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. 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.

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, FAO), 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?



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 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.

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?

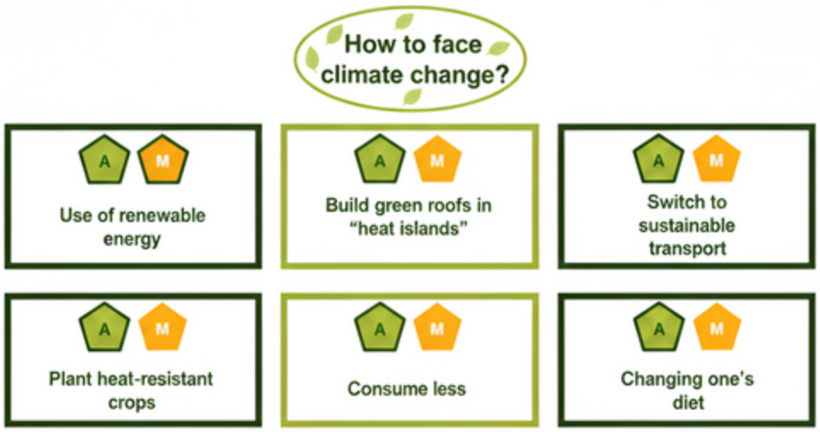
Some solutions require significant financial investment—such as building large-scale renewable energy projects or upgrading infrastructure to make cities more resilient to climate change. Other solutions may require less immediate funding but instead focus on changes in behaviour, practices, or community-level 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).
- Mitigation : Reducing causes of climate change (renewable energy, energy efficiency, sustainable transport).

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

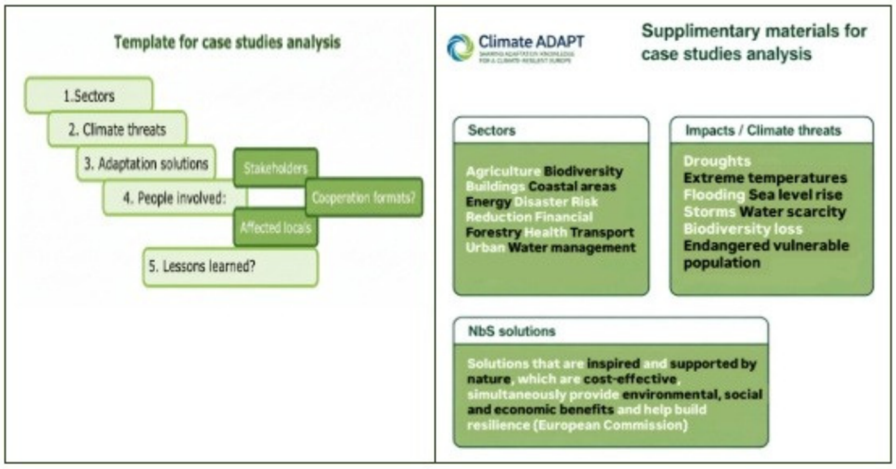


Step 4 : Case Studies – Applying Knowledge

Groups receive 2–3 case studies showing adaptation and mitigation at local, national, or European levels. 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.



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?

Team leaders can explore these reliable resources to prepare and deepen knowledge :

- NASA Climate Kids – https://climatekids.nasa.gov
- Natural Resources Defense Council (NRDC) – https://www.nrdc.org
- National Geographic Kids – https://kids.nationalgeographic.com

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 1.96 m, car 2.60 m, train 12.20 m, coach 19.23 m
- 8 cardboard signs (2 per mode of transport)
- Open space for participants to move



Preparation

- Create cardboard signs for each transport mode and hang them around participants' necks
- Prepare cords/tape measures with lengths corresponding to CO_2 emissions per half gram

Opening (5 minutes)

Participants name the main transport options between two cities: car, coach, train, and plane. Eight volunteers are selected to wear the mode signs. Team leaders explain CO_2 equivalents, including CO_2, methane, and nitrous oxide, and introduce the idea of occupancy: emissions per person decrease when more people share the same vehicle.

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_2 eq). CO_2 is the main greenhouse gas, but not the only one. Scientists combine CO_2 with other gases like 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 consider 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 it 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 have their own half-gram budget, so the total emissions of the vehicle depend on the number of passengers.
- Larger vehicles like coaches or trains use more energy and produce more total emissions than a car, but they transport many people efficiently. For instance, transporting 32 people by coach uses far fewer emissions than 16 cars carrying the same number of people two per car.
- Similarly, a fully-loaded train with hundreds of passengers emits more total greenhouse gases than a car, but 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

Four volunteers are chosen to represent the plane, car, train, and coach. Each wears a cardboard sign for their vehicle and holds one end of a tape measure or cord. Four other participants hold the opposite ends. Explain that each person has 0.5 g of CO_2 equivalents (CO_2eq) to "spend" on travel, which includes CO_2, methane, and nitrous oxide. Introduce the idea of occupancy: the more people in a vehicle, the lower the per-person emissions, which is a key concept for comparing efficiency between cars, trains, and coaches.

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 2.60 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 coach, train, and plane before revealing them.

Step 3 : Guessing other distances

Before rolling out the other three tapes, invite participants to guess how far they could travel by coach, 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 high-altitude effects double the climate impact.
- Additional emissions include nitrogen oxides, soot, and water vapor (the white stripes in the sky).
- Effective distance is halved to 0.96 m, showing the real climate impact per 0.5 g CO_2.

Step 5 : Train and coach

Repeat the simulation for train and coach, following the same process : guess → roll out tape → reveal actual distance → discuss impact. If time is limited, you can mention the coach's carbon footprint without a full demonstration.

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?



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:

- 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 and prepare replica food items or printouts
- Arrange space for 2–3 small groups to work comfortably
- Prepare one row per group to display cubes in order of GHG emissions



Opening (5 minutes)

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

For younger participants :

→ What foods did you eat yesterday?
→ How do you think the production of these foods might affect the environment?



For older participants :

→ Which foods do you think have a bigger impact on the climate?
→ Why might animal products produce more greenhouse gases than plant-based foods?
→ How do factors like transport, processing, or storage contribute to a food's emissions?

This short discussion helps participants recognise the connection between everyday dietary choices and greenhouse gas emissions, and prepares them for the hands-on matching activity.

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 work in small groups to estimate the GHG emissions of 1 kg of vegetables, fruit, bread, milk, eggs, and beef.

- The six cubes representing emissions are arranged in a row by size.
- Each group receives replica food items or images and matches them to the cubes.
- Team leaders encourage discussion and reasoning :

→ Why does beef have the largest cube?

Beef has the highest climate impact because cattle produce large amounts of greenhouse gases throughout their lives. Cows release methane during digestion, and their manure emits additional gases. Methane is far more climate-damaging than carbon dioxide. In addition, beef production requires large areas of land, fertilised grazing fields, and significant amounts of animal feed that often must be transported over long distances. All these factors together make beef the most emission-intensive food in this activity.

→ 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 obtained. A dairy cow produces milk every day for years, so its emissions are spread over many litres. Beef production, however, requires raising an animal for a long time to produce a limited amount of meat. As a result, the emissions per kilogram of beef are much higher than those per litre of milk.

→ Why are vegetables more climate-friendly than fruit?

Vegetables often have a lower climate impact because they are more frequently grown locally and in season. Many fruits, especially exotic ones, need to be transported long distances and stored in refrigerated conditions. In addition, some fruits and vegetables are grown in heated greenhouses, which increases energy use. Therefore, climate impact depends not only on the food type but also on where and how it is produced.

→ 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 require feeding animals first, which makes the production process inefficient. Large amounts of crops, water, and energy are needed to produce a small amount of meat. Much of the energy in animal feed is lost through the animal's metabolism. Plant-based foods are more climate-friendly because they are consumed directly, using fewer resources and producing fewer emissions.

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

Bread is made mainly from grain, water, and yeast. If the grain is produced locally, its climate impact can be relatively low. However, baking bread requires high temperatures for long periods of time, which uses a lot of energy. This energy consumption, especially when it comes from fossil fuels, contributes to greenhouse gas emissions.

→ Where do the emissions in chicken farming come from?

Emissions in chicken farming come from several sources: energy used to heat and ventilate large poultry houses, manure management, and the production of chicken feed. Feed crops often need fertilisers and long-distance transport. Intensive farming systems generally have higher emissions, while smaller-scale or free-range systems can reduce some of these impacts.

Step 2 : Reflection and discussion

Participants summarise what they learned and consider strategies for adopting a climate-friendly diet. Discussion points include :

- The impact of farming methods and location on emissions
- Regional and seasonal products reduce environmental impact
- Fresh products generally have a smaller footprint than frozen or highly processed foods
- Transport, packaging, and energy-intensive processes contribute significantly to emissions
- Animal products account for a disproportionately high share of food-related emissions

Team leaders can also discuss additional points, such as :



- Regional benefits can be offset if cars are used to reach supermarkets
- Long-distance transport of out-of-season produce increases emissions
- Butter has a higher climate impact than margarine
- In Germany, 70% of food-related GHG emissions come from animal products, even though they make up only 10% of total food consumption

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