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OFFLINE GAME ZERO WASTE





Game description

Participants are the management team of World Food Day 2025, created to monitor waste and thus comply with Sustainable Development Goals. They are trying to avoid reaching the no return point in an apocalyptic world that has no solution due to food waste. To do so, they must try to reduce food waste in every step of the food chain. With that, they will get a number that reveals a vaccine which will raise awareness on the population to fix the situation.

Structure of the challenges:

- General aspects of the chosen step in the food chain (What is it, what is done)
- Kinds of food waste and how to fight them
- 3 questions or a challenge
- A code is obtained to be used in the decodification sheet.

How is the Escapebox?

The escapebox consists of 6 envelopes and a box with a lock or a safe (it can be changed for an envelope that the teacher keeps until the students give him the right code number). Envelopes contain cards with challenges or questions. There also is a welcome letter for the participants and a decodification sheet.

Educator/teacher role:

Challenges do not require the participation of the teacher to be done, but not answering correctly the questions in envelopes 1 and 2 could lead to a wrong result and not obtaining the correct code for the safe. That is why the teacher will have a solution sheet with which he/she will be able to check the results obtained in every challenge and thus be able to guide the participants.

Explanation of the structure of the document:

Texts in green are the ones that participants will be able to see in the cards that they take out of the envelopes and the texts that they will be able to read. The answers in bold characters of the envelopes 1 and 2 are the correct ones, but students will see all of them with the same font style.

Texts in black are further explanations for design or explanations of the way the game or challenge works. Texts in black in italics in envelopes 4 and 5 are the ones that will appear in



the cards for the challenge. All of them have additional clarifications in the explanation of the envelope's content.

Content of the escapebox:

- **Letter:**

Greetings team! I know today should be a celebration, as we are in the World Food Day, but... We can't really celebrate, because we are on the brink of disaster.

I will put you into situation: Food Waste has not stopped increasing and the current situation is unsustainable. People don't understand the importance of avoiding it! In spite of having created the Sustainable Development Goals (also known as SDGs) and of the awareness campaigns we carried out, we haven't been able to get out of the critical situation that we are in.

But that hasn't stopped us from working to achieve a more sustainable world in which we can keep living on and manage a change in the way we see and treat the environment.

That is why we have developed a vaccine that will help make people aware of the importance of ending food waste, but it is locked inside a safe and we need to recover the code to get access to it.

Fortunately, you are here. Will you help us to recover the code to get the vaccine back? In the envelope you will find a number of challenges that will give you a combination of numbers and letters. You have a decodification sheet to obtain the number they represent. Good luck team! We are counting on you!

- **Envelopes: They represent the food chain. There are six envelopes, which can be opened in any order. There also is a safe box or a box with a lock (or an envelope that the teacher will give when he/she is told the correct code).**

- **Agricultural production**
- **After harvest handling and storage**
- **Manufacture**
- **Distribution**
- **Retail**
- **Consumer**

- **SAFE BOX**

- **Decodification sheet**

The couples of letters and numbers that you obtain in each challenge are coordinates for a number in this table:



	1	2	3	4
A	5	2	3	7
B	1	8	9	4
C	0	2	4	5
D	3	4	7	6

Code envelope 1: 047

Code envelope 2: 183

Code envelope 3: Waste: 16 + Losses: 23 = 39

Code envelope 4: 57

Code envelope 5: Bad practices: 96 – Good practices: 63 = 33

Code envelope 6:

3 5 4



Safe box code: 327

• Envelope 1: Agricultural production

Introduction and questions card:

The first step in the food chain is the one in which the food is produced in order to be consumed. This production has an environmental impact associated that has to be taken into account, as it is necessary to use machinery, water and agrochemical products.

Question 1) Food Waste is a problem that causes the loss of a resource as important as food and that has constantly increased with the globalization of supply chains. This is because globalization is associated with a rise in food waste. Which of the following effects is the cause of such rise?

- a) It reduces the cost of food
- b) It allows access to exotic foods
- c) **It disconnects production and consumption of food**
- d) It allows to have seasonal foods out of season

Question 2) The loss of food that could be used for consumption forces us to produce a bigger amount than the one actually needed to feed all of earth's population. This has an important environmental impact because:

- a) It increases the use of fresh water
- b) It causes CO2 emissions to rise
- c) It degrades the quality of soil
- d) **All of the above**



Question 3) Even though the majority of food waste is produced in the last steps of the food supply chain, it can also affect the first steps. That is why we say that food waste has negative impact in:

- a) Environment
- b) Economy
- c) Human well-being
- d) **All of the above**

Answers: 1__ 2__ 3__

Solution for the code: C1, D2, D3

• Envelope 2: Post-harvest handling and storage

Introduction and questions card:

Once food has been produced, a number of steps have to be taken before we are able to consume them and have them available. Among these steps, the first one is handling food right after being harvested and the second one the storage needed before proceeding to manufacture and distribution.

Question 1) Once it has been harvested or produced, food has to go through a process of classification, handling and storage before reaching consumers. Which of the following actions does not belong to this step?

- a) Cleaning
- b) **Packing**
- c) Drying
- d) Size sorting

Question 2) Food handling is oriented to prepare them for the following steps: Manufacture and distribution. This handling sometimes require of cutting food or storing them longer than the ideal period, which leads to a reduction in quality or even spoilage. This is considered:

- a) Food Waste
- b) **Food Loss**
- c) Unused Food

Question 3) Despite of the fact that there is food that could have been consumed, it is not considered food waste if the parts that are lost are unusable or don't meet the quality standards needed to be consumed (e.g. Bones or inedible parts). That doesn't mean that we



don't have to try to reduce those avoidable food losses. Which of the following elements are most important when trying to reduce food loss?

- a) Logistics and capacity
- b) Packaging and conservation
- c) Distribution and freezing

Answers: 1__ 2__ 3__

Solution for the code: B1, B2, A3

• Envelope 3: Manufacture

Manufacture is a process that all foods go through, but it is particularly important in the case of processed foods, as they go through many more steps before becoming the food that we know.

When we process food, there are parts that are unusable for what we need to make and that are lost. This is not considered food waste, but food loss. Can you separate the following elements into two groups considering if they are food waste or food loss? Each group's couples will give you the code that you need for the decodification sheet.

Peach stone (B)

Fishbone (D)

Moldy apple (C)

Rotting meat (A)

Cow bones (1)

Eggshells (4)

Excessive production (2)

Overstocking (3)

Cards are separated into groups of 4 cards each. In the back, cards have a number or a letter. Cards have their border colored, which allows to make couples inside the group so that there are two of them in each group. Each of them have a number and a letter, which are to be used in the decodification sheet. Decodification sheet has the same colors indicated so that numbers are used in the proper order.

Couples waste: B1 D4

Couples losses: C2 A3

• Envelope 4: Distribution



Distribution process consists in transporting food from the treatment places to the places where they will be sold. The pickup places can be plants in which foods have been processed or the place where they have been produced. Additionally, the points of sale are the ones in which consumers can access food. Distribution is a part of the chain where food is out of the places that have ideal conditions for its conservation, which makes it necessary to optimize the kinds of vehicles used to transport each type of food.

Which two of the following food stocks wouldn't be properly transported in full? Coupling the cards inside each group will allow you to find the code to use in the decodification sheet.

Game about making couples with both kinds of cards (vehicles and capacity, product stocks) in the way that would minimize food loss while keeping proper conservation conditions for the food in the distribution process. Numbers and letters in brackets are printed in the back. As in the previous envelope, cards have their border colored and the decodification sheet has the same colors indicated so that numbers are used in the proper order.

Cards:

Vehicles:

Small van. Capacity: 500 kg (B)

Big van. Capacity: 1000 kg (C)

Big refrigerated van. Capacity: 850 kg (A)

Lorry. Capacity: 4000 kg (B)

Refrigerated lorry. Capacity: 3500 kg (D)

Product stocks:

400 kg of drinks to a bar (4)

800 kg of fruit to a store (2)

900 kg of meat to a butchery (1)

800 kg of canned food to a supermarket (2)

3750 kg of cheese to a supermarket (3)

Solution for decodification: A1, D3

• Envelope 5: Retail selling

In the points of sale it is important to be able to foresee the expected consumption of every kind of food, so the amounts ordered are optimized in order to prevent overstocking and shortages. Moreover, ensuring a proper treatment and storage helps making the products to last longer before their shelf life expires. If this part is not properly carried out, food is spoiled and wasted. Can you separate the following practices in good and bad? Coupling the cards inside each group you will find the code to use in the decodification sheet.



Game of separating cards into two groups: good and bad practices in food logistics. Each group of cards can be divided in couples to obtain coordinates for the decodification sheet. As in envelope 3, cards have a colored border to make couples with them.

Cards:

- Storing meat products at 15°C (Bad)
- Set a fruit display stand next to a cleaning products one (Bad)
- Analyze the seasonal consumption patterns in the store (Good)
- Organize clearly the inventory (Good)
- Make sales with the products that are close to their expiry date (Good)
- Not cleaning freezers to avoid taking out frozen products (Bad)
- Donating products close to their expiry date (Good)
- Adding the new stock to the front of the shelf (Bad)

Good practices: D4 A3

Bad practices: B3 D6

• Envelope 6: Consumption

Once food has reached consumers, we are talking of the consumption phase in which we are the ones that should avoid the food waste by adjusting the amount of food we buy to match our necessities and reducing the remainders we have, for example, with “trash cooking”. In this stage it is particularly useful to have a proper planning of the foods of the week and the amounts we are going to need. But for the food to get here, it needs to follow many steps. Would you know in which stage of the food chain takes place all of the following?

(Code will be three couples of a letter and a number. Each food has a letter assigned and each stage a number. The stage in which there is no food card will be the number for that food; e.g. A food has letter C assigned and has no card for the distribution phase, which is number 3. The couple will be C3).

Answers: A__ B__ C__

Game of arranging food cards in their stage of the food chain (four-stage food chain considered): Agricultural production (1), Processing and manufacturing (2), distribution and retail (3) and consumer (4).

Food cards:

- *Picking up tomatoes*
- *Grinding and cooking tomatoes*
- *Packing tomato sauce*
- *Cooking rice with tomato*
- *Grape harvest*



- *Fermentation*
- *Wine Display*
- *Meat packaging*
- *Meat freezing*
- *Beef stew*

- **Assigned letters:**
 - Tomato: A
 - Grapes: B
 - Meat: C

Solutions: A3, B4, C1

- **Safe Box** (It opens with the code obtained in the decodification sheet, inside there is another lock and the last challenge)

O Puzzle with the logo of Zero Waste. Participants have to order the pieces to be able to read a letter written in the other side with the following text:

Dear coordinating team,

If you have gotten here it means that you have done a good job obtaining all the keys. We know it wasn't easy, but we needed to know that this vaccine didn't fall in bad hands and that the ones who got it were willing to use it and change the current situation.

We are sure that you have already discovered the importance of ending with food waste and reducing as much as possible food loss. Our future depends on it.

Many times we are not aware of how much can this food waste affect the environment, but the fact is that it forces us to use more farmlands, more water and to generate more greenhouse gases.

Moreover, that is without even considering the amount of money lost every year due to food waste, which is bigger than the Gross Domestic Product of most countries in the world.

On top of that, the bigger problem is human well-being: There are still millions of people in the world who are starving while one third of the global food production is wasted every year. This has to change.

With what you have learnt here you might achieve it. But just in case, you can count on the vaccine. To gain access to it, you only need the hidden code inside this letter.
Good luck and good job, team.



Code: 327

• **Envelope 10: Final**

It wasn't an easy task, but you managed to retrieve the vaccine that we have developed to raise awareness in the population about food waste. In the process, you have discovered and learnt many things about it: Where it happens and what to do to avoid it. Now it is on your hands to take this knowledge with you and make sure that your food waste is as small as possible. Thanks for your work, team!