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EXECUTION DOSSIER OFFLINE GAME





Game description (according to Project)

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:

The challenges do not require the participation of the educator to be done, although not getting the questions in envelopes 1 and 2 right could lead to a wrong result and therefore, to not obtaining the code for the safe. This is why the educator will have a solution sheet with which to check the results obtained in each test and to be able to guide the participants.

In this dossier, the results and additional explanations about each of the tests will be given, so that the teacher can expand the knowledge of the participants and help in case they make any mistakes or are not able to complete some of the tests. It is recommended not to intervene in the development of the activity if the participants do not ask for help or are not stuck at a particular step.

Additional clarifications and explanations of the answers for the educator are included in bold in the section corresponding to each of the envelopes.





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

Answers: 1C, 2D, 3D

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?

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



Not knowing where food comes from reduces awareness of the difficulty associated with producing it. The fact that food is also widely available, as is the case in large urban areas, means that food waste is not seen as serious as it is.

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**

Food production is always associated with water use for irrigation and other food processing processes. On the other hand, the use of heavy machinery in agriculture is necessarily associated with CO2 emissions due to its fuels, while the intensive use of land causes it to degrade and lose nutrients at a faster rate than it can replenish them (which in turn is associated with the excessive use of fertilizers, with their associated CO2 emissions).

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**

We have already seen in previous sections the environmental effect that waste can have and the increased need to produce associated with it. This is an economic cost that reduces the value of the food produced, but wasting food while people are going hungry in the world is also a huge social problem.

• Envelope 2: Post-harvest handling and storage

Answers: 1B, 2B, A3

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

Packaging is not part of post-harvest handling because it still has to go through the manufacturing step (if any). If the food is packed at this stage and then treated, it would have to be removed and repacked afterwards.

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

When they are unusable parts or are lost due to the necessary handling of food, we do not consider this to be waste, because they cannot reach the consumer.

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

The logistics of what happens to the food and how it is controlled after it has been harvested is one of the key factors that determine the number of losses that can occur. On the other hand, the ability of the producer to get the food in the right condition before it moves on to the next steps will also determine the amount of food that may be lost in this step.

• Envelope 3: Manufacture

The division of the cards in groups and the couples formed are the following:

Food losses:

- Peach stones – Cow bones



- Fishbone – Eggshells

Food Waste:

- Mouldy apple – Excessive production
- Rotting meat – Overstocking

Obtained codes:

Waste: B1 D4

Losses: C2 A3

It is important to make sure that the order in which you put the numbers is correct in order to obtain the code.

• Envelope 4: Distribution

Transporting food is a process in which the needs of the goods to be transported must be taken into consideration, as mishandling or poor conditions in this process can cause part of the transported product to spoil.

However, it is also important to reduce the time in which the food has to wait before it is picked up to reach the point where it will be available to the consumer, as it will reduce the remaining shelf life at the time of sale.

This is why in the example of this activity, refrigerated products that do not have a transport method large enough to carry them in a single trip will have sub-optimal efficiency:

The refrigerated van will not be able to carry all the meat we have (50 kg will be leftover) and the refrigerated truck is in a similar situation (250 kg will be leftover).

Results:

A1, D3

• Envelope 5: Retail selling

The point of sale is the last stage of the food chain before reaching the consumer and therefore has some additional constraints in addition to the need to keep food in the right conditions for its preservation. It is also necessary to keep them in conditions that are attractive to consumers and thus encourage them to buy them.

Therefore, what we consider to be good practices include some aimed directly at reducing consumption as such and others that are focused on the correct maintenance of foodstuffs.



The division of the activity is as follows:

Good practices:

Analysing seasonal consumption patterns in the shop

- This makes it possible to anticipate the demand for products that a shop will have, thus avoiding stock-outs on the one hand and overstocking on the other (which leads to unsold food going to waste).

Organise the inventory clearly

- A properly organised inventory makes food logistics easier and makes it quicker to locate products that are close to their use-by date and to avoid contamination between food and other products.

Make offers for products with an upcoming best-before date

- Offers on products with an expiry date make it easier for consumers to buy them, thus avoiding waste in the shop.

Donate products with an upcoming use-by date

- If they are not put on sale, the products can be donated to food banks or soup kitchens that can make use of them, which avoids waste and also helps to redistribute food, contributing to mitigating the problems derived from this.

Bad practices:

Store meat products at 15°C

- Meat products require a low temperature and 15°C is not sufficient, which can cause them to spoil.

Putting fruit displays next to cleaning products

- When setting up displays, it is important to consider which products will be adjacent to each other, as, in the case of fruit and cleaning products, contamination may occur between them, which could be dangerous and lead to food being lost.

Not cleaning freezers so as not to remove frozen products.

- Although it is important to avoid breaking the cold chain for frozen products, it is important to clean freezers for two reasons: to avoid contamination and to prevent the formation of ice. On the one hand, if there is a spillage of a product, it can contaminate other products in the freezer, causing them to be lost. On the other hand, ice build-up reduces the refrigeration capacity and can cause the freezer not to reach the optimum storage temperature.

Add the new stock on the front of the display

- Adding the new stock to the front makes the old stock more inaccessible at the back of the store, making it more inaccessible and therefore, it will stay longer in the display, which may cause it to run out of shelf life without ever leaving the shop.



Solution good practices: D4, A3

Solution bad practices: B3, D4

• Envelope 6: Consumption

The point of consumption is the last point in the chain and the most important in terms of food waste generation (most waste occurs at this step), but the journey made by each food item to reach this point can be very long, as can be seen in the examples in the game.

Solution:

- Tomato: It does not have the step corresponding to the third stage (Distribution and sales). A3
- Grapes: It does not have the step corresponding to the fourth stage (Consumer). B4
- Meat: It does not have the step corresponding to the first stage (Primary production). C1

• Safe Box

The letters highlighted in bold in the text give the numbers of the code that solves this last test.

Solution: 327