



**Game
manual**

CONTAINS DIDACTIC GUIDE

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CONTENT

1. Objective, target groups and duration of the game	4
2. Game components	4
3. Thematic context for teachers	4
4. Purpose	6
5. Preparation	7
6. Game rules and mechanics	9
7. Solutions and scoring table	11
8. Didactic proposals	21



1 OBJECTIVE, TARGET GROUPS AND DURATION

FOOTPRINT is a cooperative “escape room” type game, designed to be used with groups in the educational field, especially with Secondary Education and Upper Secondary Education, aged 16 and over.

In this game, the group’s goal is to escape from a superstore. To achieve this, they will need to find the exit code of the front door padlock while getting a low “footprint” score.

The total duration of the game will depend on the game modality chosen. It can range from one class session (if the work is distributed among several subgroups without working on the didactic proposals) or several sessions (if students play in subgroups and each subgroup has to solve the entire task, tackling the didactic proposals after solving each product).

2 GAME COMPONENTS

- 1 map of the superstore with 12 products (labyrinth)
- 1 setting card
- 36 cards (divided into 12 blocks with 3 cards numbered from 1 to 3 for each superstore product).
- 1 “Confidential” brochure.
- 1 game manual.
- 1 template for registration of answers
- 1 template for score calculation

These components are also available for free download on InteRed’s website <https://www.intered.org/es/recursos/recursos-educativos> and also in the QR code at the end of this manual.

3 THEMATIC CONTEXT FOR TEACHERS

“Footprint” simulates concrete situations that will transport students from their local reality to different global realities, showing that we live in an eco-dependent and interdependent world and that our actions have consequences on the environment and on the lives of people around the world.



The challenges of the game are linked to the 2030 Agenda and the Sustainable Development Goals (SDGs). The 2030 Agenda for Sustainable Development is the response of the international community to face global problems. The game is particularly related to the SDGs of the Planet axis, which are:



SDG 6. Ensure availability and sustainable management of water and sanitation for all



SDG 12. Ensure sustainable consumption and production patterns



SDG 13. Take urgent action to combat climate change and its impacts



SDG 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development



SDG 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

The game addresses these SDGs always from the perspective of Human Rights, interculturality and gender approaches (also according to SDG 5 - Gender equality and empowerment of women and girls).

In the chart below, it is presented some evidence that characterizes today's global society and that makes it more necessary than ever for citizens to have the skills, abilities, attitudes, and values necessary to understand, analyze, and critically make decisions to transform it.

SOCIAL LEVEL	Deepening social inequalities are exacerbating the vulnerability of the most excluded populations and social groups. An example of this is that more than 700 million people (equivalent to 10% of the world's population) live in extreme poverty today.
	Regarding gender inequalities and gender-based violence, UN Women informs that around 35% of women around the world have suffered physical and/or sexual violence by a romantic partner or sexual violence by someone other than their romantic partner (these figures do not include sexual harassment) at some point in their lives.

ECONOMIC LEVEL	Global economic crises have shown us a stark reality: crisis situations enrich the richest and impoverish the poorest. Economic inequality has increased not only between regions of the world (global North and global South), but also within countries, with a growing gap in access to and enjoyment of basic rights and services depending on the economic stratum the population belongs to.
POLITICAL LEVEL	Recent years show some trends: the new emerging countries and the decline of the West as a hegemonic power, together with citizen protests that demonstrate a universal discomfort with governments; the massive mobilization of migrants and refugees, as result of violent conflicts such as wars and an increasingly unjust and unequal world; the closure of borders and the increase in fear of what is perceived as different; austerity measures that lead to the breakdown of the welfare state and the widening of the poverty gap; the centralization of power in multinationals, and a society of hyperconsumption based on neo-individualism, which has caused the transition from the condition of citizenship to that of consumers.
ENVIRONMENTAL LEVEL	It is estimated that in 2019 there were 25 million people displaced by climate reasons in the world, the risks of displacement due to natural disasters according to UNHCR data have doubled since 1970; between 1990 and 2020 the area of primary forests has decreased by 81 million hectares; 8% of the 8,300 known animal breeds are extinct and 22% are endangered.

4 PURPOSE

This game is intended to encourage reflection on our modes of production and consumption and how these are unsustainable, showing their environmental and social impact. The game teaches that we live in an eco-dependent and interdependent world and how our local reality is globally connected. The footprint we leave with each product is our ecological footprint (red is a destructive footprint, green is a sustainable footprint, and yellow is an intermediate value).

The guide gives teachers guidelines to address student's skills development, especially the development of personal, social and learning-to-learn skills as well as citizenship competency. It also allows to use cooperative game-based learning as a transformative methodology for educational inclusion and global citizenship.

5 PREPARATION



«Footprint» presents a mechanic where, through 12 products that can be found in a superstore, our minds are transported to other places connected with these products, either in relation to their manufacturing, use and consumption or disposal processes. For each product, information is provided on its connections and impact on nature and on people's lives, and also a reflection question is proposed to the group to measure its ecological footprint (from destruction represented by a red footprint to sustainability represented with a green footprint).

“Footprint” is designed to be played in the classroom. The first step is to place the setting card, the superstore map and the cards on the table, forming 12 blocks of 3 cards each (one block for each product). The cards that make up each block are recognized by having the same drawing of the product on the back, they are numbered from 1 to 3 and cannot be turned over until the game indicates it. The “Confidential” brochure and the templates for recording answers and calculating the final score should also be placed on the same table.

Although the entire class group plays cooperatively as a single team, there are two possible ways to play “Footprint”, and depending on which one is chosen, more or less materials will be required. To have more copies of the materials, it will be necessary to photocopy the originals or download them free of charge from <https://www.intered.org/es/recursos/recur-sos-educativos> and in the QR code at the end of this manual.

Modality 1
**THE CLASS GROUP IS DIVIDED INTO SUBGROUPS,
BUT EACH SUBGROUP WORKS ON ALL THE PRODUCTS**

Although the students play as a large group, they are divided into subgroups to make it easier for everyone to participate, looking for the solution to all the products in the superstore. In this case it will be necessary:

- As many plans of the superstore as subgroups
- 1 or several setting cards
- As many sets of 36 cards as there are subgroups (for example, if there are 2 subgroups, two sets of cards will be needed = 72 cards)
- As many “Confidential” brochures as subgroups
- As many answer record templates and score calculation templates as there are subgroups

Modality 2:
**THE CLASS GROUP IS DIVIDED INTO SUBGROUPS, BUT EACH
SUBGROUP WORKS ON DIFFERENT PRODUCTS**

Although the students play as a large group, they are divided into subgroups to make it easier for everyone to participate, dividing the superstore products among the subgroups. For example, if there are 2 subgroups, one will look for the solution of 6 products and the other that of the other 6. In this case it will be necessary:

- As many plans of the superstore as subgroups
- 1 or several setting cards
- 1 set of 36 cards (each subgroup will only use the cards of the products that they have to find out)
- As many “Confidential” brochures as subgroups
- As many answer record templates and score calculation templates as there are subgroups

Even though the class group is divided in several small groups, it is recommended that they can work on all the products (several sessions will be necessary for this). It is recommended to use a pencil and then erase or not write directly on the original files or the original game cards so that they can continue to be used in future games or photocopied (use sheets of paper and the answer record template for this).

It is recommended to hand out the superstore plans first; then explain how the cards – divided in 12 blocks - work. After that, the “Confidential” brochures and the answers recording templates are distributed, explaining each component, and the game starts. (See details of mechanics and game rules in section 5 of this manual).

6 GAME RULES AND MECHANICS

The game begins by reading the setting card: a group of students have been locked in a superstore and they must find the code of the padlock that closes the main door of the superstore and leave little footprint in the way.

The basic game rules are:

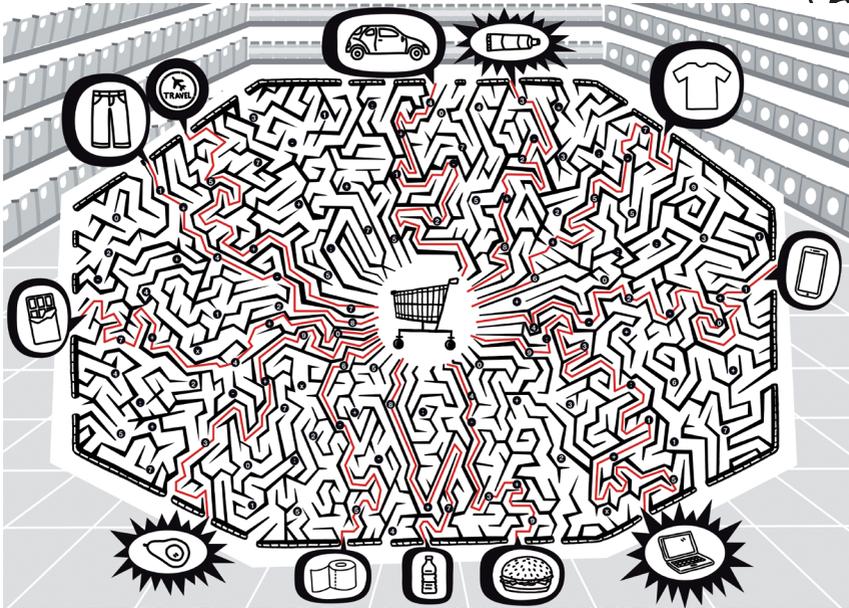
- 1** The cards of each product are solved in order (1-2-3). **Cards 2 and 3 are solved when indicated by the “Confidential” brochure. They cannot be turned over until that moment.**
- 2** To access letter 1 of each product, it is necessary to solve first the path of said product on the superstore map (obtaining a number as a result). The numbers and mathematical symbols that appear on the paths of the superstore map do not block the path, but serve to find the key to each product.
- 3** When accessing letter 1 of each product, the students go to the paragraph of the “Confidential” brochure indicated in said letter. At that moment, the students mentally teleport from the superstore to the reality of that product.
- 4** The “Confidential” brochure has numbered paragraphs. It can only be read the paragraph indicated by the cards or by the “Confidential” brochure itself.
- 5** The order indicated by the “Confidential” brochure is followed, which also leads to cards 2 and 3 of the products. In turn, the cards indicate the number of the «Confidential» paragraph to go to. **YOU CANNOT CONTINUE READING THE “CONFIDENTIAL” BROCHURE WITHOUT HAVING FIRST RESOLVED THE CORRESPONDING CARD.**



- 6 For each product, the “Confidential” brochure asks a question and depending on the answer and as explained in the brochure itself, a red, yellow or green imprint is obtained.
- 7 The students teleport back to the superstore fulfilling the last challenge indicated by the “Confidential” brochure (this challenge leads back to card 1 to find the times that the product is camouflaged in the illustration: sometimes can be seen with the naked eye and others are hidden as a chameleon). After, students note down their results (number obtained and color of the footprint) in the answers recording template.
- 8 The time needed for solving each product is counted. A stopwatch is started when the search for a product begins in the superstore labyrinth and the stopwatch is stopped when, after solving the three cards, students return to the superstore. The elapsed time is noted on the answers recording template.
- 9 The process is always the same for all products.
- 10 It is necessary to solve all the products to be able to find the code that opens the padlock on the exit door of the superstore.
- 11 Once all the products have been resolved, the results that have been recorded in the answers recording template are verified. The final score is verified with the score verification table.
- 12 Once a product is finished, it is recommended to complete the corresponding didactic proposal found in section 8 of this manual. The same dynamic can also be continued with another product, although it is recommended to work on one product per session, including its didactic proposal.

There are three factors to consider in the game: 1) the number of correct/incorrect answers; 2) the time taken to solve each product completely and 3) the color of the footprint obtained for each product (green-yellow-red). Students can obtain higher or lower scores for each of these elements, and their points will be counted as a large group at the end of the game.

7 SOLUTIONS AND SCORE TABLE



a) Solutions to the paths in the labyrinth

Path that leads to the car $2 - 1 + 4$, the answer is 5

Path that leads to the toothpaste $8 + 2 - 3$, the answer is 7

Path that leads to the T-shirt $6 + 5 - 7$, the answer is 4

Path that leads to the smartphone $4 - 2 - 0 + 1$, the answer is 3

Path that leads to the laptop $9 : 3 : 1 + 5$, the answer is 8

Path that leads to the hamburger $4 - 3 + 9$, the answer is 10

Path that leads to the plastic bottle $8 + 7$, the answer is 15

Path that leads to the toilet paper $6 - 5$, the answer is 1

Path that leads to the avocado $9 + 3$, the answer is 12

Path that leads to the chocolate bar $0 + 4 + 7$, the answer is 11

Path that leads to the jeans $8 - 4 + 1$, the answer is 5

Path that leads to the travel agency $7 + 5$, the answer is 12



b) Solutions to the game cards (summary table)

Product	Number of products hidden in letter 1	Solution to card 2	Solution to card 3	Code of each product (to decipher the padlock code)
Chocolate bar	2	96	24	22
Toothpaste	4	220	8	32
T-shirt	3	1134	452	449
Smartphone	2	1998	8	6
Hamburguer	3	14	2	6
Laptop	4	48	15	19
Jeans	4	35	12	16
Travel	1	28000	321	322
Plastic bottle	6	1,6	5	11
Avocado	5	6,691	264	259
Toilet paper	2	8	663	661
Car	3	25	7	10
PADLOCK CODE				1,813

c) Solutions to game cards (steps to reach the solution)

Chocolate bar. Card 2. Solution: 96.

The result is obtained from the bottom up and from left to right. Adding two figures and placing the result in the upper box until reaching the top.

					96
				48	48
			24	24	24
		13	11	13	11
	8	5	6	7	4
5	3	2	4	3	1



Chocolate bar. Card 3. Solution: 24.
The result is obtained by placing the numbers that are missing so that they never repeat either in a row or in column.

4	1	2	3
2	3	1	4
3	2	4	1
1	4	3	2

Toothpaste. Card 2. Solution: 220. The result is obtained with the following values: blue fish = 20; Pink fish = 10; and orange fish = 90

Toothpaste. Card 3. Solution: 8. The number is in the center when marking the numbers that the letter indicates, either vertically, horizontally or diagonally.

T shirt. Card 2. Solution: 1134. Each box must be filled with a figure, solving the indicated operations from 1 to 6, which in turn coincide with the indicated results from A to F. The answers are:

	A	B	C	D	E	F
1	2	4		1	8	
2	5		3	6		2
3		1	0		5	0
4	2	2		3	0	
5	6	0			1	2
6			9	0		8

T shirt. Card 3. Solution: 452. The result is obtained from top to bottom. The logic is as follows:

$$208 = (64+40) \times 2 = 104 \times 2$$

$$64 = (18+14) \times 2 = 32 \times 2$$

$$40 = (14 + 6) \times 2 = 20 \times 2$$

$$18 = (4+5) \times 2 = 9 \times 2$$

$$14 = (5+2) \times 2 = 7 \times 2$$

$$6 = (2+1) \times 2 = 3 \times 2$$

Smartphone. Card 2. Solution: 1998. The result is obtained by changing the letters by numbers as follows:

$$A = 2$$

$$B = 1$$

$$C = 9$$



Jeans. Card 2. Solution: 35. The solution is obtained by filling in the missing numbers until they add the numbers marked in orange, coinciding the vertical and horizontal planes.

			10	15			
		3/5	4	1	10		
	10	1	2	4	3	1	
	15	2	3	5	4	1	
		6	1	3	2		
			3	2	1		
				3	5		

Jeans. Card 3. Solution: 12. The solution is obtained by counting all the blocks, including those not visible.

Travel. Card 2. Solution: 28000. The solution is obtained by the following pattern:

437,5	875	3.500	7.000	28.000
x2	x4	x2	x4	

Travel. Card 3. Solution: 321.

1	2	3	3	2	1
2	1	1	2	3	3
3	2	3	1	1	2
1	3	1	2	3	2
2	3	2	1	1	3
3	1	2	3	2	1

3	2	1
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Plastic bottle. Card 2. Solution: 1,6. Traditional sudoku, you cannot repeat the numbers from 1 to 6 in the same row or column.

6	2	5	4	1	3
4	3	1	2	5	6
3	1	4	6	2	5
2	5	6	3	4	1
1	4	3	5	6	2
5	6	2	1	3	4

Plastic bottle. Card 3. Solution: 5. The symbols are obtained for the indicated numbers

$$9+3+7-2+8=5y$$

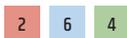
$$(9+3+7-2+8) / 5 = y$$

$$25/5 = y$$

$$5=y$$

Avocado. Card 2. Solution: 6,691. The correct option is the third and we take the figure on top of it.

Avocado. Card 3. Solution: 264. The solution is obtained by filling the pictures with the figure of each result (a single figure can be placed in each box):



7				5	x	4	=	2	0	
x				x		x				
10	6			3	x	9	=	2	7	
=	x			=		=		x		
7	x	3	=	2	1	3	x	1	=	3
0	=			5		6	=			
		1						2		
		8								



Toilet paper. Card 2. Solution: 8. Lying 8 is the infinity symbol.



Toilet paper. Card 3. Solution: 663. Traditional Sudoku. The numbers cannot be repeated in each box of 6 boxes or the rows or columns

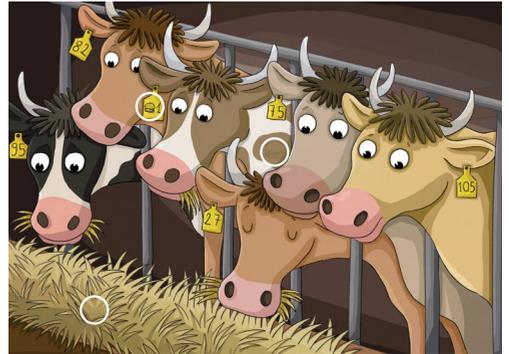
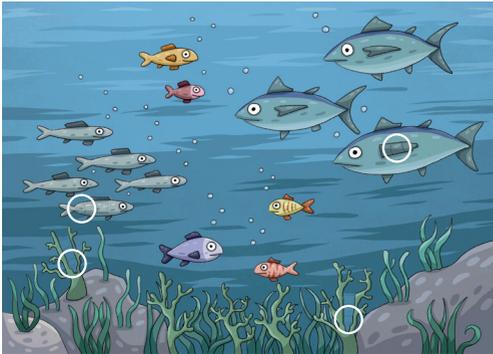
6	5	2	4	3	1
3	1	4	6	2	5
4	3	6	1	5	2
1	2	5	3	6	4
2	4	3	5	1	6
5	6	1	2	4	3

Car. Card 2. Solution: 25. The solution is obtained with the following values:

Boat = 2

Palm tree = 5

Car. Card 3. Solution: 7. The total triangles are counted, including the large triangle.







d) Score calculation table

The score obtained in each product is calculated.

Product	TIME			NUMBER OBTAINED		FOOTPRINT			TOTAL POINTS (max=30 in each product)
	Less than 10 minutes	Between 10 and 20 minutes	More than 20 minutes	Correct answer	Wrong answer	Green	Yellow	Red	
	5 points	3 points	1 point	10 points	0 points	15 points	5 points	0 points	
Chocolate bar									
Tooth paste									
T-shirt									
Smartphone									
Hamburger									
Computer									
Jeans									
Travel									
Plastic bottle									
Avocado									
Toilet paper									
Car									
TOTAL SCORE									



The total score is calculated and is verified in the box below.

TOTAL SCORE	OBSERVATIONS
Between 241 and 360	In the end what matters is the footprint we leave, so you can feel happy because the green colour predominates in your footprint.
Between 121 and 240	If you have obtained this score, one option is that you may have found the tests difficult, but the colour green predominates in your footprint, which means that you have to catch up with maths, but also that there is good news for you about your sustainable habits. However, if you got this score because you played smart and fast, but the green colour does not predominate in your footprint, this is not good news and maybe it is time to adopt more sustainable habits, don't you think?
Between 0 and 120	Something is wrong. It seems that you have lost the way and that your footprint is not close to green.... This is not a good result, what if you try again?

8 DIDACTIC PROPOSALS

Game-based educational processes make it easier for students to understand the world, develop critical skills and abilities to work together for a fairer, more egalitarian and more sustainable world.¹

It is a cooperative game designed for Secondary Education and Upper Secondary Education stages² qu fostering the development and competency of key learning skills in³:

- Literacy
- Multilingual competence.
- Mathematical competence and competence in science, technology and engineering.
- Digital competence.

1. <https://www.intered.org/es/recursos/accion-educativa-transformadora-contribuciones-desde-el-juego-educativo-para-la-ciudadania>

2. The game can also be used with young adults in settings of non-formal education

3. Following the recommendation of the European Council (2018) [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604\(01\)&from=DE](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604(01)&from=DE)



- Personal, social and learning to learn competence,
- Citizen competence.
- Entrepreneurial competence, and
- Competence in cultural awareness and expression

These skills are transversally integrated into other key competencies such as problem solving, creativity, critical thinking⁴, teamwork, etc. which are also promoted through the cooperative game “Footprint”.

Similarly, the global Competence, from the PISA conceptual framework, defined as *“the ability to analyze global and intercultural issues, assess different perspectives with a respect for human rights in order to interact with people from different cultures, work for the common good and the sustainable development”*⁵ is also promoted in students through this game.

The game helps especially the development of personal, social and learning-to-learn competence, as well as citizenship and global competencies. Yet, all the other competencies are also addressed in the resolution of the different questions and in the didactic proposals in this manual.

For the development of the game, in order to foster inclusion and participation, it is important to constitute groups of 5 or 6 students, procuring that their abilities are complementary, as the game requires deductive, mathematical, visual skills... If possible, it should have a balanced number of girls and boys and of different cultures according to the diversity of the classroom, and made up of students without close friendship ties so as to promote personal relationships and inclusion. Section 4 of this manual includes a note to teachers in which it is recommended that all students could be working in small groups simultaneously on the same product; but whether this is the case or the products have been distributed among the groups, it is important to convey the idea that with this game the whole classroom is facing a common challenge that requires the cooperation of each student.

It is important to dedicate enough time of the game session for reflection with the students on our production and consumption habits, encouraging them to make decisions and give priority to human and environmental sustainability. The first question to encourage the dialogue is asking the students (for each product) if they knew what was stated in the “Confidential” brochure and asking them about the color of the obtained footprint. Here it is important

4. <https://www.intered.org/es/recursos/accion-educativa-transformadora-habilidades-criticas-para-comprender-el-mundo-desde-un>

5. <https://www.oecd.org/pisa/Handbook-PISA-2018-Global-Competence.pdf>



paying attention at whether they mention the impossibility of changing things and refute this opinion in order to favor their commitment as agents for social transformation. The setting card can also serve to generate debate, asking students how they would react to a similar situation of confinement or to the idea of being protagonists of a hidden camera show. Finally, to deepen the analysis of the connections between the local and the global contexts and make visible how this is related to the Sustainable Development Goals (SDGs), we propose for each product a common structure:



Product “Chocolate bar”

- Impact of palm cultivation
- SDGs 2, 12 and 15



What do we intend?

Showing the link between local reality (our consumption habits) and global reality (loss of biodiversity, food insecurity, violation of human rights).

How do we do it?

We keep students divided into groups and share the following information and question:

Today, the right to food is being violated, more than eight hundred million people -1 out of 9- suffer hunger in the world, why do you think this situation occurs? What is its relationship with what is exposed in the game about palm cultivation and the effects of deforestation, eviction of communities...etc. What happens in countries like Guatemala?

To answer these questions, students must search for information on the Internet (it can be a quick query at the moment or a research work to be done at home). This will take them to know how, in addition to the environmental destruction, the expansion of monocultures for exportation in Guatemala are reducing the areas for planting corn and grains feeding local communities. In the past, peasant families who had none or very few land could rent it to large farmers, but now the farms are rented to large African palm companies



or other exportation monocultures who pay them more than peasant families can afford[1]. Approximately 67% of indigenous children in Guatemala suffer from chronic malnutrition.

Communities mobilize in defense of their land and the environment, especially women. We can ask students to find out about female environmental activists from different parts of the world such as Berta Cáceres, Aura Lolita Chávez, Zabaidah Tambunan, Greta Thunbergh...

Another research topic may be the impact of oil palm plantation and the danger of extinction of species such as the Sumatran tiger in Indonesia.

We conclude, reflecting on the role that each person's consumption habits have in order to respect the environment and to protect the rights of people.



Product “toothpaste” - Impact of microplastics - SDGs 3, 6, 12 and 14



What do we intend?

Showing the link between local reality (the products we manufacture and consume) and global reality (pollution of waters, destruction of marine ecosystem, health problems).

How do we do it?

We keep students divided into groups and share the following information and question:

Hundreds of different species ingest microplastic waste under natural conditions, many of them consumed by humans, such as mussels, clams, shellfish...etc. Research shows that more than 90% of salt brands worldwide contain microplastics. What impact eating microplastics does have on the health of living beings?

To answer these questions, students must search for information on the Internet (it can be a quick query at that moment or a research work to be done at home). This will lead them to know that microplastics have a complex composition, which includes polymeric materials and mixtures of chemicals,



and how research indicates that those can cause three main impacts on the organism of fish, which are: internal blockages, injuries to the digestive tract and exposure to polluting chemicals, while for human health they function as endocrine disruptors.

We ask students to investigate the products they use daily which contain and produce microplastics and how they could do without them or replacing them by other more sustainable options.

We conclude, reflecting on the role that each person's consumption habits have in order to respect the environment and to protect the rights of people.



Product “T-shirt” - Impact of the textile industry - SDGs 8, 12 and 13



What do we intend?

Showing the link between local reality (the products we manufacture and consume) and global reality (climate change, labor exploitation, violation of human rights).

How do we do it?

We keep students divided into groups and share the following information and question:

Currently 400% more clothes are produced compared to 20 years ago. The massive production and consumption of cheap and disposable clothing is known as “fast-fashion”. What is its relationship with the working conditions of workers in the textile industry in countries like Bangladesh?

To answer these questions, students must search for information on the Internet (it can be a quick query at that moment or a research work to be done at home). This will take them to know how today the fashion industry produces dozens of clothing collections a year, with low quality materials and precarious working conditions to obtain cheap clothes. Clothes are bought to be fashionable, and the average use of a garment before being discarded is 7 times[2]. Clothing production accounts for 10% of global CO2 emissions, the equivalent of what the European Union alone releases.



Women are mainly those who work in the textile industry, with highly precarious working conditions. We can ask students to find out specifically about their situation at a global and local level (maquilas in Central America, workshops in South Asia, shoe dressers in Spain...). They can also research the “Clean Clothes” campaign <https://cleanclothes.org/> carried out by organizations in more than 40 countries to improve the conditions of working people in the global garment industry.

We can ask our students if they know how to sew a broken sock and if they have ever done it. We can propose a “sewing day” in class when they can bring their broken garments and fix them in order to reuse them.

We conclude, reflecting on the role that each person’s consumption habits have in order to respect the environment and to protect the rights of people.



Product “Smartphone”

- Impact of mineral extraction
- SDGs 6, 8, 12, 15 and 16



What do we intend?

Showing the link between local reality (mobile technology consumption) and global reality (pollution, child labor, violation of human rights, war).

How do we do it?

We keep students divided into groups and share the following information and question:

On January 1st, 2021, the European Union regulations came into force to prevent the importation of some minerals that come from areas where there are armed conflicts. Is this measure enough?

To answer this question, students must search for information on the internet (it can be a quick query at that moment or a research work to be done at home). This will lead them to know how the law approved by the European Union, demanded for years by civil society organizations, is based on legislation of the United States and recommendations



of the OECD, seeking to control the importation into the European Union of four minerals: tungsten, tin, tantalum and gold. However, its scope is too limited as it only imposes strict obligation on companies at the bottom of the supply chain, i.e. those that extract, process and refine raw materials and those that import products in the metal phase. The great difficulty is traceability in the supply chain, for example, minerals that are mined in the Democratic Republic of Congo are sold as contraband in Rwanda, resold to companies located in China or Malaysia and the manufactured into technological devices that end up for sale in Europe.

Women are continuously victims of rapes and abuses by the various armed groups in conflicts or by men themselves in displacement camps. We can ask students to find out specifically about gender-based violence in the armed conflict in the Democratic Republic of Congo.

The control of natural resources is one of the main causes of conflicts and wars in the world, so we can propose this topic to students for further investigation, as well as how mineral extraction affects the environment.

We conclude, reflecting on the role that each person's consumption habits have in order to respect the environment and to protect the rights of people.



Product “Hamburger” - Impact of factory farming - SDGs 12 and 13



What do we intend?

Showing the link between local reality (industrial livestock production and meat consumption) and global reality (pollution, climate change).

How do we do it?

We keep students divided into groups and share the following information and question:



Livestock has a high impact on the environment, a 14.5% of all greenhouse gas emissions. What are these emissions due to?

To answer this question, students must search for information on the Internet (it can be a quick query at that moment or a research work to be done at home). This will lead them to know how the FAO[3] estimates that livestock sector emits between 7.1 and 8.1 gigatons of CO₂ per year, which represents 14.5% of total emissions. These emissions come from the production and processing of food (45%, a 9% of which is attributable to the expansion of pastures and grain crops for livestock in forests, with the consequent deforestation), the enteric fermentation of animals (flatulence and animal feces) which means another 39%, and manure decomposition (10%). The rest corresponds to the processing and transport of animal products.

We can delve into the environmental impact of industrial livestock by relating our local consumption to the impact on places that may seem remote to us, such as the Amazon, however, its trees are cut down or burned to open space for crops such as soybeans, which are necessary to meet the demand for feed for industrial livestock in Europe.

Students can also research on the use of cultivated land worldwide, finding out how only 23% of cultivated land is used for direct consumption, while 77% goes to pasture or feed for farm animals. Our World in Data[4] indicates that, to obtain 1 kilo of chicken, 3.3 kilos of food are needed; for 1 kilo of pork, 6.4, and for 1 kilo of beef, 25. This information can also be used to investigate the per capita consumption of meat worldwide, but also to look for information on who suffers from greater food insecurity in the world, to find out that women and girls are the most affected,[5] which shows another example of gender inequality.

Another topic of interest to be investigated can be the food diet and the impact on people's health, analyzing the so-called "junk food".

We conclude, reflecting on the role that each person's consumption habits have in order to respect the environment and to protect the rights of people.



Product “Computer” - Impact of electronic waste - SDGs 12, 3, 6, 14 and 10



What do we intend?

Showing the link between local reality (our modes of production and consumption of electronic products) and global reality (health problems, water pollution, environmental destruction, inequality).

How do we do it?

We keep students divided into groups and share the following information and question:

The European Parliament approved on November 25, 2020 a law in favor of the “right to repair”. That law came into force in March 2021 and aims to increase the useful life of electronic devices and thus achieve a lower environmental impact. What relationship does this law have with planned obsolescence and e-waste dumps such as Agbogbloshie, in Ghana?

To answer this question, students must search for information on the Internet (it can be a quick query at that moment or a research work to be done at home). This will lead them to know that planned obsolescence means that the manufacturer defines a period of useful life of the product, so that after that period it does not work anymore or becomes unusable (for example due to lack of spare parts), forcing costumers to buy a new product. They will be able to search for information on European legislation and in their own country, finding out about the tons of electronic waste that is produced[6] annually and where it is produced. At the same time, they can investigate where this garbage ends up, showing the inequality between the rich countries that produce it and the impoverished countries that receive it. It will be important to reflect on a model in which the interests of the market system (producing, selling, buying) are above the interest in caring for the lives of people and for the planet.

Students can also investigate about the risks to human health of the compounds that are part of electronic devices, and how they particularly



affect people who handle these types of elements and the populations in near landfills. Children in impoverished countries work in these landfills, being more susceptible to toxic chemicals because they are in full growth and have permanent contact with harmful substances in electronic waste. In turn, electronic waste releases gases into the atmosphere that end up polluting oceans and ecosystems around the world.

Relating technological devices with the Internet connection, students can be asked to find out about the great pollution generated by the use of the Internet.

We conclude, reflecting on the role that each person's consumption habits have in order to respect the environment and to protect the rights of people.



Product "jeans"
- Impact of exploitation of water resources
- SDGs 12, 6 and 15



What do we intend?

Showing the link between local reality (our modes of production and consumption with an unsustainable exploitation of water resources) and global reality (aquifer depletion, desertification, biodiversity loss).

How do we do it?

We keep students divided into groups and share the following information and question:

Water deficit is a serious problem that affects our planet, so it is important to reduce water expenditure per person. The water footprint is the total volume of water used to produce the goods and services consumed by an individual, by a group of people or by a country. It is in all kinds of items and/or experiences, from a trip to textile products. Why is our water footprint related to the lives of vulnerable populations in impoverished countries?



To answer this question, students must search for information on the Internet (it can be a quick query at that moment or a research work to be done at home). This will lead them to know how rich countries are consuming products from crops in impoverished countries, endangering the availability of water and food for those populations and with serious socio-environmental impact. The model of intensive agribusiness based on monocultures for exportation has important socio-environmental consequences related to the water issue, which are mainly due to three reasons: deforestation, the use of agrochemicals (which pollute water sources) and the intensive use of land that entails desertification and loss of fertility.

We can ask them to deepen their research on the right to water and the millions of people who do not have access to water and, in these cases, it is usually women and children who walk long distances to supply water to their homes.

Students can measure their water footprint from calculators available on the internet and critically analyze their consumption model.

We conclude, reflecting on the role that each person's consumption habits have in order to respect the environment and to protect the rights of people.



Product "travel" - Impact of air travels - SDGs 12, 13 and 15



What do we intend?

Showing the link between local reality (our tourism model and how we transport ourselves) and global reality (greenhouse gases, climate change, biodiversity destruction).

How do we do it?

We keep students divided into groups and share the following information and question:



Considering that in the European Union the number of flights increased by 8% between 2014 and 2017, it is expected that this number will continue to increase by 42% between 2017 and 2040. One of the reasons for this growth is that the price of airline tickets has become cheaper and low-cost airlines have increased their activity. Faced with this trend, a citizenship movement has emerged urging people not to fly and to choose alternative means of transport to reduce their carbon footprint. Do you think the “flygskam” movement will succeed?

To answer this question, students must search for information on the Internet (it can be a quick query at that moment or a research work to be done at home). This will lead them to know that “Flygskam” - the shame of flying - is the name of a movement originated in Sweden for people to stop traveling by plane because of its consequences on global warming, a movement that has acquired greater notoriety by joining the climate activist Greta Thunberg. Data from Sweden shows in 2019 a total decrease of 4% of air traffic compared to the previous year, (9% in the case of domestic flights), while increasing the number of people who opted for the electric train (with a much lower environmental impact).

We can ask students to investigate how greenhouse gases are produced, paying particular attention to how transport means influence, and to analyse the consequences of global warming, including the melting of ice in the polar ice caps, with the threat to native flora and fauna but also the effects of global scope such as rising sea levels.

We conclude, reflecting on the role that each person’s consumption habits have in order to respect the environment and to protect the rights of people.



Product “plastic bottle” - Impact of plastic consumption - SDG 12, 13 and 14



What do we intend?

Showing the link between local reality (the products we manufacture and consume) and global reality (pollution of waters, destruction of marine ecosystem).

How do we do it?

We keep students divided into groups and share the following information and question:

The large plastic island is located in the North Pacific Ocean, but there are also other garbage islands in the South Pacific, in the Indian Ocean, in the North Atlantic and in the South Atlantic. According to scientific media, ocean pollution does not stop increasing and rotating currents and winds cause marine debris -of all kinds, but mainly plastic-, algae and plankton, converge creating an area of garbage. More plastic has been produced in the last ten years than in the previous 100 years. Plastic is ubiquitous in our lives today but, can we live without plastic?

To answer this question, students must think about all the plastic objects they consume, about those that exist around, and think about how they could be replaced. They can search for information on the Internet (it can be a quick query at that moment or a research work to be done at home). This will lead them to know that there are more and more “Zero Plastic” movements and how it is possible to live without plastic. We can also ask them to investigate the extent to which the new products of bioplastic, biodegradable plastic and compostable plastic that are beginning to be used are ecological and to think about the main question which is whether we need so many things, highlighting the idea that less consumption means less pollution.

Finding out about the years it takes for different inorganic waste to decompose can also be a good exercise. 150 years is the time it takes for an ordinary plastic bag to decompose while a plastic bottle can take 1,000 years to disappear.



Seeking information on how plastic litter endangers many marine species can also be a research topic to propose to students, as well as finding out how it affects people's lives.

According to the United Nations, nearly one billion people, 12% of the world's population, depend on the oceans, seas and marine resources to survive. Women face the risks of ocean degradation with fewer assets and income alternatives, and less resilience to increasing resource loss.

Many other topics may be of interest to students when considering the conservation of oceans and seas such as the consequences of overfishing.

We conclude, reflecting on the role that each person's consumption habits have in order to respect the environment and to protect the rights of people.



Product "avocado" - Impact of food importations - SDGs 12, 13 and 15



What do we intend?

Showing the link between local reality (our diet and where the food we eat comes from) and global reality (greenhouse gas emissions, climate change, destruction of biodiversity).

How do we do it?

We keep students divided into groups and share the following information and question:

Just a few decades ago the avocado was an unknown food for most of the European population, however, today it is a popular food more and more consumed every year. Although Spain produces avocado, the vast majority of the consumed avocados in Europe comes from third countries, especially from Latin America. Avocado is known as the "green gold", but it is not always gold all that it shines. What is the environmental cost of avocado production?



To answer this question, students must search for information on the Internet (it can be a quick query at that moment or a research work to be done at home). This will lead them to know how the growing demand for avocado is causing deforestation by changing the use of the land for its cultivation and how it requires massive extraction of water for its production. All this entails soil degradation and loss of biodiversity. A study by the organization Carbon Footprint[7] indicates that the carbon footprint generated by two avocados doubles that of 1 kilo of bananas. This amount of carbon dioxide comes from its cultivation, storage and, above all, transportation.

To counteract the environmental impact of kilometric foods, movements such as “Slow food” and “Kilometer Zero” have emerged, finding out about these movements can also be a proposal for students to investigate about. Recognizing season fruits and vegetables in each country becomes a recommended exercise to work with students.

Our diet influences climate change. We ask students to find out the origin of the food they have consumed the previous day and their environmental footprint. We can also promote that they are informed about the environmental consequences of food waste (in addition to the ethical dilemma in a world where millions of people suffer hunger).

We conclude, reflecting on the role that each person’s consumption habits have in order to respect the environment and to protect the rights of people.



Product “toilet paper” - Impact of deforestation - SDGs 12, 13 and 15



What do we intend?

Showing the link between local reality (our model of production and consumption) and global reality (deforestation, destruction of biodiversity, climate change).



How do we do it?

We keep students divided into groups and share the following information and question:

In Canada's boreal forests, whose tree mass accounts for a sink of 12% of the world's total carbon, more than 11.312 billion hectares have been cut down in just 20 years. More than 80% of this wood goes directly to the production of toilet paper. What consequences do these bad practices have on boreal forests?

To answer this question, students must search for information on the Internet (it can be a quick query at that moment or a research work to be done at home). This will lead them to know how the boreal forests are concentrated around the northern cap of the globe, representing a large part of the world surface covered by forests, playing a fundamental role in the balance of the planetary climate since they capture large amounts of CO₂ and having an incalculable value as guarantors of biodiversity. Canada's boreal forests are one of the most vulnerable ecosystems on the planet. In recent years devastating fires have burned thousands of hectares. As Greenpeace points out, poor practices in logging boreal forests are aggravating global warming through the emission of greenhouse gases and the reduction of carbon storage.

Research on the causes of deforestation in the Amazon and the impact on indigenous communities can also be another subject of research. Similarly, students can find out about the impact of deforestation on women's lives (according to UN Women, especially women living in poverty and in rural areas, often depend on forests for fuel, fodder and food).

Students can also be asked to research about sustainable toilet paper and those that stand for FSC (Forest Stewardship Council) and PEFC (Programme for the Endorsement of Forest Certification) and find out whether or not tree plantations in Europe for paper production are beneficial.

We conclude, reflecting on the role that each person's consumption habits have in order to respect the environment and to protect the rights of people.



Product “Car”

- Impact of climate change and natural disasters
- SDGs 12, 13 and 10



What do we intend?

Showing the link between local reality (our model of production and consumption) and global reality (impact of climate change, natural disasters, forced migrations).

How do we do it?

We keep students divided into groups and share the following information and question:

Rich countries are the main responsible of the climate crisis for their production and consumption model, however, its impacts and the associated forced migrations occur mainly and with greater severity in the poorest countries. In 2020, there were 30.7 million people internally displaced by phenomena related to meteorological and climatic events (storms, floods, droughts, extreme temperatures, etc.) and geophysical (earthquakes and volcanic eruptions). What are the future forecasts for forced climate migrations?

To answer this question, students must search for information on the Internet (it can be a quick query at that moment or a research work to be done at home). This will lead them to know how every year the number of people who are forced to leave their homes due to changes in their environment caused by the effects of climate change is increasing. The World Bank in its report “Groundswell”[8] points out that climate change could force 216 million people to migrate within their countries in 2050. Climate migrations are part of forced population movements insofar as they are not chosen voluntarily. For example, hurricanes destroy thousands of homes every year, but along with this also other more gradual phenomena such as droughts (which do not destroy a home as such but do cause food insecurity) also force people to leave their communities.

We can ask students to investigate globally where these forced climate migrations are taking place and if there are binding legal regulations that



protect displaced people, finding out if the figure of climate refugee is recognized.

Research can also be considered on the consequences that climate change is having on the lives of people, especially women, who are most affected.

It is important that in all this reflection we do not lose sight of the fact that climate change is associated with greenhouse gas emissions from human activities and that the commitment of the international community is to limit global warming to 1.5 degrees compared to the industrial period.

We conclude, reflecting on the role that each person's consumption habits have in order to respect the environment and to protect the rights of people.

[2] <https://www.sustainyourstyle.org/en/whats-wrong-with-the-fashion-industry>

[3] https://www.fao.org/ag/againfo/resources/en/publications/tackling_climate_change/index.htm

[4] <https://ourworldindata.org/grapher/feed-required-to-produce-one-kilogram-of-meat-or-dairy-product>

[5] <https://www.wfpusa.org/drivers-of-hunger/gender-inequality/>

[6] https://www.itu.int/en/ITU-D/Environment/Documents/Toolbox/GEM_2020_def.pdf

[7] <https://www.carbonfootprint.com/>

[8] <https://phys.org/news/2021-09-climate-million-homes-world-bank.html>

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A Transformative Education must incorporate innovative educational methods that may address the problems of today’s global society from the educational practice, promoting the development of the necessary skills that students require for being a responsible, critical and active citizenship, understanding the interrelationship between local and global realities and, at the same time, fostering the social and educational inclusion of all students, especially those groups in situations of greater vulnerability or risk of early school dropout.

All game materials can be downloaded for free here:

