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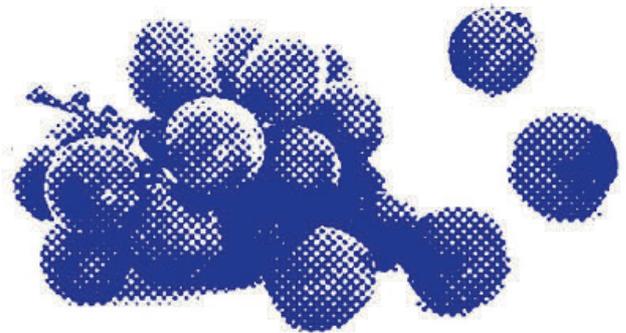
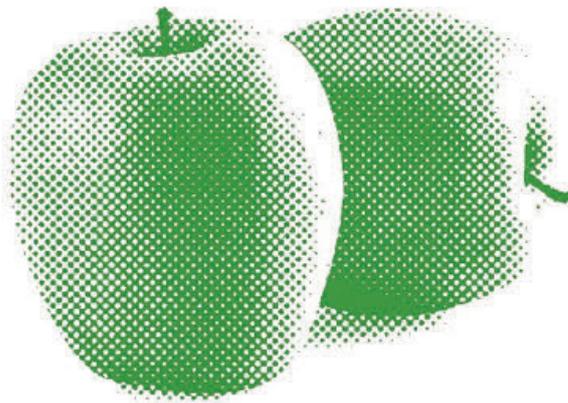


Climate Action to the Table

on the basis of a decision
by the German Bundestag

EDUCATIONAL TOOLS TO APPROACH FOOD SUSTAINABILITY

TOOLKIT OF ACTIVITIES



Authors:



This guide has been produced in the framework of the project Climate Action to the Table, which is part of the European Climate Initiative (EUKI). EUKI is a project financing instrument by the German Federal Ministry for Economic Affairs and Climate Action (BMWK).

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Foreword

This guide describes several activities to be carried out by educators on the topic of sustainable food.

It aims to be an inspiration to educators in formal, non-formal and informal settings, and to any person, organisation or government body interested in addressing the link between what we eat and climate change in an educational and interactive way. The ultimate goal of this toolkit is to encourage the adoption of awareness-raising around sustainable food in educational settings and to promote the engagement of children and young people in caring for the environment.

The guide includes activity proposals that include all the needed information required to run the activities: objective, recommended age, materials required, etc. However, we recommend adapting the activities to the context and needs of each group of children, educational setting and region.

The guide was created by Fundesplai (Catalonia, Spain), Umanotera (Ljubljana, Slovenia) and Fifty-Fifty (Central Macedonia, Greece) as part of the Climate Action to the Table project. This project is part of the European Climate Initiative (EUKI). EUKI is a project financing instrument by the German Federal Ministry for Economic Affairs and Climate Action (BMWK).

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1

Towards better food choices and a sustainable food system

The food system is at the heart of the great challenges humanity now faces. According to United Nations projections, by 2050 the world's population will reach nearly 10 billion people, all of them with the same need to eat. The right to food is a basic human right; food is essential for human survival and health, but it is also a complex topic that impacts our society and the world. Currently, the global food supply system accounts for a third of all anthropogenic greenhouse gas emissions and is thus one of the main causes of the climate crisis in which we found ourselves (Crippa et al., 2021). In addition, the current way of producing food leads to the accelerated disappearance of biodiversity, which threatens the existence of human civilization (Benton et al., 2021).

The predominant way of producing and consuming food is not only bad for the planet, but also for our health. It is a leading cause of non-communicable diseases (such as cardiovascular disease, cancer, diabetes) and therefore the cause of many premature deaths around the world (Benton et al., 2021). The good news is that recent studies indicate that it is possible to meet the global food demand in a healthy and sustainable way if adjustments are made in the way we produce and consume food (EAT LANCET Summary report, 2019). In fact, most of the eating habits that are good for the planet are also good for our health and vice versa. Food, human health and climate are inextricably connected issues, and a successful transition to a more sustainable future requires deep changes in the way global food systems work.

Food is a common topic for everyone. It interconnects economic, environmental, cultural and social aspects of sustainable development and is a central axis of action in the fight against the climate emergency.

We are living in a climate emergency that affects and threatens several life forms. It is a decisive decade, where rapid and sustained emissions reductions are needed to limit global warming. To achieve this, transforming the food system is key. And the need for people to make better food choices has never been more urgent.

In general, the connection between food systems and climate change is not being widely addressed in educational spaces. Among the reasons for that is the fact that food has not been a central topic in the climate change debate and the lack of resources available to help teachers present this complex topic to their students. Therefore, we have created this guide, to inspire and equip educators with different tools and activities to bring this vital subject into their classrooms. The aim of this set of activities is to encourage children and young people to adopt eating habits that are good for their health and for the planet. Furthermore, we hope this guide will support educators to empower their students to be agents of change in their families and communities.



This infographic was produced as part of the European Climate Initiative (EUKI). EUKI is a project financing instrument by the German Federal Ministry for Economic Affairs and Climate Action (BMWK).

It is important to follow 7 principles that determine sustainable and environment-friendly food. These are:

1 Mainly plant-based

The overconsumption of animal protein is one of the main causes of CO₂ emissions and other greenhouse gases. Reducing the current consumption of meat is possible because the proteins we need can also be obtained from plant-based foods. There is growing scientific evidence of the benefits for our health and the environment of consuming more plant-based foods, such as vegetables, fruit, pulses, nuts, seeds and whole grains. Choosing a diet with less animal protein is essential for battling climate change and improving our health and that of the planet.

Currently, the food system is responsible for 30% of global greenhouse gas (GHG) emissions. Food of plant origin has a much lower carbon footprint than the food of animal origin (meat and milk), as livestock farming is the largest source of GHG emissions in agriculture. According to the United Nations (FAO, 2013), livestock farming produces 14.5% of the world's total GHG emissions. This figure exceeds the direct emissions of all the cars, lorries and aeroplanes in the world put together. Besides that, it has also a huge impact on land occupation, deforestation, and water consumption. Much of the livestock feed comes from countries where tropical forests, which are the most important sinks of CO₂, are cut down as a result of its production. Therefore, it is an activity that very significantly contributes to the climate crisis.

2 Produced sustainably

The conditions under which food products are prepared are crucial. Whenever possible, we should choose products grown on farms that are committed to quality and to the principles of organic farming and sustainability. Supporting local organic farming is a strategy to lower the carbon footprint of the food system on the planet and has minimal

impact on the environment as it does not allow the use of mineral fertilizers and synthetic pesticides (which have harmful effects on soil, air, water and biodiversity).

To achieve environmentally friendly and quality production, organic farms eliminate the use of fertilisers and synthetic plant protection products. To regenerate the soil, they cultivate fodder legumes, use nutrients of plant origin and manure from organic farms. To protect plants against disease, organic farms use natural techniques and products, among other practices. Agricultural formulas are being developed that aim to make greater environmental protection compatible with higher levels of agricultural efficiency. These are characterised by the use of techniques that reduce CO₂ emissions and water use, minimise energy consumption, limit the use of fertilisers and promote a circular economy.

3 Reduce food waste

Enough food is produced to feed the entire world population, but we have a broken food system that, rather than responding to peoples' nutritional needs, responds to market logic. We waste a massive amount of food that isn't consumed, while around 800 million people suffer from an insufficient and poor diet (FAO, 2013).

Waste represents an enormous loss of resources, not only food but also natural resources: water, land use and energy consumption. It is also responsible for 10% of greenhouse gas emissions as during food's decomposition, methane is released, which is a very potent greenhouse gas. In fact, if food waste were a country, it would be the third-largest emitter, after China and the United States (FAO, 2013).

There is waste during every stage of the food chain system: from production in the fields, processing of the food, its sale and distribution to the actual moment of consumption. However, almost 40% of waste in the entire chain occurs in homes, where there is an enormous opportunity for us to have an impact (FAO, 2013).

4 Seasonal

We have built a global industrial production system that provides us with food from anywhere in the world at any time of year. Locally grown food is an environmentally responsible option, especially if we choose food in its natural season.

By choosing **seasonal food**, we contribute to reducing greenhouse gas emissions from storage and processing intended to slow down ageing. By buying seasonal food, we also avoid buying products from heated greenhouses. These are big consumers of energy, and if this is not produced from renewable sources, they are also a big source of greenhouse gas emissions.

5 Local and bought directly from local producers or from fair trade

Large distances between production and consumption mean the use of a lot of energy and require extensive infrastructure. Buying locally and buying seasonal are two sides of the same coin and a chance to renew the connection between town and country, and to promote respect for the source of our food and the people who produce it.

The huge distance between production and consumption means an enormous use of energy and the construction of many infrastructures. This system causes a loss of

regional food sovereignty and encourages unfair relations within the food chain, benefiting companies in the sector with more economic power. Eating consciously involves asking where what we eat comes from, how it was made and under what conditions, and why we pay a certain price to buy it. It means taking control of our dietary habits and choosing foods that have the least environmental and social impact. With some foods, e.g. coffee, tea and chocolate, we cannot stock up on local produce. When buying food from other parts of the world, we choose certified food that follows all principles; Fair Trade products for example because we support fair and stable pay for smallholders in the global South, safe and healthy working conditions for food production, a ban on child labour, gender equality in pay and decision-making, and in most cases also more environmentally friendly food production.

6 Minimally packaged

The amount of packaging used for food has skyrocketed in recent years. We unnecessarily over-packaged and wrap food in the name of our safety and convenience, often in single-use packaging and mostly in plastic, due to its useful characteristics: lightweight, highly resistant, flexible, etc.

Plastic is an almost indestructible material: it can take up to 1000 years to decompose, and most plastic items will never completely disappear; they simply get smaller and smaller. If plastic becomes waste and slowly decomposes in landfills or is incinerated in incinerators, it causes greenhouse gas emissions. A large amount of plastic also ends up in the sea, harming birds, marine mammals and fish, as well as reaching our plates in the form of microplastics. By consuming food that is packaged as little as possible, we contribute to fighting against this huge environmental challenge.

7 Minimally processed

The consumption of processed and ultra-processed foods has increased exponentially over recent decades. According to UNICEF, the incidence of childhood malnutrition is rising because of the consumption of products high in fats and sugars, such as fast food and snacks.

Aided by advances in technology, the food industry has promoted ultra-processed foods. These products are less nutritious than fresh food and continuous, long-term consumption has harmful consequences on our health. They also have a considerable environmental impact. Therefore, by deciding to consume as little processed food as possible, we are not only taking care of our health but also contributing to reducing greenhouse gas emissions from these industrial processes, which are often energy-intensive.

For a successful transition to a climate-neutral society, it is important that we follow all seven guidelines for a more climate-friendly diet as much as possible. Among the listed measures, the decision to eat mainly plant-based food is the one with the greatest individual impact.

2 Toolkit

2.1

NATURE'S CHEFS



Audience	3-7 years old		
Time	75-90 minutes	Space	Empty classroom or outdoor space
Description	<p>Simulation game that allows us to learn that all living beings need resources to live, and so we need resources to produce plants and animal origin food. Those resources are not infinite and are hidden behind the mission to cook a good meal.</p> <p>Through play, we learn that cooking and eating animal-origin food like meat requires a lot more natural resources to produce than eating plant-derived foods. So, we learn to eat in a more sustainable way with less impact on the planet.</p>		
Materials	<ul style="list-style-type: none"> Printed posters with elements of the game and information (lettuce, potatoes, cows) (Available in annex 1). Lanyard Boxes for balls Balls in three colours 	<ul style="list-style-type: none"> Boxes/bowls to put the balls in Three aprons and three chef's hats (optional) Two glasses/bottles to pour water from one to another (optional) 	

OBJECTIVES AND SKILLS

- To realise the need that all living beings have to eat in order to be able to grow and have energy.
- To distinguish the animal and plant origins of different foods.
- To understand the essential needs of living beings.
- To understand the importance of plants as food, both for animals and for people.
- To realise that producing food demands natural resources and that those resources are limited.

SCHEDULE AND STAGES OF THE ACTIVITY

- Stage 1: Introduction and purpose of the game (10 minutes)
- Stage 2: Play the game (45 minutes) [Part A and Part B]
- Stage 3: Wrap up (5 minutes)

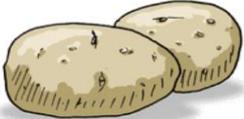
DOING THE ACTIVITY

Stage 1: Introduction and purpose of the game

At this stage, the educator takes 10 minutes to prepare the groups and explain the purpose of the game.

The educator divides the group into four groups: “chefs”, “lettuces”, “potatoes” and “cows”. Around half of the children will be part of the “lettuces” group, a fewer and equal number to the “potatoes” and “cows” group, and 2-3 children to the “chefs” group.

The suggested distribution for a group of 25 children will be:

Suggested distribution for a group of 25 children			
Lettuces 	Potatoes 	Cows 	Chefs 
14 children	4 children	4 children	3 children

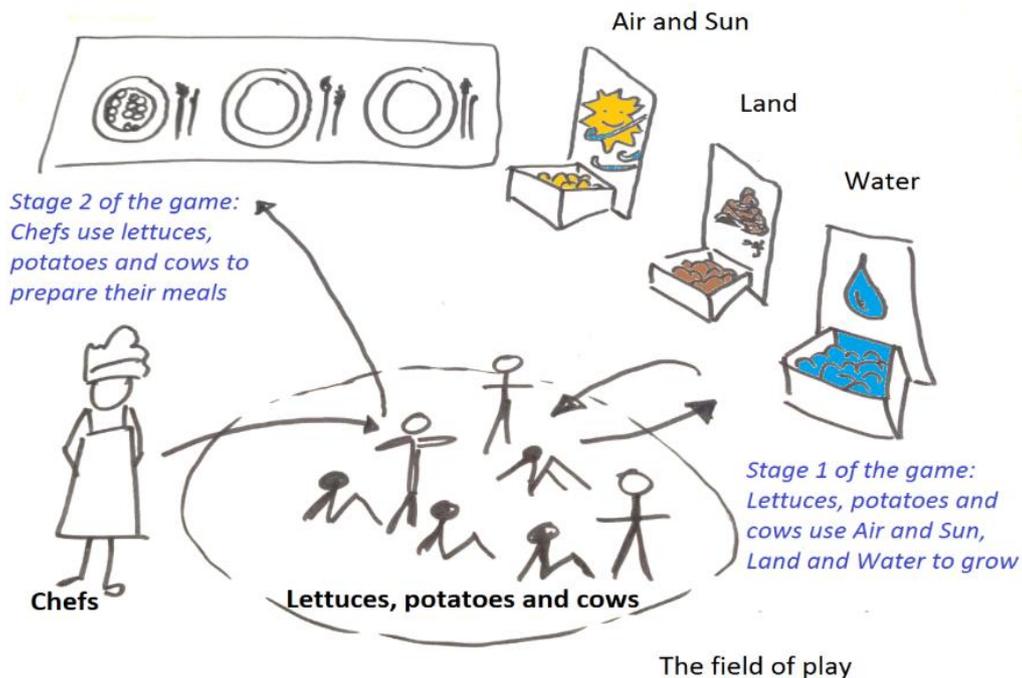
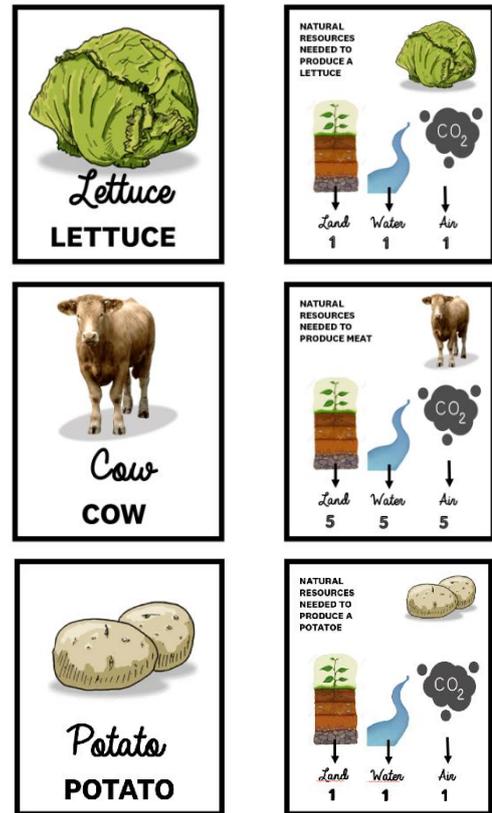
Each child wears a laminated card on a lanyard that shows a picture of their team in the game (See Annex 1). On the back of the card, there is information on what that

thing (lettuce, potatoes, cows and chefs) needs to grow. The chefs can wear aprons and chef's hats.

In the game, the objective of the lettuces, potatoes and cows teams is to grow. How do they grow? By obtaining everything they need to live (Land, Water, Air, Sun). This is what will happen in the first stage of the game.

The objective of the chefs is to prepare meals using only the ingredients that have been produced inside the game (lettuces, potatoes and cows).

This game will show that not all meals require the same number of resources, that many natural resources are not limitless, and that we need to take those resources into account if we want to look after the Earth.



Lettuces, potatoes and cows (the food teams)

The children who are part of the lettuce, potatoes and cow teams sit in the field of play carrying (around their necks, for example) a laminated card of their team. When they are sitting, lettuces, potatoes and cows are very small, and they have to grow. That is their objective.

To grow, plants and animals need resources. That means different amounts of land, water, air, sun and sometimes other plants.

To know how many resources they need to grow, children will consult their laminated cards. The resources they need are represented by coloured balls. Those balls are located in boxes distributed around the field of play.

Example of resources that each lettuce, potato or cow needs to grow:

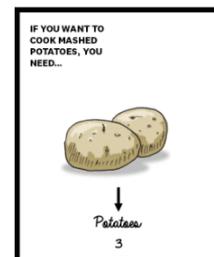
	Land (square metres)	Water (litres)	Sun/Air (CO ₂ emissions)
			
Lettuce	1	1	1
Potatoes	1	1	1
Cows	5	5	5

Chefs team

The chefs' team need to prepare recipes. Depending on the age of the children, each chef can be tasked with one recipe (5-7 years old) or they can make the three recipes as a group (3-4 years old).

Recipes:

- 1) Mashed potatoes
- 2) Steak and chips
- 3) Green salad



Stage 2: Play the game

Part A-Lettuces, potatoes and cows turn

The children who are part of the lettuce, potatoes and cow teams sit in the field of play carrying a laminated card of their team. The educator goes around the field of play and says out loud:

Who's going to grow? Who's going to grow?

The educator touches a child's head, saying: *This potato is! or This cow is! or This lettuce is!*

Once a child has been chosen to grow, they need to collect the resources (coloured balls) that their laminated card requires them to.

For example, a child who is part of the potatoes team, will go to the "Land" box and take one ball, then to the "Water" box and take another ball, and to the "Air-sun" box and take the third one, as this is what their card indicates.

To make the game a little harder -especially for children that are 5 to 7 years old- children will have to do a specific action before being able to take a ball from the resource box. List of actions proposed actions needed to obtain the required resources:

- Land: Somersault (or something like it, adapted to the groups' capacities).
- Water: Pour water from one container (bottles, glasses, or similar) into another.
- Air-Sun: Take a deep breath while opening their arms.

When a leader touches the head of a child who is a "Cow", they take five lettuces (with their resources) and then do the three actions (without taking any resources).

Once a child has taken the needed resources, it grows. Thus, instead of sitting in the field of play (like the other children who have not grown yet), they stand up in the field of play. Children will carry or have next to them the resources (balls) that they have collected in order to grow, and, with open arms, they go back to the game space and wait to be allowed back into the game space with open arms. And so on, mobilising several children at once, the leader produces the different types of food.

Once a child has taken the needed resources, it grows. Thus, instead of sitting in the field of play (like the other children who have not grown yet), they stand up in the field of play. Children will carry or have next to them the resources (balls) that they have collected in order to grow, and, with open arms, they go back to the game space and wait to be allowed back into the game space with open arms. And so on, mobilising several children at once, the leader produces the different types of food.

The first movements need to be very simple: the educator will make them stand and touch the children's heads up one by one (for example, the educator will wait for two lettuces to have grown before making a potato stand up. As children become more comfortable and secure, educators can make the game more complicated: make four lettuces stand up at the same time, for instance.

The educator can also take away or hide some resources (coloured balls) so that some of the children that have been told to grow to realise they cannot do it. In this case,

they will have to sit again and wait for the educator to touch their head again. Taking away resources will just be done temporarily and leave some without food, take the water away from the plants, etc. Those things are just done temporarily to make the children see that they cannot grow without all the resources.

At this point, all children who are part of the lettuce, lettuce, potatoes and cows teams will be standing up by the end of part A.

And so on, mobilising several children at once, the leader produces the different types of food.

Part B-the chefs' turn

Now it's the chefs' turn, where the chefs need to cook the recipes by assembling the food they need.

The educator will say out loud,

“Chef, what do you need to cook mashed potatoes/steak and chips/a green salad?”

To this question, the chef (if each of the three chefs is in charge of a recipe) or group of chefs (if they are cooking as a team) will enter into the field of play and take the ingredients they need (lettuces, potatoes, cows) for one of the three recipes. Ingredients are the children who are standing up. Chefs will distinguish which children represent which ingredient as lettuces, potatoes and cows will be wearing their laminated cards around their necks or will be holding them. Chefs will know which ingredients they need, as their laminated cards will indicate so.

Needed ingredients to cook:

- Mashed potatoes: 3 potatoes
- Steak and chips: 3 cows
- Green salad: 3 lettuces

The chef/s will take the resources that their ingredients are their “ingredients” (lettuces, potatoes, cows) have gathered.

When the chefs have them, they will place the resources, to visualise the “secret” impact of the different dishes.

Different rounds of parts A and B of the game can be played, before moving to the next stage.

Stage 3: Wrap-up

Bring the children back together sitting down comfortably and discuss as a group how the activity went, whether it was easy or hard to find food; what happened if they didn't find any; or what would have happened if someone had hidden the land, water or the air; which foods were easiest to grow, etc.

	Land (square metres)	Water (litres)	Sun/Air (CO ₂ emissions)
			
Lettuce	3	3	3
Potatoes	3	3	3
Cows	15	15	15

Then, we look at coloured balls that the chefs have gathered. We look at which recipe needed the most natural resources to prepare: salad, mashed potatoes, or the steak. The salad and mashed potato have fewer balls, which means that they take up fewer natural resources than a steak, whose bowl has a lot more bowls in it.

Animal-source food like meat needs a lot more resources to be produced than plant-sourced foods.

Steak is an animal-source food. Can you name other foods that come from animals?

What would happen if we only ate steak, chicken or eggs? What would happen to nature and the planet? What would happen to us? Would we have trouble finding food?

Which food comes from plants? This type of lettuce, chickpeas or oranges need fewer resources, and it is more sustainable for the planet. Eating more plant-based food is taking care of the environment.

FOLLOW-UP ACTIVITIES

To follow up, the group of children, together with the educators, can reflect upon and discuss what is on the school meal, what they typically eat at home or what is their favourite food. As a result of this reflection, the group can come up with a tasty meal that is healthier for the planet.

At this point, the group might realise that their favourite meals might not be very sustainable. In that case, the group can discuss how to make them more environmentally friendly. For example, how can we modify a salami pizza to make it more environmentally friendly. What would you put on it instead of meat?

2.2

EATING TO THE NATURE'S RHYTHM



Audience	8-10 years old	
Time	60 minutes if it is carried out exclusively in the classroom. 120 minutes if it includes a visit to the market	Space Classroom and (optional) Market with fruit and vegetables stalls
Description	The inhabitants of towns and cities lost their connection with the world of farming and the earth's natural rhythms decades ago. Winter or summer, north or south, you can always find exotic fruits on the shelves of our shops, market stalls and supermarkets. There are two ways of getting them: importing them from other parts of the world or growing them in heated greenhouses. Both ways have impacts on the planet and generate waste and greenhouse gases that are destroying more and more of the environment. We have to discard the convenience we have grown used to and go back to consuming like our grandparents: eating to the rhythm of nature.	
Materials	<ul style="list-style-type: none"> • Giant poster showing the vowels (see Annex 2) • Black stickers • Giant Mapa Mundi • Pins • Balls of coloured wool • Tape measures 	

OBJECTIVES AND SKILLS

- To understand the variety of fruit and vegetables available at the market.
- To discover and understand where fruit and vegetables come from, and what are food miles - what that means for how far it has to travel to reach our homes.
- To identify the greenhouse gas emissions associated with food from distant countries (Food's carbon footprint).
- To learn when fruit and vegetables are in season.
- To appreciate the fruit and vegetables we eat, including in terms of their environmental impact.

SCHEDULE AND STAGES OF THE ACTIVITY

- Stage 1: Introduction (5 minutes)
- Stage 2: The Rhythm of the Market (10 minutes if done in class / 60 minutes if the group visits the market)
- Stage 3: From here and from around the world (20 minutes)
- Stage 4: From now or any time (20 minutes)
- Stage 5: Wrap up (5 minutes)

DOING THE ACTIVITY

Stage 1: Introduction

In this activity, we go to or learn about the local food market and discover the variety of fruit and vegetables. Our aim is to learn where those foods come from and what is their place of origin.

We remember that fruit and vegetables are very important foods that should be the basis of our diet. We should eat five portions a day.

Stage 2: The rhythm of the market

At the market, we can find a great variety of fruit and vegetables of all kinds: lettuce, cabbage, beets, mandarins, mangos, apples, lychees... Some are from here, others come from far away, some are very common, others are very rare; we eat some every week; others, just once a year; we love some and really don't like others...

The children are invited to discover the fruit and vegetables at the market through the vowel challenge.

This activity is originally conceived to include a visit to the local market, but it can be adapted to be carried out inside a classroom by showing videos or pictures of different markets¹.

If educators choose to visit a market, children have to walk around the stalls, paying close attention to the fruit and vegetables that are on sale. Stopping to chat with the stallholders and the people who are shopping.

The groups (either in the classroom or in the market) need to find five things that correspond to the five vowels:

- **A for Abundant:** Looking for the fruit and vegetables that there is most of at the market. The one that they can see and find most of. We can ask the stallholders which fruit or vegetable they sell most of every day.
- **E for Economical:** We look for a fruit or vegetable that is very cheap.
- **I for Interesting:** We look for a fruit or vegetable that we find particularly interesting, whether for its colour, its shape, its name, where it's from because it's exotic, or its history. Perhaps we find a fruit or vegetable that we didn't know before particularly interesting...
- **O for Organic:** We look for a fruit or vegetable that is organic and produced by sustainable farming, using no pesticides or chemicals. And notice what it looks like and whether it has a stronger smell because normally organic farming makes food a more intense sensory experience (smell, taste...).
- **U for Unique:** We look for a fruit or vegetable that is so unusual that it is only on a single stall at the market.

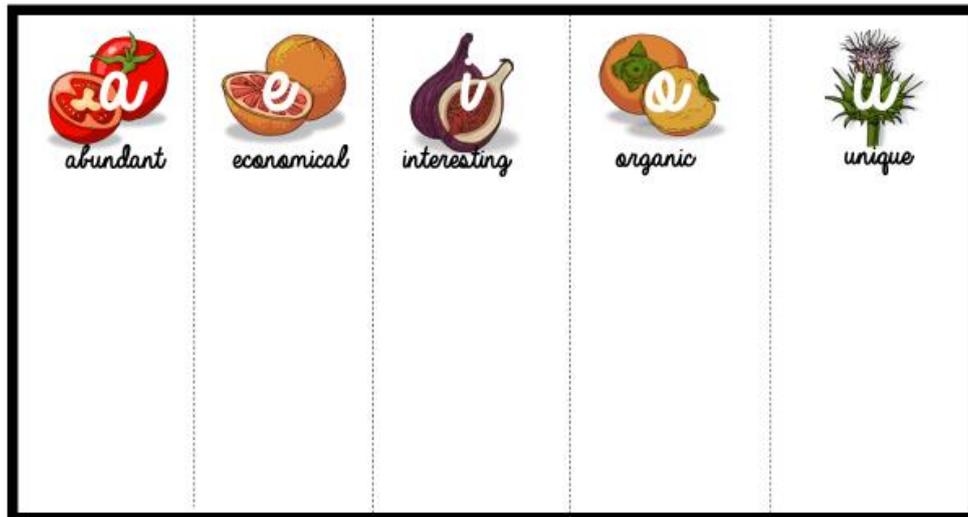
In groups, the children walk around the market stalls capturing the food landscape and the variety of fruit and vegetables, stopping to chat with the stallholders and the people who are shopping. Each group can look for one or two vowels to simplify the game.

After the group's visit to the market, or after they have seen the video, with the information gathered, they will make a collective poster. In that poster, the group will put under each letter the name of the fruit and vegetables chosen by each group.

If different groups name the same fruit or vegetable, we can place stickers next to that word to make it visible that many children came to the same conclusion

After the group's visit to the market, with the information gathered, they will make a collective poster. In that poster, the group will put under each letter the name of the fruit and vegetables chosen by each group.

¹ Some examples of videos are: <https://www.youtube.com/watch?v=KJwld-8L41o> or <https://www.youtube.com/watch?v=QZ2hyNTScoE> . We invite you to find similar images of your local markets.



This is an interesting moment to reflect upon the reasons why the fruits and vegetables the group has selected have these characteristics. For example, why are pears so cheap, is it the season or is it because they are local? Or because there's a lot and so it's not worth much?

Stage 3: From here and from around the world

Some of these vegetables or fruit have covered a fair few kilometres by ship, plane and/or lorry to get to the market. Some come from countries so far away that we have never visited them.

There are fruit and vegetables that have been sown, grown and harvested nearby. They are what is called 'local produce'. We ask the children: *What does local produce mean for you? Something produced in our immediate environment? In our country? In Europe? The PLACE matters.*

But we also investigate the kilometres that are hidden behind all these fruit and vegetables. We look for the 'km'.

Each group of children follows the journey of a vegetable or fruit that is on the poster or has come up in our group discussions about the poster: pineapple, kiwi, lychee, grapes, tomatoes... (we will prioritise selecting the ones we think must come from the most distant countries).

To follow the journey, the groups will find out (either by asking at the market or doing online research) where the chosen food comes from or its usual place of origin.

We discuss where they made the same and different choices among the groups.

Food	Place of origin	Destination
1.		
2.		
3.		

On the Giant Mapa Mundi, we put a pin to mark the place of origin. Using wool, we link the place of origin to our own country. We can measure with the tape measure and in straight lines the centimetres between production and consumption.

On the Giant Mapa Mundi, we carry on making a spider's web of wool with the different places of origin of the foods, connected to our country, where we are.

(On the VOWELS poster) For each centimetre of distance, we will add a black sticker (the amount of fuel used to transport it to our country), and we will be able to see which food travels furthest and hides the most kilometres. As air transportation emits much more than ground transportation, we will indicate, next to the stickers, which is the most probable transportation mode.

Once we have the Mapa Mundi with the pins and threads of wool and next to it the vowels' poster with its black stickers that show how far foods have come, we will discuss and chat together about what we can see.

The activity leader says: *When a fruit or vegetable comes from far away, over many kilometres, it has been transported by ship, plane and lorries that have needed fuel (petrol and other fuels) to move the cargo and cover those distances. That transport contributes to high CO₂ emissions and to making climate change worse.*

On the poster, we see the pollution through the black stickers that we have been putting next to each name and picture of the fruit and vegetables.

Which ones come from the furthest away? Do we eat them often? Just on special occasions? If we want to protect the planet, what do you think we should do?

And they conclude that we have to eat fewer fruit and vegetables that come from far away, try to eat the ones that come from closer, not waste them, truly appreciate the ones that come from far away...

We can make an optional extension to the game, where each group has to get the label km 0 (slow food). To get the label, they have to identify 15 products that have been grown locally.

Stage 4: From now or from any time.

Although the distance travelled by food should not be the only aspect we take into account when shopping, local food has become a more sustainable alternative.

We should remember that the environmental impact of food comes not only from how far it travels to reach our plate, but also from the form of transport used. A fruit that

comes halfway round the world on a ship pollutes a lot less than one that comes by plane from a place that is closer.

It may even be that food that has been transported thousands of kilometres is more sustainable than one grown next door: it all depends on the amount of energy used in its production. However, the best option will always be to eat tomatoes only in the warm season.

We need to know where food comes from and the season it grows naturally.

Stage 5: Wrap-up

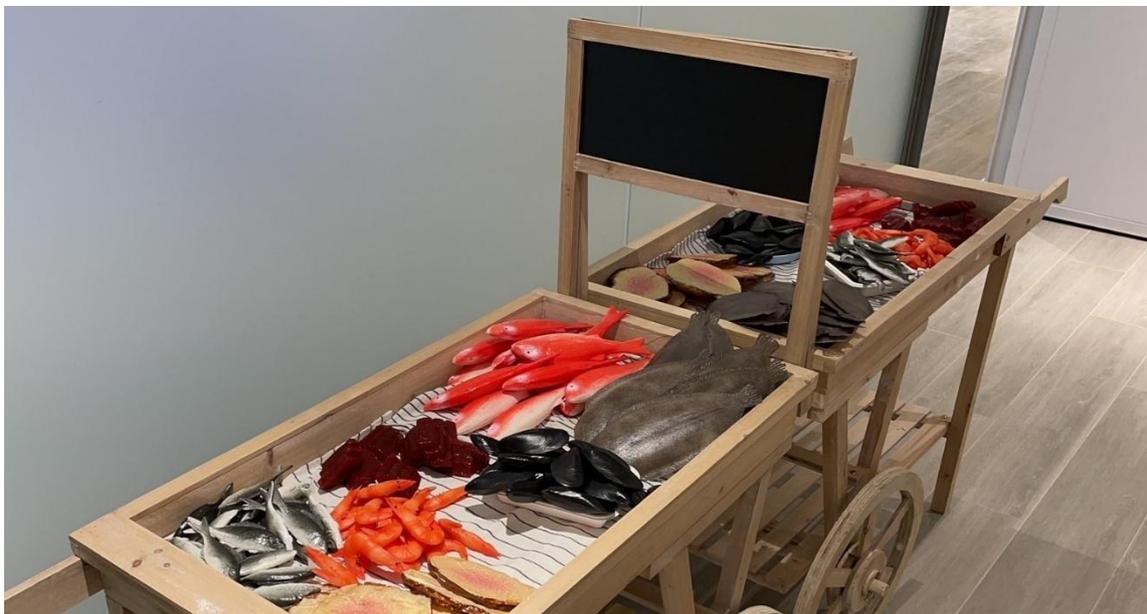
The activity wraps up with sharing of individual and group learnings.

We go over the importance of eating fruit and vegetables (5 portions a day) that are:

- Locally produced, avoiding food that is transported from far away, and reducing as far as possible pollution in the form of CO₂ emissions. When we consume '0-kilometre food', we boost the local economy and reduce waste.
- In season, taking advantage of what nature provides in our immediate environment at each different time of year. That way, we avoid the need to bring food from far away or to grow it in climate-controlled greenhouses that require a lot of heating and energy.
- Produced in sustainable and organic farming, which does not use pesticides and chemicals and takes greater care of the environment and provides a more intense sensory experience (smell, taste...).
- And, also, we make sure that they are fresh, not from a packet.

2.3

THE FISH WE BUY



Audience	8-12 years old		
Time	90 minutes	Space	Classroom
Description	<p>Simulation game about going to buy fish. Children will visit some simulated fish stalls as if they were doing their shopping in a real market.</p> <p>They will assess what they have bought in their baskets. They will be prompted to consider certain aspects that can help them to weigh up the environmental and social impact of this activity.</p> <p>To wrap up, they will decide which group has shopped most sustainably, whether they would change how they shop and what can be done to encourage people to buy more environmentally responsible fish.</p>		
Materials	<ul style="list-style-type: none"> • Four tables simulating market stalls • Four shopping baskets • Four purses with pretend notes and coins • Four laminated sheets • Labels of each species of fish 	<ul style="list-style-type: none"> • Models of a variety of sea creatures from the market (mussels, cuttlefish, lizardfish, bream, crayfish, sardines, albacore tuna, sharks' fins, etc.) with their respective labels. If there are no models, we can use printed laminated fish. 	

OBJECTIVES AND SKILLS

- To know the fish that we find in the market, where they come from, and how we should assess their quality.
- Consider the different situations and propose steps to promote sustainable purchasing.
- To develop critical thinking when buying fish responsibly, taking particular account of conservation of the marine environment.

SCHEDULE AND STAGES OF THE ACTIVITY

- Stage 1: Introduction to the game (15 minutes)
- Stage 2: Game: *We're going to the market to buy fish!* (30 minutes)
- Stage 3: Analysis of baskets: *"What have we bought?"* (30 minutes)
- Stage 4: Conclusions (15 minutes)

DOING THE ACTIVITY

Stage 1: Introduction

We ask what the children know about how to shop sustainably. We start by asking them if they have ever gone to buy fish or if they have gone with anyone who was buying fish; whether they know how they are fished; whether they think there are any problems with buying fish and how it is fished. Starting from what they say, we will explain the issue a little and ask the children if they want to be good shoppers: *Do you want to be good at buying fish?*

First, the educator will show the group what issues they need to bear in mind to shop sustainably and will explain:

- That fish should be local, so they not to buy fish that comes from the other side of the world and has travelled many kilometres and used a lot of fuel.
- That fish should be fresh since frozen fish also needs energy for freezing.
- That fish should be fished, rather than farmed because fish farms as they exist today are very unsustainable because they use a lot of antibiotics and pesticides that may reach the sea and have negative effects on other organisms, the production of fish meal and fish oils to feed the fish and the economic and energy cost involved in fish farming.
- That the fishing technique used should be a traditional one, instead of indiscriminate methods that have a big impact on the marine environment, such as jigging, circle netting, etc.
- That the minimum sizes of fish should be observed because if young fish are taken, the species cannot breed to sustain itself.
- That fish should be eaten in season (not at times when fishing is not allowed) so as not to eat fish during their breeding seasons.
- That they should not be packaged.
- That we should not eat endangered species.

Once the issues a shopper has to bear in mind to respect the marine environment have been explained, the children will be invited to go to the market.

Stage 2: Game - We're going to the market to buy fish!

In the classroom, there will be 4 market walls put up (a table will do) full of fish with their labels. In [Annex 3](#) you can find a model label for the species of fish to be used in the workshop. The information can be obtained from a fishmonger.

Before starting, each group of children will be given a basket and a purse with €50 in pretend notes and coins, and they will be asked to go through the mock market and do their shopping. Each stall will have a variety of trays of fish and sea creatures, that the fishermen have brought from the port. The children will walk among the stalls and decide what they want to buy. They fill up their baskets until they have spent their money. All the stalls are the same, so the students only need to go to one stall.

Stage 3: Analysis “What have we bought?”

With their purchases, the children will go back to the tables and look at the content of their baskets. They will have a grid (see [Annex 3](#)) with specific information about the fish they have bought and the principles behind sustainable shopping (where it is fished, fishing technique, presentation, minimum size and labelling).

The labels on the stalls will have all the information about the species they have bought, and they can check that information by going back to the stalls. They will even have rules to be able to check whether they have observed the minimum sizes.

They have to use that assessment to decide whether they have shopped sustainably. They will calculate their score using the table below as an example. Sustainability points are awarded per item bought. Each group will work out the points for its shopping. The group with the most points is the one that has shopped the best.

FISH	SUSTAINABILITY OF THE PRODUCT	SUSTAINABILITY POINTS
	SUSTAINABLE	5
	SUSTAINABLE	4
	NOT VERY SUSTAINABLE	3
	NOT VERY SUSTAINABLE	2
	NOT SUSTAINABLE AT ALL	1
	NOT SUSTAINABLE AT ALL	0

When all the groups have done their assessment, they will tell the others their scores and decide which group has shopped best, and therefore who has the most responsible and sustainable shopping basket. Some of the questions that could help to guide the plenary discussion might be: *Which basket do you think is best? Have they shopped sustainably? Why do you think so?*

We can see examples of labels, sustainability points table and an assessment of each fish made in a real case (see [Annex 3](#)).

Stage 4: CONCLUSIONS

Conclusions will be drawn from the work that has been done. We have to answer the question: *What can we do to buy the fish we eat in a more sustainable way?*

It is important for them to think about how they could do something when at their age they are not actually responsible for buying fish. They will think about how they could influence the sustainable buying of fish. As we have seen, it is important for fish to be labelled, to be local, fresh, for it to be fished using craft techniques that do not disturb the seabed, that it is not from a fish farm, and that minimum sizes for different species are observed, that fish is in season (not eaten in any off-season), that it is not packaged and that we do not buy species that are at risk of extinction.

2.4

ZERO WASTE



Audience	10-12 years old		
Time	75-90 minutes	Space	Market with different fruit stalls
Description	<p>“One-third of the food produced in the world goes to waste” is a shocking fact that is unfortunately not well known or is something that we have grown used to.</p> <p>Homes and the behaviour taught at home are responsible for a large part of this waste. Education that raises awareness on this issue can promote change. We use the setting of a market to find out what consumers think about waste and to raise their awareness by interviewing them next to the stalls.</p>		
Materials	<ul style="list-style-type: none"> • Post-its • Stickers 	<ul style="list-style-type: none"> • Paper and pen • Wall charts A3 (see Annex 4) 	

OBJECTIVES AND SKILLS

- Understand the concept of food waste, its scale and its implications in terms of environmental impact.
- Capture perceptions around food waste among the public, gather data and raise awareness.
- To take advantage of the expertise of the stallholders to gather tips and strategies to reduce food waste in the buying, storing, handling and consumption of food.

SCHEDULE AND STAGES OF THE ACTIVITY

- Stage 1: Introduction (15 minutes)
- Stage 2: We survey (45 minutes)
- Stage 3: We plot the results (30 minutes)

DOING THE ACTIVITY

Stage 1: Introduction

Today we're going to talk about food waste, which means the food we throw away.

We have four blank sheets with only a title written:

Sheet 1: Food thrown away today

Sheet 2: Food thrown away yesterday

Sheet 3: Food thrown away the day before yesterday

Sheet 4: Food wasted in the chain [the sheet is to be divided into 4 columns, with the subtitles: Growers, factories, distributors and restaurants, and consumers).

Let's start with a short survey. The activity leader says:

Each person has some post-it stickers. Well, each post-it represents throwing food away. First, we're all going to put a post-it sticker on this sheet (sheet 1) for each time we threw food away yesterday, and we write down the type of food that was thrown away.

We give them time to fill in the sheet; then we see the results and discuss them.

Now we open the sheets for the last two days (sheets 2 and 3). Think hard. Visualise those moments in the dining room, evening meals at home, last weekend...

We give them time to fill in the sheet; then we see the results and discuss them.

Finally, we wonder how many times you've seen food is thrown away in your home this last week: food that has gone off in the fridge, food leftover from dinner, a dish that didn't go down well or wasn't needed and ended up being thrown in the bin...

Which kind of food have you thrown away? Is it leftovers? Fresh vegetables? Fruit? Why do you think this happens?

We give them time to discuss the results.

Let's think about the journey food makes before it reaches our table. Here we have different parts of the chain (growers, factories, distributors and restaurants and consumers). You can put three stickers on the part of the chain that you think wastes the most, then two, and then one sticker.

We give them time to fill in the sheet; then we see the results and discuss them.

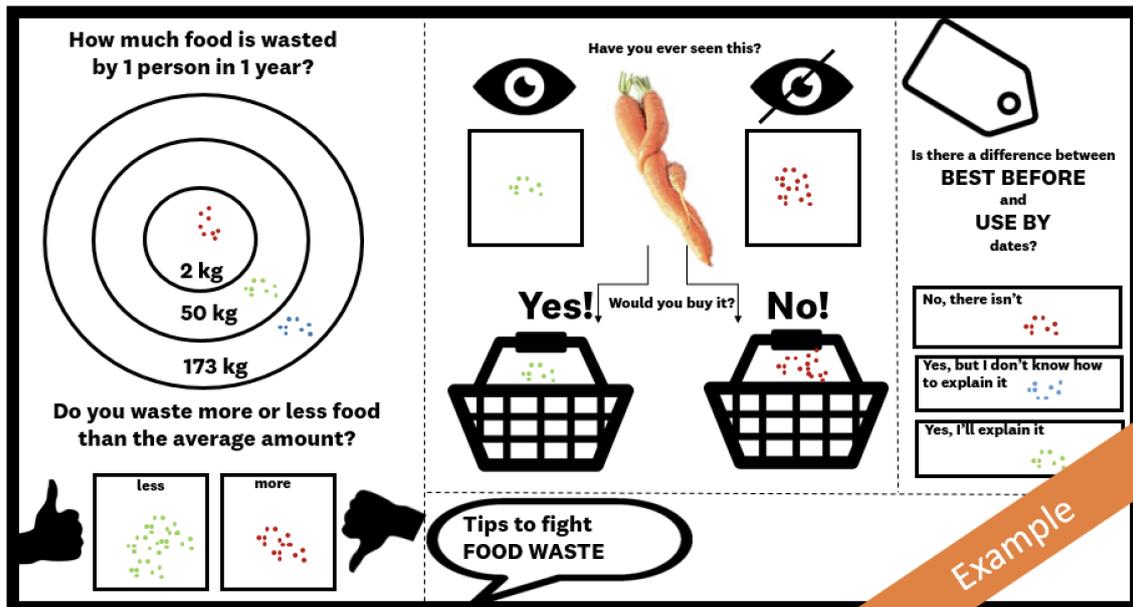
Then, we briefly explain what food waste is.

- Food waste is the total amount of food discarded throughout the food chain that is perfectly edible and suitable for human consumption and that is thrown away as waste lacking alternative uses.
- Currently, one-third of the food produced in the world is lost or wasted every year.
- Where does food waste happen? According to FAO (FAO, 2013), it happens throughout the food chain: production (37%), after harvest and storage (10%), industry (12%), distribution and consumption (41%).
- Where we as individuals waste most is at home, particularly because of impulse buying, poor planning, poor storage, poor food preparation, not knowing the best before and use by dates, and ignorance about how to use up leftovers in the kitchen.

Stage 2: We survey

Once we have explained what waste is and where it is produced, we suggest that they do the same with the people in the school canteen, at the market or in their families. We make five groups of five people. For instance, each group can interview ten people, so in total 50 people are interviewed.

As they do the interviews, they have to fill in the A3 sheets in [Annex 4](#) with stickers, depending on the answers. When they finish each interview, they can show the interviewee the sheets with the summary information about the waste that should raise their awareness and enable them to join the war on waste.



Annex 4 has a real-life example of a proposed survey and a completed sheet.

Stage 3: We share the results.

With the results of the surveys, we think about people's perceptions of waste. We compare our findings with the official figures we mentioned earlier.

We will also look at tips and tricks suggested by the people interviewed to avoid food waste. Some things that we could talk about to cut down on waste might be: not buying things that aren't necessary, buying products in season and locally and with fewer intermediaries, planning meals, not throwing food away when it reaches its use-by date, storing food correctly, getting the most from food, use up leftovers, etc.

With the results, we create educational posters, and we mark the results on the board about what you can do at home, what you can tell your parents, etc.

2.5 VISITING LOCAL AGRICULTURAL FACILITIES

(a farmer / community garden / local market with organic products)



Audience	10-12 years old	
Time	<p>60 minutes</p> <p>(the estimated duration concerns the educational activity, the time spent to go to the venue from school and back is not included, as it differs from country to country)</p>	Space In the beginning: Classroom Next: Local agricultural facilities (farmer, garden, market)
Description	Interactive activity that introduces participants to the topic of cultivation and agriculture. Children will have the opportunity to learn about the whole cultivation process and the benefits of fruits.	
Materials	<ul style="list-style-type: none"> • Brief for educators (prepared ahead) • Scissors • Tape 	<ul style="list-style-type: none"> • Cardboard • Sheets • Crayons

OBJECTIVES AND SKILLS

- Students will get familiar with a variety of organically produced fruits and vegetables.
- Students will learn the importance and the benefits of consuming and producing organic fruits and vegetables.
- Students will get familiar with organic cultivation and organic agricultural process.
- Students will get familiar with organic agricultural facilities.

SCHEDULE AND STAGES OF THE ACTIVITY

In the classroom

- **Stage 1:** Students understand the importance of organic fruits and vegetables for our health (vitamins, fibres, a healthy and balanced diet, reduction of the risk of diseases) and for the environment [Teacher's presentation] (5 minutes).
- **Stage 2:** Students choose and draw their favourite fruits, vegetables, and legumes [Individual work + teamwork] (15 minutes).

In the agricultural facilities

- **Stage 3:** Farmer's workplace tour (15 minutes).
- **Stage 4:** Obtain basic knowledge of the cultivation process (10 minutes).

In the classroom

- **Stage 5:** Discussion in the classroom guided by teacher's questions (15 minutes).

DOING THE ACTIVITY

Stage 1: Students understand the importance of fruits and vegetables for our health (vitamins, fibres, a healthy and balanced diet, reduction of the risk of diseases) [Teacher's presentation]

At the beginning of the activity, the teacher gives a short introduction about the benefits of cultivating organic fruits and vegetables.

The benefits are:

- Cultivating organic fruits and vegetables reduces the footprint, and it's really important for environmental sustainability.
- Sustainable farming improves the health of the soil, which makes the root system of the plants absorb nutrients that are vital for the plants.

- Organic fruits and vegetables are a good source of vitamins and minerals, including folate, vitamin C and potassium.
- They're an excellent source of dietary fibre, which can help to maintain a healthy gut and prevent constipation and other digestion problems. A diet high in fibre can also reduce your risk of bowel cancer.
- They can help to reduce your risk of heart disease, stroke and some types of cancer.
- Fruit and vegetables contribute to a healthy, balanced diet.
- Fruit and vegetables taste delicious and there's so much variety to choose from.
- Harvesting fruits and vegetables locally and seasonally, there's no need for long distances to transfer the products. This decreases the amount of fuel in the transport.

Then, the teacher demonstrates the below picture of a healthy and environmentally friendly eating diet, explaining the significant role of organic fruits, vegetables and legumes in our daily nutrition.

The teacher describes the picture: In the picture below, we can see the Double Pyramid model which shows what sustainable, healthy and balanced nutrition looks like. So, in this model, we can see eating styles that are environmentally friendly and respectful of the planet, while at the same time are healthy for us.



Nutrition Pyramid by: graphic design by Fifty-Fifty (Source: https://www.barillacfn.com/en/disseminacion/double_pyramid/)

Afterwards, the teacher gives some information about their visit to the farmer.

- Where are they going?
- Who are they going to visit?
- What are they going to do there?
- How they will interact with the venue and people there.

Stage 2: Students choose and draw their favourite fruits, vegetables, and legumes [Individual work + teamwork]

Students are divided into 2 groups and in 10 minutes are going to draw their favourite fruit, vegetable, and legume. After that, they collect all the drawings in a collage to offer as a gift to the farmer during their visit to thank him for showing them around. This collage will be printed in copies as the double pyramid model (5-10 depending on the size of the school and the number of students) and will be posted on school walls. In this way, other classes will learn about sustainable and environmentally friendly eating.

Stage 3: Farmer's workplace tour

When students arrive at the organic farmer's agricultural facilities, they spent 15 minutes exploring the space (By exploring the space we mean that students have some time to look around and see the permitted by the farmer's premises, as of course not all premises are accessible for everyone. The farmer/market/garden usually has a welcome space where we can take some time, so students can feel comfortable in the new environment). The farmer is informed about the visit and while the students are taking some time to look around, he welcomes them. Farmer has organized this tour on his premises in order to inform children about his machinery, useful equipment, materials and packaging materials.

*Disclaimer: We use the word farmer in order to mean the person who is responsible even for the farm/ garden/ market.

Stage 4: Obtain basic knowledge of the cultivation process

The farmer informs students about the organic cultivation process. Farmer notes the following steps:

- **Ploughing:** Mixing up the nutrients in the soil and making it loose before farming.
- **Choosing the seeds:** Seeds should be chosen based on sunlight requirements, water requirements and climate compatibility. (At that moment, the farmer shows to students some seeds)
- **Sowing:** Placing the seeds in the soil for the crops to grow; Seeds should be buried deep enough and far enough apart from each other.
- **Using nutrients** (only natural and organic) and water for the soil to make sure the crops remain healthy.

- Irrigation: Supplying water to the crops at regular intervals.
- Harvesting: Gathering the yield from the crops on a farm using a tool called a sickle. (At that moment, the farmer shows to students this tool).
- Yield is the useful part of a plant we get after harvest.
 - Then yields move to a storehouse and, after a couple of processes, to the market and finally to our plates.
 - Farmer explains in each step the differences that organic cultivation with traditional cultivation have. For example, in the traditional cultivation process, different kinds of nutrients are used.

At the end of the study visit, there's time for students to ask some questions.

Stage 5: Discussion in the classroom guided by teacher's questions

Going back to the classroom, the teacher asks the following proposed questions as starting point questions to start a conversation in the classroom and through this conversation to evaluate what students have gained from the study visit:

The starting point question is a great way to create conditions of trust and security in the classroom, and students can answer freely, as there aren't any right or wrong answers.

2.6 THEATRICAL IMPROVISATION GAME



Audience	10-12 years old		
Time	60 minutes	Space	Classroom
Description	Interactive activity that includes research, storytelling and theatrical improvisation		
Materials	<ul style="list-style-type: none"> • Computer • Sheets • Colourful pencils 		

OBJECTIVES AND SKILLS

- Students will get familiar with the term “diet’s carbon footprint”.
- Students will learn the importance and the benefits of sustainable consumption.
- Students will understand how our daily diet affects the environment.
- Students will acquire some tools that will help them find for themselves the impact that their daily diet has on the environment.

SCHEDULE AND STAGES OF THE ACTIVITY

- **Stage 1:** Students understand the term “Diet’s carbon footprint” [Teacher’s presentation] (5 minutes).
- **Stage 2:** Students separate into teams (depending on the number of students in each classroom, we calculate around 4-5 students in each team) and each team picks 2 foods that they prefer [teamwork] (5 minutes).
- **Stage 3:** Each team conducts online research to find the carbon footprint that the chosen food has and the impact that they have on the environment and writes the info down on the sheets (20 minutes).
- **Stage 4:** Improve theatre game (15 minutes).
- **Stage 5:** Post on the classroom walls the sheets with the info that they found after the research (5 minutes).
- **Stage 6:** Discussion in the classroom guided by occasional questions (5 minutes).

DOING THE ACTIVITY

Stage 1: Students understand the term “Diet’s carbon footprint” [Teacher’s presentation]

The teacher explains to the students how our daily diet affects the environment. Also explains what a diet’s carbon footprint is and how they can calculate it.

Issues that need to be addressed:

- Food has an impact on our health, but also on the environment.
- What we eat, the way it was produced and the origin of what we consume, compose our Foodprint (our diet’s footprint).
- What we consume and how much food we waste has an impact on the environment.
- Our diet contributes to climate change.
- Whatever we consume, either a salad or a burger, has an impact on public health, the environment and animal welfare.

- We can calculate our diet's footprint, so we can understand the impact that our daily nutrition habits have on the environment.
- Diet's Footprint is the result of the process required to get food from the farm to our table. Crops, animal products and generally industrial food production have a tremendous impact on air, water and soil.

The teacher could also show students a video that explains all these data (especially if the teacher is not particularly familiar with the subject).

Proposed video:

<https://www.youtube.com/watch?v=7Rufgoy9R2U>

Stage2: Students separate into teams (depends on the number of students in each classroom, we calculate around 4-5 students in each team) and each team picks 2 foods that they prefer [teamwork]

Teacher separates children in groups of 4-5 students. Each group takes its time to choose 2 foods or drinks that students want to research. After the children decide what foods or drinks they want to deal with, they announce them to the class.

Stage 3: Each team conducts online research to find the carbon footprint that the chosen food has and the impact that they have on the environment and writes the info down on the sheets

Each group has one or two computers (depending on school availability and how many computers are in the classroom; if not, the activity can be done in the computer room.) and using the links that the teacher will provide, students find the footprint of the foods they have chosen, as well as some additional information on how they affect the environment, but also how this situation can be improved. The teacher gives students sheets of paper and coloured pencils.

Having collected this information, they use the sheets and pencils on each sheet, they write the food they have chosen in big letters and below in bullets the information they have collected about the effects of this food on the environment.

For example:

Bread (One slice per serving / once a day)

- If we consume one slice of bread once per day over an entire year, our consumption of bread is contributing 21 kg to annual greenhouse gas emissions.
- That's the equivalent of driving a regular petrol car 56 miles (90 km).
- The same as heating the average UK home for 3 days.
- Your consumption of bread also uses 8,995 litres of water, equal to 138 showers lasting eight minutes.

As the students do the research, the teacher goes through each group and guides them.

Stage 4: Improve theatre Game

Each team has to improvise a small theatrical play pretending they are the food. For example, if one team has chosen a salad, one student is the lettuce, one student is the tomato, etc.

Each one of them as food has to talk about the impact that its consumption has on the environment and discuss with the other students/ foods of the play while improvising based on the information that they found.

The other teams are watching.

Stage 5: Post on classroom walls the sheets with the info that they found after the research

Using the sheets that they used to record the information, they make a collage and stick it on the classroom wall, so that they can see it every day, but also to have the opportunity to show it to students in other classes.

In this way, students will be affected even during the break before consuming their breakfast and by seeing the information daily, they will be able to inform their parents about the effects that our daily diet has on the environment.

Stage 6: Discussion in the classroom guided by teacher's questions

After completing the above activities, the students sit in a circle and their teacher asks the following suggested questions, as the starting point of an open discussion. The purpose of this discussion is: to summarize what was said in class, but also to evaluate the impact that the above activities had on the students and whether they affected them.

2.7 FOOD WASTE HERO



Audience	12-18 years old		
Time	60 minutes	Space	A classroom or other spaces
Description	Waste is a global phenomenon that happens in the home. Finding solutions in a creative way is essential to shrinking our environmental footprint. A team game of fun puzzles, challenges and tests makes us aware of the significance of the problem and encourages us to be food waste reduction activists in our own homes and environment.		
Materials	<ul style="list-style-type: none"> • Computer with projector and Wi-Fi to watch the final video (it can be adapted for spaces with a blackboard). • Tablets, mobiles or PCs (to look things up). 		

OBJECTIVES AND SKILLS

- Raise awareness of the issue of food waste and avoid it.
- Promote responsible, rational consumption of food among the students and, to the extent possible, enable them to have an impact on their families and their school environment.
- Encourage values of social engagement, solidarity, generosity, cooperation and personal responsibility.

SCHEDULE AND STAGES OF THE ACTIVITY

- Stage 1: Introduction to the activity, splitting into teams and explaining the rules (10 minutes)
- Stage 2: Playing the game (40 minutes)
- Stage 3: We plot the results (10 minutes)

DOING THE ACTIVITY

Stage 1: Introduction

The group is divided into four teams, which represent groups from the food chain that produce waste:

- Farmers
- Logistics and distribution
- Markets and supermarkets
- Consumers

The aim of the game is to find out a sentence. In order to do so, the groups will have to answer some questions, and if they do so correctly, they will get a word from the educator. When they put that word in order, a sentence appears.

Stage 2: Playing the game

Each group in turn (farmers, then logistics, then markets and finally consumers) has to answer a question or do a challenge. If they do it successfully, they get a word, and then it's the next group's turn. When we get to the consumers, we go back to the farmers. If a group doesn't answer or doesn't do a challenge successfully, on their next go, they can answer the previous question and then do the new question. The game is collaborative and aims to encourage all the teams to work together to achieve significant reductions in food waste throughout the chain. That means that the other teams can help a team when they are trying to answer a question a second time around.

When all the teams have found their words, the sentence that is the key to doing the challenge will come out in order of the groups. The sentence is: **REDUCE YOUR FOOD**

WASTE AND EAT CLIMATE FRIENDLY FOOD. BECOME A HERO AND PROTECT THE PLANET!
(16 words in total).

[Annex 7](#) has sixteen example challenges that could be used for the game.

Stage 3: Results

To conclude, the educator will reflect on some themes that have come out, such as that a third of the food produced globally is wasted, or what strategies can be followed to reduce food waste all along the chain and particularly in our homes: buy what is necessary, buy local produce in season through few intermediaries, plan meals, do not throw food away when it has reached its use-by date, store food correctly, get the most out of our food, use leftovers, etc.

2.8 KNOW YOUR FOOD'S CARBON FOOTPRINT



Audience	12-19 years old		
Time	45 minutes	Space	Classroom
Description	Interactive activity that introduces participants to the topic of food's carbon footprint, familiarizes them with ways to reduce it, and enables them to take direct action - also through service-learning.		
Materials	<ul style="list-style-type: none"> Brief for educators (prepared in advance) Printed sheets showing different foods and their carbon footprints 	<ul style="list-style-type: none"> Board Sheets for group work 	

OBJECTIVES AND SKILLS

- To introduce students to the carbon footprints of different foods and for them to understand that the most important factor in determining the carbon footprint of what we eat is the type of food we choose.
- To introduce students to how to source climate-friendly foods/ingredients (and how to recognize them).
- To prepare students to follow guidance on eating and drinking sustainably in their daily lives.

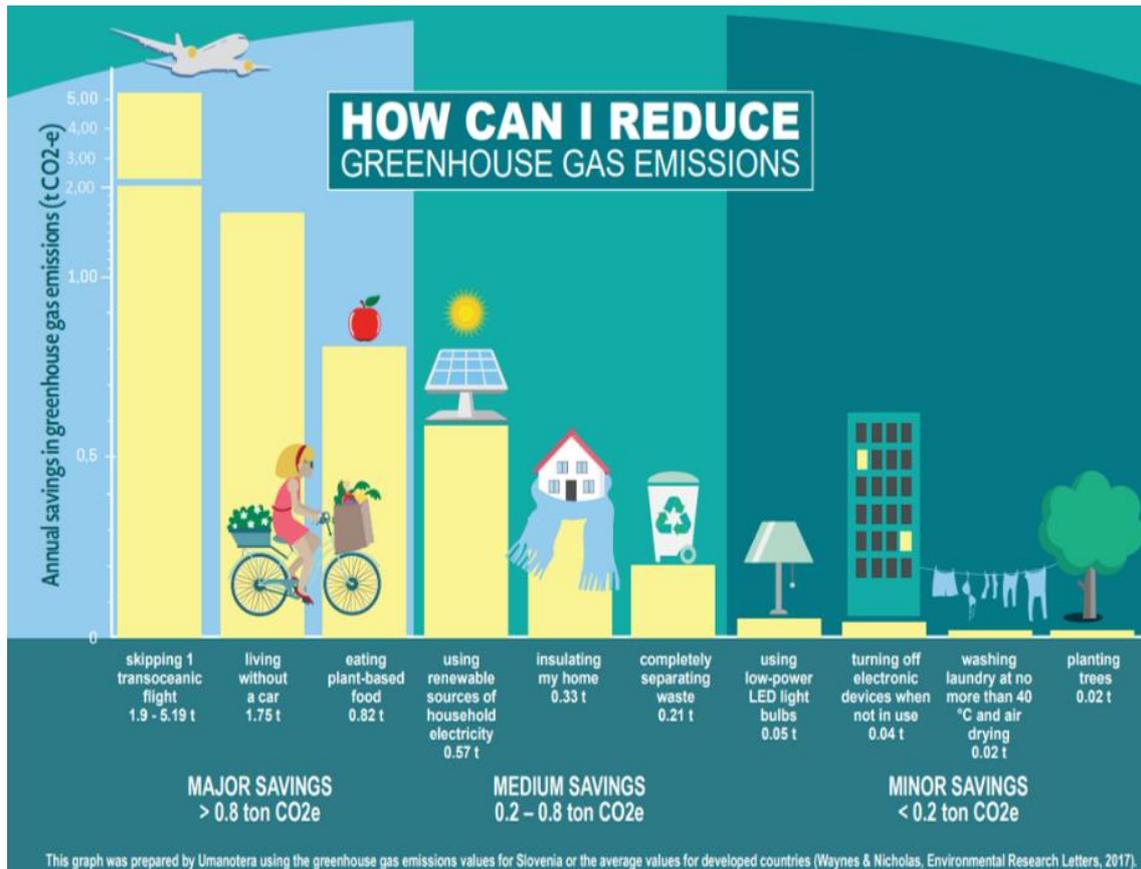
SCHEDULE AND STAGES OF THE ACTIVITY

- **Stage 1:** Learning about the carbon footprint of food products without any prior knowledge [PRESENTATION & INDIVIDUAL/GROUP WORK DISCUSSION] (5 minutes).
- **Stage 2:** Understanding what the carbon footprint of foods is and what determines the carbon footprint (deforestation, fermentation during digestion by ruminants, treatment of waste, energy consumption in production...) [INDIVIDUAL WORK & PRESENTATION] (10 minutes).
- **Stage 3:** Putting knowledge obtained into practice and re-doing the exercise [INDIVIDUAL/GROUP WORK] (10 minutes).
- **Stage 4:** Reflection & short discussion [IN GROUP] (5 minutes).
- **Stage 5:** Becoming an active citizen and actively changing my surroundings [GROUP WORK] (15 minutes).
- **Follow-up:** Service-learning project.

DOING THE ACTIVITY

Stage 1: Learning about the carbon footprint of food products without any prior knowledge

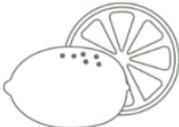
At the beginning of the exercise, the educator gives a short introduction about carbon footprint and the activities that produce the highest GHG emissions (for the individual) using the following infographic. All information is featured in the brief, and given to educators beforehand.



After students understand the concept of carbon footprint, each student is given a printed card that shows a food product (in words and/or as a picture). We mark one side of the classroom as the least carbon-intensive, the other side as the most carbon-intensive (the least harmful vs. the most harmful for the climate) and draw a line down the middle. The students’ task is to position themselves somewhere along the line, according to how big they believe the carbon footprint of the food they have (on their card) is. Once they have decided, they place the cards with their food along the line and go back to their seats; nothing is said (about whether they were correct or not).

Question: How big is the carbon footprint of producing the food on the picture you received? / What is the amount of GHG emissions released in the production of the food on the card you were given? (See Annex 8)

Beef		36.44 kg
Lamb & mutton		12.53 kg

Tomatoes		11 kg
Onions & Leeks		1.35 kg
Citrus fruit		1.22 kg
Rice		1.21 kg
Tofu (soy beans)		1.17 kg
Root vegetables		1.16 kg
Porridge		0.95 kg
Apples		0.9 kg
Potatoes		0.63 kg
Barley		0.24 kg
Nuts		0.07 kg



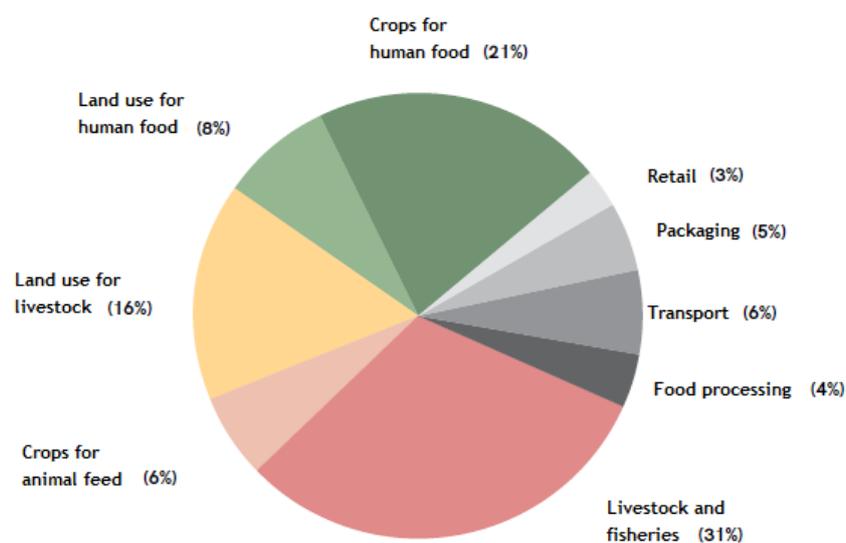
Note: Greenhouse gas emissions are measured in kilograms of carbon dioxide equivalents (kgCO₂eq) per 1000 kilocalories. This means non-CO₂ greenhouse gases are included and weighted by their relative warming effect.

Stage 2: Understanding what the carbon footprint of foods is and what determines the carbon footprint

Students complete a quiz, which enables them to understand the seven principles of sustainable food consumption and the rationale for each of them. Tool: 10 questions. An example of those questions can be found in [Annex 9](#).

Possible methods:

- Statements with missing words - empty spaces in the statements to be filled in by the students
- Multiple choice questions
- Graphic with empty spaces and words to be joined up (carbon footprint of the food supply chain).



After the quiz, the educator gives a short presentation about the seven principles of sustainable food consumption (and why it is important) as they give the answers to the quiz. They can use the following infographic and the information on page 4 of this guide:



Stage 3: Putting knowledge gained into practice and re-doing the exercise

Students are given figures for the GHG emissions for each food (from before), without knowing which food each figure is for. They place the figures along the line in the correct order (from lowest = least carbon-intensive, to highest = most carbon-intensive). Then with the knowledge from STAGE 2, they move the images of foods that they positioned earlier to put them with the correct emissions figure (in their opinion, based on the knowledge they have just acquired).

They can discuss how to position the cards in the group as they move them. Once they have finished, the educator verifies their answers and corrects them if needed.

Stage 4: Reflection & short discussion

The educator leads a short discussion: *What surprised you, what did you learn? What can you do now at home, knowing that?*

Note: Be careful to steer the discussion in the direction of what better food alternatives are, emphasizing the emissions savings from choosing climate-friendlier food (avoid the narrative that all food is harming the environment and the notion of 'there is nothing we can do, we are doomed', or 'I will never, under any circumstances, eat a certain product', which can lead to eating disorders).

Stage 5: Becoming an active citizen and actively changing my surroundings

Students work in groups. Each group is given similar instructions along the lines of: “Your school has a canteen/provides breakfast/lunch - write down what a sustainable menu for a school week would look like: 1 meal per day for 5 consecutive days.”

Students need to use the knowledge they have acquired for this exercise (the seven principles of sustainable food consumption, GHG emissions of different foods...).

Afterwards, each group presents their menu, and they combine them into the menus for a week which is given to their headteacher/school canteen...

Note: If their school does not have a canteen or serve breakfast/lunch, students should write a climate-friendly menu for a local café (or any similar establishment in the school’s immediate surroundings).

FOLLOW-UP ACTIVITIES: service learning project

If they want to continue their work on the topic and students are keen to learn more, they can create a service-learning project together. Some suggestions on what to do next:

- Prepare some suggestions with new food options for a local café/restaurant (taking into account climate-friendly guidance, GHG emissions of food products).
- Lobby for change in their school - create a school organic garden (an activity that takes up a few months)/suggest [Meatless Monday](#) in their school and organize activities on that day/organize a school trip to a local organic (community) garden/organize activities for World Food Day (October 16)...
- Raise awareness:
 - Students create a climate-friendly food campaign with posters, which can be put up in the classroom or corridors for others to see.
 - Students design flyers and give them out to people going into local (super)markets.
 - Students record videos or video clips (writing their own songs or using existing songs about sustainable food) on the topic, which can be posted on their school’s media and more widely.
 - Encourage students to prepare their own climate-friendly meals at home and report back (by taking pictures, vlogging, bringing their dishes to school and talking about what they prepared).
 - Students can prepare short presentations on the topic and give them to other classes/to other interested people locally (at school or the local library).

2.9 NOT ALL FOOD IS GREEN



Audience	12-19 years old		
Time	70 minutes	Space	Classroom
Description	Interactive activity that introduces participants to the topic of sustainable food consumption by familiarizing them with food production, (green) food certification and empowers them to take direct action at an individual level.		
Materials	<ul style="list-style-type: none"> • Brief for educators (prepared ahead) • Packaging for different foods • Printed certificates • Computers/phones with internet access for group work 	<ul style="list-style-type: none"> • Board • Paper for group work 	

OBJECTIVES AND SKILLS

- To enable students to understand what sustainable food consumption is and why it is important to eat sustainably.
- To show students which products are imported into Slovenia/Greece/Spain - why are they imported (cannot grow certain foods here, it is cheaper to produce them elsewhere etc.).
- To enable students to decode the information presented to consumers on the packaging for various food products and understand that information.
- To familiarize students with ways in which they can buy climate-friendly food/ingredients (and how to recognize that food/those ingredients).
- To enable students to understand how to follow sustainable consumption guidance in their everyday lives.

SCHEDULE AND STAGES OF THE ACTIVITY

- **Preparation at home**
- **Stage 1:** Evaluating our own everyday food choices [DISCUSSION] (10 minutes).
- **Stage 2:** Understanding the main factors in food production that have an impact on climate & the environment [PRESENTATION & DISCUSSION] (15 minutes).
- **Stage 3:** Putting knowledge obtained into practice and re-evaluating it [POPCORN or any other method] (5 minutes).
- **Stage 4:** Understanding climate-friendly certifications (in the food industry) [GROUP WORK & DISCUSSION] (15 minutes).
- **Stage 5:** Becoming an active citizen and actively changing our immediate environment [GROUP WORK & DISCUSSION] (15 minutes).
- **Stage 6:** Reflection & short discussion [DISCUSSION] (10 minutes).
- **Follow-up:** creative advertisement

DOING THE ACTIVITY

PREPARATION AT HOME: Evaluating our own everyday food choices

Students bring in packaging for various food products (at least one per student), clearly showing the origin of the products & any certifications (e.g. packaging for cocoa, drinking chocolate, coffee, tea, rice, dried fruit, chocolate, cheese, oranges etc.).

Stage 1: Evaluating our own everyday food choices [DISCUSSION]

The educator starts by asking some questions:

- What did you eat for breakfast/lunch today?
- Do you like eating chocolate or chocolate spread, do you like cocoa?
- Do your parents drink coffee?
- Do you know where your/your parents' rice/crisps/cocoa/coffee/chocolate/oranges (whatever they brought in) comes from? Check the label, what does it say?

This is an intro to a discussion about the origins of our food and how it is produced.

An educator draws a table on the board, showing different foods (the foods that the students bring in but have some prepared in advance). No advance preparation of the content is needed because the information is written on the packaging for the products.

Type of food	Where was it produced?	Where did you buy it?	Does it have a certificate; if so, what does it say?
Chocolate	Colombia	Hofer	Yes, Fairtrade & FSC (on the packaging)
Coffee	Costa Rica	Spar	Yes, Fairtrade
Cheese	Slovenia	Hofer	Yes, EU organic farming & FSC
...

Stage 2: Understanding the main factors in food production that have an impact on climate & the environment [PRESENTATION & DISCUSSION]

Students complete a quiz which enables them to understand the seven principles of sustainable food consumption and the rationale behind each principle. Proposal: 10 questions. See [Annex 9](#).

Possible methods:

- Statements with missing words - empty spaces in the statements to be filled in by the students
- Multiple choice questions
- Graphic with empty spaces and words to be joined up (carbon footprint of the food supply chain).

After the quiz, the educator gives a presentation about the seven principles of sustainable food consumption (and why is it important) as they give the answers to the quiz. They can use the following infographic:



Stage 3: Putting received knowledge into practice and re-evaluating it, using their own context [POPCORN or any other method]

Students think about how to buy climate-friendly foods/ingredients in their own immediate environments (local farmer markets, local zero-waste shops, online shop selling local organic produce etc.).

The Educator leads the discussion; suggestions should be written on the board/flipchart and should remain on display until the end of the activity (so the students can use the suggestions later during the activity).

Stage 4: Understanding climate-friendly certification (for the food industry) [GROUP WORK & DISCUSSION]

Students work in groups. Each group is given one/two printed certificate(s) and is asked to answer the following questions about it:

- What are the criteria that have to be met to get the certificate (organic farming, workers' rights, etc.)?
- Who is responsible for issuing certificates and for monitoring?
- Is there enough information online about the certificate, did you have any difficulty researching the certificate?

Students in groups use their phones/computers with internet access for their research. Afterwards, each group presents their certificate to the other groups.

Examples of international certification (each project partner should add their national organic farming certification and any other certificates that can only be found in their country):

Certificate	Logo	More information
EU Ecolabel		https://ec.europa.eu/environment/ecolabel/
Fairtrade		https://www.fairtrade.net/
World Fair Trade Organization		https://wfto.com/
EU organic logo		https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming/organic-logo_en
demeter		https://demeter.net/certification/labelling-demeter/
Naturland		https://www.naturland.de/en
Biodar		https://www.ecolabelindex.com/ecolabel/biodar

Stage 5: Reflection & short discussion [DISCUSSION]

How many certificates did you know about? What surprised you? Do you remember the products you have at home having many of the certificates we've talked about? What

can you do at school or at home (e.g., talking to your parent and siblings about your everyday food purchases)? What will you do tomorrow?

Stage 6: Becoming an active citizen and actively changing my immediate environment [GROUP WORK & DISCUSSION]

Students work in groups. Each group is given similar instructions along the lines of: *“You are organizing a party and need it to be climate-friendly and healthy. Think of what food and drinks will you serve and what other arrangements you need to make to minimize its carbon footprint.”*

Students need to use previously obtained knowledge in this exercise, that is the seven principles of sustainable food consumption, food certification, and where to get their food from (STAGES 2, 3 and 4).

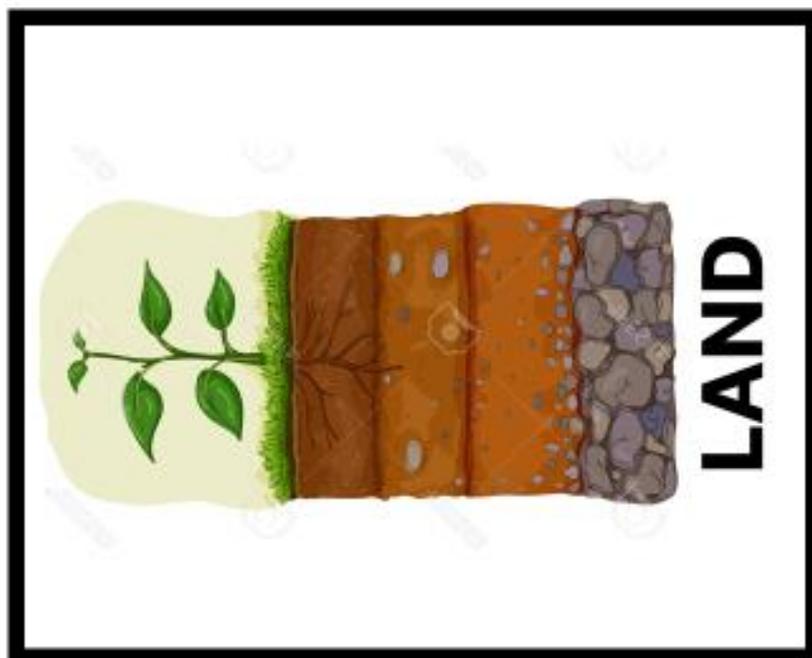
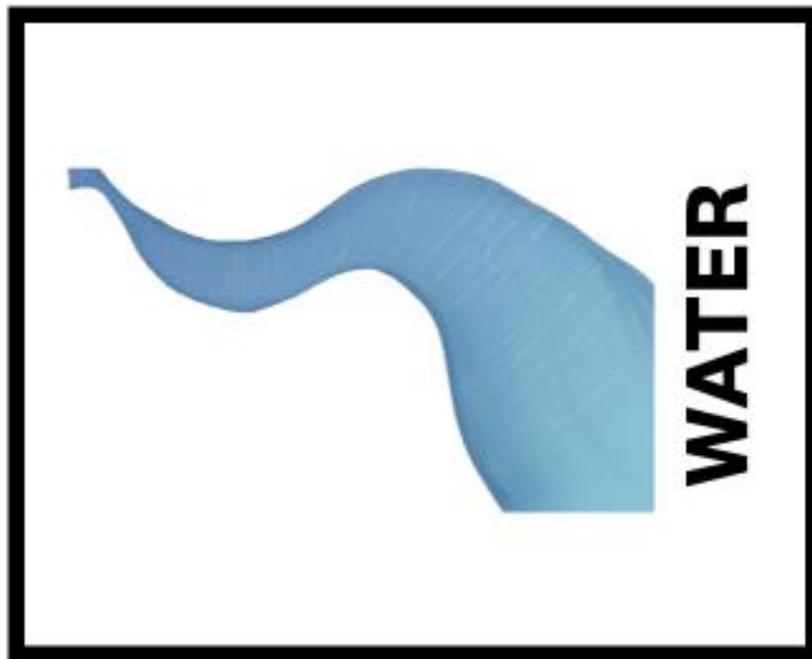
Afterwards, each group presents its plan for a climate-friendly and healthy party.

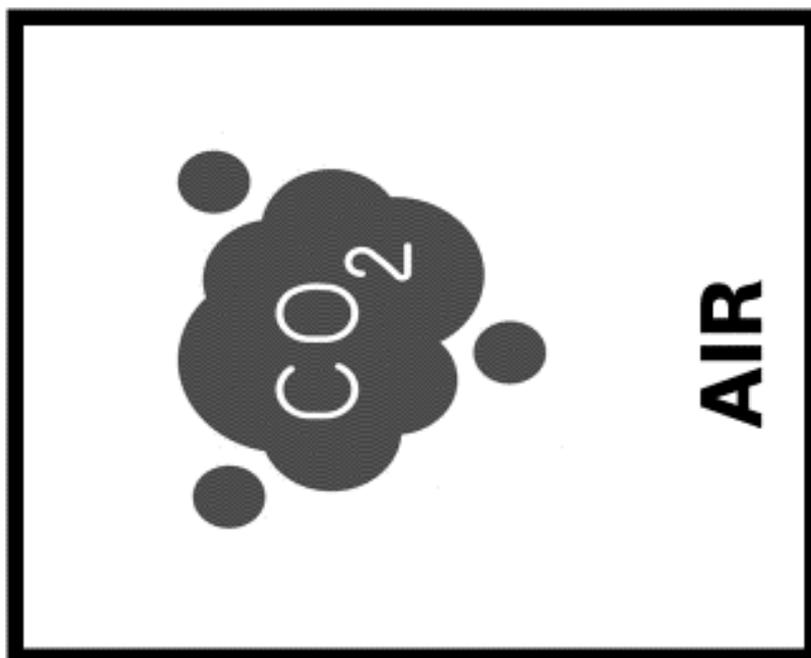
FOLLOW-UP: Creative advertisement

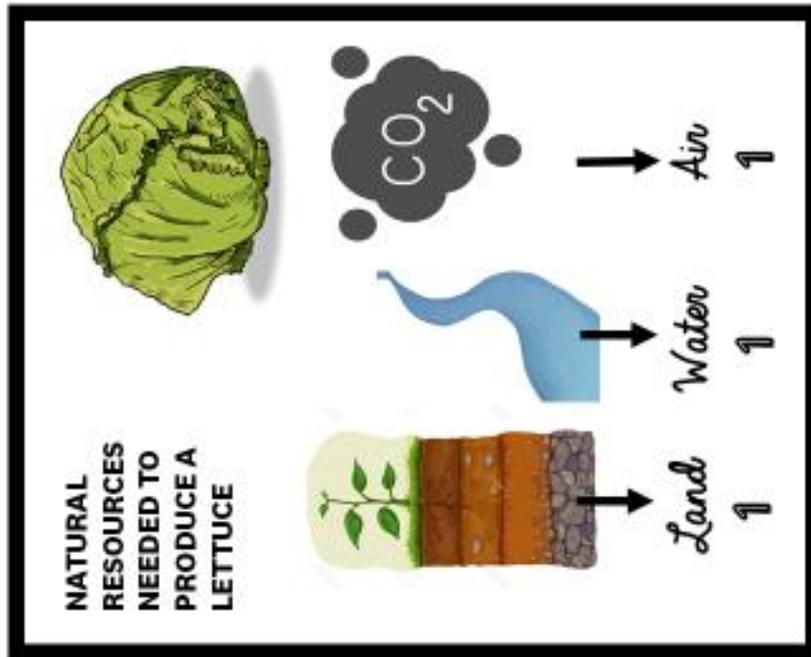
If you want to continue working on this topic and the group is keen to learn more, you can suggest that they prepare their own food advert (in the form of a poster, video, or any other format they want to use). The advert should be extremely honest (the reverse of current advertising) and would show the environmental impact of their chosen product, highlighting for instance its carbon footprint, food miles (how many kilometres the ingredients had to travel); the number of years the packaging will take to degrade etc.

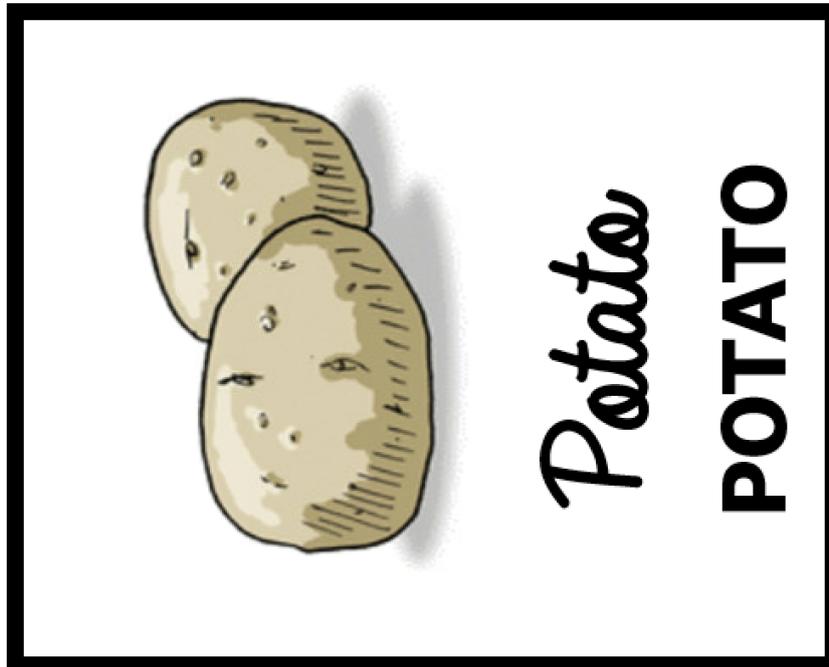
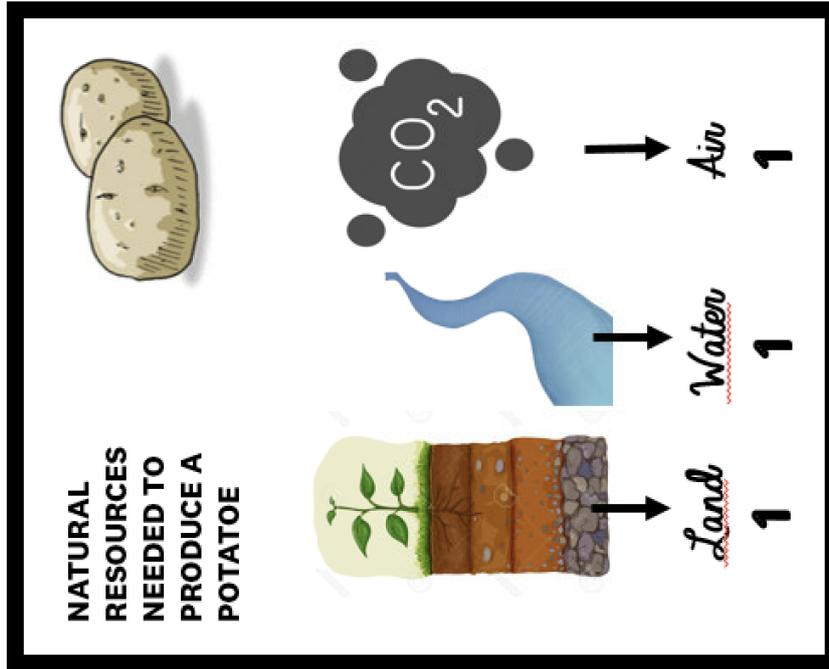
3 Toolkit annexes

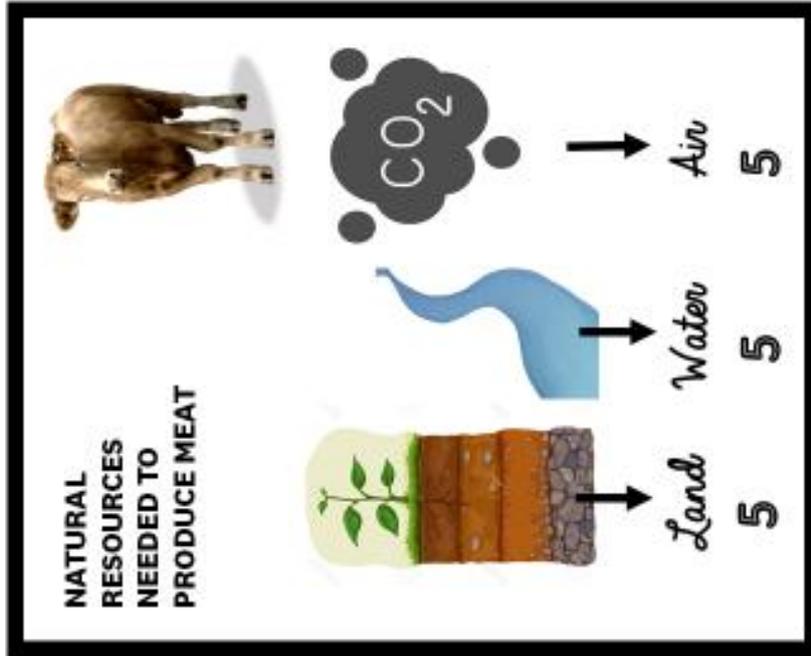
Annex 1 - Nature's chefs

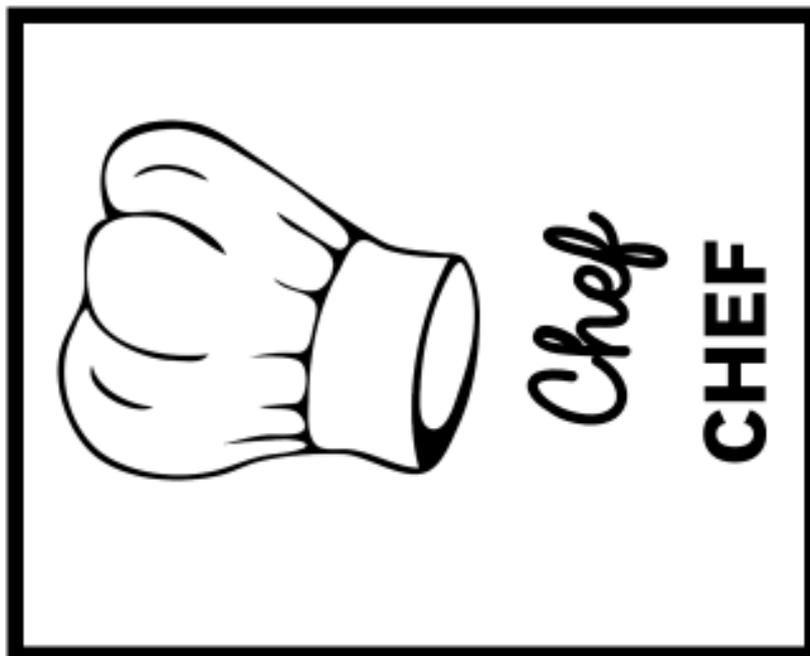
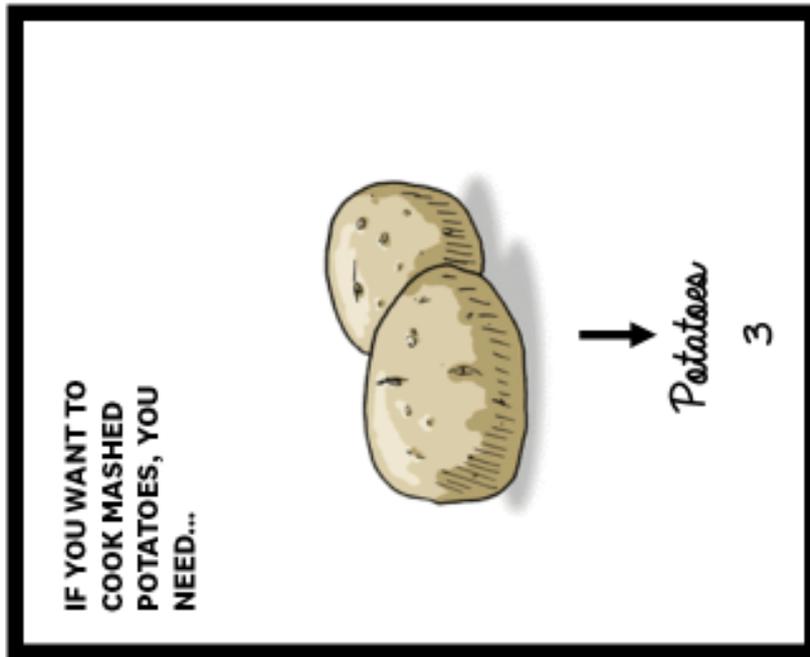


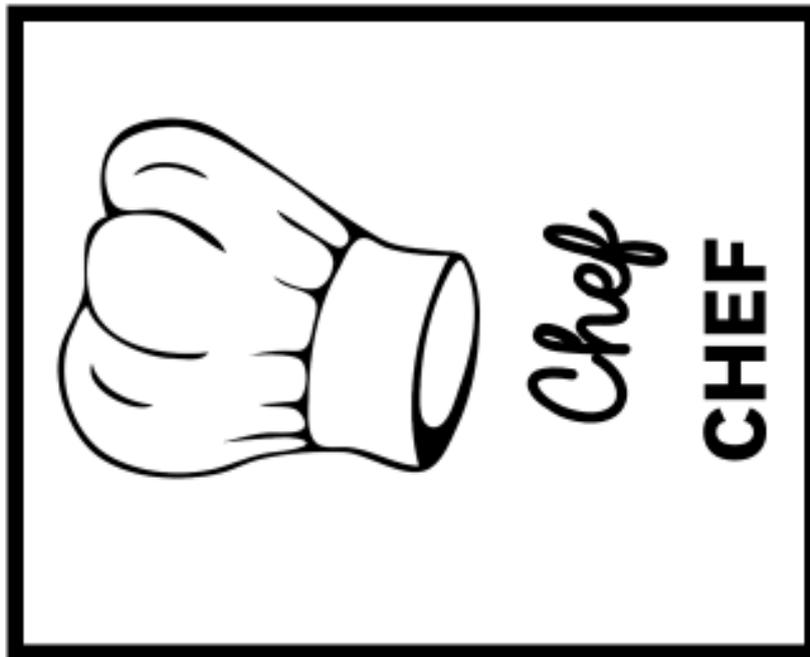
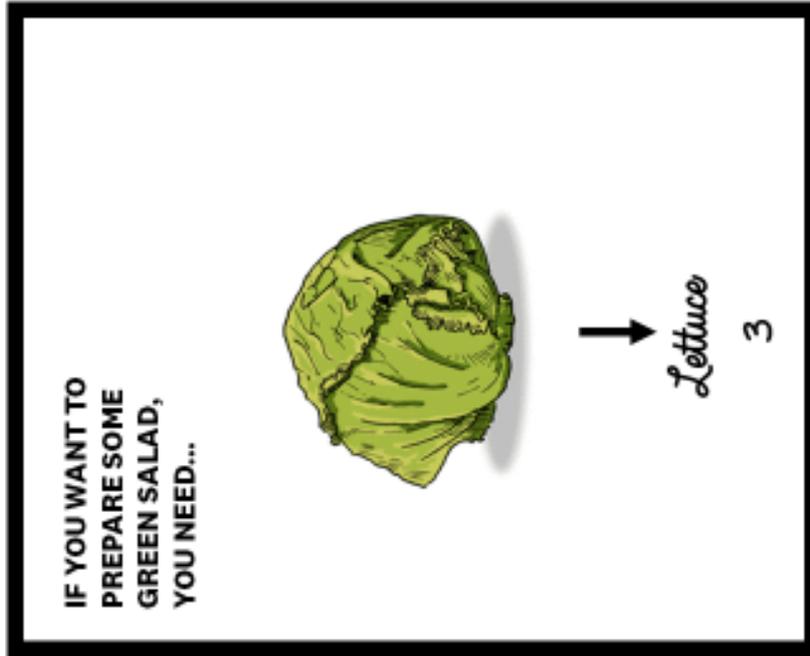


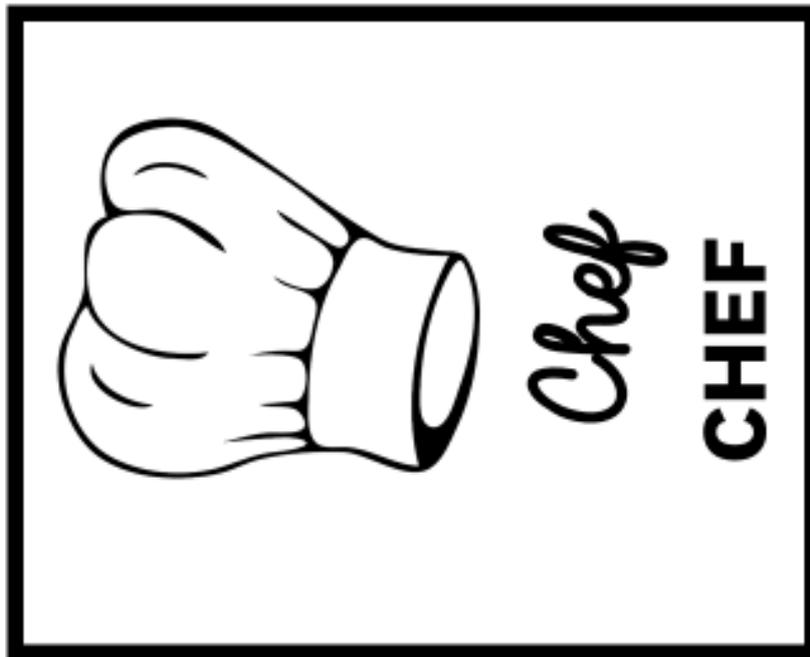
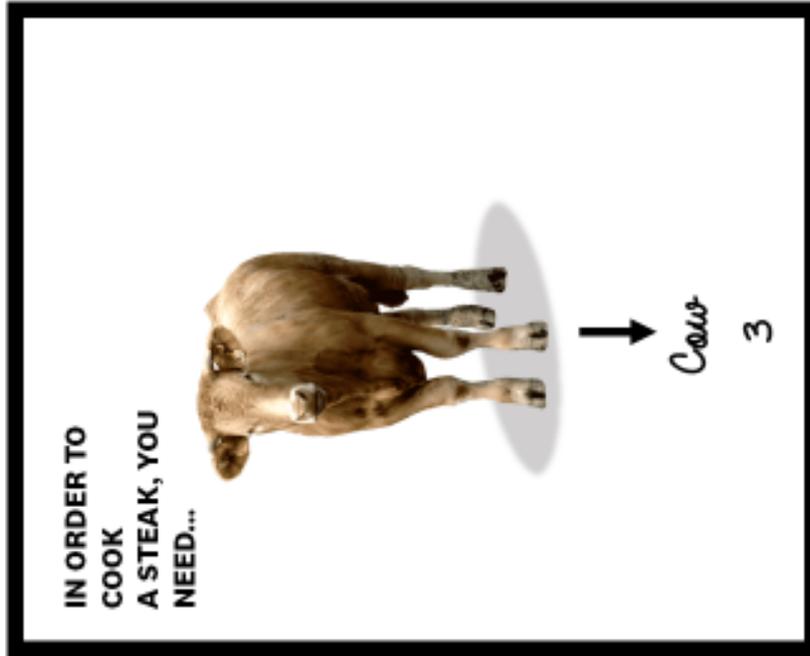












Annex 2 - Eating to nature's rhythm

	<i>unique</i>
	<i>organic</i>
	<i>interesting</i>
	<i>economical</i>
	<i>abundant</i>

Annex 3 - The fish we buy

FISH	SUSTAINABILITY OF THE PRODUCT	SUSTAINABILITY POINTS
	SUSTAINABLE	5
	SUSTAINABLE	4
	NOT VERY SUSTAINABLE	3
	NOT VERY SUSTAINABLE	2
	NOT SUSTAINABLE AT ALL	1
	NOT SUSTAINABLE AT ALL	0

Table to score shopping baskets

	WHERE WAS IT FISHED		FISHING TECHNIQUE		PRESENTATION		MINIMUM SIZE		LABEL		HOW MANY DID YOU BUY?	SUSTAINABILITY POINTS
	A lot of fuel	Not very much fuel	Not very selective	Selective	Fresh	Thawed	Meets	Does not meet	Correct	Incorrect		
What did you buy? _____												
What did you buy? _____												
What did you buy? _____												
What did you buy? _____												
What did you buy? _____												
What did you buy? _____												

	UNIT PRICE	
NAME	PRICE PER KILO	
WHERE WAS IT FISHED	FISHING TECHNIQUE	PRODUCTION METHOD
Mediterranean Sea Atlantic Ocean Indian Ocean Others	Drag netting Trawling Circle netting Craft	Fished Farmed
THAWED	MINIMUM SIZE	
Yes No		

EXAMPLE	UNIT PRICE	10€
SOLE	PRICE PER KILO	29€
WHERE WAS IT FISHED	FISHING TECHNIQUE	PRODUCTION METHOD
 Mediterranean Sea Atlantic Ocean Indian Ocean Others	Drag netting Trawling Circle netting Craft	 Fished Farmed
THAWED	MINIMUM SIZE	
 Yes No	20 cm	

EXAMPLE	UNIT PRICE	2€
PRAWN	PRICE PER KILO	13,80€
WHERE WAS IT FISHED	FISHING TECHNIQUE	PRODUCTION METHOD
 Mediterranean Sea Atlantic Ocean Indian Ocean	 Drag netting Trawling Circle netting	 Fished Farmed

Others	Craft	
THAWED	MINIMUM SIZE	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10 cm	

EXAMPLE	UNIT PRICE	2€
STRIPPED RED MULLET	PRICE PER KILO	18,50€
WHERE WAS IT FISHED	FISHING TECHNIQUE	PRODUCTION METHOD
<input checked="" type="checkbox"/> Mediterranean Sea Atlantic Ocean Indian Ocean Others	Drag netting Trawling Circle netting <input checked="" type="checkbox"/> Craft	<input checked="" type="checkbox"/> Fished Farmed
THAWED	MINIMUM SIZE	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	11 cm	

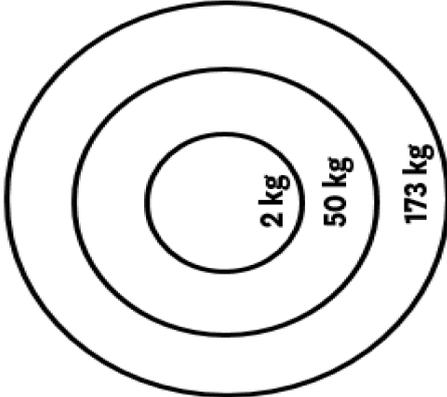
EXAMPLE	UNIT PRICE	5€
BLUE SHARK	PRICE PER KILO	
WHERE WAS IT FISHED	FISHING TECHNIQUE	PRODUCTION METHOD
Mediterranean Sea Atlantic Ocean Indian Ocean Others	Drag netting Trawling Circle netting Craft	<input checked="" type="checkbox"/> Fished Farmed
THAWED	MINIMUM SIZE	
Yes No		

EXAMPLE	UNIT PRICE	1€
SARDINE	PRICE PER KILO	4,95€
WHERE WAS IT FISHED	FISHING TECHNIQUE	PRODUCTION METHOD
<input checked="" type="checkbox"/> Mediterranean Sea Atlantic Ocean Indian Ocean Others	Drag netting Trawling <input checked="" type="checkbox"/> Circle netting Craft	<input checked="" type="checkbox"/> Fished Farmed
THAWED	MINIMUM SIZE	
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	11 cm	

EXAMPLE	UNIT PRICE	0,50€
MUSSEL	PRICE PER KILO	5,99€
WHERE WAS IT FISHED	FISHING TECHNIQUE	PRODUCTION METHOD
<input checked="" type="checkbox"/> Mediterranean Sea Atlantic Ocean Indian Ocean Others	Drag netting Trawling Circle netting <input checked="" type="checkbox"/> Craft	<input checked="" type="checkbox"/> Fished Farmed
THAWED	MINIMUM SIZE	
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	There is no minimum size	

Annex 4 - Zero waste

How much food is wasted by 1 person in 1 year?



Do you waste more or less food than the average amount?

less

more




Is there a difference between BEST BEFORE and USE BY dates?

No, there isn't

Yes, but I don't know how to explain it

Yes, I'll explain it

Have you ever seen this?

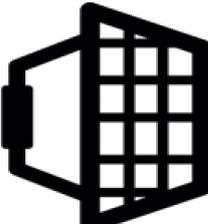




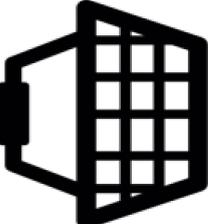


Would you buy it?

Yes!



No!



Tips to fight FOOD WASTE

Proposed survey

Survey

● How many kilos of food do you think each person wastes on average each year in Europe?

- 2 kg
- 50 kg
- 173 kg*

* answer C, source: Eurobarometer, EPRS, FAO, website: europarl.europa.eu

● Do you think that you waste more or less than the average person?

- More
- Less

● Have you ever seen a carrot like this one from the market?

- Yes
- No

● Would you buy a carrot like this one?

- Yes
- No

● Is there any difference between the use-by date and the best before date?

- Yes. Yes, but I don't know what it is.
- Yes. But I don't know what it is.
- No. They're the same.

● Can you give me a tip or advice so as not to waste food? (qualitative)



How much food is wasted by 1 person in 1 year?

Do you waste more or less food than the average amount?

less

more

Have you ever seen this?

Would you buy it?

Yes!

No!

Tips to fight FOOD WASTE

Is there a difference between BEST BEFORE and USE BY dates?

No, there isn't

Yes, but I don't know how to explain it

Yes, I'll explain it

Example

Annex 7 - Food Waste Hero

Examples of the questions:

1. Farmers Challenge 1. Which product is better kept outside the fridge?

- A. Banana
- B. Apple
- C. Pear
- D. Cauliflower

*Correct answer: Banana

If they answer the question correctly, the word they get is: **REDUCE**

2. Logistics Challenge 1. Ripe bananas can be frozen to make ice cream. You have to find three more recipes using ripe bananas.

*Open answer

If they answer the question correctly, the word they get is: **YOUR**

3. Markets Challenge 1. We find apps and offers that allow us to buy cooked restaurant meals that would otherwise be thrown away cheaply. You have to find three apps (in your region, in Europe or abroad) like that and share them with the rest of the group.

*Open answer

If they answer the question correctly, the word they get is: **FOOD**

4. Consumers Challenge 1. Look at this plate. Calculate the CO₂ footprint of the veal, the potatoes (cooked) and the vegetables on this plate if each ingredient weighed one kilo.

Steak: 19.19 kg CO₂

Cooked potatoes: 1.79 kg CO₂

Vegetables: 1.75 kg CO₂

*Altogether that makes: 22.73 kg CO₂

You can look at this website:

<https://myemissions.green/food-carbon-footprint-calculator/>



If they answer the question correctly, the word they get is: **WASTE**

5. Farmers Challenge 2. Question: Often at the greengrocer's, they charge you for a bunch of complete leeks and then throw half of them away. Ask for the whole thing. The green flags are delicious. You have to find three uses for the green flags on a leek...

*Open answer

If they give a good answer, the word they get is: **AND**

6. Logistics Challenge 2. You have lettuce that is a bit wilted. How can you recover it?

- a) By putting it inside a bowl with cold water for 30 minutes.
- b) By putting it for 30 seconds in the microwave.
- c) By wrapping it up with a kitchen towel and letting it sit outside the fridge

*By putting it inside a bowl with cold water for 30 minutes

If they give a good answer, the word they get is: **EAT**

7. Markets Challenge 2. Look at this plate. Calculate the CO₂ footprint of the bread, the tomato, the cheese (dairy) and the lettuce (vegetable) if each ingredient weighed one kilo. You can look at this website: <https://myemissions.green/food-carbon-footprint-calculator/>

- Bread: 0.70 kg CO₂
- Tomato 1.45 kg CO₂
- Cheese (dairy) 0.91 kg CO₂
- Vegetables: 1.75 kg CO₂

*Altogether that makes: 4.81 kg CO₂

If they give a good answer, the word they get is: **CLIMATE**



8. Consumers Challenge 2. Some fruit gives off ethylene, a gas that makes other fruits ripen more quickly. We can extend the life of fruit if we keep it away from those ethylene emitters. Which would be:

- a) Apples and pears
- b) Oranges and citrus fruit in general
- c) Exotic fruit (mango, pineapple...)

*Apples and pears

If they give a good answer, the word they get is: **FRIENDLY**

9. Farmers Challenge 3. Look at this plate. Calculate the CO₂ footprint of the salmon (fish), the citrus and the lettuce (vegetable) on this plate if each ingredient weighed one kilo. You can look at this website: <https://myemissions.green/food-carbon-footprint-calculator/>

- Salmon: 3.91 kg CO₂
- Citrus: 0.20 kg CO₂
- Vegetables: 1.75 kg CO₂

*Altogether that makes: 5.86 kg CO₂

If they give a good answer, the word they get is: **FOOD**



10. Logistics Challenge 3. Food needs natural resources to be produced. Thus, when food is wasted, we are wasting other resources as well. Name two of them.

*Open answer. For instance: water and energy.

If they give a good answer, the word they get is: **BECOME**

11. Markets Challenge 3. As well as the use-by date, there is a different kind of information about when we should eat food. What is that information? What's it called? What is the difference from the use-by date? You have to guess the answer and discuss it in the group.

*Better before date. The use by date marks the last day on which you can safely eat a certain product, whereas the better before that allows you to still eat the food after the date has passed provided that you check it still has a good aspect, smell and taste.

If they give a good answer, the word they get is: **A**

12. Consumers Challenge 3. If a loaf of bread goes stale, we can get it wet and put it in the oven for a few minutes. It will come out as crunchy as freshly made bread. This would be a good trick not to throw bread away... You have to go to find three recipes that use stale bread.

*Open answer

If they give a good answer, the word they get is: **HERO**

13. Farmers Challenge 4. What percentage of food waste along the whole food chain does your team (farmers) produce?

- a) 5% of total waste
- b) 15% of total waste
- c) 46% of total waste

*15% of total waste

If they give a good answer, the word they get is: **AND**

14. Logistics Challenge 4. Look at this plate. Calculate the total CO₂ footprint of the pasta (cereal), the tomato and the cheese (dairy) on this plate if each ingredient weighed one kilo. You can look at this website: <https://myemissions.green/food-carbon-footprint-calculator/>

- Pasta (cereal): 0.82 kg CO₂
- Tomato: 1.45 kg CO₂
- Cheese (dairy): 0.91 kg CO₂



*Altogether, that makes: 3.18 kg CO₂

If they give a good answer, the word they get is: **SAVE**

15. Markets Challenge 4. When we go shopping, we store food as they do at the shop, following the FIFO principle. Do you know what the letters stand for? Why is that a good way to organise the fridge?

*First in, first out

If they give a good answer, the word they get is: **THE**

16. Consumers Challenge 4. Watch the video of the European Commission about food waste: <https://www.youtube.com/watch?v=9K72SHEPOCE>

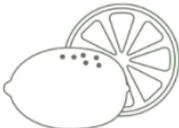
This video aims at sensitizing about different actions that we do in our everyday life that makes us waste food. Name three of those actions.

*Open answer

If they give a good answer, the word they get is: **PLANET!**

Annex 8 - Know your food's carbon footprint

Beef		36.44 kg
Lamb & mutton		12.53 kg
Tomatoes		11 kg
Dark Chocolate		9.02 kg
Fish (farmed)		7.61 kg
Cheese		6.17 kg
Poultry		5.34 kg
Milk		5.25 kg
Pork		5.15 kg

Eggs		3.24 kg
Berries & Grapes		2.68 kg
Bananas		1.43 kg
Onions & Leeks		1.35 kg
Citrus fruit		1.22 kg
Rice		1.21 kg
Tofu (soy beans)		1.17 kg
Root vegetables		1.16 kg
Porridge		0.95 kg
Apples		0.9 kg

Potatoes		0.63 kg
Wheat & Rye		0.59 kg
Maize		0.38 kg
Peas		0.28 kg
Barley		0.24 kg
Nuts		0.07 kg

Annex 9 - Know your food's carbon footprint and Not all food is green

Quiz

Quiz questions should be answered in groups.

There are two ways to conduct this quiz: by showing a PPT presentation to students and answering out loud (and by listing their points on the board if you make it into a competition) or by printing questions on paper and answering in writing (more appropriate in large spaces).

All the questions cover the 7 principles of sustainable food consumption and serve as a basis for a more in-depth explanation of the topic by the educator. Questions are intended to be engaging, to encourage students to use their knowledge and to work together in groups to answer, making them feel empowered.

1. The average total carbon footprint of a European citizen equals _____ of CO₂ per person. For a climate-neutral society, the total carbon footprint of each individual should equal roughly _____ of CO₂ per person. That means that it is currently almost _____ too big, putting way too much pressure on the environment.

- A: 3.4 tonnes
- B: 4.5 tonnes
- C: 6.7 tonnes

- A: 1.7 tonnes
- B: 2.5 tonnes
- C: 3 tonnes

- A: twice
- B: three-times
- C: four-times

Correct answers: C: 6.7 tonnes; A: 1.7 tonnes; C: four-times

2. Connect 6 activities with their respective GHG emissions - from the biggest producer of GHG emissions to the smallest producer (per individual).

- 1 1.9 - 5.19 t
- 2 1.75 t
- 3 0.82 t

- A eating plant-based food
- B completely separating waste
- C planting trees

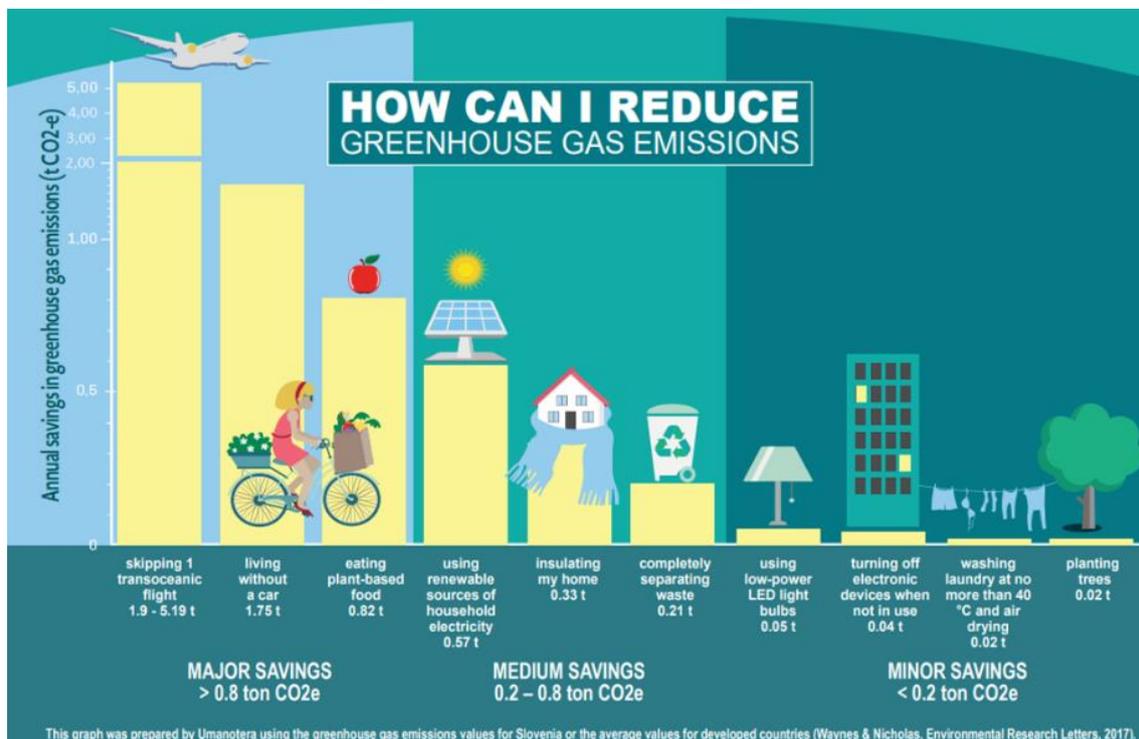


4	0.57 t
5	0.21 t
6	0.02 t

D	skipping one trans-Atlantic flight
E	using renewable household electricity
F	living without a car

Correct answer:

- *Skipping one trans-Atlantic flight (1.9 - 5.19 t)*
- *Living without a car (1.75 t)*
- *Eating plant-based food (0.82 t)*
- *Using renewable household electricity (0.57 t)*
- *Completely separating waste (0.21 t)*
- *Planting trees (0.02 t)*



3. Food systems are responsible for _____ of human-caused emissions.

- A: one quarter
- B: one third
- C: one half

Correct answer: B: one third

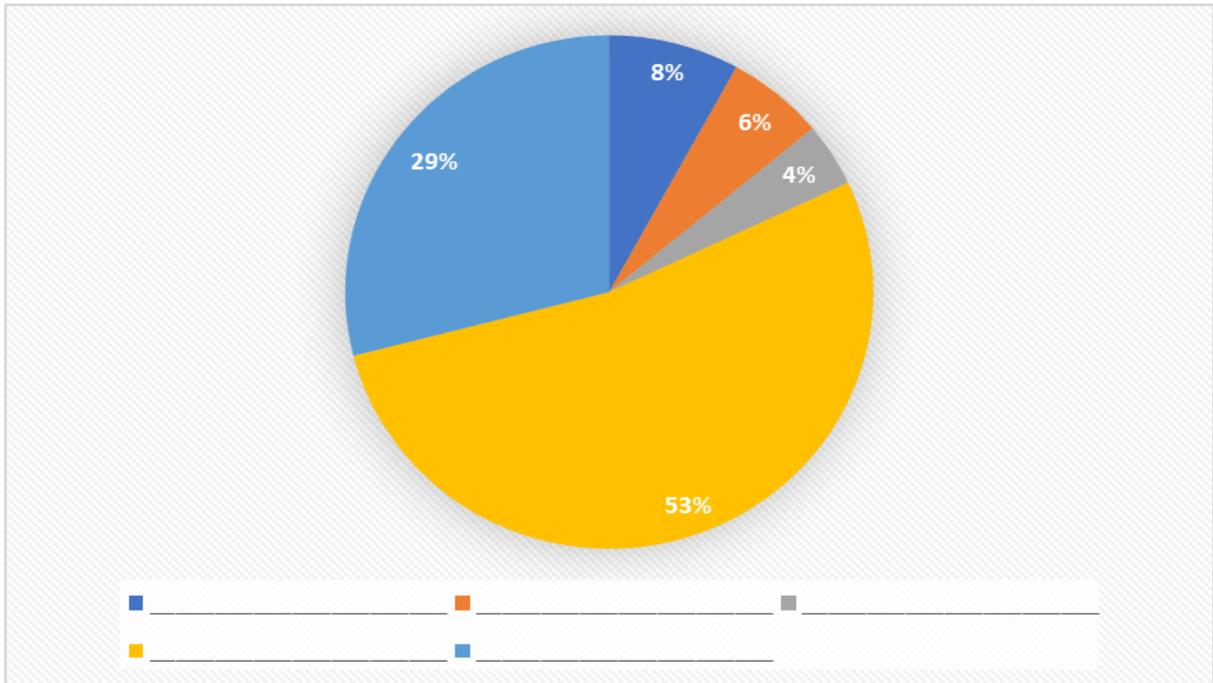
Source: Crippa, M., Solazzo, E., Guizzardi, D., Monforti-Ferrario, F., Tubiello, F. N. in Leip, A. (2021). Food systems are responsible for a third of global anthropogenic GHG emissions. *Nature Food*, 2, 198-209. <https://doi.org/10.1038/s43016-021-00225-9>.

4. Projection of the graph on the board OR printed for each group

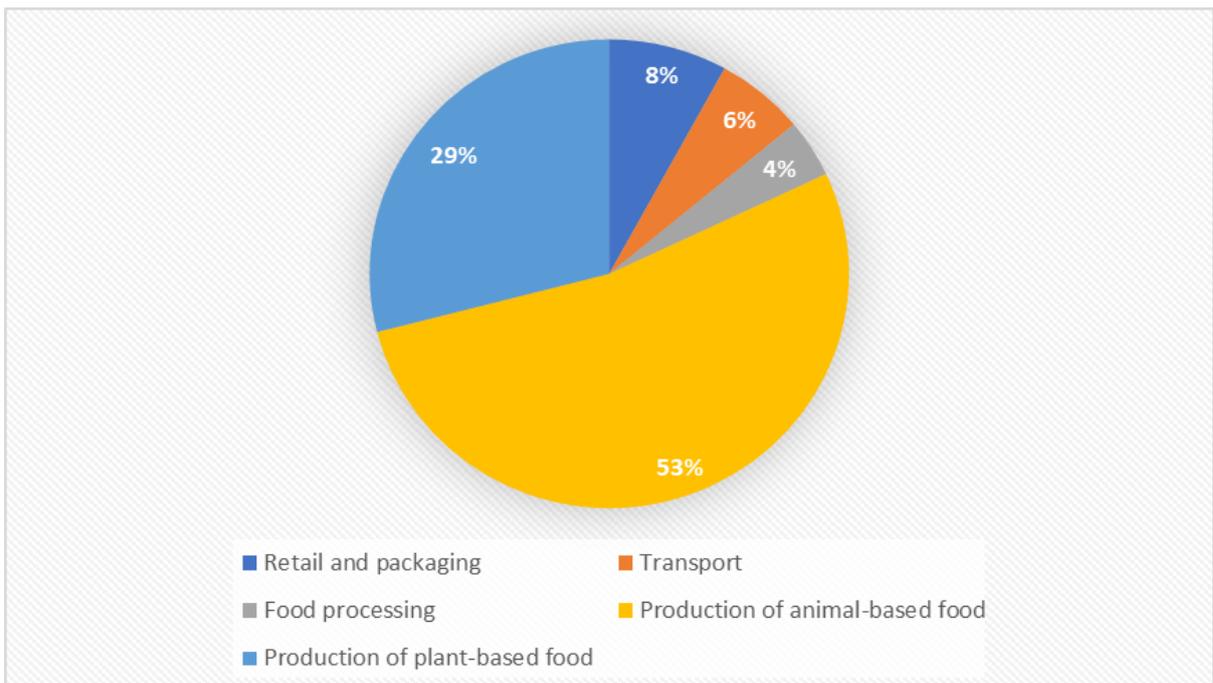
Global greenhouse gas emissions from food production - where do they come from?

Fill in the missing production processes to see which one part has the biggest role in determining our food's carbon footprint?

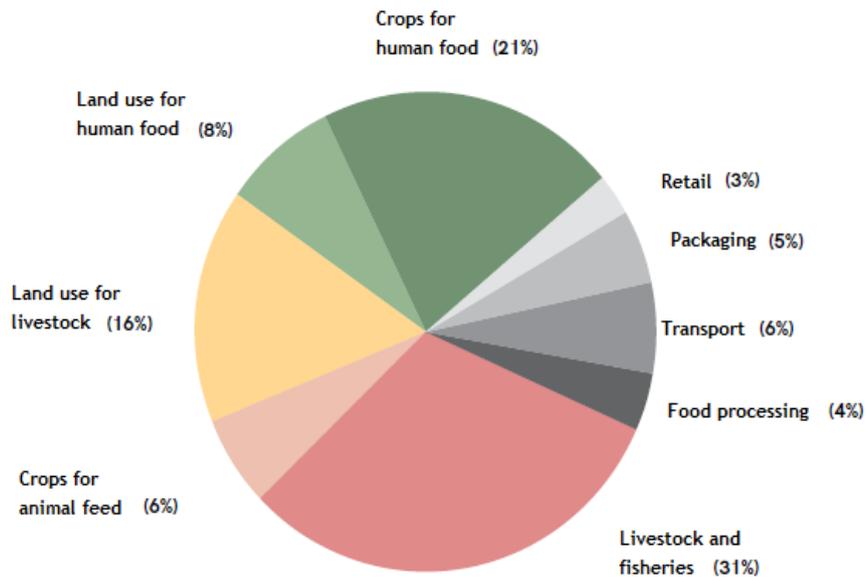
Choose between *Retail and packaging*, *Food processing*, *Transport*, *Production of animal-based food* and *Production of plant-based food*.



Correct answer:



Graph with greater detail (if the educator wants to explain in more detail):



5. Tropical rainforests are considered one of Earth's richest ecosystems and are home to around 80% of all known species today. However, they are disappearing at an alarming rate. Every six seconds, we lose a football pitch worth of tropical rainforest! What are the main reasons for deforestation?

- A: Producing agricultural commodities - with the largest embedded tropical deforestation found in soy, palm oil and beef.
- B: Producing agricultural commodities - with the largest embedded tropical deforestation found in cocoa, coffee and wood products.
- C: Building new homes for local people and newcomers.

Correct answer: A: Producing agricultural commodities with the largest embedded tropical deforestation found in soy, palm oil and beef.

Source: UNEP. (b.d.). Why do forests matter? Available at <https://www.wwf.eu/?2831941/EU-consumption-responsible-for-16-of-tropical-deforestation-linked-to-international-trade>

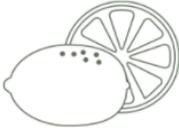
6. What is the carbon footprint of producing the foods in the pictures?

Connect 12 foods with their respective carbon footprint (amount of GHG emissions released when producing the food in the pictures).

Note: Greenhouse gas emissions are measured in kilograms of carbon dioxide equivalents (kgCO₂eq) per 1000 kilocalories.

Correct answer:

Beef		36.44 kg
Lamb & mutton		12.53 kg
Tomatoes		11 kg
Dark Chocolate		9.02 kg
Fish (farmed)		7.61 kg
Cheese		6.17 kg
Poultry		5.34 kg
Milk		5.25 kg
Pork		5.15 kg
Eggs		3.24 kg

Berries & Grapes		2.68 kg
Bananas		1.43 kg
Onions & Leeks		1.35 kg
Citrus fruit		1.22 kg
Rice		1.21 kg
Tofu (soy beans)		1.17 kg
Root vegetables		1.16 kg
Porridge		0.95 kg
Apples		0.9 kg
Potatoes		0.63 kg

Wheat & Rye		0.59 kg
Maize		0.38 kg
Peas		0.28 kg
Barley		0.24 kg
Nuts		0.07 kg

1. Almost _____ of the packaged products we find in supermarkets contain palm oil. It can be found in anything from shampoo, detergent and toothpaste to chocolate, cookies and pizza dough.

- a. A: 30%
- b. B: 40%
- c. C: 50%

WWF: “What is the problem with palm oil? Palm oil has been and continues to be a major driver of deforestation of some of the world’s most biodiverse forests, destroying the habitat of already endangered species like the Orangutan, pygmy elephant and Sumatran rhino. This forest loss coupled with the conversion of carbon-rich peat soils is throwing out millions of tonnes of greenhouse gases into the atmosphere and contributing to climate change. There also remains some exploitation of workers and child labour. These are serious issues that the whole palm oil sector needs to step up to address because it doesn’t have to be this way.”

Correct answer: C: 50%

Source and additional information: <https://www.worldwildlife.org/pages/which-everyday-products-contain-palm-oil> and <https://www.wwf.org.uk/updates/8-things-know-about-palm-oil>

8. How much food is wasted annually in the EU?

- A: 5 million tons
- B: 49 million tons
- C: 88 million tons

Correct answer: C: 88 million tons

Source: [https://ec.europa.eu/food/safety/food-waste_en#:~:text=In%20the%20EU%2C%20around%2088,day%20\(Eurostat%2C%202018](https://ec.europa.eu/food/safety/food-waste_en#:~:text=In%20the%20EU%2C%20around%2088,day%20(Eurostat%2C%202018)

9. Unsustainable food production, where hectares of natural ecosystems are converted to crop production or pasture, is the principal cause of loss of habitat, which in turn leads to loss of biodiversity.

What is the average decrease in birds, amphibians, mammals, fish and reptiles since 1970?

- A: 31%
- B: 68%
- C: 85%

Correct answer: B: 68%

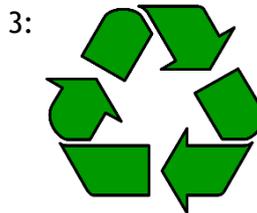
Source: WWF Living Planet Report 2020, www.worldwildlife.org/publications/living-planet-report-2020.

10. Based on what you've learnt so far in this quiz, the future seems rather bleak. However, not all is lost and there is a way you can also do your part and help protect our future - by making more sustainable food choices every day! Supporting local organic farming is a strategy to lower the carbon footprint of the food system on the planet, reducing the use of fertilizers, pesticides and herbicides (which have harmful effects on soils, air, water and biodiversity). The conditions in which foods products are produced are crucial. Whenever possible, we should aim to choose to produce grown on farms that are committed to quality and the principles of organic farming and sustainability. But do you know how to recognize those products?

Which of the following logos is the EU organic farming logo?

Think about the others as well, where do you think you could find them and what do they mean?

Hint: All of them mark products that support the transition towards a more sustainable future.



Correct answer: 4

1: Energy star label: <https://www.energystar.gov/products/how-product-earns-energy-star-label#:~:text=ENERGY%20STAR%20is%20the%20trusted,inefficient%20use%20of%20energy%3B%20and>

2: Global Organic Textile Standard: <https://global-standard.org/certification-and-labelling/labelling#certificationrequirements>

3: <https://www.glamourmagazine.co.uk/gallery/recycling-symbols-guide>

4: https://ec.europa.eu/info/food-farming-fisheries/farming/organic-farming/organic-logo_e

4 Bibliography

Benton, T. G., Bieg, C., Harwatt, H., Pudasaini, R. in Wellesley, L. (2021). *Food system impacts on biodiversity loss*. Chatham house, Energy, Environment and Resources Programme.

Crippa, M., Solazzo, E., Guizzardi, D., Monforti-Ferrario, F., Tubiello, F. N. in Leip, A. (2021). Food systems are responsible for a third of global anthropogenic GHG emissions. *Nature Food*, 2, 198-209. <https://doi.org/10.1038/s43016-021-00225-9>

Willett, W., Rocström, J.; Loken, B.; Springmann, M.; Lang, T.; Vermeulen, S. et al (2019). *Food in the Anthropocene: the EAT-Lancet Commission on healthy diets from sustainable food systems*. *The Lancet*.

Food and Agriculture Organization of the United Nations (2013). *The state of food and agriculture*.

My emissions. Food Carbon Footprint Calculator, <https://myemissions.green/food-carbon-footprint-calculator/>



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