



# Climate change and sustainability



10-15



6 x 50 min.



copies of exercises; computer; projector;



The module helps teachers to introduce climate change concepts to students and engage them in discussion regarding climate justice and sustainability.



Geography

Physics

Political/social studies

Ethics/values education

History

Philosophy



Co-funded by  
the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.



All contents, in particular texts, pictures and graphics, are protected by copyright. Unless expressly stated otherwise, copyright is held by reflections.eduskills.plus and is licensed under Creative Commons Attribution - Non-commercial - Distribution under the same conditions 4.0 International license. They may be subject to the terms of the license.

# Introduction

## Background information and didactical perspective

The main cause of climatic changes is the excessive emission of carbon dioxide (CO<sub>2</sub>) and the resulting intensification of the greenhouse effect. The use of fossil fuels, deforestation of rainforests and livestock farming are increasingly contributing to global warming. The average global temperature has risen by 0.85° since the end of the 19th century, which has drastic effects on the environment. Glacier melt, extreme droughts and rising sea levels are just a few examples of the ecological consequences of global warming. The materials serve to creatively explore the topic of "Climate Change and Sustainability". They contain leading ideas, discussion plans, exercises and suggestions for various activities that are intended to enable pupils to reflect together and to deal with the concepts independently and interactively through philosophical dialogue. One aim is raising awareness and understanding for the effects of climate change to promote behavioural change and actions needed.

## Learning outcomes

### Competencies

Critical thinking, creative and caring thinking, dialogical skills, analytical skills, problem solving, reasoning skills, recognize connections, empathy, recognize cause and effect relationships, draw on own experience - observe, analyse, describe.

### Topics / National curriculum

Ethically responsible and engaged:

Actions that can be taken individually and collectively

Ethically responsible behaviour

Getting engaged and taking action

## Lesson plan

### Abbreviations:

**A** = Activity

**D** = Discussion

**GW** = Group work

**IW** = Individual work

**HW** = Homework

**PW** = Partnerwork

**PTS** = Previous Teacher's Study

**PO** = Pupils opinions

**PP** = Pupil's presentations

**TP** = Teacher's presentation

# Lesson No 1 : Climate change

Phase	Content	Media, Material
Introduction (10 min.)  <b>PTS</b> <b>TP</b> <b>A</b>	<p><b>Previous activity</b></p> <ul style="list-style-type: none"><li>Teacher studies previously the leading idea <b>M1</b> ("Climate Change – what does it mean?") in order to raise awareness in the students during the discussion raised by the exercise and activities.</li></ul> <p><b>Preparation</b></p> <ul style="list-style-type: none"><li>Print questions A&amp;B from exercises <b>M2</b> and <b>M3</b>, prepare chalkboard or flip chart</li></ul> <p><b>Execution</b></p> <ul style="list-style-type: none"><li>Teacher hands out exercise <b>M2</b>. After that the teacher invites pupils to discuss with classmates the issues.</li></ul>	<p><b>M1</b> Leading Idea "Climate Change – what does it mean?"</p> <p><b>M2</b> Exercise "Climate change"</p>
Work phase (20 min.)  <b>A</b> <b>GW</b>	<p><b>Step 1</b> Teacher hands out exercise <b>M3</b>.</p> <p><b>Step 2</b> Students think about the questions and then they build two groups. Each group will write a list of 10 things with their suggestions how to reduce climate change.</p>	<p><b>M3</b> Activities "What can we do to reduce climate change?"</p>
Discussion (20 min.)  <b>D</b>	<ul style="list-style-type: none"><li>Discussion of the suggestions and giving reasons, why the ideas may help.</li></ul>	<p><b>M3</b> Activities "What can we do to reduce climate change?"</p>

## Lesson No 2 : The causes of climate change – global warming and its consequences

Phase	Content	Media, Material
Introduction (10 min.) <b>PTS TP</b>	<p><b>Previous activity</b></p> <ul style="list-style-type: none"><li>Teacher previously studies the leading idea <b>M4</b> ("The Causes of Climate Change – Global warming and its consequences" to guide students during the discussion.</li></ul> <p><b>Preparation</b></p> <ul style="list-style-type: none"><li>Printed copies and other possibility to show <b>M5</b> like projector, computer</li></ul> <p><b>Execution</b></p> <ul style="list-style-type: none"><li>Teacher introduces the topic to the pupils with aid of <b>M5</b>.</li></ul>	<p><b>M4</b> Leading Idea "The Causes of Climate Change – Global warming and its consequences"</p> <p><b>M5</b> "Social and Economic Impact of Climate Change"</p>
Work phase (25 min.) <b>A</b>	<p><b>Step 1</b> After introducing the topic with the help of <b>M5</b>, the teacher hands out exercise <b>M6</b>. <b>M5</b> is projected on the wall.</p> <p><b>Step 2</b> Students work individually on the exercise and answer the questions.</p>	<p><b>M6</b> Exercise "Consequences of global warming"</p>
Discussion (15 min.) <b>GW</b>	<ul style="list-style-type: none"><li>Students should present their answers and discuss and reflect on them with their classmates.</li></ul>	<p><b>M6</b> Exercise "Consequences of global warming"</p>

## Lesson No 3 : Global fairness

Phase	Content	Media, Material
Introduction (10 min.) <b>TP</b>	<p><b>Previous activity</b></p> <ul style="list-style-type: none"><li>Teacher studies previously the leading idea <b>M7</b> ("Global Fairness") to have a guide encompassing the session.</li></ul> <p><b>Preparation</b></p> <ul style="list-style-type: none"><li>Printed copies or other possibility to show <b>M7</b> and <b>M8</b>, clean black board</li></ul> <p><b>Execution</b></p> <ul style="list-style-type: none"><li>Teacher introduces the topic to the pupils.</li></ul>	<b>M7</b> Leading Idea "Global Fairness"
Work phase (15 min.) <b>PO</b>	<ul style="list-style-type: none"><li>After introducing the topic, the teacher shows students <b>M8</b> and they can name countries that they think are polluting the most.</li></ul>	<b>M8</b> "Global carbon dioxide emissions by country"
Discussion (25 min.) <b>D</b>	<ul style="list-style-type: none"><li>Teacher invites pupils to discuss with classmates the questions of the exercise Global Fairness and asks them for suggestions for Global Fairness Initiatives.</li></ul>	<b>M9</b> Exercise "Global Fairness"

## Lesson No 4 : Climate Justice

Phase	Content	Media, Material
Introduction (15 min.) <b>PTS</b> <b>TP</b>	<p><b>Previous activity</b></p> <ul style="list-style-type: none"><li>Teacher studies previously the leading idea <b>M9</b> ("Climate Justice") to acquire some basic understanding regarding the topic.</li></ul> <p><b>Preparation</b></p> <ul style="list-style-type: none"><li>Printed copies or other possibility to show <b>M10</b> and <b>M11</b>, clean black board</li></ul> <p><b>Execution</b></p> <p><b>Step 1</b> The teacher gives a short introduction to the class on what "Climate Justice" is using the information in <b>M10</b>.</p> <p><b>Step 2</b> The teacher hands out a copy of <b>M11</b> to each student and asks the students to read through the questions.</p>	<p><b>M9</b> Exercise "Global Fairness"</p> <p><b>M10</b> Leading Idea "Climate Justice"</p> <p><b>M11</b> Exercise "Climate Justice"</p>
Work phase (15 min.) <b>PW</b>	<ul style="list-style-type: none"><li>Students work individually. They are asked to think about how the questions and get into dialogue with their neighbour.</li></ul>	<p><b>M11</b> Exercise "Climate Justice"</p>
Discussion (20 min.) <b>D</b>	<ul style="list-style-type: none"><li>The teacher encourages discussion among the students about the questions. Students think together and should give good reasons.</li></ul>	<p><b>M11</b> Exercise "Climate Justice"</p>

## Lesson No 5 : Reducing your carbon footprint – responsibility for future generations

Phase	Content	Media, Material
Introduction (10 min.)  PTS TP A	<p><b>Previous activity</b></p> <ul style="list-style-type: none"> <li>Teacher studies previously the leading idea <b>M12</b> ("Reducing the carbon footprint") to acquire some basic understanding regarding the topic.</li> </ul> <p><b>Preparation</b></p> <ul style="list-style-type: none"> <li>Printed copies or other possibility to show <b>M14</b>, clean black board</li> </ul> <p><b>Execution</b></p> <p><b>Step 1</b> The teacher gives a short introduction to the class on what a carbon footprint is using the information in <b>M12</b>.</p> <p><b>Step 2</b> The teacher hands out a copy of <b>M13</b> to each student and asks the students to think about the questions.</p>	<p><b>M12</b> Leading Idea "Reducing the carbon footprint"</p> <p><b>M13</b> Exercise "Reducing the carbon footprint"</p>
Discussion (10 min.)  D	<p><b>Step 1</b> Ask the class how they would evaluate their carbon footprint.</p> <p><b>Step 2</b> Following the first round of discussion, the students will think about the ways of leaving footprints.</p>	<p><b>M14</b> Exercise "What ways of leaving a carbon footprint do you know?"</p>
Work phase (15 min.)  A	<p><b>Step 1</b> Each student creates his/her own carbon footprint poster which they can hang up. Not all measures will be the same since every student lives a different life. The base model could be a foot sole with things they can do to reduce their carbon footprint around it. It could look a little like this. Encourage them to draw and add lots of colours. It should be something that they created themselves which they can look at every day.</p> <p><b>Step 2</b> Each student should assess what their estimated carbon footprint and can use one of the online carbon footprint calculators.</p>	<p><b>M15</b> Group work "Reducing your carbon footprint"</p> <p><b>Additional material</b></p> <ul style="list-style-type: none"> <li><a href="#">Footprint Calculator</a></li> </ul>
Discussion (15 min.)  D	<ul style="list-style-type: none"> <li>The teacher encourages the discussion among the students about the questions. Students think together giving reasons.</li> </ul>	<p><b>M16</b> Leading Idea "Responsibility for Future Generations"</p> <p><b>M17</b> Exercise "Responsibility for Future Generations"</p>

## Lesson No 6 : Sustainability

Phase	Content	Media, Material
Introduction (25 min.)  PTS TP A	<p><b>Previous activity</b></p> <ul style="list-style-type: none"> <li>Teacher studies previously the leading ideas <b>M18</b> ("Sustainability") and <b>M20</b> ("The Sustainable Development Goals (SDG's)") to acquire some basic understanding regarding the topics.</li> </ul> <p><b>Preparation</b></p> <ul style="list-style-type: none"> <li>Prepare a circle of chairs, hand out a copy of the 17 Development Goals and a copy of each exercise to each pupil</li> </ul> <p><b>Execution</b></p> <p><b>Step 1</b> The teacher gives a short introduction to the class on what "Sustainability" is using the information in <b>M18</b>.</p> <p><b>Step 2</b> The teacher hands out a copy of <b>M19</b> to each student and asks the students to think about the questions and discuss them together.</p>	<p><b>M18</b> Leading Idea "Sustainability"</p> <p><b>M19</b> Exercise "Sustainable development"</p> <p><b>M20</b> Leading Idea "The Sustainable Development Goals (SDG's)"</p>
Work phase (25 min.)  TP A	<p><b>Step 1</b> Teacher hands out a copy of the 17 Development Goals (<b>M21</b>) to each pupil and introduces the subject <b>M18</b>. Then they watch the film <b>M23</b>.</p> <p><b>Step 2</b> Students read the Global Goals for Sustainable Development aloud - teacher invites pupils to discuss the questions of the exercise <b>M22</b>.</p>	<p><b>M18</b> Leading Idea "Sustainability"</p> <p><b>M21</b> "The Sustainable Development Goals (SDG's)"</p> <p><b>M22</b> Exercise "The Sustainable Development Goals (SDG's)"</p> <p><b>M23</b> Activity film: "The Sustainable Development Goals (SDG's)"</p>
Homework  HW	<ul style="list-style-type: none"> <li>Identify and describe what you think to be the most pressing actual or underlying problem related to the environment today, and explain why you take that to be the most pressing problem. So, for instance, if you think overpopulation is at the source, talk about that. Or perhaps, you will argue that patriarchal thinking and justification is the root cause of environmental degradation. Whatever you choose, say enough about it that a reader can understand what you're claiming and why.</li> </ul>	<p><b>M21</b> "The Sustainable Development Goals (SDG's)"</p> <p><b>M23</b> Activity film: "The Sustainable Development Goals (SDG's)"</p>



# M1 Leading Idea “Climate Change – what does it mean?”

Climate Change is one of the greatest challenges of the 21st century. It is a global emergency that goes beyond national borders. It is an issue that requires international cooperation and coordinated solutions at all levels. It must be understood as a global and social problem. Despite the United Nations Paris Agreement, greenhouse gases are still rising. The world is warming up faster and faster. Around the world, the increase in extreme weather events and their aftermath are having an immediate impact on nature and society. In many countries around the world, the consequences of global warming are already felt. Heat waves and droughts, rising sea levels induced by melting glaciers, food shortages and diseases. The poorest countries, so-called developing nations, are particularly affected. On the one hand they do not contribute to the current emissions of Carbon Dioxide, and on the other hand they do not have the necessary means to adapt to this new environment.

Since the late 19th century, the planet's average surface temperature has raised about 1.18°C. This is driven largely by increased carbon dioxide emissions into the atmosphere. Most of the warming occurred in the past 40 years. In the coming years, the situation may deteriorate even further. The last seven years have been the warmest on record. Humanity needs to reduce greenhouse-gas emissions by at least 80% by 2050 in order to have a chance of staying below an average temperature rise of over 2°C.

Climate Change policy discussion is dominated by questions about equity and responsibility. The consequences of climate change and the inequitable distribution of damages make it clear that the future debate about global justice will take on an important status.

Ecological ethics discusses the question of global and local responsibility for climate protection:

How can emissions be reduced? How can unjust distribution and wasteful use of energy be reduced or ended? What does responsibility for future generations mean? The relevant principles of justice include principles of compensatory justice as well as distributive justice. Does the goal formulated in the European Green Deal go in this direction? What does the new and sustainable growth strategy mean? Will there be a social Green Deal with the commitment of “Leaving no one behind”? Which measures are ecologically effective and socially just?

## What is the difference between climate and weather?

Weather is temporary and a specific event that occurs within a few hours, days or weeks, such as a heavy rain or a hot day.

Climate describes typical weather conditions for an entire region over a long period of time (30 years or more).

### Sources:

IPCC: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp. 2014.

Global Climate Change: Evidence." NASA What's the difference between climate change and global warming? Jet Propulsion Laboratory / National Aeronautics and Space Administration, Web. 29 Apr. 2021. <https://climate.nasa.gov/faq/12/whats-the-difference-between-climate-change-and-global-warming>

Norton, B. Searching for Sustainability. Cambridge University Press. New York. 2003.

## M2 Exercise “Climate change”

1. What does climate change mean?
2. What is climate change?
3. Why is climate change a serious problem?
4. How do we recognize that climate change is happening?
5. Why does the planet get warmer and warmer?
6. How can we reduce greenhouse gases?
7. What is the difference between climate change and global warming?

### Sources:

IPCC: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp. 2014.

Global Climate Change: Evidence." NASA What's the difference between climate change and global warming? Jet Propulsion Laboratory / National Aeronautics and Space Administration, Web. 29 Apr. 2021. <https://climate.nasa.gov/faq/12/whats-the-difference-between-climate-change-and-global-warming>

Norton, B. Searching for Sustainability. Cambridge University Press. New York. 2003.

# M3 Activities “What can we do to reduce climate change?”

1. Which tips can you give to reduce climate change?

2. What are some ideas that you might have?

- Try to find precise activities such as “walk and bike more” rather than broad statements.
- Try to find one activity which you can do today that helps to reduce climate change.

3. Build two groups. Each group should write a list with at least 10 things one can do to reduce climate change. Discuss the suggestions and give reasons, why the ideas may help.

**Sources:**

IPCC: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp. 2014.

Global Climate Change: Evidence." NASA What's the difference between climate change and global warming? Jet Propulsion Laboratory / National Aeronautics and Space Administration, Web. 29 Apr. 2021. <https://climate.nasa.gov/faq/12/whats-the-difference-between-climate-change-and-global-warming>

Norton, B. Searching for Sustainability. Cambridge University Press. New York. 2003.

# M4 Leading Idea “The Causes of Climate Change – Global warming and its consequences”

Scientific communities around the world agree that Climate Change is not only happening but that it has catastrophic consequences for the planet. Responsible for this are greenhouse gases which are pumped into the atmosphere because of human activity. Carbon Dioxide makes up for the largest part of greenhouse gases – which has been found to have the biggest concentration level in our atmosphere ever. Greenhouse gases prevent heat escaping into space which warms up our earth’s temperature.

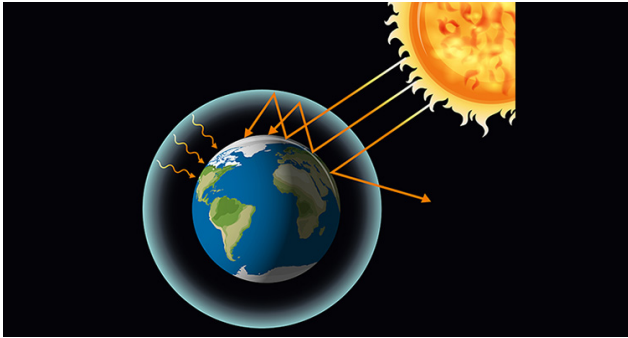
## Consequences of changing the natural atmospheric greenhouse are:

- Earth is becoming warmer. Warmer conditions leads to more evaporation and precipitation overall, but individual regions are becoming dryer.
- A stronger greenhouse effect contributes to sea level rise, because it warms the ocean and melts glaciers and ice sheets, increasing sea level.
- A stronger greenhouse effect contributes to climate extremes, such as droughts, floods and extreme temperatures.
- A stronger greenhouse effect leads to crop losses and threaten the livelihoods of agricultural producers and the food security of communities worldwide.

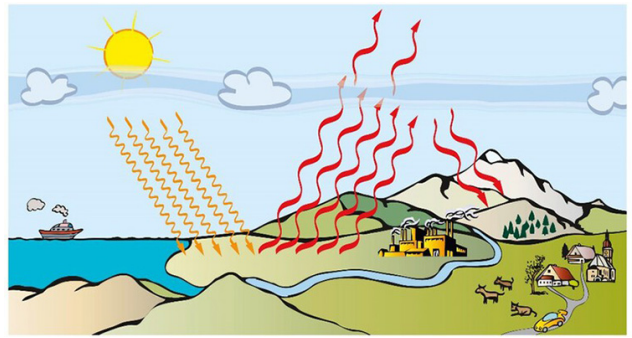
### Sources:

Shue, H. Global Environment and International Inequality. *International Affairs* (Royal Institute of International Affairs 1944), 75(3), 531-545. 1999.  
Union of Concerned Scientists. 2021. Each Country's Share of CO<sub>2</sub> Emissions, <https://www.ucsusa.org/resources/each-countrys-share-co2-emissions>  
Worldmapper. 2021. CO<sub>2</sub> Emissions per capita 2016, <https://worldmapper.org/maps/emissions-co2-relative-2016/>  
Gardiner, S. 'Ethics and Global Climate Change', *Ethics*, 114: 555–600.

## M5 “Social and Economic Impact of Climate Change”



© <https://www.freepik.com>



© VERBUND-Klimaschule des Nationalparks Hohe Tauern (CC BY-NC-ND 4.0)

<https://www.klima.schule/newsarchiv/der-mini-treibhauseffekt-zum-selbermachen,2.html>

The images depict the greenhouse effect. Sunlight passes through the atmosphere and is absorbed by the Earth's surface, warming it. Greenhouse gases, such as carbon dioxide are acting like a blanket which prevents heat escaping into space, thus unnaturally heating up earth. The greenhouse effect itself is natural and helps the earth accommodate appropriate temperatures. The problem arises when there is an excess of carbon dioxide which cannot be absorbed by the ocean and plants. As a result, we have ever larger growing numbers of CO<sub>2</sub> concentration in our atmosphere and thus a warmer planet.

## Potential Climate Change Impact



© <https://www.freepik.com>

## Climate Change worldwide

The map shows the world's top climate risks by 2040. <https://www.nytimes.com/2021/03/25/learning/whats-going-on-in-this-graph-global-climate-risks.html>

Also see the Climate Impact Map that quantify the impacts of global climate change on sectors and communities: <https://impactlab.org/map/#usmeas=absolute&usyear=1981-2010&gmeas=absolute&gyear=1986-2005&tab=global>.

# M6 Exercise “Consequences of global warming”

1. What changes will the Green House effect have on the environment? Please give some examples.

2. Will people be affected and if so, which regions will suffer most from climate change?

3. What are the signs of global warming locally and globally?

4. Who bears most responsibility for climate change?

5. How can we protect ourselves from the problems that will arise from climate change?

6. What do the different nations do about global warming? Please do some research!

7. What can we do for the people in developing nations to save them from global warming?

8. What do you know about global warming?

**Sources:**

Shue, H. Global Environment and International Inequality. *International Affairs* (Royal Institute of International Affairs 1944), 75(3), 531-545. 1999.  
Union of Concerned Scientists. 2021. Each Country's Share of CO2 Emissions, <https://www.ucsusa.org/resources/each-countrys-share-co2-emissions>  
Worldmapper. 2021. CO<sub>2</sub> Emissions per capita 2016, <https://worldmapper.org/maps/emissions-co2-relative-2016/>  
Gardiner, S. 'Ethics and Global Climate Change', *Ethics*, 114: 555–600. 2004.



## M7 Leading Idea “Global Fairness”

As most students probably already know, not every country on this planet contributes the same or comparative amounts of CO<sub>2</sub> to the atmosphere. Some countries produce a disproportionate amount of greenhouse gases in comparison to others. As seen on table **M8** China, the United States and the highly developed Nations of the world are the biggest contributors of carbon dioxide emissions. This clearly shows that climate change is a problem largely caused by highly developed, rich, and powerful nations. The problem arising out of this situation is that other countries around the world must suffer the consequences of climate change and pollution produced by a small number of countries. **M8** shows a disparity not only between single countries but also the disparity between continents. The bigger a country portrayed, the higher its carbon dioxide output. The size difference between North America and South America or Europe and Africa are immediately apparent.

There are Global Fairness Initiatives that promote a more equitable, sustainable approach to economic development for the world’s working poor by advancing fair wages, equal access to markets, and balanced public policy to generate opportunity and end the cycle of poverty.

### Sources:

Rawls, J. A Theory of Justice. Harvard University Press. Harvard. 1971.

Rawls, J. Justice as Fairness. Harvard University Press. Harvard. 2001.

Baatz, C. Climate Change and Individual Duties to Reduce GHG Emissions. Ethics, Policy & Environment, 17(1), pp.1-19. 2014.

Gardiner, S. “A Perfect Moral Storm: Climate Change, Intergenerational Ethics and the Problem of Moral Corruption.” Environmental Values, vol. 15, no. 3, pp. 397–413. 2006.

# M8 “Global carbon dioxide emissions by country”

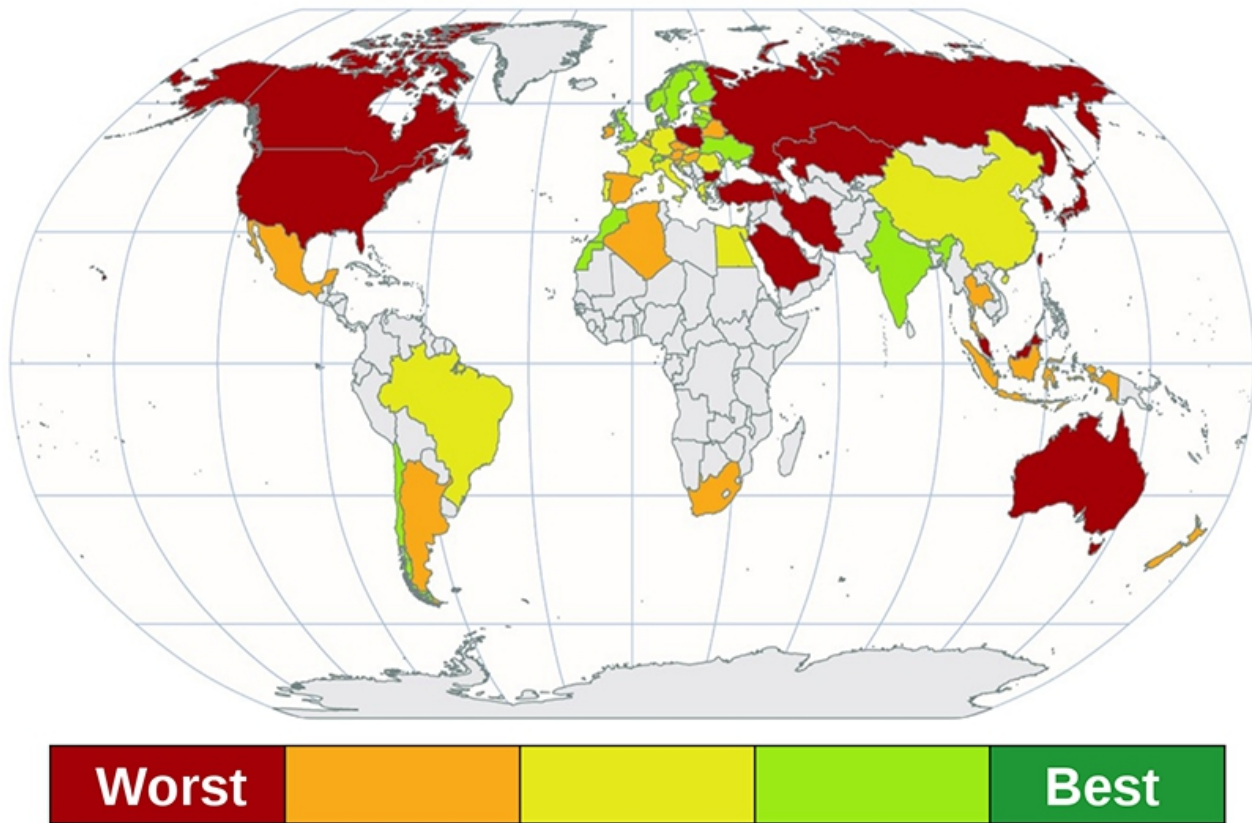
## “Global carbon dioxide emissions by country”

This map of Europe shows the carbon dioxide emissions of each country as a percentage. The darker a country is marked, the greater its carbon dioxide emissions.

<https://vividmaps.com/carbon-dioxide-emissions-european-countries/>

## Climate Change Performance Index 2020

### Climate Change Performance Index 2020



© Efbrazil, CC BY-SA 4.0 , via Wikimedia Commons

## M9 Exercise “Global Fairness”

1. What do you think can Global Fairness Initiatives do to promote a more equitable approach to economic development?
2. What does fairness mean?
3. What does global fairness mean?
4. Can you explain what constitutes a fair response to climate change?

# M10 Leading Idea “Climate Justice”

Climate justice is about striking a fair balance between rich and poor countries. Climate justice recognises the climate crisis as a social and political problem, as well as an environmental one. It acknowledges that different communities feel the effects of the climate crisis differently, and that the responsibility for the crisis rests with some countries and companies more than others. Climate change is a consequence of the way of life within the industrialized countries of the Global North. Greenhouse gases are produced here and subsequently enter the atmosphere. The consequences of this process for the climate system know no national borders. The world’s poor countries contribute little to per capita greenhouse gas emissions, but on the other hand are particularly hard hit by the effects of climate change because of their climatic situation. Within the political arena, there has been discussion about an equitable distribution solution.

One solution is seen in distributing the emission rights equally to every single person on earth. However, this seemingly fair idea is fraught with serious problems.

Should less affluent people be given a larger share of emission rights because they are more affected by climate change?

Should a minimum standard of wealth be included because people living below that minimum standard would be unlikely to implement the measures?

Should Western industrialized countries be held more accountable because they have emitted an excess of CO<sub>2</sub> for decades and thus contributed significantly to the worsening situation?

It is important to remember, however, that the implementation of these measures would theoretically be tantamount to a free pass for developing countries and would present the industrialized countries of the North with an almost impossible task. Developing countries are likely to increase their greenhouse gas emissions considerably in some cases, while Western industrialized countries, on the other hand, would have to reduce their greenhouse gas emissions by up to 95 percent.

## Sources:

Aksyutin, O. THE CARBON FOOTPRINT OF NATURAL GAS AND ITS ROLE IN THE CARBON FOOTPRINT OF ENERGY PRODUCTION. International Journal of GEOMATE, 15(48). 2018.

Schwenkenbecher, A. Is there an obligation to reduce one's individual carbon footprint? Critical Review of International Social and Political Philosophy, 17:2, 168-188. 2014.

Erickson, L. Reducing greenhouse gas emissions and improving air quality: Two global challenges. Environmental Progress & Sustainable Energy, 36(4), pp.982-988. 2017.

Cripps, E. Climate change and the moral agent. Oxford: Oxford University Press. 2013.

# M11 Exercise “Climate Justice”

1. How could rich countries contribute to more equity on climate change?
2. Why are rich countries more called upon to take action against climate change?
3. How does climate impact people differently?
4. How has the concept of climate justice been developed?
5. What does the climate justice movement want?
6. What does climate justice mean?

## Sources:

Aksyutin, O. THE CARBON FOOTPRINT OF NATURAL GAS AND ITS ROLE IN THE CARBON FOOTPRINT OF ENERGY PRODUCTION. International Journal of GEOMATE, 15(48). 2018.

Schwenkenbecher, A. Is there an obligation to reduce one's individual carbon footprint? Critical Review of International Social and Political Philosophy, 17:2, 168-188. 2014.

Erickson, L. Reducing greenhouse gas emissions and improving air quality: Two global challenges. Environmental Progress & Sustainable Energy, 36(4), pp.982-988. 2017.

Cripps, E. Climate change and the moral agent. Oxford: Oxford University Press. 2013.

# M12 Leading Idea “Reducing the carbon footprint”

Since climate change can feel like a very big and far away problem it can also feel like there is no way of taking action against it. But there are multiple ways of tackling this issue either by taking larger or smaller steps. We can save energy by riding a bike instead of riding a car or using less hot water and keeping thermostats at an appropriate temperature in the winter. These steps are also what is known as reducing the “carbon footprint”. The carbon footprint refers to the amount of fossil fuels or energy which you personally consume due to your behaviour. On a personal level reducing your carbon footprint might seem small and insignificant but imagine if every person in your school, district, city or even country did it. If everyone would just change small habits in their everyday life we could help reduce carbon dioxide emissions and ultimately help the planet.

**Sources:**

Wackernagel, M. & Rees, W. Our Ecological Footprint: reducing human impact on the Earth. Philadelphia, PA: New Society Publishers. 1996.

Wackernagel, M. & Beyers, B. Ecological Footprint: Managing Our Biocapacity Budget. Hamburg: CEP 2019.

Schwenkenbecher, A. Is there an obligation to reduce one's individual carbon footprint? Critical Review of International Social and Political Philosophy, 17:2, 168-188. 2014.

## M13 Exercise “Reducing the carbon footprint”

1. Why should someone be concerned with the size of the carbon footprint?
2. How can someone help decrease the carbon footprint?
3. Why should each individual minimize the ecological footprint?
4. Should each individual be held responsible for their ecological footprint?
5. Why do not all people have the same opportunity to adapt their behaviour?

**Source:**

Institut-Escola Les Vinyes, <https://agora.xtec.cat/ielesvinyes/>

# M14 Exercise “What ways of leaving a carbon footprint do you know?”

There are multiple ways in which you can contribute to a large production of carbon dioxide or in other words: there are multiple parts to your carbon footprint. The most common ways of large energy consumption are cars, electricity, water waste, food waste, use of non-renewable packaging such as plastic bags and so on.

What ways of leaving a carbon footprint do you know?



Here you can calculate your own ecological footprint and see how many planets are needed, if we lived like you:

[www.footprintcalculator.org](http://www.footprintcalculator.org).

**Sources:**

Wackernagel, M. & Rees, W. Our Ecological Footprint: reducing human impact on the Earth. Philadelphia, PA: New Society Publishers. 1996.

Wackernagel, M. & Beyers, B. Ecological Footprint: Managing Our Biocapacity Budget. Hamburg: CEP 2019.

Schwenkenbecher, A. Is there an obligation to reduce one's individual carbon footprint? Critical Review of International Social and Political Philosophy, 17:2, 168-188. 2014.

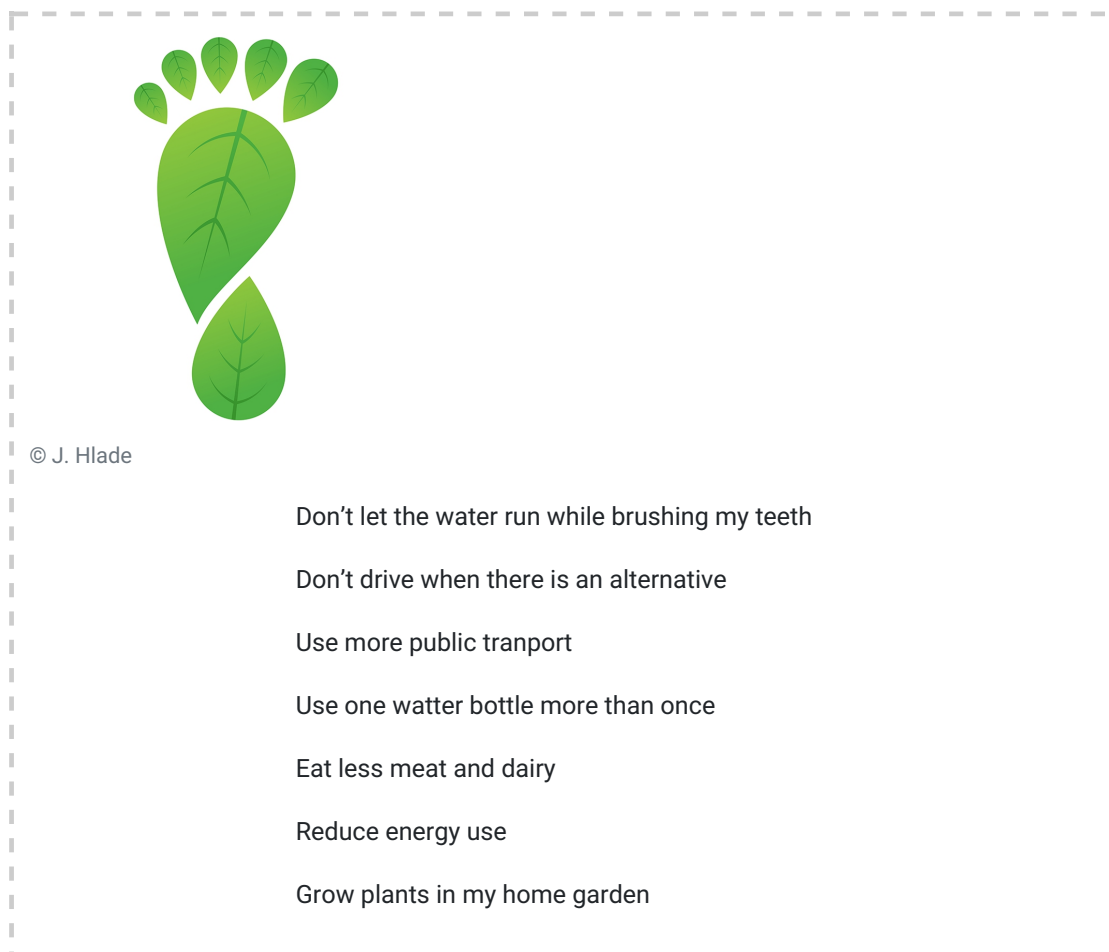


# M15 Group work “Reducing your carbon footprint”

Let each student create their own carbon footprint poster which they can hang up in their homes. Not all measures will be the same since every student lives a different life.

The base model could be a foot sole with things they can do to reduce their carbon footprint around it. It could look a little like this.

Encourage them to draw and add lots of colours. It should be something that they created themselves which they can look at every day.



# M16 Leading Idea “Responsibility for Future Generations”

Governments around the world negotiate the future of our planet, but one important group of our society is often missing in these negotiations—children and adolescents. However, the responsibility to deal with the arising problems lies not with adolescents in the different countries. Adults have the responsibilities for future generations and should be the ones who ultimately have to implement and achieve the global agreements and goals. For this reason and in regard to intergenerational justice, it is necessary to face each other more directly, more open and more differentiated. This is especially important in the context of current focus programs and movements (e.g. “Fridays for Future”).

#FridaysForFuture is a global climate youth movement that began in August 2018, after 15-year-old Greta Thunberg and other young activists sat in front of the Swedish parliament for three weeks, to protest against the lack of action on the climate crisis. See the link to the website [here](#).

# M17 Exercise “Responsibility for Future Generations”

1. Do future generations have rights?
2. What would be the rights of future generations?
3. What are our responsibilities for future generations?
4. What is the role of teachers in preparing future generations?
5. What can we do for them?

## M18 Leading Idea “Sustainability”

Sustainability is a complex multidimensional concept that can be approached in transdisciplinary manner. Sustainability means satisfying the needs and development prospects of all current generations without endangering those of future generations and thus preserving the economic and living conditions of society in the long term. Sustainability can be seen as a principle for action and design for a sustainable and fair and equitable use of social and natural resource. Shaping social developments in a more sustainable way requires diverse structural transformations of the economy and society and their subsystems. “Philosophical Inquiry: Sustainability” offers basis for a common philosophical dialogue. It is about clearing and experiencing essential concepts and understanding the process of sustainable development. The most often quoted definition comes from the UN World Commission on Environment and Development: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” University of Alberta offers the definition: “Sustainability is the process of living within the limits of available physical, natural and social resources in ways that allow the living systems in which humans are embedded to thrive in perpetuity”.

## M19 Exercise “Sustainable development”

1. What is sustainability?
2. What can the motivations behind sustainability be?
3. Why sustainability as a value is shared by many individuals and organizations?
4. What is the difference between environmental sustainability, economic sustainability and social sustainability?
5. How does a sustainable world look like?

# M20 Leading Idea “The Sustainable Development Goals (SDG’s)”

The Sustainable Development Goals (SDG’s) are 17 Goals to transform our world - they are a call for action by all countries to reduce poverty and inequality around the world. The 17 Goals are interconnected and need to be carried out by all human beings – everyone needs to do their part: governments, the private sector [for example: businesses and corporations], civil society, like non-government organizations and advocacy groups], the United Nations system, stakeholders and others, for example people like you – in a collaborative partnership. The Decade of Action should deliver the Sustainable Development Goals by 2030. The goals call for urgent actions to combat climate change and its impacts and address a range of social needs including education, health care, gender equality, hunger, environmental sustainability, and so on. The MDGs, the United Nations Millennium Goals were the starting point, and in 2016 were replaced by the Sustainable Development Goals.

**Sources:**

Sunyoung Hwang and Jiwon Kim, UN and SDG’s . A Handbook for Youth. Production of this publication has been supported by United Nations ESCAP East and North-East Asia (ENEA) Office.

[https://unescap.org/sites/default/files/UN%20and%20SDGs\\_A%20Handbook%20for%20Youth.pdf](https://unescap.org/sites/default/files/UN%20and%20SDGs_A%20Handbook%20for%20Youth.pdf)

# M21 “The Sustainable Development Goals (SDGs)”



© <https://public.wmo.int>

<https://public.wmo.int/en/files/sdgs-circlejpg>



© <https://un-rok.org>

<https://un-rok.org/17-sdgs/>

- GOAL 1: No Poverty
- GOAL 2: Zero Hunger
- GOAL 3: Good Health and Well-being
- GOAL 4: Quality Education
- GOAL 5: Gender Equality
- GOAL 6: Clean Water and Sanitation
- GOAL 7: Affordable and Clean Energy
- GOAL 8: Decent Work and Economic Growth
- GOAL 9: Industry, Innovation and Infrastructure
- GOAL 10: Reduced Inequalities
- GOAL 11: Sustainable Cities and Communities
- GOAL 12: Responsible Consumption and Production
- GOAL 13: Climate Action
- GOAL 14: Life Below Water
- GOAL 15: Life on Land
- GOAL 16: Peace, Justice and Strong Institutions
- GOAL 17: Partnerships for the Goals

# M22 Exercise “The Sustainable Development Goals (SDG’s)”

1. What does “no one left behind” mean in context of the Sustainable Development Goals?
2. How many people in the world still live in extreme poverty?
3. How will the SDGs be achieved?
4. What is sustainable development?
5. What are the Sustainable Development Goals?

**Source:**

The SDG’s in Action, <https://www.undp.org/sustainable-development-goals>



# M23 Activity film: “The Sustainable Development Goals (SDG’s)”

The film introduces sustainable development and the UN defined Sustainable Goals (SDGs).

Link: <https://www.youtube.com/watch?v=3WODX8fyRHA> (02:08 min.)

## Task

- Identify and describe what you think to be the most pressing actual or underlying problem related to the environment today, and explain why you take that to be the most pressing problem. So, for instance, if you think overpopulation is at the source, talk about that. Or perhaps, you will argue that patriarchal thinking and justification is the root cause of environmental degradation. Whatever you choose, say enough about it that a reader can understand what you’re claiming and why.

**Source:**

The SDG’s in Action, <https://www.undp.org/sustainable-development-goals>