GET UP!

Climate Change

Educational Pathways for Development Education and Global Citizenship

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Societies are currently facing new challenges, resulting of fast-paced globalisation and technological development. More than ever, it is necessary to train citizens with increasingly demanding levels of skill and knowledge, citizens who are able to look at the world from a critical perspective, identifying issues that should be priority targets of deep reflection. A training that challenges the complex existence of the problems we face, their causes and consequences, preparing us to, based in an active and high intensity citizenship, build alternative responses for *the worlds* we live in today.

In September 2015, the United Nations adopted the Sustainable Development Goals (SDGs), a document made up of 17 goals to transform our world by 2030. Goal 4[1] 'Quality Education', includes the need to ensure that all children acquire the knowledge and skills needed to promote sustainable development, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity.

In Portugal, the National Strategy for Development Education 2018-2022[2] establishes Development Education "as a process of lifelong learning, committed to the integral training of people, the development of critical and ethically informed thinking, and citizen participation. This process has the ultimate goal of social transformation in the sense of preventing and fighting against social inequalities, namely inequalities between women and men, fighting discrimination, promoting well-being in its multiple dimensions, inclusion, interculturality, social justice, sustainability, solidarity and peace, locally as well as globally" (Resolution of the Council of Ministers no. 94/2018, p. 3197).

Today, it is undeniable that schools are responsible for the task of preparing children for society's challenges, in a context of an uncertain/unpredictable future, allowing them to develop "skills that allow them to question established knowledge, integrate emerging knowledge, communicate efficiently and solve complex problems" (Decree-Law 55/2018, p. 2928).

The Portuguese Education System has been attentive to these changes, responding with an educational reform that has been taking shape in several documents published in recent years - namely in the *Profile of students leaving compulsory schooling*[3] (ME-DGE, 2017), in *Essential Learning*[4] (ME-DGE, 2018), and the *National Citizenship Education Strategy* [5] (ME-DGE, 2017) -, which was pedagogically experimented through the Autonomy and Curricular Flexibility project in 2017, and extended to all schools by Decree-Law 55/2018, of 6 July.

In this new framework, the *Citizenship and Development* curriculum component appears, as part of all years of schooling, in primary education and secondary education, in which "teachers have the mission of preparing students for life, to be democratic, participatory and humanist citizens, in an age of growing social and cultural diversity, in order to promote tolerance and non-discrimination, as well as to suppress violent radicalisms" (Primary and Secondary Education. Citizenship and Development, 2017, p.2). In order to operationalise this new area, the documents recognise that "the humanist training of teachers is, therefore, fundamental because it facilitates the connection between subject learning and the domains addressed in this component of the curriculum" (idem). Other factors that should be taken into account by the teachers of this curricular component are also highlighted: "training in the area of citizenship, motivation to approach this area and to use project methodologies and experience in coordinating pedagogical teams" (Basic and Secondary Education. Citizenship and Development, 2017, p. 3). Therefore, the need to invest in training, in order to better prepare them for this fundamental and indisputable challenge that society poses to education, is recognised.

In the last ten years, the Education and Development Studies Office (GEED) of the School of Education of the Polytechnic Institute of Viana do Castelo has invested in the area of Development Education and Global Citizenship Education (DE/GCE). Among the various actions and activities developed, this experience has been reinforced by its participation in national and european projects that aim to integrate DE/GCE in primary education, placing the School as a key player in Portugal in this area. This role has allowed ESE-IPVC to invest in the initial and continuous training of teachers; enable the production of resources for curricular integration; undertake/organise open events with different audiences, in particular involving schools; and encourage and stimulate research and scientific production practices on these topics.

In 2018, with the approval of *Get up and Goals! Global Education Time*[6] project by the European Commission, and given its general objective of introducing the themes of ED/ECG in schools, namely those linked to the Sustainable Development Goals, ESE-IPVC immediately identified the opportunity to address the needs for training and resources resulting from the new *Citizenship and Development curriculum component*.

The educational resources produced seek to propose ways of exploring themes linked to the area of Education for Development and Global Citizenship, within the scope of formal education, in basic education school classes. Although they were designed specifically for the new curricular component of *Citizenship and Development*, these resources can be used in different areas of knowledge, either alone or interdisciplinarity, in view of the whole school approach proposed in the National Education Strategy for Citizenship. With this objective in mind, a team of specialists in various curricular areas and in the field of DE/GCE in schools contributed towards its preparation.

This resource is part of a collection of four publications dedicated to the following themes, worked on throughout the project: *Climate Change*, *Global Inequalities*, *Gender Equality*, and *Migration*.

Each publication opens with a theoretical introduction to the theme, based on the main ideas identified by the international project team. The theme is linked to the domains of the curricular component of *Citizenship and Development*, as well as to the support Guidelines of the Directorate-General for Education. There is also a correspondence with the Sustainable Development Goals.

After the introduction, a didactic proposal consisting of several activities is presented. Although these are specially targeted at the 2nd and 3rd cycles of basic education, they can be used at other levels of education, adjusting the depth of their exploration. At the beginning of each activity, the following information is presented: learning objectives, main ideas, subjects (we would like to point out that the subjects do not have the same denomination at the different levels of education) in which the activity can be developed and a proposal for duration. It should be noted that these last two pieces of information are merely indicative and depend on the objectives of the teachers. At the end of each activity there are also attachments with material that can be reproduced. Online platforms with relevant resources and other suggestions for teachers can also be included.

At the end of the didactic proposal, an assessment tool is presented, composed of three elements: a questionnaire to assess the knowledge acquired from the activities; a self-assessment table on global competences identified as essential in addressing these issues; and a participation/action self-assessment table. It is suggested that this tool be used in diagnosis and final assessment, in order to better assess the educational process.

In preparing the didactic proposal, the values underlying the ED/ECG were taken into account. Thus, the activities are intended to contribute to the development of the main skills identified by the international project team:

- understanding the relationships between local and global, recognising the interdependencies and assuming that each action produces effects at different times and places;

- establishing links between different areas of knowledge taking into account a holistic and complex view of reality;

- identifying how events from the past influence the present and events from the present will have consequences for the future;

- being able to reflect on their own opinions and take into account that there are different points of view;

- recognising processes of change and acting intentionally to support changes that bring about a social transformation towards a fairer and more just world.

At the methodological level, principles of active pedagogy have been integrated, such as linking learning to personal experiences and everyday realities and building positive and collaborative learning environments, where sharing, challenge and reflection are present. We also tried to respect some pragmatic principles, such as adapting to classroom reality, time and strategy flexibility and feasibility in terms of materials.

With this resource we intend to inspire and support teachers who see education as a mission to develop a sense of citizenship that is increasingly informed, reflective, critical, active and responsible.

1 http://www.unric.org/pt/objetivos-de-desenvolvimento-sustentavel/31973-objetivo-4-educacao-de-qualidade
2 https://ened-portugal.pt/pt/introducao
3 https://dge.mec.pt/sites/default/files/Curriculo/Projeto_Autonomia_e_Flexibilidade/perfil_dos_alunos.pdf
4 https://www.dge.mec.pt/aprendizagens-essenciais
5 https://www.dge.mec.pt/sites/default/files/Projetos_Curriculares/Aprendizagens_Essenciais/estrategia_cidadania_original.pdf
6 https://www.getupandgoals.eu/ (página europeia). https://getupandgoalsproject.pt/ (página portuguesa).

To speak of **climate change is to speak of a long-term and large-scale increase in the average global temperature of the Earth, with effects on climate patterns**. Some models predict global temperatures to increase by 4 degrees Celsius by the end of the twenty-first century, which could make the advancement of civilisation unsustainable, lead to a significant reduction in the human population and cause many other species to become extinct.

In the scientific community, climate change continues to be a subject of contention rather than unity. According to 97% of scientists, **human beings are responsible for the climate change** we are currently seeing. However, some scientists continue to claim that what is happening is natural. Meanwhile, "the Earth's climate is changing at a rate that has exceeded most scientific forecasts" (UNHCR, 2018)[7]. Climate change is intimately linked to political issues, as a result of countless decisions made locally, regionally or nationally, and by individuals or businesses.

In Portugal, the climate change scenarios analysed predict a **significant increase in the average temperature** in every region by the end of the twenty-first century, with **resulting effects**, namely related to the increase in the frequency and intensity of **heat waves**, with increased **fire risks**, changes in **land use and occupation** and implications for **water supplies**. In terms of precipitation, the uncertainty of the future climate is substantially higher; however, all models analysed predict a **decrease in precipitation in Mainland Portugal during spring, summer and autumn**[8].

This warming is related to the accumulation of greenhouse gases (GHG) in the atmosphere, such as methane (CH_4) and carbon dioxide (CO_2), which absorb part of the heat radiated by the Earth and increase the temperature of the atmosphere. Most of the GHG result from the global industrialisation process, which began in the eighteenth century, mainly in Europe and North America, and more recently expanded to countries such as China and India. It is linked to the **production and use of energy** from burning fossil fuels used in agriculture, industry, construction, heating, technology and transport and **the production of goods consumed by a global minority** of rich "industrial economies" that encourage consumption. Most people in the world, especially in developing countries, consume less and use less energy[9].

Guidelines

Sustainability Environmental Education Guidelines
Consumer Education Guidelines
Education Development Guidelines

Citizenship and Development Domains

Mandatory for all educational levels
Sustainable development Environmental Education

Studied in at least two years
Education for Consumption

Sustainable Development Goals

12 - Responsible Production and Consumption

13 - Climate Action

The impact of climate change on natural ecosystems can be observed in global temperatures, ocean warming and acidification, rising sea levels and extreme weather events (e.g. heat waves, storms, floods and droughts). "Global sea level rose about 8 inches in the last century. The rate in the last two decades, however, is nearly double that of the last century" (NASA, 2018)[10].

These changes can have extreme consequences for humanity and other forms of life. They currently affect millions of people, especially those who live in more vulnerable areas (e.g. coastal communities, tropical countries), and wildlife (especially in the Arctic), but climate change will increasingly affect us all. Millions of poor farmers, who were not responsible for creating the problem, are trying to adapt to hotter climates and to different rain patterns. When harvests fail, many people are forced to migrate, creating a new phenomenon of climate refugees, with an average of 22.5[11] million people displaced by climate or weather-related events since 2008 (UNHCR, 2018)[12]. Events linked to climate change such as coastal erosion, storms and floods result in high economic costs and affect the health of the populations. It is estimated that, between 2030 and 2050, climate change could cause 250,000 more deaths per year due to malnutrition, malaria, diarrhoea and extreme heat[13]. Climate change is occurring at a faster pace than anticipated in most climate projection models. The global consensus is that we are only in the initial phase of these changes, with relatively minor effects. Most scientific models predict more drastic effects in the future. We can expect to see some of them in our lifetime.

The approach to the climate change problem stimulated the discussion on how **to deal with the underlying cause - human consumption**. The relationship between the predominant model of economic growth and consumption is being analysed. Some experts say that a "Carbon-Zero" future is the only way to stop climate change. This implies reducing our ecological footprint and changing our behaviour, namely in terms of using domestic energy, transport, purchases and production and waste forwarding[14].

Due to the potentially catastrophic consequences of climate change, scientists encourage world leaders to adopt a "precautionary principle" to avoid points of no return (point from which the consequences will be unpredictable) and approach the main causes - excessive consumption and dependence on fossil fuels - before it is too late.

Climate change is being treated at different levels: by individuals, associations and governments. Governments are acting individually and collectively [United Nations (UN), for example], namely by creating laws that help prevent the worst-case scenarios predicted by scientific models from happening. The UN aims to maintain the temperature rise below 2 degrees Celsius. In 2015, one hundred and ninety-five governments in the world united to fight climate change by signing the Paris Agreement, which aims to strengthen countries' ability to deal with the impacts of climate change and stresses the need for collective action to limit temperature rises in general[15].

As the evidence points to the burning of fossil fuels as a cause of climate change, countries are switching to renewable energy and protection/renewal of natural carbon sinks (e.g. plants, oceans) that remove carbon from the atmosphere. Renewable energy is derived from natural resources (e.g. water, wind and sunlight) that do not run out. Wind turbines and solar panels produce energy that can feed entire communities.

Many people are monitoring their Carbon Footprint and reducing their consumption, for example, by reducing food waste and the amount of clothes they buy, buying electric cars and planting trees. This implies changing lifestyles and addressing the contradiction between people's awareness of the subject and the necessary change in the way they act as individuals. There are also people who join groups that campaign or exert political pressure through organisations they are already part of. Companies are responding by supplying more ecological products and services. Collective and individual actions can help governments to make policy changes.

7 https://www.unhcr.org/climate-change-and-disasters.html
8 https://apambiente.pt/index.php?ref=16&subref=81&sub2ref=118&sub3ref=393
9 https://edgar.jrc.ec.europa.eu/overview.php?v=booklet2018&dst=CO2pc&sort=des9
10 https://climate.nasa.gov/evidence/
11 https://www.un.org/sustainabledevelopment/blog/2019/06/lets-talk-about-climate-migrants-not-climate-refugees/
12 https://www.unhcr.org/climate-change-and-disasters.html
13 https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health
14 https://www.worldbank.org/content/dam/Worldbank/document/Climate/dd/decarbonizing-development-report.pdf
15 https://www.ipcc.ch/sr15/ chapter/summary-forpolicy-makers

DURATION

1 lesson

LEARNING OBJECTIVES

Recognise that our behaviour has environmental impacts.

Identify causes and consequences of climate change.

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SUBJECTS

Citizenship and Development,

Natural Sciences and Geography, among others.

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Main ideas

Our behaviour has environmental impacts.

Local actions have global implications.

Global warming results from the production of greenhouse gases.

Climate change stems from the rise of the average global temperature on the Earth, with effects on weather patterns.

Human beings are responsible for climate change.

Climate Change? Me?

Project the *meme* and ask the class about the impact of our behaviour on the environment.

Yes, by showering for 30 minutes!

#HELP!!
Mum, I want to save the Planet!

Guiding questions

- Do you identify with the situation pictured in the image?
- Do long and "hot" showers have consequences for the environment? Such as?
- What other behaviours can be dangerous for the environment?
- You have probably already heard of global warming and climate change. Do you know what they are? Are they related to each other? What are the main causes?
- Who is primarily responsible?
- What are the consequences?
- Who is affected?
- How is climate change going to affect us?
- What can be done to mitigate the problem?
- Is there any relation between our behaviour and this problem?
- What changes can we make in our lives to fight climate change?

From this debate should emerge the concept of climate change, some causes[16] and consequences and the idea that human beings are primarily responsible, namely through excessive consumption, so the solutions involve changing our behaviour.

16 If necessary, carry out a simple practical activity to explain the greenhouse effect and/or show a video on the topic, which shows the relation between the accumulation of gases, such as carbon dioxide and methane, and the increase of this effect.

DURATION

2 to 3 lessons

LEARNING OBJECTIVES

Reflect on the relation between consumption habits and climate change. Understand that local actions have global implications.

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SUBJECTS

Citizenship and Development,

Natural Sciences and Geography, among others.

.

Main ideas

The production/use of consumer goods contributes towards the production of greenhouse gases and consequently towards climate change.

Changing our behaviour can contribute towards mitigating the problem.

Let's save the planet?

Return to the topic of excessive consumption.

We saw with the meme that we consume too much water. What other things do we consume in excess? (plastic, energy, food, clothing and footwear, paper, hygiene and cleaning products, among others). Divide the class into groups. Each group shall work on one area of consumption. Give each group an infographic guide *(annex 1,2,3 and 4).*

Suggestion

Put the conclusions of the group work and other pertinent information/documents on a wall, that can be online, so that they are available for every student in the class, as well as their families and other members of the school community.

Study guide | Sustainable food *4all*

Observe

Global warming affects food production and can cause 500,000 deaths

By Redação CicloVivo, 3 March 2016

Preliminary questions

- How is food produced? Where? How is it transported?
- What do we do with leftovers?
- How does food production contribute towards global warming?
- Does climate change affect food production? How?
- Who are the most affected?

By looking at the image and discussing the questions, the group is expected to understand that food and climate change are related and be keen to learn more on the topic.

Main ideas

Food production consumes immense resources, such as water, energy, minerals and soils.

Most of the food we consume is produced intensively, leading to the deforestation of huge areas and consequently to a decrease in carbon sinks.

Food production and transport contribute to releasing greenhouse gases, such as carbon dioxide and methane, which are responsible for global warming.

Events linked to climate change, like droughts, floods and storms, lead millions of poor farmers, who were not responsible for creating the problem, to lose their harvests.

We cannot stop eating, but if, for example, we choose local products, avoid wasting food, demand that food be produced in a way that respects nature, we can contribute towards the sustainability of the planet.

Look and reflect

Is my diet sustainable?

You eat and change the planet

https://www.abcdoabc.com.br/abc/noticia/voce-come-muda-planeta-53132 (3 minutes)

WWF-Brasil

The video highlights the quantity of resources used to produce and transport food and the subsequent environmental impacts and suggests choices that can lessen the problem..

Suggestion

A newspaper article can be used as an alternative to the video.

Record and calculate

What did you eat today?

Make a table with the food eaten in one day and the respective quantities (you can weigh it or use a spoon, cup, glass, etc.)

- Where did this food come from? (animal or plant)
- How did it get to your table? How far did it travel?
- How was it produced? How was it packaged?
- How much did you waste?

The data should be discussed within the group, comparing the percentage of food of animal origin consumed throughout the day, whether the produce is mainly local and seasonal, fresh or processed, the type of packaging... The aim is for them to reflect on the impacts of their diet on the environment and how they can change their eating habits in order to contribute to a more sustainable world.

Look around you and investigate

- What about the school canteen or cafe?
- Where does the food come from?
- How is it packaged?
- How much food is wasted on a daily basis? (ask the canteen staff)
- What happens to uneaten food?
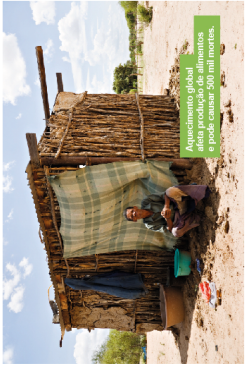- Suggest how to make the school food more sustainable.

Organise the information

Organise the information, reflect on the relation between food and climate change and share conclusions with the whole class.

Annex 1

SUSTAINABLE FOOD 4ALL

Observe

Aquecimento global alerta produção de alimentos e pode causar 500 mil mortes.

- How is food produced? Where? How is it transported?
- What do we do with leftovers?
- How does food production contribute towards global warming?
- Does climate change affect food production? How?
- Who are the most affected?

Look and Reflect

Is my diet sustainable?

VOCÊ COME MUDA O PLANETA

https://www.abcdoabc.com.br/abc/noticia/-voce-come-muda-planeta-53132
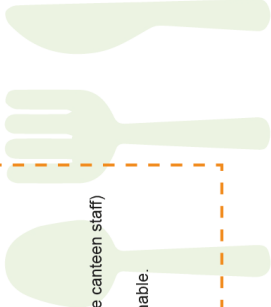
Record and calculate

Make a table with the food eaten in one day and the respective quantities (you can weigh it or use a spoon, cup, glass, etc.)

FOOD EATEN TODAY	FOOD (ANIMAL OR PLANT)	DISTANCE TRAVELLED BEFORE REACHING THE TABLE	HOW IT WAS PRODUCED	TYPE OF PACKAGING	AMOUNT WASTED (m)
Milk (100ml)	animal	50km	Organic produce	Tetrapak and plastic	10ml
Meat (150 gr)					
Bread (200gr)					
...					

- Where did this food come from? (animal or plant)
- How did it get to your table? How far did it travel?
- How was it produced? How was it packaged?
- How much did you waste?

Look around you and investigate

- What about the school canteen or cafe?
- Where does the food come from?
- How is it packaged?
- How much food is wasted on a daily basis? (ask the canteen staff)
- What happens to uneaten food?
- Suggest how to make the school food more sustainable.

Organise the information

Organise the information, reflect on the relation between food and climate change and share conclusions with the whole class.

Let's save the Planet!

GET UP AND **GOALS!**
Global Education Time
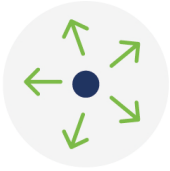
Study guide | Let's Deplasticise

Observe

World water day will be marked to combat garbage at sea
Photo by Arquivo/Notibras

Preliminary questions

- Is plastic a natural resource provided by nature?
- How is plastic produced?
- Would we be able to spend "a day without plastic" with plastic banned for 24 hours? Why?

The group should reflect on the omnipresence of plastic in our day-to-day lives, where it comes from and the impacts on the environment and be motivated to learn more about how to lessen the problem.
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Main ideas

Plastic is not a natural resource. It is a synthetic polymer derived from petroleum.

At least 70% of marine debris is plastic. Plastic waste affects marine ecosystems, jeopardising the lives of aquatic creatures and other members of the food chain, including human beings.

Plastic can travel thousands of kilometres in oceans and build up in so called "garbage patches". Several scientific studies show that microplastics have been found in the human body.

Plastics generate greenhouse gases throughout every stage of their life cycle, exacerbating climate change.

Plastic endangers oceans, the climate, biodiversity and human health. Therefore, it is crucial to reduce consumption and use it more sustainably.

20

Look and reflect

How does plastic reach an uninhabited island in the middle of the North Pacific more than 2000 km away from any civilisation?

Albatross film trailer

https://www.youtube.com/watch?v=gZn215kWaMM (3:48MM)

Midway Island – Albatrosses

Exploration suggestion:

- What does this excerpt make you feel? What is happening?
- Do we know the plastics that feature in the video?
- How does plastic reach an uninhabited island in the middle of the North Pacific more than 2000 km away from any civilisation?
- What are microplastics?
- What is the plastic island in the Pacific?

Record and calculate

Make a list of products (food, hygiene and cleaning, clothing, devices, etc) that you use every day and that have plastic in them.
Estimate the amount of plastic waste produced by your family over the course of a week.

Look around you and investigate

Are we"plasticising"?

Find out how plastic is produced.
Identify the negative impacts of plastic on health and the environment.
Suggest measures to reduce plastic consumption.

It is important not to forget that plastics release greenhouse gases into the atmosphere throughout their life cycle. They increase the average temperature of the planet, pollute oceans, and negatively impact living organisms, including human beings.
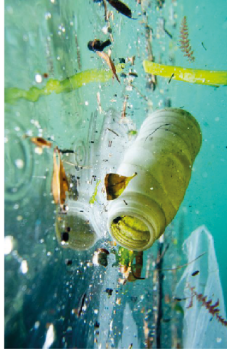
https://quantis-intl.com/homo-plasticus/

Organise the information

Organise the information, reflect on the relation between plastic and climate change and share conclusions with the whole class

Annex 2

LET'S DEPLASTICISE

Observe

- Is plastic a natural resource provided by nature?
- How is plastic produced?
- Would we able to spend "a day without plastic" with plastic banned for 24 hours? Why?

Look and reflect

How does plastic reach an uninhabited island in the middle of the North Pacific more than 2000 km away from any civilisation?

https://www.youtube.com/watch?v=gZn215kWaMM

Record and calculate

List:
Make a list of products (food, hygiene and cleaning, clothing, devices, etc) that you use every day and that have plastic in them..

- TOOTHBRUSH
- SHAMPOO
- BOTTLES
- GLASSES

Estimate:
Estimate the amount of plastic waste produced by your family over the course of a week.

Look around you and investigate

HOMO PLASTICUS
ARE WE PLASTICISING?

- **Find out** how plastic is produced
- **Identify** the negative impacts of plastic on health and the environment
- **Suggest** measures to reduce plastic consumption

https://quantis-intl.com/homo-plasticus/

Organise the information

Organise the information, reflect on the relation between plastic and climate change and share conclusions with the whole class.
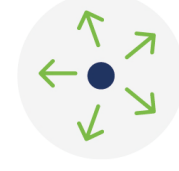
Let's save the Planet!

Study guide | Round and round with energies

Observe

Main ideas

All human activities require energy consumption.

Producing energy from fossil fuels releases greenhouse gases, which are responsible for global warming.

To produce electrical energy, we can use renewable and non-renewable resources.

We can decrease impacts on the environment by using energy in a more sustainable way.
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Preliminary questions

- In what situations do we use energy in our daily life?

- What energy sources enable cars to move?

- What kind of energy keeps the television on?

- What energy sources do you know? Which ones are renewable?

- Are these energy sources used in the same way? Are they obtained in the same way?

Whilst thinking about these questions, the group should gain awareness of the importance of energy in our day-to-day life and the existence of different energy sources and be curious to learn more on the topic.

Look and reflect

Watch a video on *Energy and Pollution*

Science by Kids | Episode 5 | Renewable Energy

https://www.youtube.com/watch?v=MOGHbt6AdsY (1: 42 min)
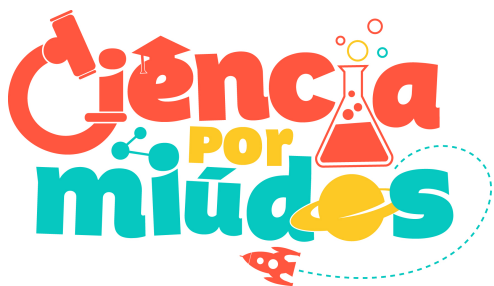
The video mentions daily activities that use energy, renewable and non-renewable energy sources, as well as ways of saving energy.

Record and calculate

What energy did I use today?
Group members should identify the situations requiring energy over the course of one day (on mobile phones, in the shower, during meals, on transport, etc.), and conclude that everything we do implies energy consumption.

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Guiding questions

- Where did this energy come from?
- What energy resources do you know?
- What are renewable resources (wind, sunlight, water, food, ...)? And non-renewable ones? (oil, natural gas, mineral coal, uranium, ...).
- Which resources directly contribute to global warming (oil, natural gas and mineral coal)? Why?
- Analyse an electricity bill and compare the percentage of renewable and non-renewable energy resources used for its production.
- Organise the data in a table.
- What can we conclude? What could be changed in your daily routines to contribute towards a more sustainable world?

Look around you and investigate

And at school?

Using a map of the school, the group goes through the space and identifies points where energy is consumed. Whilst going around the school, they should also identify situations that involve wasting energy.
Once the data have been collected, they should make suggestions to reduce the school's energy consumption.

Organise the information

Organise the information, reflect on the relation between energy and climate change and share conclusions with the whole class.

Annex 3

ROUND AND ROUND WITH ENERGIES

Observe

- In what situations do we use energy in our daily life?
- What energy sources enable cars to move?
- What kind of energy keeps the television on?
- What energy sources do you know? Which ones are renewable?
- Are these energy sources used in the same way? Are they obtained in the same way?

Look and Reflect

We can all contribute to a more sustainable world

https://www.youtube.com/watch?v=IMOGHbf6AdsY

Record and calculate

What energy did I use today?

Identify the situations requiring energy over the course of one day (on mobile phones, in the shower, during meals, on transport, etc.).

Where did I consume energy today?

| Energy sources					
Non-renewable			Renewable		
COAL	OIL	NATURAL GAS	WIND	SUNLIGHT	WATER

Look around you and investigate

And at school?

Using a map of the school, go through the space and identify points where energy is consumed. Whilst going around the school, also identify situations that involve wasting energy.

Make suggestions to reduce the school's energy consumption.

Organise the information

Organise the information, reflect on the relation between energy and climate change and share conclusions with the whole class.
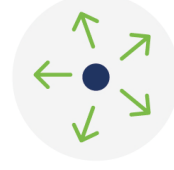
Let's save the Planet!

Clothing study guide | Turning Clothes Inside Out

Observe

(Reproduction: Documentary The true Cost (2015)

Preliminary questions

Do you like to be "on trend"?
What is the clothing item you have always dreamed of buying, but that you still do not have?
Where do your clothes come from?
Where are most of the clothes you buy produced?
In your opinion, should your wardrobe be fuller?

The aim is for the group to be curious to find out more about the life cycle of the clothes they wear and about their environmental and social impacts.

Main ideas

A large part of the clothes we wear is produced in countries with high rates of poverty.

In order to get the lowest prices, factories do not comply with minimum safety conditions, workers are exploited and children are often employed.

Producing and transporting clothes has severe consequences for the environment, due to the energy and raw materials consumed, the use of chemicals and accumulation of waste. Gases released during these processes contribute to global warming and therefore to climate change.

Short-lived fashion drastically increases municipal waste.

We can reduce environmental and social problems related to clothing by, for example, buying less and buying more carefully (taking into account the place, method of production and products used), donating the clothes we no longer use or buying/selling clothes in second-hand shops.

Look and reflect

What does this brief excerpt show us? What is happening?

"The True Cost"- Official Trailer

https://www.youtube.com/watch?v=DjncKUmpOZk (2:34 min)

(Cover: Documentary The true Cost (2015)

This trailer draws attention to the working conditions of the people who make most of the clothing we use and the environmental impacts of producing it, underlining the need for change in the current clothing production and consumption model, for it to become socially and environmentally sustainable.

Record and calculate

Choose a type of clothing (e.g. t-shirts, trousers, shorts) and:

1. Count the number of clothing items
2. Compare numbers with your classmates.
3. Research the life cycle of clothes

FIBRE PRODUCTION	CLOTHING PRODUCTION	USE	AFTER USING
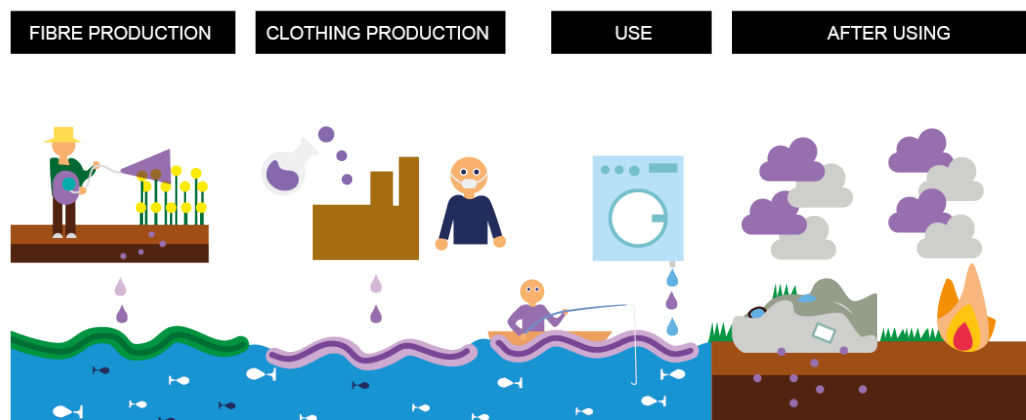
Adapted from Ellen Macarthur Fundation, 2017

Look around you and investigate

Find out where your clothes come from.

On a map, mark the places where your clothes are made and calculate the distance from Portugal.

Identify the negative impacts from a social and environmental perspective.

Suggest measures to reduce the impact of clothing consumption on the environment.
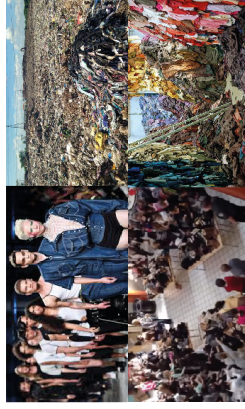
Organise the information

Organise the information, reflect on the relation between clothing and climate change

and share conclusions with the whole class.

Annex 4

TURNING CLOTHES INSIDE OUT

Observe

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- What is the clothing item you have always dreamed of buying, but that you still do not have?
- Where do your clothes come from?
- Where are most of the clothes you buy produced?
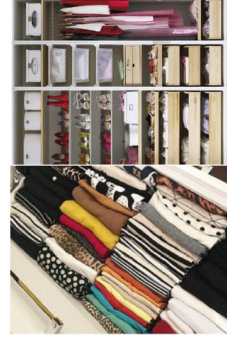- In your opinion, should your wardrobe be fuller?

Look and reflect

What does this brief excerpt show us? What is happening?

https://www.youtube.com/watch?v=DJncKUmpOZk

Record and calculate

Choose a type of clothing (e.g. t-shirts, trousers, shorts) and:

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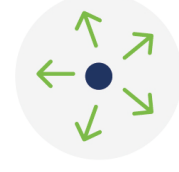
Identify the negative impacts from a social and environmental perspective.

Suggest measures to reduce the impact of clothing consumption on the environment.

Organise the information

Organise the information, reflect on the relation between clothing and climate change and share conclusions with the whole class.

Let's save the Planet

DURATION

1 to 2 lessons

LEARNING OBJECTIVES

Reflect on the impact of consumption on the environment and the intensification of climate change.

Understand the concept of the carbon footprint.

Identify individual, collective, governmental and international actions that aim to contribute towards mitigating climate change.

SUBJECTS

Citizenship and Development.

Natural Sciences, Maths, Portuguese, History and Geography and Geography, among others.

Main ideas

The production/use of consumer goods impact the quality of the environment and contribute to climate change.

Climate change can make the advancement of civilisation unsustainable, lead to a significant reduction in the human population and cause many other species to become extinct. The most affected populations are the poorest and those living in more vulnerable areas.

Individual, collective, governmental and international action is necessary in order to mitigate the problem.

Local actions have global implications.

What is our carbon footprint?

Debate and summarise concepts associated with climate change.

Guiding questions

- What is climate change? How is it related to global warming? And to CO_2 emissions and other gases?
- What are the main causes of climate change?
- Who is primarily responsible?
- Do all countries contribute to climate change equally? Why?
- What are the consequences for different human populations? How are their lives affected?
- What can be done to mitigate this problem at individual, collective, national and international levels?
- What is the importance of the Paris Agreement?

Discuss the concept of the carbon footprint (CO_2 emissions and greenhouse gases, which are produced throughout a product's life cycle) and invite the class to calculate theirs (individually or for their family or the whole class) using one of the calculators available **online** and to make a commitment to reducing this footprint with specific habit changes (e.g. use a reusable bottle instead of a single-use plastic bottle; reduce food waste; buy local products; turn the lights off when leaving a room, …).

Write good practice regulations to be made available to the entire school community.

Assessment Tools

Apply as diagnosis (before starting to work on the topics) and as a final assessment.

A - Knowledge

1. Define climate change.

2. 97% of scientists believe that climate change is mainly caused by:
(choose the correct answer)
- ❑ human beings using fossil fuels
- ❑ dangerous driving
- ❑ polar ice caps melting
- ❑ the sun's temperature increasing

3. Of the following activities, choose the ones that contribute to climate change.
(choose the correct answers)
- ❑ Intensive farming
- ❑ Planting forests
- ❑ Using motor vehicles
- ❑ Heating homes
- ❑ Cycling
- ❑ Travelling by plane
- ❑ Increasing factory production
- ❑ Buying fruit from Latin America
- ❑ Keeping lights on all the time
- ❑ Using social media
- ❑ Using renewable energy

4. Countries with higher consumption are located in the following regions:

(choose the correct answers)

❑ Europe

❑ Africa

❑ South America

❑ North America

5. Do the governments of all countries need to do something to mitigate climate change? (choose the

correct answer and justify)

❑ Yes

❑ No

❑ I'm not sure

❑ I don't know

Becouse _____

_____

6. Who must act to reduce climate change?

(choose the correct answer)

❑ Groups and organisations

❑ Governments

❑ Individuals

❑ Everyone

7. Regarding climate change:

(choose the correct answer)

❑ I can make a difference

❑ I can't make a difference

❑ I'm not too worried

❑ I don't know!

8. Which actions can contribute to mitigating climate change?

Choose the correct answers

❑ Making carbon sinks bigger

❑ Eating more meat

❑ Reducing electricity consumption

9. The Carbon Footprint is:

Choose the correct answer

❑ a fossil species

❑ the quantity of greenhouse gases produced throughout the life cycle of a product

❑ the mark left by a foot

10. The best way of reducing my carbon footprint is: Choose the correct answer

❑ Recycling paper, plastic, metal, glass and batteries.

❑ Reducing consumption

❑ Reusing products made of plastic

11. I currently do things to reduce climate change. Choose the correct answer and give examples
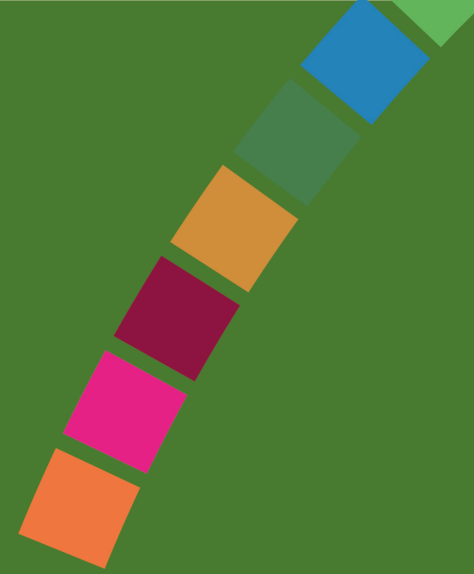
❑ Yes

❑ No

Examples: _____

_____

B – Global Skills

		GLOBAL SKILLS SELF-ASSESSMENT ACTIVITY		
BEFORE Marked from 1 to 5	**REVISION** (for the student to do at the end, if they want to review their initial assessment)	**SKILLS**	**AFTER** Marked from 1 to 5	**THOUGHTS ON WHAT I HAVE LEARNT**
		I am good at explaining how the local, national and global issues are interconnected and what they have to do with me.		
		I am good at seeing how past events and processes are shaping the present moment and how things happening today may affect future events.		
		I am good at explaining how what I've learned in different subjects helps me understand global themes.		
		I am good at weighing up my own and others' views; at looking at issues from contradictory perspectives, and accepting new ideas even when they are difficult.		
		I am good at identifying the best ways of making change and actively working with others to take steps towards a more peaceful and sustainable future.		

C – Participation / Action

PARTICIPATION / ACTION SELF-ASSESSMENT ACTIVITY				
BEFORE Marked from 1 to 5	REVISION (for the student to do at the end, if they want to review their initial assessment)	SKILLS	AFTER Marked from 1 to 5	THOUGHTS ON WHAT I HAVE LEARNT
		I question and challenge images and stereotypes (my own and those of others) about climate change.		
		I think about the way I live and try to change it so that people and the planet are not negatively affected by my choices.		
		I take part in climate change campaigns at school or outside of school.		
		I developed a project on climate change from start to finish.		
		I try to encourage and involve other people so that they find out more and do something about the problem of climate change.		

GET UP!

CLIMATE CHANGE