expensive?

What to do?

Lifecycle of the product –(if they do not speak about it themselves, explain that if the life cycle is longer, price can be higher)

To buy materials in bulk (cheaper) or less (less waste) What to do and how to decide?

➔ **Place**

Where to sell? What are the environmental advantages of selling directly to the customer?

How long is the selling chain?

Where are your customers? Transport distances: What to do to reduce them? Again: You may want to use Tricider for answering the questions!

➔ **Promotion:**

How to make your promotion more eco friendly?

On-line marketing – pros and cons.

Analyse of marketing materials

1. Reuse of posters
2. What material do you use for promotional posters and roll-ups? Are they really necessary?

What is the content of your slogans? And what is their goal?

Decoration of the selling stand – materials? Messages?

What happens with your marketing materials after their usage? Is recycling possible?

Do you want everybody to buy or people who really need and use your product?

Do you inform customers about the results of their purchasing choices?

Analyse the impact of your whole marketing activities to the environment!

On-line version

The suggestion was given already in the classroom game to use Tricider but this activity can take place also in Zoom or Teams rooms where students work in different virtual rooms and get together for discussions.

ACTIVITY 7.4. Analyse Your Product Using 4P-s of Marketing

Environmentally friendly 4P

PRODUCT			**PRICE**		
Environmentally friendly aspects	Environmentally harmful aspects	Solution	Environmentally friendly aspects	Environmentally harmful aspects	Solution
PLACE			**PROMOTION**		
Environmentally friendly aspects	Environmentally harmful aspects	Solution	Environmentally friendly aspects	Environmentally harmful aspects	Solution

ACTIVITY 7.5. A discussion using small cards

Expand your product range adding eco-friendly products Brainstorm how to do it	Expand your product lifecycle Analyse is it possible to change some materials or parts with more durable ones	Make your product repairable How can you guarantee that it is possible to repair your product? Are spare parts available?	Naked package Is a package necessary? What are the advantages of selling products without packaging? How to make customers prefer naked packages?	Eco Friendly package materials Make a list of eco friendly packaging opportunities	Digital information instead of traditional marketing Advantages and disadvantages of both methods. Which digital channels can you use?
Make your product design more environmentally friendly What can be changed in design to use less materials and more environmentally friendly ones?	Develop a strong brand How can a strong bränd help to make marketing more environmentally friendly?	Sell ecological product with LOWER price Why is it important? What has to be changed to achieve it?	Make repair cheaper than buying a new Why is it important? What has to be changed to achieve it?	Pay producers a fair price for environmentally friendly materials Why is it important? What has to be changed to achieve it?	Market and sell only to your target group What should be changed to direct marketing to the right audience? Why is it better for the environment?
Leave far markets Is it always possible? What is the impact on your production and to customers? Benefits of this action?	Display the products so that eco products catch more attention How is the current situation in shops? Where are the best places for eco-products?	Start selling from you own neighbourhood List the benefits of selling in your neighbourhood?	Use the shortest possible sales chains How to do it? Why is it useful from the environmental aspect?	Sell on-line What is the impact of on-line selling? Is It always more environmentally friendly?	Do not oversell What does it mean? Why is overselling harmful for the environment ?

Find your environmentally friendly unique selling point Analyse your selling arguments? Choose one environmental argument.	Avoid greenwashing DIscuss what is greenwashing. Give examples what you can avoid in your company	Use environmentally friendly marketing methods How to approach roll-ups, printed ads, advertisement booklets, etc.?	Use only biodegradable marketing materials How to replace traditional marketing materials for biodegradable ones? Their advantages and disadvantages?	Donate to environment organisations Why is it useful for your company? List the environmental organisations that you know.	

Instructions:
Divide students into groups of 4-5 persons.
Put shuffled cards on the table.
Place labels on the table: **Price** **Place** **Promotion** **Product**
Each student takes a card, reads it and puts it under the right label telling others why it belongs into this group. They do it until all the cards are used.
Then they take one card as a group and try to answer the questions written to the card in small letters. They may use all the cards or do the activity according to the time you have.

After that they try to think of more activities for each P.

VIII Office / Premises

The concept of shaping the future of environmentally friendly workspaces and offices is undergoing a profound transformation, driven by the imperative to create more environmentally friendly and sustainable work environments. Green premises encapsulate a commitment to environmental sustainability within the framework of office design and operations, reflecting a conscientious effort to minimise ecological footprints while fostering a healthier and more productive work environment. As businesses grapple with the imperative to align corporate practices with global sustainability goals, the transformation of conventional offices into green, eco-friendly spaces emerges as a tangible and impactful contribution.

Green premises refer to environmentally sustainable and eco-friendly spaces, particularly in the context of workplaces or offices. These premises are designed and operated with a focus on minimising their impact on the environment. Key elements of green premises include energy efficiency, the use of eco-friendly materials, waste reduction and recycling practices, water conservation, integration of indoor greenery, and sustainable transportation options. The goal is to create a workspace that not only minimises its ecological footprint but also promotes the well-being of occupants and aligns with broader environmental sustainability goals. As we embrace the "Going Green in Entrepreneurship Education" project, it's crucial to understand that the physical spaces where we work play a significant role in promoting eco-conscious entrepreneurship. Here, we explore key strategies, activities, and examples that can help shape the future of workspaces and offices to be more environmentally friendly.

Green practices in the office environment offer a multitude of compelling benefits that extend beyond the workplace, ultimately contributing to a more sustainable and responsible world.

By adopting eco-conscious measures, offices significantly reduce their carbon footprint. Energy-efficient practices lead to lower emissions, while the use of eco-friendly materials conserves precious resources. This not only benefits the planet but also translates into tangible cost savings. Energy-efficient technologies lower utility bills, and efficient waste management minimises disposal costs, providing a dual advantage for both the environment and the bottom line.

Green practices promote the well-being of employees by enhancing the indoor environment. The introduction of indoor plants improves air quality and boosts morale, fostering employee pride and satisfaction. Furthermore, the commitment to sustainability enhances the corporate image and branding. A green office signals social responsibility, creating a positive perception among stakeholders. It also positions the organisation with a competitive advantage, appealing to eco-conscious consumers and investors who increasingly seek environmentally responsible businesses.

Green practices go beyond immediate benefits by future-proofing the workplace. These measures are adaptable to future environmental regulations, ensuring long-term sustainability. By mitigating environmental risks, offices build resilience to unforeseen challenges. In addition, green initiatives foster employee engagement and community by involving them in sustainability efforts. A healthy work environment, as a result of these practices, leads to increased productivity, aligning with the concept that environmentally responsible workspaces can contribute to the success of both businesses and the broader community.

Firstly, the layout and design of office spaces can have a substantial impact on their environmental footprint. Embracing principles of sustainability in office design includes maximising natural light to reduce energy consumption, using eco-friendly materials for construction and furnishings, and creating spaces that encourage recycling and waste reduction. Open, collaborative spaces that promote interaction among employees can foster the exchange of ideas for sustainability initiatives. Moreover, integrating greenery into office interiors not only enhances aesthetics but also improves indoor air quality, which is also mentioned in the next paragraphs. The installation of solar panels could be also included in this paragraph; however, it would suit better in the next paragraph, about energy efficiency.

As such, another crucial aspect of a green office is enhancing energy efficiency. Reducing energy consumption is a critical aspect of creating eco-friendly workspaces. Offices can incorporate energy-efficient lighting systems, such as LED lights rather than traditional lightning, or ideally harnessing natural light sources wherever possible. Investing in energy-efficient appliances, like computers and office equipment, can significantly reduce energy consumption. For instance, installing motion sensor lights in common areas ensures that lights are only in use when needed. The utilisation of smart building technologies is highly recommended to control temperature and lighting based on occupancy, and the employment of renewable energy sources like solar panels. Timely maintenance and upgrades of heating, ventilation, and air conditioning (HVAC) systems are also essential to ensure optimal energy performance.

Green commuting options also contribute to a sustainable workplace. Offices can provide incentives for public transportation use, offer bike racks and shower facilities to encourage cycling and walking, promote carpooling, or even promote the use of electric vehicles. Some forward-thinking organisations even provide electric vehicle charging stations for employees with electric cars.

Implementing comprehensive waste reduction and recycling programs is a fundamental practice for environmentally friendly offices. This includes not only providing recycling bins but also setting clear waste reduction goals and organising educational campaigns to encourage employees to participate actively. Some companies have adopted a "zero-waste" philosophy, striving to send no waste to landfills or incinerators. The encouragement of employees to use

reusable items, like water bottles and coffee mugs is crucial. In the kitchen, a consideration of energy-efficient appliances, such as refrigerators and dishwashers can be vital. Moreover, the promotion of practices like composting can be helpful, for example, to promote as role-models the existing employees that apply such practices.

Passing on to remote-work and telecommuting, remote work policies are not just beneficial for employee well-being but also contribute to environmental sustainability by reducing the need for daily commuting. With the rise of digital technology, the future of workspaces may increasingly include remote work options. Telecommuting can significantly reduce the environmental impact associated with daily commuting. Supporting flexible work arrangements not only lowers carbon emissions but also enhances employee satisfaction and work-life balance.

The choice of materials plays a pivotal role in crafting sustainable and eco-conscious workspaces. To build environmentally friendly offices, we emphasise the selection of green materials for furniture and office supplies. This involves opting for materials that are not only aesthetically pleasing but also environmentally responsible. Consider incorporating sustainable wood options, reclaimed materials, and recyclable furniture into the office design. Upcycled furniture, in particular, showcases a commitment to repurposing and reducing waste. By prioritising eco-friendly materials, we not only reduce the environmental impact of office furnishings but also set an inspiring example for future entrepreneurs, demonstrating how every aspect of the workplace can align with sustainable principles.

The introduction of indoor plants is a natural and effective way to enhance the environmental friendliness of workspaces and offices. Beyond the aesthetic appeal, indoor plants serve a dual purpose by improving indoor air quality and fostering a refreshing and invigorating atmosphere. As part of our endeavour to shape the future of eco-conscious entrepreneurship education, we encourage the inclusion of indoor plants within office spaces. Low-maintenance plant varieties such as snake plants, pothos, and succulents are particularly well-suited to office environments, requiring minimal care while still contributing to a healthier indoor environment. By incorporating these green companions into the workspace, we not only promote a greener and more vibrant office but also emphasise the significance of ecological awareness in the daily work experience. The integration of indoor plants is a simple yet impactful step that showcases the harmonious coexistence of entrepreneurship, environmental responsibility, and well-being in the modern office.

Water conservation is another vital aspect of responsible resource management towards the commitment to fostering environmentally friendly workspaces and offices. To achieve this, we recommend the installation of water-efficient faucets and the thoughtful implementation of water-saving practices. These actions not only reduce water wastage but also lead to significant

cost savings. We encourage proactive measures such as promptly addressing any water leaks. These simple yet impactful steps underline the office's dedication to resource efficiency and align with the broader goal of educating the next generation of entrepreneurs in sustainable practices. By integrating water conservation into the office environment, we pave the way for a more eco-conscious and responsible approach to workspace management, where entrepreneurship and environmental stewardship harmoniously coexist.

The adoption of green cleaning products is a fundamental step toward achieving environmentally friendly workspaces and offices. By making the switch to environmentally friendly and non-toxic cleaning solutions, we not only safeguard the health and well-being of employees but also reduce the environmental impact of chemical cleaning agents. The use of microfiber cloths and mops for cleaning should be encouraged, which significantly diminish the reliance on chemical cleaners. This practice not only minimises the presence of harmful substances in the workplace but also underscores the importance of adopting sustainable alternatives. By integrating green cleaning products and practices, we promote a workplace environment that is both clean and ecologically responsible, aligning with our mission to inspire the next generation of entrepreneurs to prioritise both business success and environmental consciousness.

Furthermore, it’s important to conduct awareness programs to educate employees about the critical importance of sustainability. These programs not only inform but also inspire, instilling in employees a deep understanding of their roles in advancing eco-conscious practices. Involving employees in green initiatives is essential. By encouraging their ideas for improvement and actively engaging them in sustainable projects, we foster a sense of ownership and responsibility for the environmental footprint of the workplace. Educating and involving employees underscores the principle that sustainable workplaces are created not only through policies and practices but also through the active participation and commitment of those who work within them.

Emphasis should also be given to the organisation of green events and practices. These initiatives encompass eco-friendly team-building activities, volunteer work for environmental causes, and the infusion of sustainability into various workplace events. By doing so, we not only foster a sense of community and shared responsibility among employees but also actively contribute to environmental well-being. These events serve as platforms for instilling environmental consciousness, fostering teamwork, and exemplifying our commitment to the principles of sustainable entrepreneurship. As we shape the future of workspaces and offices, green events and practices play a pivotal role in reinforcing the message that every action, both within and beyond the office, can make a meaningful contribution to a more eco-conscious and sustainable future.

In summary, shaping the future of environmentally friendly workspaces and offices involves a holistic approach that covers design, energy efficiency, sustainable commuting, waste reduction, and embracing modern work practices like telecommuting. By incorporating these strategies and examples into our project's educational framework, we can inspire the next generation of entrepreneurs to lead the way in creating workplaces that prioritise both business success and environmental responsibility.

ACTIVITY 8.1. Turning Office (School) Environment Greener

Look around in your school and in the room where you are implementing your entrepreneurship practical studies. Think about the following aspects and evaluate what is done well and what can be done better in your environment. Work alone with your assessments and then discuss your evaluations with your team. NB! Very important is to fulfil the second step after evaluation: what can I (we) do to improve the situation.

1. layout and design of your rooms
    a. Eco Friendly materials in construction
    b. Eco Friendly materials for furniture
    c. Space for recycling
    d. Plants in interior
2. Lighting and heating – LED lamps or old generation lamps
    a. Natural lightening
    b. Eco Friendly energy (solar panels, wind energy)
    c. Motion sensor lights
3. Remote work where possible
4. Waste reduction
    a. Waste reduction goals
    b. Sorting waste
    c. Composting
    d. Reusing paper and other materials
    e. Reusable dishes
    f. Less printing, more digiwork
    g. Deleting unnecessary files
5. Eco Friendly cleaning
    a. Eco Friendly cleaning products
    b. Water management

IX SELLING

We all have too many things, things we have bought because of emotion, not due to a need. These things take space in our home, we have wasted money and they end in landfills often never used. Almost all businesses try to convince us to buy their products and they are not interested if we really need them.

When entrepreneurship is taught at school, an important part of it is teaching selling tips, just with the goal to sell more, to sell at a high price and sell to as many people as possible. Students learn to convince people, to invite everybody to buy their products, to find more attractive selling arguments. We are preparing our new generation to obtain an attitude that is the main reason for over consumption .

When we were searching from internet tips for environmentally friendly selling, we found nothing like this. We found suggestions on how to promote and sell ecological products, but not how to sell any usual product in an environmentally friendly way. This project has invented everything as a teamwork and the results are published here. Still there is a long way to go for changing attitudes of consumers and producers.

The first thing is to educate everybody at school to **decrease their consumption** and not to buy things that they really do not need. It is not easy to do it as it means smaller profits for businesses and sometimes also a bit less comfortable life. Still if we take the green turn seriously, it has to be done.

When teaching selling at entrepreneurship lessons it is necessary to teach them to find out who is their **real target group** who needs their product and not try to sell to everybody. Defining target groups is a part of business education also now, but for going green it is important to limit the customer basis to these people.

The next important aspect is **honesty in the selling process** and product description. Customer has to know the benefits of the product but also the other side. Students have to understand that there is no need for selling a miracle product that solves all problems. The short term profit of a company decreases, but it is a way to create a loyal customer group: if you treat your clients honestly and with respect, they start trusting you and return. Customer feedback is very important to understand what has to be changed to fit exactly to their needs.

Students need to be taught to **focus on environmental aspects** when selling, to explain them to customers and educate them.

Aggressive selling has to stop. Nowadays awards to best selling people (also to students) are mainly given to these persons who sell aggressively, but here the paradigm has to change and the environmental aspect has to be considered.

One way for selling to one’s real customers is to use subscriptions where possible and produce and sell by those data.

ACTIVITY 9.1. What, Whom, Why?

1. Demonstrate students some good (e.g. textile bag, solid shampoo, motivational diary, etc.) and give them 15 minutes to describe as exactly as possible their target group.
2. Ask them to write down what are the needs that their product satisfies.
3. Divide students into groups, most of them are selling people, but five of them are customers with their profile.
4. Ask students to prepare their sales pitch (20 minutes).
5. Now ask them to sell their product to the customers.

Examples of customer profiles.

John, 32 years old, an IT specialist, repairs computers and solves technical problems. Every morning goes jogging and loves classical rock.	Diana, 25 years old, studies medicine, goes hiking in the mountains, is one of the organisers of local World Clean Up Day. Comes from a big family. Has three dogs.	Mathias, 34 years old. Lives in a historical neighbourhood, drives a three wheeler electric bike. Works as an architect.
Julia, 28 years old, a co-founder of a start-up, goes in for triathlon. Works 12 hours per day but only four days per week.	Kenneth-Ragnar, 21 years old, an influencer. Has 50.000 followers. Lives in Helsinki. Has his own successful band merchandise side business.	Laura, works as a counsellor of a minister, lives in the countryside and works in the home office. Travels at least 5-7 times a year.

II Ask students to evaluate selling to only a tiny special target group.
What happens? Give them 20 minutes for group work and ask them to prepare presentations.
Supporting questions:
What happens if our aggressive selling goes on?
What happens if it ends and a new focus will be on small exact target groups?

- ➔ Impact on nature
- ➔ Impact on businesses
- ➔ Impact on communities
- ➔ Impact on individuals

IS IT POSSIBLE?
How to make it possible?

ATTACHMENTS (for Activity 4.4.)

Attachment 1

Instructions for the Facilitator

As a facilitator you have to prepare the LEGO sets. For this game only blocks are used, the more you have them the better. Still it is possible to play it also with a smaller number of blocks when you dismantle the houses when they are accepted by the Customer.

For this game the main idea is to reorganise the production into more efficient and also for a more environmentally friendly one. During the first period players understand that the process is far from ideal and it is impossible to achieve the goals set when the old system is used.

You start the game asking players to sit in a circle. You tell them the story of the company and explain what they have to do.

“You are new employees in a factory that produces log houses which are assembled in the factory and then transported to the customer. In our factory there are several actors:

1. Customer service (1 person)
2. Manager of the factory (1 person)
3. Production unit 1 (1 person)
4. Production unit 2 (1 person)
5. Production unit 3 (1 person)
6. Quality controller (1 person)
7. Bookkeeper (1 person)
8. Repair Station (1 person)
9. Logistics (1 person)

There is also a Customer who represents all your Customers, and a Storehouse from where you buy your materials and all necessary forms.

The company has a very good reputation for its quality and in time delivery of the houses. Now they have opened a new factory and hired new employees -you! The factory has three production units, which produce their parts of log houses from different materials. Each production unit has competence to work with two types of materials.

Demanded time for building one house is 6 minutes.

Each block costs 1 JAURO (local money) not depending on their size. The cost of unfinished products equals double of the number of blocks used (in jauros) and the price of the finished product is always 200 JAUROs. “

After explaining this you need a second hand to draw the flow of information, money and materials and products from one unit to another.

The working process is the following.

1. Before the work starts, everybody has 15 minutes to learn how to build the house and understand his/her tasks in the process.
2. All Production Units have to decide how many blocks and of which colour they order from the store house. They send their orders (see Order form) to the storehouse using Logistics.
3. The Storehouse delivers the blocks to the Production Units using the Logistics. If Storehouse does not have the right size of blocks it is allowed to deliver replacement blocks.
4. The Storehouse sends information about blocks delivered to the bookkeeper.
5. The customer comes to customer service and gives them an order on paper for the type of house their family needs. The customer expects the order to be fulfilled in 6 minutes. Customer reads his/her instructions to see how the ordering process takes place.
6. The Service department calls for Logistics and Logistics brings the order to the Manager.
7. The manager calls back the Logistics and sends the order to the Production Unit, who has the competence to work with the blocks needed for the basement (it depends on the colours)
8. If the Production Unit does not have enough blocks, they send an order with Logistics to the Warehouse.
9. When the basement is ready the Production Unit calls the Logistics and sends the unfinished product (basement) with the order back to the Manager.
10. The Manager decides who has the competence to build the walls, calls the Logistics and sends the unfinished product and the order to the next Production Unit.
11. If the Production Unit does not have enough blocks, they send an order with Logistics to the warehouse.
12. When the second Production Unit has built the walls, they call the Logistics who brings the order and the unfinished product back to the Manager.
13. The Manager sends the order and the unfinished product with Logistics to the last Production Unit for building the roof.
14. If the Production Unit does not have enough blocks, they send an order with Logistics to the warehouse.
15. When the product is ready, the last Production Unit calls the Logistics and sends the product and the order to Quality Control.
16. When the Quality Control has approved the product, it puts the CE certificate into the house, calls the Logistics and sends the finished product with Logistics to the Manager.
17. If the Quality Control found some mistake, it sends the product with remarks to the Manager, who sends it with Logistics to the Repair Station.
18. If the product is of high quality, the Manager sends it with a CE certificate and order to the Customer service.

19. The Repair Station improves the mistake, adds the CE certificate and sends it with Logistics to the Customer Service.
20. Customer Service uses the Logistics for sending the product to the Customer with an invoice.
21. Customer checks the product and if he/she is happy about it, they bring the approval (it means money) to the bookkeeper.
22. The warehouse can call the Logistics and order products from supply at any time.
23. Each time when the warehouse sends materials to Production Units, it sends the copy of the deal also to the bookkeeper.

Before you start the game, you organise the room so that the table for the Manager is in the middle. Three Production Units, Quality Controller, Repair Station, Bookkeeping and Customer Service form a Circle. Logistics does not have a table, but a Trolley, a small box or some wagon for transporting materials, forms and finished houses.

Customer and Storehouse are out of the circle. Distance depends on the size of the room. No need to put anybody too near to any other station. There has to be some distance between everybody.

One option for organising the room is following:
When the process is explained, you or somebody who helps you draws lines on it describing the flow of materials, money and information.

Materials needed:
All actors must have their instructions on their tables. Logistics needs in addition a trolley and a step monitor. Bookkeeping has a form for calculating costs and income. Quality Controller and Repair Station need CE certificates but those have to be bought from Storehouse. Production Units need order forms.

Customer has order forms on the table.

When the first period is over (30 minutes from the beginning), ask players to take their seats in a circle again. Explain to them how to decide whether they have been successful or not.

For this use the GPI chart. Input is given by bookkeeping, customer and Logistics.

When the feedback is delivered, ask participants to get together and discuss in 30 minutes how to reorganise everything except Customer and Sotrehouse, that are not in their company. Ask them to think through:

1. Flow of information
2. Flow of materials
3. Allocation of tasks
4. How to become more efficient
5. How to become more environmentally friendly
6. The location of all stations

When they are ready, let them reorganise their working place. Then the second round starts with their own work organisation.

When the second round is over, ask them to sit together, give feedback and mark the numbers into the table.

Attachment 2

Job description for the Manager

You are responsible for the whole work of the loghouse factory because you control everything and allocate the tasks according to the orders from the customer.

When the order is received by the Customer Service, the Logistic brings it to you. You are the person who knows who has the competence to work with which materials and you send the order (with the help of Logistics) to the Assembly Station who has the right colour of blocks for producing the BASEMENT (this is the first thing to be done). When the station has fulfilled their task and the basement is ready, they send it and the order to you. You know who has the competence for building walls (the right colour of blocks) and you send the basement by using Logistics to this Assembly Station. When the walls are built on the basement, Logistics brings this and the order to you and you send it and the order with Logistics to the Assembly Station who has the right colour of blocks for the roof. When the roof is ready, they send the house with Logistics to you and you send it (Logistics!) with the order to Quality Control. If the quality is good, they send it and the CE certificate to you and you send the product with the order and certificate to Customer service.

If it is not a good quality, they send it also to you with a remark about what is wrong and you send it to the Repair Station who improves the product and adds CE certificate and sends it to Customer Service.

Attachment 3

Job description for Production Units

Production Unit 1

At this station you can build all the stages of the log house, but you have qualified to build only using red and blue blocks. When the order comes, your Manager will send you the working order to build a basement if the customer has ordered a blue or red one. When you have done it, you will call Logistics and Logistics takes your basement to the Manager together with the production order form.

When the customer has ordered red or blue walls then you will get a ready made basement and build your walls on it depending whether blue or red was ordered and where the windows and doors are meant to be. When it is ready Logistics takes it to your Manager together with the production order form.

When the customer has ordered a red or blue roof then you will get the unfinished house with basement and walls and add to it the roof of the colour that customer has ordered in production order form. You also add a chimney whose colour is not determined. When it is ready Logistics takes it to your Manager together with the production order form.

You must order necessary blocks from the Warehouse. Using Logistics. For that you use a material Order sheet.

Job description

Production Unit 2

At this station you can build all the stages of the log house, but you have qualified to build only using yellow and green blocks. When the order comes, your Manager will send you the working order to build a basement if the customer has ordered a yellow or green one. When you have done it, you will call Logistics and Logistics takes your basement to the Manager together with the production order form..

When the customer has ordered yellow or green walls then you will get a ready made basement and build your walls on it depending whether yellow or green was ordered and where the windows and doors are meant to be. When it is ready Logistics takes it to your Manager together with the production order form.

When the customer has ordered yellow or green roof then you will get the unfinished house with basement and walls and add to it the roof of the colour that customer has ordered in production order form. You also add a chimney whose colour is not determined. . When it is ready Logistics takes it to your Manager together with the production order form.

You must order necessary blocks from the Warehouse. Using Logistics. For that you use a material requirement sheet.

Job description

Production Unit 3

At this station you can build all the stages of the log house, but you have qualified to build only using black and white blocks. When the order comes, your Manager will send you the working order to build a basement if the customer has ordered a black or white one. When you have done it, you will call Logistics and Logistics takes your basement to the Manager together with the production order form..

When the customer has ordered black or white walls then you will get a ready made basement and build your walls on it depending whether black or white was ordered and where the windows and doors are meant to be. When it is ready Logistics takes it to your Manager together with the production order form.

When the customer has ordered black or white roof then you will get the unfinished house with basement and walls and add to it the roof of the colour that customer has ordered in production order form. You also add a chimney whose colour is not determined. . When it is ready Logistics takes it to your Manager together with the production order form.

You must order necessary blocks from the Warehouse. Using Logistics. For that you use a material requirement sheet.

Attachment 4

Job description for Quality Control

Logistics delivers the ready built house together with the production order. At this workstation the 100% check is performed, regarding colours, model, completeness and building quality. Quality statistics are recorded.

Houses that pass the control are handed over to the Customer Service together with the production order and CE certificate. Houses that are not OK, are sent to the Manager together with a rework order and production order.

When the work period is over, you have to tell the statistics about the quality to the staff meeting.

CE Certificate Loghouse meets high Quality Standards Signed by: Date: _____

Attachment 5

Job description of Rework Station

When the Quality Controller of Customer finds some mistake in the production the Manager sends the low quality product with comments and the order to you. You repair the mistakes and add the CE certificate yourself and send the product with Logistics to Customer Service.

If you need some blocks or CE Certificates, you order them from Storehouse.

Attachment 6

Job description of Logistics

You have a trolley, a small carriage or at least a box for transporting materials, formed as ready made houses. You also need a step counter to know how long distances you have gone through.

You serve everybody transporting materials from Storehouse to Production Units, Orders from Customer service to the Manager, orders and unfinished products from the Manager to Production Units, Quality Controller, Rework Station and finished products to Customer Service and finally to Customer. You are not allowed to move without your trolley or some other tool replacing it.

Attachment 7

Job Description for Customer Service

Customer service is the first stage for fulfilling our customer's wishes.

Customer comes to you and delivers her/his order.It is expected that the order will be fulfilled in 6 minutes.

You invite Logistics whom you give the order to and send it to the Manager, who decides who has to start the production. You do it with all orders as quickly as possible.

When the product is ready, you bring it to the Customer who checks it and if the Customer is happy with it, he/she approves the product and gives the order with the approval to you. You give it to the Bookkeeper and it means that the money comes in.

If the Customer is not happy, you bring the product to the Manager, who decides whom to send it. Money is not paid.

Attachment 8

Job Description for Bookkeeping

You are responsible for accounting.

Each time when materials are ordered, Storehouse sends you an invoice and you write the data into your Accounting tables as costs.

When Customer gets a high quality house, you will get their order with the comment that it is accepted. This goes into your tables as an income.

When the period is over, then you know how many blocks and certificates are bought from Storehouse. Their cost is 1 JAURO per unit.

When the period is over, not all products are ready (unfinished products), they also contain labour and because of it their cost is already double the number of blocks. This calculation is done with the whole team, you only write it down.

The price of the house is always 200 JAUROs and it does not depend on the number of blocks.

Your table for Profit and Loss Statement

No	Cost of units bought	Income

Attachment 10

Work Instruction for Customer

You do not belong to the factory, but represent an independent unit. Your task is to send out orders according to the time schedule below. Factory members do not have the information about your orders.

The first order will be delivered five minutes after the simulation has started. You expect your order to be fulfilled in 6 minutes.

When the time comes for delivering an order you go to the Customer service and hand in your first order. Following orders will go by the following schedule.

Number of the order	Time from the beginning or from the previous order	Description of the order
1	5 minutes	Basement: yellow Walls: blue Windows: in the middle Roof Red
2	3	Basement: green Walls: red Windows: on the corner Roof: black
3	3	Basement: Blue Walls: yellow Windows: on the corner Roof: White
4	5	Basement: Blue Walls: White Windows: in the middle Roof: Blue
5	3	Basement: Black Walls: green Windows: in the middle Roof Red
6	6	Basement: White Walls yellow Windows: on the corner Roof: Green

7	3	Basement: Red Walls : White Windows: on the corner Roof: Yellow
8	5	Basement: Green Walls: Black Windows: in the middle Roof Blue

If there is more time, you can create the next orders yourself.

The second period

Number of the order	Time from the beginning or from the previous order	Description of the order
1	3 minutes	Basement: blue Walls: yellow Windows: in the middle Roof Red
2	2	Basement: black Walls: red Windows: on the corner Roof: green
3	3	Basement: Blue Walls: White Windows: on the corner Roof: yellow
4	2	Basement: Red Walls: Yellow Windows: in the middle Roof: Blue
5	3	Basement: Green Walls: red Windows: in the middle Roof: yellow
6	6	Basement: White Walls yellow Windows: on the corner Roof: Green

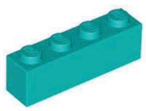
When the game is longer, you can create orders yourself.

When your order is fulfilled and you get the house, you must check the quality – are windows in the right place, all colours right, also that the CE certificate is added. If you are satisfied, you send the order with a positive assessment and “pay” it. If you are not happy, you answer No to the form and write what has to be repaired. This goes to the Customer Service who sends it to the Manager for solving. You do not consider this negative case as a finished product. If you are satisfied, you send the order with a positive assessment and “pay” it. If you are not happy, you answer No to the form and write what has to be repaired. This goes to the Customer Service who sends it to the Manager for solving. You do not consider this negative case as a finished product.

Some examples of Order-feedback forms:

Basement: yellow Walls: blue Windows: in the middle Roof Red. Decision after delivery: Accepted: YES NO If NO, why?	Basement: green Walls: red Windows: on the corner Roof: black Decision after delivery: Accepted: YES NO If NO, why?	Basement: Blue Walls: yellow Windows: on the corner Roof: White Decision after delivery: Accepted: YES NO If NO, why?

ORDER FORM (O - ordered, D - delivered) **Production Unit# ____**

Order #		1.		2.		3.		4.		5.		6.		7.	
Colour:															
	O														
	D														
	O														
	D														
	O														
	D														
	O														
	D														
	O														
	D														
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	O														
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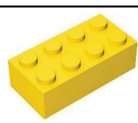	O														
	D														
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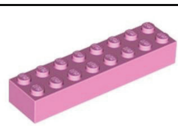	O														
	D														
TOTAL	O														
	D														

Attachment 12

PRODUCT ORDERS for the CUSTOMER

Basement: yellow Walls: blue Windows: in the middle Roof Red. Decision after delivery: Accepted: YES NO If NO, why?	Basement: green Walls: red Windows: on the corner Roof: black Decision after delivery: Accepted: YES NO If NO, why?	Basement: Blue Walls: yellow Windows: on the corner Roof: White Decision after delivery: Accepted: YES NO If NO, why?
Basement: Blue Walls: White Windows: in the middle Roof: Blue Decision after delivery: Accepted: YES NO If NO, why?	Basement: Black Walls: green Windows: in the middle Roof Red Decision after delivery: Accepted: YES NO If NO, why?	Basement: White Walls yellow Windows: on the corner Roof: Green Decision after delivery: Accepted: YES NO If NO, why?
Basement: Red Walls : White Windows: on the corner Roof: Yellow Decision after delivery: Accepted: YES NO If NO, why?	Basement: Green Walls: Black Windows: in the middle Roof Blue Decision after delivery: Accepted: YES NO If NO, why?	

Basement: blue Walls: yellow Windows: in the middle Roof Red Decision after delivery: Accepted: YES NO If NO, why?	Basement: black Walls: red Windows: on the corner Roof: green Decision after delivery: Accepted: YES NO If NO, why?	Basement: Blue Walls: White Windows: on the corner Roof: yellow Decision after delivery: Accepted: YES NO If NO, why?
Basement: Red Walls: Yellow Windows: in the middle Roof: Blue Decision after delivery: Accepted: YES NO If NO, why?	Basement: Green Walls: red Windows: in the middle Roof: yellow Decision after delivery: Accepted: YES NO If NO, why?	Basement: White Walls yellow Windows: on the corner Roof: Green Decision after delivery: Accepted: YES NO If NO, why?

Attachment 13

Invoice for Materials

From: StoreHouse

To: Blogfactory

	Description	Quantity	Price
1	Blocks		
2	CE certificate		
	TOTAL		

Attachment 14

Invoice for Houses

From: BlogFactory

To: Customer

	Description	Quantity	Unit Price (JAURO)	Price (JAURO)
1	House		200	
2				
	TOTAL			

Attachment 15

STOREHOUSE REGISTER

Order #	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	14.	PU TOTAL
Production Station 1																
Production Station 2																
Production Station 3																
															TOTAL:	

Attachment 16

PROFIT AND LOSS STATEMENT

First period

In JAUROs

No	Cost of units bought	Income
TOTAL		
Profit/Loss		

Profit and Loss Statement

Second period

In JAUROs

No	Cost of units bought	Income
TOTAL		
Profit/Loss		

Attachment 17

CE Certificates

CE Certificate Loghouse meets high Quality Standards Signed by: Date: _________	**CE Certificate** Loghouse meets high Quality Standards Signed by: Date: _________	**CE Certificate** Loghouse meets high Quality Standards Signed by: Date: _________
CE Certificate Loghouse meets high Quality Standards Signed by: Date: _________	**CE Certificate** Loghouse meets high Quality Standards Signed by: Date: _________	**CE Certificate** Loghouse meets high Quality Standards Signed by: Date: _________
CE Certificate Loghouse meets high Quality Standards Signed by: Date: _________	**CE Certificate** Loghouse meets high Quality Standards Signed by: Date: _________	**CE Certificate** Loghouse meets high Quality Standards Signed by: Date: _________
CE Certificate Loghouse meets high Quality Standards Signed by: Date: _________	**CE Certificate** Loghouse meets high Quality Standards Signed by: Date: _________	**CE Certificate** Loghouse meets high Quality Standards Signed by: Date: _________

Attachment 18

REWORK ORDER

	No of Order	Ordered	Deviation	Remark about solution
1				
2				
3				

Attachment 19

PRODUCTIVITY CALCULATION (GPI)

Fulfill the following table:

Round	Produced goods	Delivered goods	Income (Bx200)	Costs	Result (C-D)	Orders	Fulfilled	Ontime	Reliability	Defects	Rework	Transport	Productivit
	A	B	C	D	E	F	G	H	J	I	K	L	O
1													
2													
Difference													

Attachment 20

Room Arrangement