

Teacher's Card



Index

General Introduction	2
Extended background information	3
Key Competence European Framework.....	5
United Nations 'Sustainable Development Goals	6
Activity	8
Learning Pathway	8
Evaluation.....	9
Description of Student's Card	10
Sources.....	11

Teacher's Card

General Introduction

Activity type: The Sus-GAME-ability toolkit provides an introductory lesson on sustainability and the environment. It serves as a first introductory lesson to introduce students to the topic of sustainability and what impact sustainability has on our environment. It can be used as an introduction to further lessons on the topic of sustainability and the environment, or it can be taught as a stand-alone lesson. The lesson can be delivered in a regular classroom or remotely.

Target group: The lesson is designed for children from the age of 8. The lesson is kept very simple and can be adapted for older students by asking more specific questions or by completing the exercise in a more interactive way.

Problem or Challenge: The 2 main questions asked and answered in this lesson are as following:

1. What does sustainability mean?
2. Why is the topic of sustainability important for us humans?

Lesson content: The Sus-GAME-ability toolkit provides an interactive introductory lesson on sustainability. Students learn about the importance of sustainability in a fun way. In this toolkit, students are introduced to the impact of sustainability specifically on the environment. In addition to a general explanation of the term sustainability, a child-friendly explanation of the impact of unsustainable living is introduced to the students. The browser game Susgameability offers the students a computer game, with which they get an insight into the sustainability goals of the United Nations and which meaning these goals contain. Finally, students are taught about the simple ways each of them can impact the world in a simple and sustainable way.

Organization: The activity is designed for a 50-minute time slot. It starts with a pre-activity, dives into the main topic and ends with a final session, including an evaluation.

Key words: *Sustainability, Environment, Recycling*

Teacher's Card

Extended background information

The 2 main questions asked and answered in this lesson are as follows:

1. What does sustainability mean?
2. Why is sustainability so important for us humans?

What does sustainability mean?

The natural basis of life must be used in such a way that future generations still have the chance to lead a content and dignified life.¹ The concept of sustainability comes from forestry, where sustainability was defined as follows: "In a forest, only as many trees should be cut down as can grow back in this forest in the foreseeable future. This should ensure the long-term existence of the forest, which is the basis of forestry".²

The importance of sustainability:

Sustainability brings its benefits both in the short term and in the long term. Our ecosystem has been undergoing more and more changes in recent years due to harmful processes carried out by humans. If nothing is changed in the future, many species of animals will become extinct, fossil fuels will run out and the atmosphere will suffer further damage. Many resources may no longer be available in the future and may not be regenerable.³

Primary sustainability goals

The United Nations (UN) has defined 17 Sustainable Development Goals (SDGs). These are intended to ensure sustainable development on an economic, social as well as ecological level. In these 17 goals, a wide variety of challenges are mentioned, such as no poverty, zero hunger, affordable and clean energy, and a sustainable development.⁴

United Nations (UN)

¹ (2012, 2021)

² (Stoldt, 2021)

³ (Institute, 2021)

⁴ (Institute, 2021)

Teacher's Card

The United Nations (UN or UNO) is an association of 193 states that have set themselves certain goals. The most important tasks are, among other things, the safeguarding of world peace, the observance of international law, the protection of human rights and the promotion of international cooperation. In addition, the focus is also on supporting economic, social and environmental areas. The UN has launched the "Agenda 2030 for Sustainable Development". In this, it was made clear that global challenges of the present and future, if the international community of states work together. The 2030 Agenda applies to all member states and obliges them to contribute to the future of the planet.⁵

Climate change and its causes

Climate change usually refers to the cooling or warming of the earth's climate over a longer period of time. The biggest influencing factor is called the greenhouse effect. The sun's rays that hit the earth are absorbed by natural gases and clouds, and some of them are reflected back to the planet. These rays keep our planet warm. Without a natural greenhouse effect, our planet would be frozen over and no life would be possible. Due to the ever-increasing emissions of mankind, the amount of CO² in our atmosphere continues to rise, which leads to the fact that more and more solar radiation is absorbed and reflected back. This increase in CO² is mainly due to the combustion of fossil fuels such as oil or coal.⁶

Environmental pollution

Pollution of the environment is happening all over the world these days. The causes are often very different. The disposal of waste in nature or the growing emission of greenhouse gases are only two examples. Pollution can be divided into 3 broad categories: Air pollution, water pollution or soil pollution. Environmental pollution is one of the biggest problems of the 21st century.⁷

Air pollution

It is well known that our air is becoming more and more polluted. The situation in China is threatening. There the air pollution is partly already so far advanced that

⁵ (Bundeskanzleramt, 2021)

⁶ (Karl Otto Zentel, 2021)

⁷ (Nachhaltigkeit, 2021)

Teacher's Card

people can go only with masks on the street. One experiences similar scenarios in Europe on 1 January after the fireworks to New Year's Eve. Here, the air is by far not as bad as in China, but one notices an extreme air pollution here, too.⁸ The biggest air polluters are power generation, industry and transport.⁹

Water pollution

Water bodies are often polluted by illegal waste disposal or unauthorized wastewater discharges such as oil or toxic substances. Pollution by plastics, oils or heavy metals is particularly dangerous here. These contaminations have different effects. Plastic decomposes very slowly in the water and is eaten by fish because they think it is food. They cannot digest this plastic and either die or are consumed by us humans, which in turn transports the plastic into our bodies.¹⁰

Soil contamination

Soil contamination is the addition of substances that are harmful to the soil. Examples of this are substances that are simply spilled but also buried mines. Removing this damage is often very difficult and costly.¹¹

Key Competence European Framework

Literacy competence
S1. Ability to understand and interpret concepts, feelings, facts or opinions in oral and written form.
S2. Ability to express concepts, feelings, facts or opinion in written and oral form.
S3. Ability to interpret the world and relate to others.
Mathematical competence and competence in science, technology and engineering
S1. Ability to use constructed thinking in order to solve a problem in every situation.

⁸ (Ittershagen, 2021)

⁹ (Kielon, 2021)

¹⁰ (Paeger, 2021)

¹¹ (Kibblewhite, 2021)

Teacher's Card

S4. Readiness to address new problems from new areas.
S5. Capacity for quantitative thinking.
S6. Ability to extract qualitative information from quantitative data
Digital competence
S2. Basic skills in ICT
S4. Ability to use and handle technological tools and machines
Personal, social and learning to learn competence
S2. Identifying available opportunities.
Citizen competence
S1. Ability to effective interaction with other people
Entrepreneurship competence
S1. Awareness of local, national, European culture heritage and their place in the world
S2. Basic knowledge of contemporary culture
S3. Understanding of cultural diversity
Cultural awareness and expression competence
S2. Creativity/innovation
S4. Independence, Motivation and Determination

United Nations 'Sustainable Development Goals

The Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate change, environmental degradation, peace and justice.¹²

¹² All goals are mentioned in the toolkit, the ones that are checked will be addressed in more detail

Teacher's Card

  Enable access to basic services	 Equal access to global expertise
 Safe medical devices	 Sustainable urbanization
 Access to education	 Responsible consumption and production
 Less hardship, more opportunities	 Strengthen resilience, reduce disaster impact
 Safe and affordable water	 Reduce marine pollution
 Energy – the golden thread	 Sustainable use of terrestrial ecosystems
 Safety of workers and economic growth	 Promote peaceful and inclusive societies
 Resilient infrastructure and sustainable industrialization	 Better access to technology and innovation

Teacher's Card

Activity

The detailed experimental procedures, the list of required materials and the safety instructions must be inserted in a module (separately downloadable and printable)¹³

Learning Pathway

Step 1 – Time & Activity:

10 minutes
Sustainability questionnaire

The students should complete the questionnaire independently in order to be encouraged to think.

Step 2 – Time & Activity:

10 minutes
PowerPoint lecture

Students are given an initial introduction to the concept of sustainability and why sustainability is essential for the future through a PowerPoint presented by the teaching staff.

Step 3 – Time & Activity:

15 minutes
Susgameability

Students should play games to gather information about the UN's 17 Sustainable Development Goals. The students should play the six games independently and read through the information that appears.

Game 1: (Includes Sustainable Development Goals: #1, #2, #6)

- In this game, students are asked to click on the countries in the correct order. The goal is to guess the correct order of the countries depending on how poor the country is.

Game 2: (Includes Sustainable Development Goals: #15, #16, #17)

- Here the children are taught that world peace is one of the most important goals, since almost all other goals are based on it. The task of the students is to click on all "wars" on the screen to end the war.

¹³ Die PowerPoint Präsentation im Anhang bietet eine Anleitung für das Lehrpersonal

Teacher's Card

Game 3: (Includes Sustainable Development Goals: #8, #9, #11)

- In this game, the students have to collect coins and decide whether they want to keep the money or invest it in a start-up. This is to make the students aware that the basis of a functioning country is a functioning economy.

Game 4: (Includes Sustainable Development Goals: #12, #13, #14)

- Here, students are made aware that our oceans are becoming more and more polluted and that there are already "garbage islands" as big as continents in the sea. In this level the students have to reach the goal without coming into contact with garbage.

Game 5: (Includes Sustainable Development Goals: #3, #4, #7)

- In this game, the children are made aware of the fact that not in all countries you can go to school for free or visit a doctor for free. For this purpose, the students have to answer some questions.

Game 5: (Includes Sustainable Development Goals: #5, #10)

- Here the students are made aware that some groups of people have to experience certain disadvantages in terms of education or profession because of their skin color or religion. To pass the level, the students must reach the goal with the game character.

Step 4 – Time & Activity:

10 minutes

PowerPoint lecture

The students are now told by the teaching staff how each individual can immediately live more sustainably. Here, the students should be animated to think a bit, e.g. by questions from the teaching staff, so that they get a feeling for what consequences which activity brings with it.

Step 5 – Time & Activity:

5 minutes

Kahoot-Game

A final Kahoot game can be used to assess how attentively the students have participated in the lesson. This can also be linked to a small reward for reaching a certain number of points as an incentive.

Evaluation



Your opinion is important to us so that we can continue to improve our teaching.

Please mark which of the statements are correct.

Thank you for your support

Teacher's Card

	I totally agree	I agree	Neutral	I disagree	I totally disagree
					
I knew exactly what I had to do					
The lesson was well prepared					
The tasks were easy					
I had plenty of time to complete all the tasks					
The topic was exciting					
I understood everything					
The lesson was interesting					
I have learned new things					
I had fun					
The teacher helped me					
I liked the lesson					

Description of Student's Card

The student cards are materials that can be printed and distributed to students directly before the activity.

Teacher's Card

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