Green Organisation Morocco

CLIMATE CHANGE EDUCATION TOOLBOX

Practical workshops for sustainable youth work



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INTRODUCTION

Experience from youth projects across Europe shows that sustainability can be integrated into almost any activity with thoughtful planning. Exchanges, workshops, and environmental programmes demonstrate that young people respond positively when they are invited to reflect on everyday choices—such as food, mobility, and energy use—in a playful and interactive way. Even small actions, like sorting waste or choosing climate-friendly meals, can spark discussion, raise awareness, and encourage longer-term behavioural change.

This toolbox is based on research, proven practices, and practical experience from educators and youth workers. It brings together a set of short, workshop-style activities that explore climate change through topics such as global warming, mobility, nutrition, and adaptation and mitigation. Each activity is designed to be ready to use, engaging, and reflective, combining background information with hands-on exercises that require minimal preparation.

By using this toolbox, team leaders can create meaningful learning experiences, support critical thinking, and integrate climate-conscious perspectives into everyday youth activities. The toolbox aims to inspire experimentation, discussion, and creativity, and to make sustainability a concrete and accessible topic in youth work.

1

GLOBAL WARMING

Where do our emissions come from?

Participants explore the main human activities that contribute to global greenhouse gas emissions. They compare different sectors—such as energy, transportation, agriculture and land use, industry, buildings, and food waste—and examine how much each contributes to global warming.

During this interactive activity, participants estimate, match, and discuss the relative impact of each sector. The exercise helps them understand why some activities produce more emissions than others and encourages reflection on how everyday choices and systems can help reduce greenhouse gas emissions.

Time required 30 minutes

Method Interactive game

Materials



- Flip-chart or blackboard
- Two identical sets of cards

Preparation



- Production of two identical sets of cards (one set for each group) for the activity :
  - Seven illustrated cards : Energy, transportation, food waste, agriculture & land use, buildings, industry, other energy
  - Seven percentage cards : 25%, 20%, 18%, 14%, 10%, 6%, 7%
- Print all cards on A4 paper and laminate if possible

Opening (5 minutes)

To introduce the topic, team leaders can use guiding questions adapted to the age of participants.

For younger participants :

→ What are some things you do every day that might release greenhouse gases? (e.g., traveling, using electricity, throwing away food)

For older participants :

→ What human activities do you think contribute most to global warming?

→ Why do you think some sources (like energy or transportation) create more greenhouse gases than others?

This short discussion helps participants recognise the human role in climate change and prepares them for the activity.

Aim of the game

Participants will :

- Explore how much each sector (energy, transportation, agriculture, industry, buildings, food waste, other energy) contributes to global greenhouse gas emissions.
- Learn to estimate the relative impact of different human activities on climate change.

- Reflect on practical ways to reduce emissions in daily life.

It is important that workshop leaders explain the following :

- Greenhouse gases include CO_2, methane, nitrous oxide, and others.
- Different sectors contribute differently due to energy use, fuel type, waste, and efficiency.
- Some emissions are direct (e.g., burning fuel) and some indirect (e.g., food production, industrial processes).

Setting the bigger picture

After the opening discussion, team leaders introduce the broader context :
If greenhouse gas emissions continue at the current pace, global temperatures could rise by 2–6°C, and sea levels could increase by up to 1 metre by the middle of this century.[1]
Climate change affects weather patterns, food security, ecosystems, and human settlements differently across regions. Human activity is the main driver, and natural systems such as forests and oceans can no longer absorb emissions fast enough.
To deepen understanding, team leaders may ask :

→ *Do you think a 2–6°C temperature rise is a lot or a little? Why?*

Even a 2°C rise has serious consequences for humans, animals, and ecosystems. 6°C would be catastrophic, affecting agriculture, sea levels, and natural habitats.

→ *How might rising sea levels affect people and habitats?*

Flooding of coastal cities, loss of homes, displacement of communities, and destruction of animal and plant habitats.

→ *Which regions might be most affected, and why?*

The Arctic will warm fastest, causing glaciers and permafrost to melt. Low-lying countries and islands, especially in Asia and Africa, face high risks from flooding and storm surges.

→ *Why can't oceans and forests absorb all greenhouse gases anymore?*

Human emissions are too high for natural absorbers. Oceans and plants absorb some CO_2, but excess emissions accumulate, causing warming.

→ *What human activities contribute most to these emissions?*

Burning fossil fuels for energy and heat, deforestation, agriculture, transportation, industry, and food waste.
Participants can brainstorm and add their ideas to a flip-chart or web of associations.

Process

1. **Team leaders input :**

Show the illustrated cards and explain each source of greenhouse gases in simple terms :

- Energy & heat production : electricity and heat generation in power plants and industry.
- Transportation : cars, buses, trains, planes, and fuel use.
- Agriculture & land use : livestock emissions, deforestation, and farming practices.
- Industry : manufacturing processes and industrial waste.
- Buildings : energy use in homes, offices, and commercial spaces.
- Food waste : emissions from discarded food across the supply chain.
- Other energy : fuel extraction, pipelines, and energy transport.

1 IPCC Sixth Assessment Report. Available at : https://www.ipcc.ch/report/ar6/wg2 [last accessed on 4 February 2026]

2. **Group activity :**



Participants are divided into two groups. Each group receives :

- One set of picture cards.
- One set of percentage cards.
- Groups are asked to match each emission source with the percentage they believe represents its share of global greenhouse gas emissions.
- Encourage discussion : which sectors are largest, which smallest, and why.

3. **Presentation & discussion :**

Each group presents its results to the plenary. Team leaders then compare the participants' answers with scientific reference data (e.g., IPCC 5th assessment report, FAO food wastage footprint [2]), for example :



- Energy & heat production ~25%.
- Industry ~20%.
- Agriculture & land use ~18%.
- Transportation ~14%.
- Buildings ~10%.
- Other energy ~7%.
- Food waste ~6%.

Tip for team leaders :
The goal is not perfect accuracy, but discussion. Emphasise participants' reasoning, insights, and understanding rather than correct numbers.

Reflective questions :

To conclude the activity, team leaders may invite reflection using the following questions :



→ Which results surprised you the most?
→ Which sectors contribute most to global greenhouse gas emissions?
→ What actions could reduce emissions at home, at school, or in your community?

Want to try more?

Online-version of the activity :
https://learningapps.org/display?v=p9dby2isk20

2 UN FAO Food Wastage Footprint (2013). Available at : https://www.universityofcalifornia.edu/news/where-do-greenhouse-gas-emissions-come [last accessed on 4 February 2026]

2

ADAPTATION VS MITIGATION

How do we face climate change?

Participants explore two ways humans respond to climate change: adaptation, which helps communities adjust to its impacts, and mitigation, which reduces its causes. They discuss examples from local, national, and European contexts.

In small groups, participants brainstorm solutions, analyse case studies, and categorise actions as adaptation, mitigation, or both. This helps them link theory to real-life choices and understand how everyday actions can make a difference.

Time required 90 minutes

Method Interactive game

Materials

- Flip-chart paper
- Markers
- Printed hand-outs (case studies)
- Templates for group work (solutions & case-study analysis)



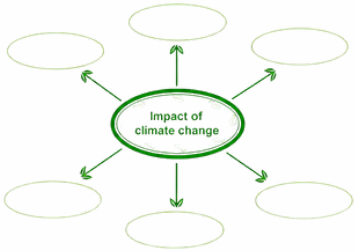
Preparation :

- Select 2–3 case studies [3] per group
- Print hand-outs and analysis templates
- Prepare 3–4 blank templates titled "How to face climate change?"



Opening (5 minutes)

Team leaders guide participants to discuss the possible impacts of climate change on the environment, society, and everyday life. Ideas are collected as a web of associations on a flip-chart or blackboard to show how impacts are interconnected.



Aim of the game

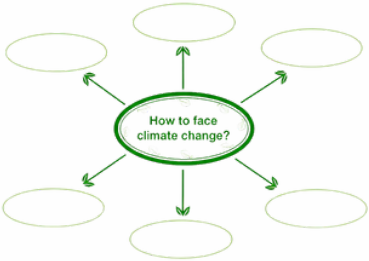
Participants will:

- Identify potential solutions to climate change impacts
- Explore how solutions differ in scope, cost, and feasibility
- Learn to distinguish between adaptation, mitigation, or actions that combine both

Process

Step 1 : Brainstorming solutions

Participants form 3–4 small groups. Each group receives a "How to face climate change?" template. Using the web of impacts, groups brainstorm solutions and organise them into concrete actions.



3 Climate-Adapt : 10 Case Studies Online. Available at : https://climate-adapt.eea.europa.eu/en/about/climate-adapt-10-case-studies-online.pdf [last accessed on 4 February 2026]

Step 2 : Guiding questions

Team leaders support reflection with :

→ *Is it a short-term or a long-term solution?*

Short-term solutions typically focus on immediate action and temporary relief (e.g., providing disaster relief, emergency flood barriers). Long-term solutions aim at sustainable change and resilience (e.g., building infrastructure that can withstand future climate impacts, or transitioning to renewable energy systems)

→ *Who is responsible for implementing this solution? What stakeholders should be involved?*

Local governments, national authorities, or international organizations may be responsible, depending on the scope. Stakeholders include community members, NGOs, businesses, policy makers, and scientific experts. Collaboration across sectors is often key to successful implementation.

→ *Is this solution applicable in the countries of Global South/Global North? Why?*

Global South solutions may focus more on adaptation, such as improving infrastructure for vulnerable communities, as they often face the most severe effects of climate change. In the Global North, solutions may lean more towards mitigation, like reducing emissions through renewable energy or transportation systems. The applicability depends on regional needs—for instance, a solution for managing drought in one region may not be relevant in areas experiencing flooding.

→ *Does it need a lot of financial investment?*

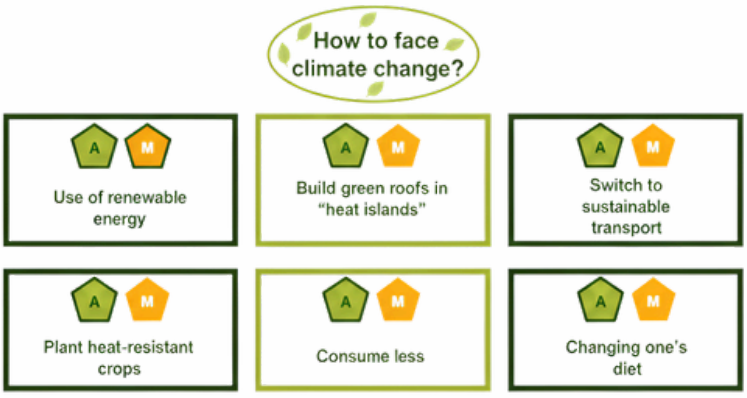
Some solutions require significant financial investment—such as building large-scale renewable energy projects or upgrading infrastructure to make cities more resilient to climate change. Other solutions may require less immediate funding but instead focus on changes in behaviour, practices, or community-level actions, which can be more cost-effective in the short term (e.g. planting trees, reducing food waste, or implementing water-conservation measures).

Step 3 : Introducing adaptation and mitigation

Once groups finish brainstorming and share ideas, team leaders introduce the concepts:

- Adaptation : Adjusting to climate impacts (flood defences, drought-resistant crops) (IPCC, 2001).[4]
- Mitigation : Reducing causes of climate change (renewable energy, energy efficiency, sustainable transport) (IPCC, 2001).[5]

Some solutions can contribute to both adaptation and mitigation, depending on context. Team leaders give an example and ask participants to justify their categorisation.



4 IPCC, 2001. Adaptation. Available at : https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg2-chapter18-1.pdf [last accessed on 4 February 2026]

5 IPCC, 2001. Mitigation. Available at : https://www.ipcc.ch/site/assets/uploads/2018/02/ar4-wg2-chapter18-1.pdf [last accessed on 4 February 2026]

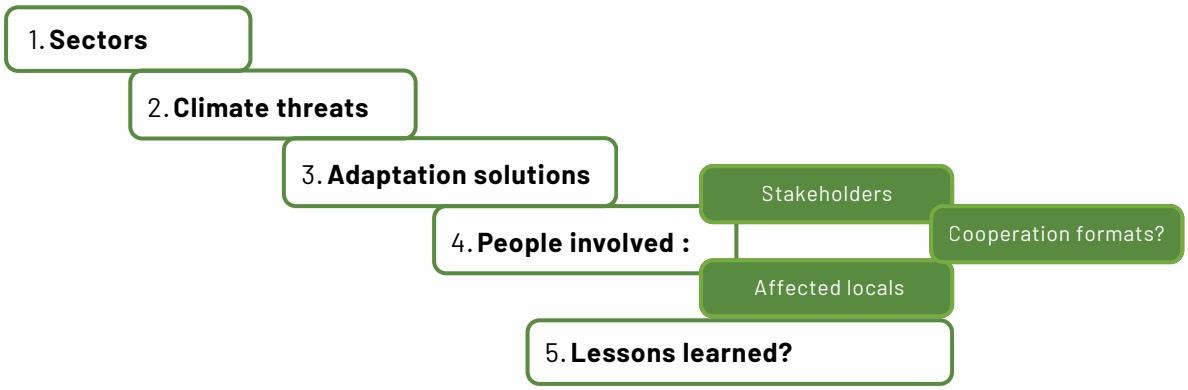
Step 4 : Case studies – applying knowledge

Groups receive 2–3 case studies showing adaptation and mitigation at local, national, or European levels.[6] [7] Working for 10–15 minutes, participants analyse :

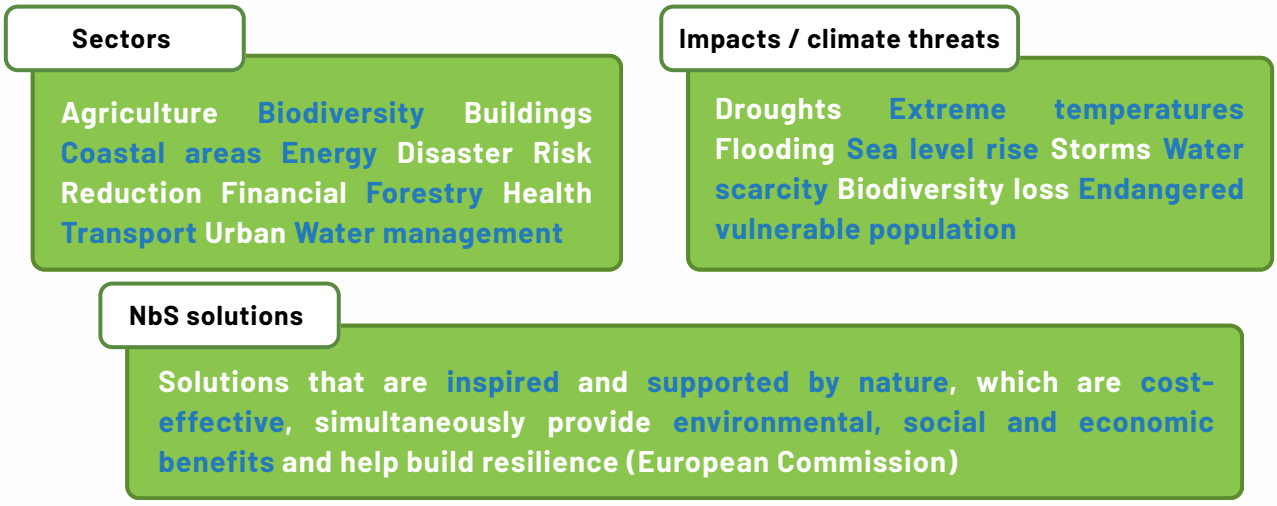
- Relevant sectors
- Climate threats
- Proposed solutions (nature-based or other approaches)
- Key actors involved

This helps participants connect theory to real-world climate action.

Template for case studies analysis



Supplementary materials for case studies analysis



6 Climate-Adapt : 10 Case Studies Online. Available at : https://climate-adapt.eea.europa.eu/en/about/climate-adapt-10-case-studies-online.pdf [last accessed on 4 February 2026]

7 The Nature Conservancy : Climate Change Stories. Available at : https://www.nature.org/en-us/what-we-do/our-priorities/tackle-climate-change/climate-change-stories [last accessed on 4 February 2026]

Step 5 : Plenary discussion

Groups present their findings (10–15 minutes). Team leaders :

- Facilitate discussion
- Compare approaches
- Highlight links and differences between adaptation and mitigation
- Encourage suggestions for additional actions

Reflective questions

Team leaders can guide participants to relate learning to daily life :
→ Have you practised any adaptation or mitigation actions in your daily life? Which ones?
→ Which type of response do you see more often: adaptation or mitigation? Why?
→ Are there climate challenges in your region that require adaptation?
→ Do you know local climate initiatives you could join? Why or why not?

Want to know more?

To prepare for the activity : explore climate change phenomena and understand typical behaviour of children and adolescents when discussing climate change (coping strategies, reactions, etc.). Suggested resources: NASA [8], NRDC (Natural Resources Defense Council) [9], National Geographic Kids.[10]

8 https://climatekids.nasa.gov/kids-guide-to-climate-change/ [last accessed on 22 September 2023]
9 https://www.nrdc.org/stories/your-guide-talking-kids-all-ages-about-climate-change [last accessed on 4 February 2026]
10 https://www.natgeokids.com/uk/discover/geography/general-geography/what-is-climate-change/ [last accessed on 4 February 2026]

3

MOBILITY AND CLIMATE CHANGE

How far can I get on half a gram of CO_2?

Participants investigate how far one could travel by car, coach, train, or plane if each person is limited to emitting just half a gram of greenhouse gases (CO_2eq). Using measured distances to represent emissions, they physically "travel" until their CO_2 allowance is used up, making the abstract concept of climate impact visible and tangible.

The activity encourages reflection on sustainable mobility, comparing the efficiency and environmental impact of different transport modes. It prompts participants to consider the role of occupancy, energy use, and travel type in determining emissions, and sparks discussion on how everyday transport choices can reduce personal and collective carbon footprints.

Time required 20-30 minutes

Method Interactive game, requires space for movement

Materials

- Tape measures or cords for each mode : plane 1.10 m, car 2.40 m, train 7.10 m
- 6 cardboard signs (2 per mode of transport)
- Open space for participants to move



Preparation

- Create six cardboard signs (two planes, two cars, two trains) and have participants wear them around their necks.
- Prepare measuring tapes or similar for each transport mode with the following lengths [11] [12] : plane, representing a short-distance flight of up to 1500 km, 1.10 m; car, a mid-size petrol vehicle for one person, 2.40 m; and train, 7.10 m.

These materials help participants visualize and compare CO_2 emissions during the activity.

Opening (5 minutes)

Participants start by naming the types of transport that can be used to travel from one city to another. It's a good idea to pick two cities they can travel between by train, car, or plane. Once they have named the three modes of transport — car, train, and plane — six volunteers are selected. The workshop leader distributes the six signs among the volunteers, assigning two appropriately labelled signs to each mode of transport.

11 The distances are based on : UK Department for Business, Energy & Industrial Strategy. Greenhouse gas reporting : conversion factors 2019. Online : https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2019 [last accessed on 4 February 2026]

12 Emission levels for cars, coaches, and planes are similar in different countries. However, depending on how trains are powered (e.g., electricity and how it is generated, or diesel), these levels differ from country to country. Vehicle occupancy, i.e., how many people travel in a train, plane, or coach, also affects the calculation. The examples given here are based on UK data and average values. Nevertheless, they are a useful point of reference. The emission of greenhouse gases, so-called CO_2 equivalents, is measured. Cf. Ritchie, Hannah (2020) : Which form of transport has the smallest carbon footprint? Online : https://ourworldindata.org/travel-carbon-footprint [last accessed on 4 February 2026]

Aim of the game

The aim of this activity is to show participants how far a person can travel by train, plane, coach, or car if each person is only allowed to produce half a gram of greenhouse gases (CO_2 equivalents, CO_2eq). CO_2 is the main greenhouse gas, but not the only one. Scientists combine CO_2 with other gases, such as methane and nitrous oxide, under the term "CO_2 equivalents" to account for all climate effects. For simplicity, we will refer to these collectively as greenhouse gases.

Participants will take into account the average occupancy of each transport mode, which is crucial in determining how climate-friendly it is. For example, a car carrying five people spreads its emissions across all passengers, making it more efficient per person than a solo driver. Similarly, a coach or train produces more total emissions than a car, but carries many more passengers, so the per-person impact is smaller.

It is important that workshop leaders explain the following :

- Each participant has a half-gram greenhouse gas budget. The question is : how far can they travel before this budget is "used up"?
- * All passengers on a vehicle also have their own half-gram budget. To calculate the total greenhouse gases available for a vehicle, multiply the number of passengers by 0.5 grams. Example : an ICE train in Germany carries 420 passengers → 420 × 0.5 g = 210 g CO_2eq
- Larger vehicles like coaches or trains use more energy and produce more total emissions than a car, but they carry many people efficiently.
- Although a train emits more total greenhouse gases than a car, per passenger it is much more climate-friendly.

By the end of this activity, participants understand that sustainable travel depends not only on the type of vehicle, but also on how it is used, including occupancy and distance. This provides a concrete understanding of real-world trade-offs between different transport modes and their climate impact.

Step 1 : Setting up participants

Three volunteers are chosen to represent the plane, car, and train, each wearing a sign and holding one end of a tape measure or cord, while the other three volunteers hold the opposite ends. Participants then step backwards one by one until the tape measure or cord is completely unrolled, showing how far each mode of transport can travel.

Step 2 : Car simulation



Begin with the car. Ask the participants :

→ One person travels in a car. How far can a car go until it emits 0.5 grams of greenhouse gases?

Slowly unroll the tape measure to 2.40 m, giving the group a visual sense of per-person emissions. This provides a baseline for comparing the other modes of transport. Encourage participants to guess distances for the train and plane before revealing them.

Step 3 : Guessing other distances

Before rolling out the other two tapes, invite participants to guess how far they could travel by train and plane compared to the car. Encourage discussion and reasoning about which modes are more or less climate-friendly.

Step 4 : Plane simulation



The plane volunteer gets ready. Ask :
→ How far can passengers on a short-haul flight travel until each has used up half a gram of greenhouse gases?
Participants send the workshop leader to the guessed spot and tell them to "keep going" until the majority shouts stop.

For younger participants, remind them :

→ If the plane gets further than the car, it's more climate-friendly than the car. If it's more harmful for the climate, shout stop before it reaches the car.
Once the group agrees on the stopping point, the plane volunteer walks backward unrolling the tape to the actual distance, 1.96 m. Explain :

- Many might think : "This isn't much worse than the car," but the greenhouse gases emitted by the plane at high altitude have an even more harmful effect than on the ground. Their impact equates to at least twice the amount of pure greenhouse gas emissions.[13]
- Additional emissions include nitrogen oxides, soot, and water vapor (the white stripes in the sky).
- Effective distance is halved to 1.10 m, showing the real climate impact per 0.5 g CO_2.

Step 5 : Train simulation



Repeat the simulation for the train, following the same process: guess → roll out tape → reveal actual distance → discuss impact.

Reflective questions

After all modes are tested, guide participants to reflect on :
→ Are you surprised by the results?
→ Why are driving and flying so harmful to the climate?
→ How can you travel more sustainably?
→ What can policy-makers do to reduce transport emissions?
→ How does occupancy affect the carbon footprint per person?



Want to know more?

Here are a few more facts for workshop leaders to use in a discussion on mobility :
Some countries have the following number of motor vehicles (cars, buses, lorries) per 1,000 inhabitants: Poland 771, Germany 628, Belgium 482, Bangladesh 27, Malawi 13, North Korea 1.
For other countries, see :

https://en.wikipedia.org/wiki/List_of_countries_by_vehicles_per_capita.

A study by the RAC Foundation found that the average car in the UK is stationary about 162 hours a week and driven only 6 hours—a "parking ratio" of 96%.[14] The average speed of a car during rush hour in a major German city like Hamburg is around 20 km/h, not much faster than a bike.[15] Cars weigh almost 2 tons but are often used inefficiently, e.g., to transport a 25-kg child; the average occupancy in Germany is only 1.4 persons.

13 Non-CO_2 effects of aviation (including contrails). Aviation Environment Federation. Available at : https://www.aef.org.uk/what-we-do/non-co_2-effects-of-aviation-including-contrails/ [last accessed on 4 February 2026]
14 https://www.racfoundation.org/research/mobility/spaced-out-perspectives-on-parking [last accessed on 4 February 2026]
15 https://de.statista.com/statistik/daten/studie/1079302/umfrage/durchschnittliche-fahrgeschwindigkeit-zur hauptverkehrszeit-in-deutschen-grossstaedten/ [last accessed on 4 February 2026] (in Germany)

Air travel has doubled within ten years, from 2.25 billion passengers in 2009 to 4.56 billion in 2019.[16] Less than 20% of the world's population has ever flown, although participants usually overestimate this share.[17] An Airbus A380 weighs about 560 tons and reaching an altitude of around 10,000 metres requires a huge amount of jet fuel, while greenhouse gas emissions at this altitude are more harmful to the climate than at ground level. The flightradar24.com app can be used to show how many planes are in the air worldwide at any moment and to illustrate the scale of air traffic.

Each person has an annual CO_2 budget of about 1.5 tons if global warming is to be limited to 1.5°C.[18]
A return flight from Copenhagen to Madrid already uses almost half of this annual budget, which also needs to cover emissions from accommodation, food and other activities.[19] Greenhouse gas emissions per capita by country are available here :

https://en.wikipedia.org/wiki/List_of_countries_by_carbon_dioxide_emissions_per_capita.

16 https://de.statista.com/statistik/daten/studie/1079302/umfrage/durchschnittliche-fahrgeschwindigkeit-zur hauptverkehrszeit-in-deutschen-grossstaedten/ [last accessed on 4 February 2026](in Germany) https://data.worldbank.org/indicator/IS.AIR.PSGR?end=2020&start=1970&view=chart [last accessed on 4 February 2026]
17 https://www.atmosfair.de/en/green_travel/annual_climate_budget/ [last accessed on 4 February 2026]
18 https://www.atmosfair.de/en/green_travel/annual_climate_budget/ [last accessed on 4 February 2026]
19 Cf. https://co2.myclimate.org/en/flight_calculators/new

4

NUTRITION AND CLIMATE CHANGE

Enjoy your meal! The climate is at the table

Participants explore the climate impact of different foods by examining the greenhouse gas (GHG) emissions produced during their production. Using cubes and replica items, they match each food to its corresponding emissions, discuss the reasons for the differences, and consider factors such as production, transport, and processing.

In small groups, participants reflect on how their everyday food choices affect the environment. Through hands-on activities and guided discussions, they gain practical insights into adopting a climate-friendly diet and develop a deeper understanding of the connection between personal habits and global climate outcomes.

Time required 20-30 minutes

Method Interactive game

Materials

Foam or cardboard cubes with the following side lengths [20] :

- Fresh vegetables : 0.53 cm
- Fresh fruit : 1.05 cm
- Wheat and rye : 1.57 cm
- Milk : 3.15 cm
- Eggs : 4.67 cm
- Beef : 99.48 cm

Replica food items or printed images for each food type
Flip-chart or whiteboard for discussion



Preparation :

- Produce cubes from cardboard (or similar material)
- Procure suitable replica food items or printouts of images; real food can also be used if it won't go to waste (e.g., cooked afterwards)



Opening (5 minutes)

To introduce the topic, team leaders can use guiding questions adapted to the age of participants.

For younger participants :

→ The farming sector is responsible for producing the food we eat. What kind of food did you eat yesterday?
(The responses will provide an initial overview of different food items.)



For older participants :

→ What kind of food do you think is better for the climate? Which is worse?

20 Poore, J., & Nemecek, T. (2018). Reducing food's environmental impacts through producers and consumers. Science, 360(6392), 987–992. Available at : https://science.sciencemag.org/content/360/6392/987 [last accessed on 4 February 2026]; see also : https://ourworldindata.org/explorers/food-footprints [last accessed on 4 February 2026]

A follow-up question can be :

→ Can you imagine why or how the foods you just mentioned create greenhouse gas emissions?
These questions help participants understand that several factors are involved, such as crop production, animal husbandry, processing, packaging, transportation, and animal feed.

Aim of the game

Participants will :

- Understand how the production of different foods contributes to greenhouse gas emissions
- Explore the factors affecting food-related emissions, including production, transport, and processing
- Learn how to make climate-friendly dietary choices

Process

Step 1 : Matching foods to emissions

Participants are invited to estimate the amount of harmful GHG emissions produced by 1kg of vegetables, fruit, bread, milk, eggs, and cow (beef). The values used are global averages, calculated based on multiple aspects, including :

- Changes in land use (e.g., soybean farming on cleared rainforest areas).
- Fertilizer use or emissions caused by liquid manure.
- Production of animal feed.
- Transportation from farms to food retailers (not including transport to homes)
- Packaging.
- Food retail (energy used in supermarkets, for example for refrigeration). [21]

The six cubes representing emissions are arranged in a row according to size. Each group receives replica food items or images and is asked to match each food item to one of the cubes. Other group members can advise them. Once all matches are made, the order is checked. If errors are made, facilitators may provide hints such as :
→ You've matched four foods correctly; two are incorrect. Why not take another look?
Participants then rematch the items until they arrive at the correct solution. If time runs out, facilitators can match the items themselves.
During the matching process, facilitators can encourage participants with guiding questions. Any answers can be supplemented as needed:

→ Why has the cow been matched to the largest cube?

Cows are ruminants, which means they produce large amounts of methane during digestion, both when they belch and break wind. Their manure also emits nitrogen compounds. In addition to CO_2, cows produce other greenhouse gases, including methane and nitrous oxide, all of which contribute significantly to climate change. Grazing land is often fertilised, adding another source of emissions. A single cow living for a year emits enough methane to have roughly the same climate impact as a car travelling around 18,000 km. Methane is 21 times more harmful to the climate than CO_2.
Cows also require huge amounts of feed throughout their lives, which must often be transported from feed producers to farms, adding more emissions. All of these factors together make cows the most emission-intensive food in this activity.

21 Cf. Hannah Ritchie (2022) : FAQs on the Environmental Impacts of Food. Our World in Data. Online : https://ourworldindata.org/faqs-environmental-impacts-food [last accessed on 4 February 2026]

→ Look at the difference between the cube with the beef and the cube with the milk. Why do you think the difference is so great?

The difference comes from how the products are produced and the time it takes. A dairy cow produces between 15 and 40 litres of milk per day, depending on its productivity. For example, if a cow produces around 24 litres per day, each litre only "carries" a small fraction of the methane it emits through belching and breaking wind.
Beef, however, grows much more slowly. A cow raised for beef will emit methane over its entire growth period, which results in far higher emissions per kilogram of meat. Essentially, milk production spreads emissions over many litres, whereas beef production concentrates emissions into a smaller amount of food, making its climate impact per kilogram much higher.

→ Why are vegetables more climate-friendly than fruit?

This largely depends on where and how the foods are produced. Vegetables often have a slightly lower carbon footprint because they are more commonly grown locally, which reduces transportation distances. Many fruits, especially exotic ones like pineapple, mango, or banana, don't grow in Europe and must be imported, increasing their emissions from long-distance transport.
There are also big differences depending on growing methods. For example, sun-ripened tomatoes grown outdoors require far less energy than tomatoes grown in heated greenhouses. Seasonal and local production significantly reduces the carbon footprint of vegetables compared to fruit that must travel long distances or be grown in energy-intensive conditions.

→ Why do animal products generally have a larger carbon footprint than plant-based foods? For instance, why are soy cutlets better in this regard than a steak?

Animal products have a bigger climate impact because farmed animals require a lot of energy and resources before we even get meat, milk, or eggs. Most of the soy grown in places like the rainforest isn't eaten directly by people—it's used as animal feed. By contrast, the soy used for soy cutlets is often grown locally, which reduces emissions.
Animals convert only about 10–35% of the energy in their feed into actual meat, milk, or eggs.[22] [23]
The rest is lost through metabolism, maintenance, and growth. Plant-based foods skip this inefficiency and are much less resource-intensive, making them far better for the climate. Using crops directly for human consumption could also feed far more people than if those same crops are used to feed animals.

→ What is bread made of? And why does bread production impact on the climate?

Bread is mainly made of grain, water, and yeast. If the grain is grown locally, its emissions are relatively low. Most of the climate impact comes from baking: bread is typically baked at 200–270°C for up to 50 minutes. Baking uses a lot of energy, usually electricity, which can produce significant greenhouse gas emissions depending on how that electricity is generated.

→ Where do the emissions in chicken farming come from?

Chicken farming, especially in battery systems with tens of thousands of birds, is very energy-intensive. Heating, ventilating, and lighting large barns consumes lots of energy. Chicken manure also produces methane, a potent greenhouse gas.

22 Cf. https://albert-schweitzer-stiftung.de/aktuell/warum-sojawurst-nicht-dem-regenwald-schadet (last accessed 4 February 2026) (in German)
23 https://www.researchgate.net/publication/263192492_Embodied_crop_calories_in_animal_products (last accessed 4 February 2026)

The feed for these chickens—soy, corn, and other grains—is often imported from far away, sometimes from fields that were once rainforest. Eggs from free-range chickens or backyard chickens fed on kitchen scraps generally have a much lower climate impact.

Step 2 : Reflection and discussion

Participants summarise what they have learned and reflect on what should be considered when adopting a climate-friendly diet. When discussing the carbon footprint of individual foods, it should become clear that it makes a significant difference where and how foods are produced.

Discussion points include :

- The impact of farming methods and production conditions on greenhouse gas emissions.
- The climate benefits of regional and seasonal products, due to shorter transport distances and the absence of artificial heating.
- The fact that fresh products are generally better for the climate than frozen foods, as refrigeration is energy-intensive.
- The higher carbon footprint of highly processed foods compared to minimally processed alternatives (e.g. French fries versus potatoes).
- The contribution of transport, packaging, and other energy-intensive processes to overall emissions.
- The disproportionately high share of food-related emissions caused by animal products.

If interest in the subject has not waned, team leaders or facilitators may introduce additional aspects to the discussion :

- The climate-related benefits of regional foods can be largely offset if consumers use their cars to reach the nearest supermarket
- Today, food is transported over ever-increasing distances, especially for out-of-season products
- A concrete example is tomato production: regional outdoor tomatoes generate approximately 85 g CO_2 per kg (conventional) or 35 g CO_2 per kg (organic), whereas tomatoes grown out of season in heated greenhouses produce up to 100 times more CO_2 (organic: 9.2 kg ; conventional: 9.3 kg). [24]
- Butter has a far greater climate impact than margarine.
- In Germany, around 70% of food-related greenhouse gas emissions are caused by animal products, although they account for only about 10% of total food consumption. [25]

Suggested final statement

More than a quarter of all human-made greenhouse gas emissions are linked to food production. Tackling climate change does not mean eating less, but making more conscious, climate-friendly dietary choices. Small changes in what and how we eat can significantly reduce our environmental impact.

Want to know more?

This short video explains the climate impact of meat consumption and explores whether reducing meat intake can make a real difference :
https://youtu.be/F1Hq8eVOMHs

24 Council for Sustainable Development (2022). Organic is not always better: The Council for Sustainable Development recommends regional and seasonal nutrition. Available at : https://www.nachhaltigkeitsrat.de/aktuelles/bio-ist-nicht-immer-besser-rat-fuer-nachhaltige-entwicklung-empfiehlt-regionale-und-saisonale-ernaehrung/?cn-reloaded=1 [last accessed on 4 February 2026]

25 WWF Germany (n.d.). Protecting the climate and biodiversity through healthy nutrition. Available at : https://www.wwf.de/themen-projekte/landwirtschaft/ernaehrung-konsum/besseresserinnen/durch-gesunde-ernaehrung-klima-und-arten-schuetzen [last accessed on 4 February 2026]

Today's environmental, social, and economic challenges call for learning spaces where young people can think critically, act responsibly, and feel empowered to shape their communities. Education is not only about knowledge, but also about values, participation, and real engagement with the world around us.

This toolbox was created to support educators and youth workers in integrating sustainability, citizenship, and social responsibility into everyday activities in a simple and practical way. By connecting learning to real-life situations, local realities, and youth experiences, it encourages dialogue, creativity, and collective action.

May this toolbox serve as a guide, a spark, and a companion for all those committed to fostering sustainability, citizenship, and social responsibility among young people. The work is in your hands—let's shape the future, together.

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