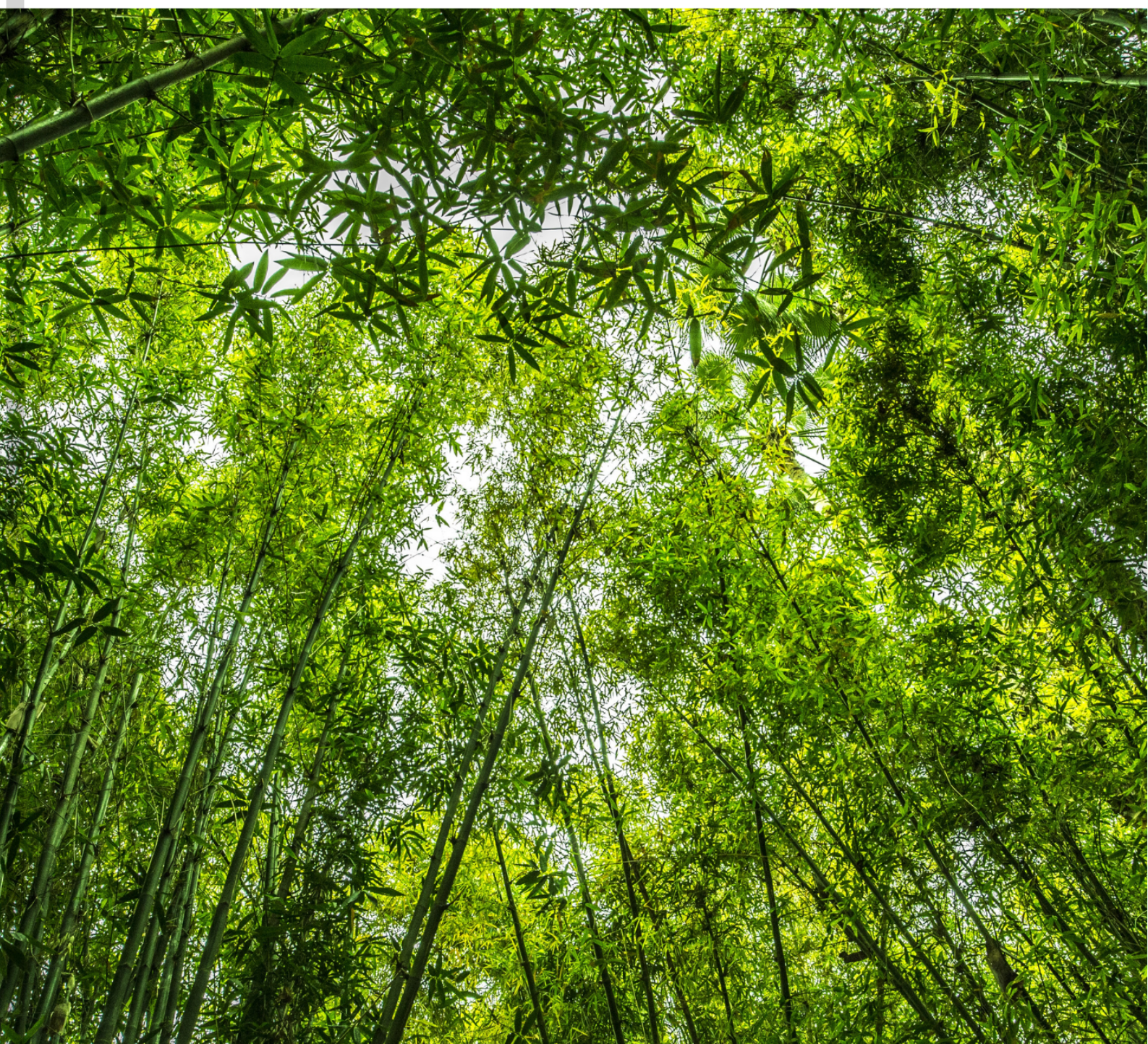


GoNature Booklet



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Go Nature Booklet
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INTRODUCTION	5
CHAPTER 1: NATURAL RESOURCES.....	7
<i>For Teachers.....</i>	7
<i>Question Cards.....</i>	12
<i>True or false.....</i>	19
<i>Activity Cards</i>	22
CHAPTER 2: WATER MANAGEMENT	29
<i>For Teachers.....</i>	29
<i>Question Cards.....</i>	34
<i>True or false.....</i>	46
<i>Activity Cards</i>	50
CHAPTER 3: WAST SEPARATION AND RECYCLING.....	53
<i>For Teachers.....</i>	53
<i>Question cards</i>	58
<i>True or False</i>	74
<i>Activity Cards</i>	77
CHAPTER 4: WILDLIFE GARDENS	78
<i>For Teachers.....</i>	78
<i>Questions Cards</i>	83
<i>True or false.....</i>	98
<i>Activity Cards</i>	102
CHAPTER 5: ZERO WASTE AND RUN THE HOUSEHOLD SUSTAINABLY	104
<i>For Teachers.....</i>	104
<i>Questions Cards.....</i>	110
<i>True or false.....</i>	123
<i>Activity Cards</i>	127
CHAPTER 6: GREEN TOURISM.....	132
<i>For Teachers.....</i>	132
<i>Question Cards.....</i>	137
<i>Activity Cards</i>	152
CHAPTER 7: ECO SPORTS.....	154
<i>For Teachers.....</i>	154
<i>Questions Cards</i>	159
<i>True or false.....</i>	173
<i>Activity Cards</i>	175
CHAPTER 8: VOLUNTEERING FOR THE ENVIRONMENT	179
<i>For Teachers.....</i>	179
<i>Question cards</i>	185
<i>True or false.....</i>	199
<i>Activity Cards</i>	208
CHAPTER 9: AVOIDING OVER PRODUCTION AND OVER CONSUMPTION	211

<i>For Teachers</i>	211
<i>Questions Cards</i>	217
<i>True or False</i>	229
<i>Activity Cards</i>	233
BIBLIOGRAPHY	235

Introduction

Who should be reached with the game?

With this game we want to reach children, young people, parents, grandparents and people interested in the topic. This target group is reached through activities organised by the partner organisations, including counselling, training and parents' evenings. These activities are designed to motivate families to engage with the topics on offer.

RELEVANCE

The topics addressed by GoNature related to sustainability and environmental issues are relevant to families and individuals across Europe. The great interest of parents and professional agencies in sharing results and products has already been demonstrated in previous Erasmus projects. For this reason, the GoNature project will realise the development of a stimulating family game. Previous experiences with similar projects have shown that such games are in high demand throughout Europe because they are easily accessible and appealing.

DIRECT TARGET GROUP

The direct target group includes the entire educational community, including families, children, youth and adults. GoNature aims to deliver sustainability education to this group through informal, game-based learning to promote inclusive and critical thinking for a more sustainable lifestyle. The direct target group will directly benefit from GoNature's innovative tools that promote new and existing knowledge, enable intergenerational learning and encourage the use of digital tools and Open Educational Resources (OER).

INDIRECT TARGET GROUP

This group includes regional stakeholders such as community centres, non-governmental organisations (NGOs) and organisations working with the direct target group, including trainers, educators, teachers and NGO staff. The indirect target group will benefit from educational materials and guidance provided by GoNature to engage the direct target group with educational tools to promote more sustainable lifestyles. GoNature's outputs, including textbooks and board

games, are intended as educational tools for this target group to implement informal educational activities with the aim of promoting learner motivation, critical thinking and participation.

Overall, the GoNature project focuses on sustainability education and uses interactive and engaging tools to reach a wide range of audiences, from families and children to educators and regional stakeholders.

Which overarching pedagogical goals are to be achieved?

The learning objectives and pedagogical goals of the game "GoNature" and the accompanying activities can be manifold:

PLAYFUL LEARNING: The GoNature game offers a fun and interactive way to teach complex environmental concepts and engage players' interest.

CRITICAL THINKING: Through discussions, question cards and activities, players are encouraged to think critically about environmental issues and consider different views.

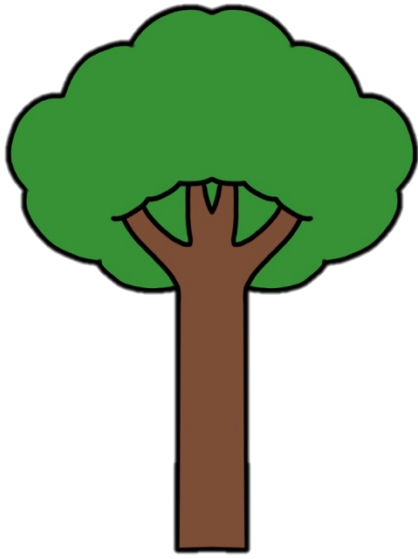
TEAMWORK AND COMMUNICATION: The game encourages cooperation and communication between players to find solutions to environmental problems together.

PRACTICAL APPLICATION: The accompanying activities, such as calculating the ecological footprint or exploring recycling practices, allow players to put their knowledge into practice.

CONSCIOUSNESS EDUCATION: Players should develop a heightened environmental awareness and be motivated to engage in sustainable practices in their own lives.

The combination of play and accompanying activities provides players with a holistic educational experience that promotes knowledge, reflection, critical thinking and action skills. The aim is to empower players to take a more active role in preserving the environment and contributing to a more sustainable society.

Chapter 1: Natural resources



For Teachers

CONTENTS

The chapter "Natural Resources" deals with the importance and use of natural resources. It explains what natural resources are, including renewable and non-renewable resources. It describes the impact of natural resource depletion on the environment and on people. The chapter also discusses the importance of sustainable resource management and the role of the Sustainable Development Goals (SDGs) in promoting sustainable use of resources. It also highlights the need to calculate the ecological footprint and understand the impact of resource use on the environment. In addition, it discusses ecological aspects of products such as silicone bakeware and organic food production. The chapter also covers important quotes and discussions on topics such as zero waste and recycling of resources. It highlights the complex relationships between resource use, environmental impact and social responsibility.

LEARNING OBJECTIVES

UNDERSTANDING NATURAL RESOURCES: Players should understand what natural resources are, both renewable and non-renewable, and how they affect our daily lives.

ENVIRONMENTAL IMPACT AWARENESS: Players should become aware of the impact of resource use on the environment, including the concepts of life cycle assessment and ecological footprint.

KNOWLEDGE OF SUSTAINABLE PRACTICES: *Players should learn how to use natural resources more sustainably and gain knowledge about different sustainability concepts, such as zero waste, renewable energy and environmentally friendly agriculture.*

MEANING OF SDGS: Players should understand the role of the Sustainable Development Goals (SDGs) in promoting sustainable resource use and how they can contribute to solving global environmental problems.

REFLECTION ON CONSUMPTION: Players are asked to reflect on their own consumption behaviour and its impact on the environment and make more sustainable choices.

SUGGESTED METHODS FOR TRAINERS AND TEACHERS TO IMPLEMENT THE TOPIC IN THE CLASSROOM

Those who will implement the topics of the game in their trainings can use various methods and approaches to effectively teach the topic of sustainable development and responsible management of natural resources. Here are some methods and approaches that those who will implement the topics of the game in their trainings can employ:

- **Interactive Discussions:** Those who will implement the topics of the game in their trainings can initiate classroom discussions where learners actively participate in the conversation, allowing learners to share their thoughts, ideas, and perspectives and reflect on them.
- **Hands-On Projects:** Those who will implement the topics of the game in their trainings can initiate projects where learners implement concrete actions related to sustainable development. This could include setting up a school garden, implementing waste reduction initiatives, or planning energy-saving measures in the school.

- **Field Trips and Nature Experiences:** Field trips to nature, visits to environmental organisations, or participation in nature-related activities can enhance learners' awareness of the environment and provide them with direct experiences.
- **Multimedia Presentations:** Multimedia presentations, videos, and images can be used to visually represent complex concepts and information, capturing learners' interest.
- **Role-Playing and Simulations:** Those who will implement the topics of the game in their trainings can use role-playing and simulations to illustrate to learners the consequences of their decisions on the environment and society.
- **Connecting to Current World Affairs:** Those who will implement the topics of the game in their trainings can leverage current news and events to raise learners' awareness of global challenges related to natural resources and sustainable development.
- **Guest Speakers:** Guest speakers, such as environmental experts or representatives from environmental organizations, can provide learners with insights into real-world issues and solutions in the field of sustainable development.
- **Multidisciplinary Approach:** Sustainable development is a multidisciplinary topic, encompassing areas such as science, economics, politics, ethics, and social sciences. Those who will implement the topics of the game in their trainings can show learners how these areas are interconnected.
- **Experiential Learning:** Those who will implement the topics of the game in their trainings can use experiential activities like field research, practical experiments, and environmental games to deepen learners' understanding.

- **Critical Thinking and Problem Solving:** Learners should be encouraged to develop critical thinking and problem-solving skills to find sustainable solutions to environmental problems.
- **Long-Term Projects and Tracking:** Those who will implement the topics of the game in their trainings can initiate projects that run over an extended period, encouraging learners to monitor and document changes.
- **Ethics and Values:** Those who will implement the topics of the game in their trainings can address ethical principles and values related to sustainable development and responsible use of natural resources.

It's essential to adapt teaching methods to learners' age and interests, ensuring that the instruction of sustainable development is practical and relevant. By actively involving learners in the learning process and giving them the opportunity to develop their ideas and solutions, they can gain a deeper understanding of the topic and become motivated to advocate for sustainable practices.

CONCEPTUAL BACKGROUND

Conceptual background refers to the theoretical foundations and principles underlying the development of educational programmes, curricula or pedagogical initiatives. In the context of teaching sustainable development and the responsible use of natural resources, the conceptual background includes a wide range of concepts and theories that serve as a basis for teaching and learning in this field.

- **Sustainability concepts:** This includes understanding the basic principles of sustainability, including environmental, social and economic aspects. Teaching should aim to ensure that students understand the importance of conserving natural resources and the impact of decisions on the environment.
- **Systems thinking:** Systems thinking is an important aspect of the conceptual background. Students should learn how different parts of a system are interconnected and how changes in one area can have an impact on others. This is crucial to develop sustainable solutions.

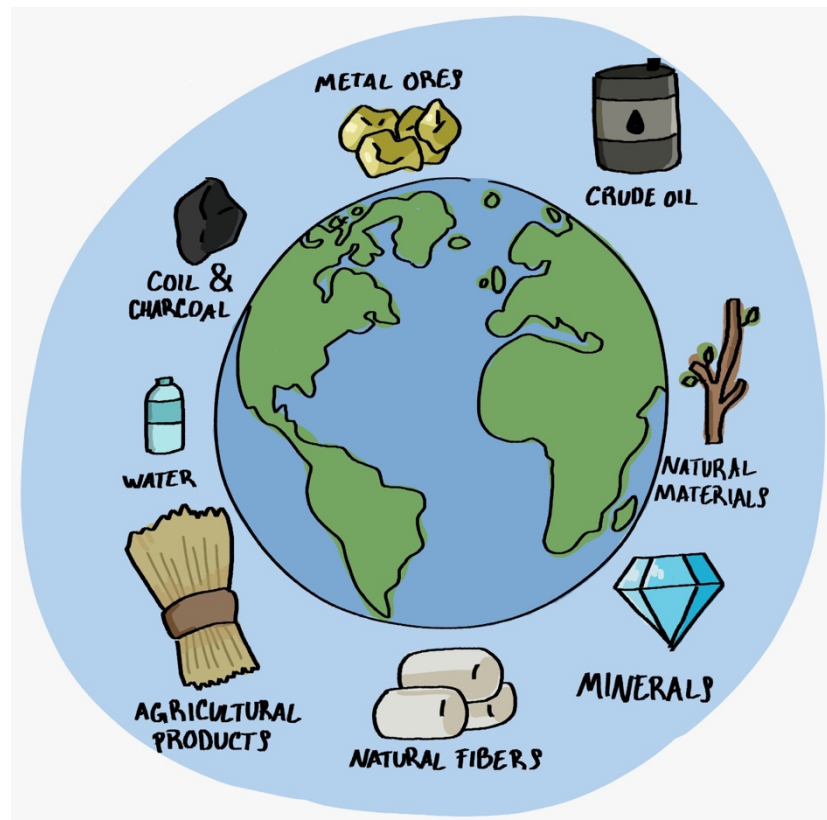
- **Interdisciplinary approaches:** Sustainable development is an interdisciplinary subject that requires knowledge from different fields such as science, economics, ethics and social sciences. The conceptual background should promote the integration of these different disciplines in the curriculum.
- **Ethics and values:** Ethics and values play an important role in decision-making in the field of sustainable development. The conceptual background should highlight the importance of ethical considerations in resource use and environmental decisions.
- **Participation and activism:** An important aspect is the promotion of civic participation and activism. Students should be encouraged to actively engage in sustainable practices and bring about change in their communities.
- **Lifelong learning:** The idea of lifelong learning is also a key element of the conceptual background. Sustainable development is a constantly evolving field and students should be encouraged to continuously acquire new knowledge.

The conceptual background should guide the design of curricula and educational programmes and ensure that the concepts and principles taught therein provide students with a comprehensive understanding of sustainable development and the responsible use of natural resources.

Question Cards

1. Please describe the term "natural resources"!

Natural resources take on functions or are part of nature. These bring an economic benefit. Natural resources include raw materials, biodiversity as well as geothermal or wind and solar energy. Some natural resources are also referred to as natural assets.



Natural resources are understood to be functions or components of nature. These components bring economic benefits. Natural resources include raw materials, biodiversity and geothermal or wind and solar energy. The latter is also referred to as flowing resources. In some cases, natural resources are also called natural goods.

The word resource comes from the French. Natural resources are therefore the treasures of nature that help many situations and areas. A distinction is made between non-regenerable and regenerable resources."

2. What are the top 3 natural resources?

water, soil, air;

WATER is a vital resource for all living things and has far-reaching impacts on various aspects of human life and the environment. It is needed for drinking water, agriculture, industry, energy production and ecosystem functions. The United Nations (UN) highlights the importance of water in its Water Action Agenda report.

CLEAN AIR is crucial for human and environmental health. Air quality affects the respiratory system, climate and ecosystems. In its report "Ambient (outdoor) air quality", the World Health Organization (WHO) emphasises the importance of clean air for people's well-being.

SOIL is an essential resource for agriculture and food production. It contains nutrients, provides habitat for organisms and is important for water balance. The Food and Agriculture Organization of the United Nations (FAO) emphasises the importance of soil for agriculture and sustainability in its report "Soil and Water".

3. What are renewable resources?

Renewable resources are also called renewable raw materials. Over time these can be replenished through natural processes such as solar energy, wind energy and wood;

Renewable resources, also known as renewable raw materials, are natural resources that can regenerate over time through natural processes. These resources play an important role in sustainable development and reducing the ecological footprint. Here are some examples of renewable resources:

SUN ENERGY: The sun is an inexhaustible source of energy that can be used by solar panels to generate electricity and heat water. Solar energy is renewable because it is continuously produced by the sun.

WIND ENERGY: Wind turbines convert the kinetic energy of the wind into electrical energy. Since wind is a renewable resource, it can be used continuously to generate electricity.

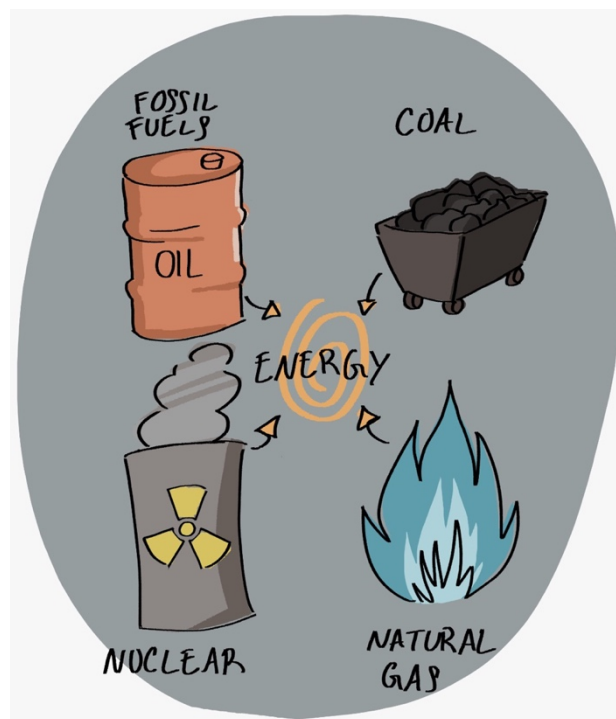
WOOD: is a renewable resource derived from forests. Trees can be managed sustainably by planting and harvesting them regularly. Wood is used in many ways, e.g. as a building material, for heat and energy generation and for the production of paper products.

Renewable resources play an important role in reducing dependence on non-renewable resources such as fossil fuels and reducing the environmental impact of energy production. Through their use, a more sustainable and environmentally friendly energy supply can be achieved.

4. What are non-renewable resources?

Nonrenewable resources are resources that cannot be replenished or replaced once they are depleted, such as fossil fuels (coal, oil, and natural gas), minerals (gold, silver, and copper), and groundwater

Non-renewable resources are natural resources that exist in a limited amount and are not replenished naturally or only over very long periods of time. Here are some examples of non-renewable resources:



FOSSIL FUELS: The statement that fossil fuels such as coal, petroleum and natural gas were formed over millions of years from dead plants and animals and that the formation process takes a very long time is supported by various scientific sources. It is important to note that the rate of formation of fossil fuels is extremely slow compared to their consumption, leading to their classification as non-renewable resources. This fact is supported by geological studies and findings that include the time frame of the formation of fossil fuels

MINERALS such as gold, silver, copper and iron are extracted from the earth's crust and are in limited supply. Their formation occurred through geological processes that took millions of years. Once these minerals are mined and used up, they cannot be regenerated.

GROUNDWATER is an important resource for drinking water and agricultural irrigation. It accumulates in underground rock layers and aquifers. Since the natural recharge of groundwater is usually very slow, it can be considered a non-renewable resource if it is depleted faster than it can be replenished.

The use of non-renewable resources often has a significant impact on the environment, including the release of greenhouse gases and the destruction of habitats. It is therefore important to develop alternative sustainable resources and technologies to reduce the consumption of these resources and minimise the environmental impact.

5. How does the depletion of natural resources affect the earth and us humans?

Depletion of non-renewable resources like fossil fuels increases greenhouse gas emissions and contributes to climate change. Water and mineral depletion cause water scarcity, loss of valuable minerals, and impact economic development.

Depletion of renewable resources like forests leads to biodiversity loss, ecosystem damage, and reduced availability of timber. Soil depletion reduces its ability to support crops, impacting food security and economic development.

6. What types of resource management do you know? Name at least three!

Management of forest resources, water resources, mineral resources, land resources, energy resources, wildlife/biodiversity resources, agricultural resources;

7. What does the term value chain mean? The term "value chain" in the context of natural resources refers to the process of extracting, processing and valorizing raw materials. It describes the process by which natural resources move from their place of origin to the end product through various stages of processing and use.



In a value chain, the activities in the individual production stages are presented in sequence. By means of these activities, values are created and resources consumed. In addition, the activities are interconnected in processes. The concept of the value chain was first published by the US economist Michael E. Porter in 1985."

8. What negative impacts on the environment can the value chain have?

Every extraction and processing of a raw material has an impact on the environment: soil degradation, water scarcity, loss of biodiversity, impairment of ecosystem functions or worsening of climate change, release of greenhouse gases, emission of pollutants or impairment of ecosystems and biodiversity;

In principle, every extraction and processing of a raw material has an impact on the environment:

Soil degradation, water scarcity, loss of biodiversity, impairment of ecosystem functions or intensification of climate change can be the result. But the use of the products made from the raw materials is also usually associated with the release of greenhouse gases, the emission of pollutants or the impairment of ecosystems and biodiversity. Products require energy, water or land for transport, distribution and use. If used improperly, pollutants can escape, entering water, soil or air. The infrastructure for our accommodation and diverse activities is often material-intensive, leads to soil sealing, strong interventions in the natural balance and affects the landscape.

Even at the end of the value chain, environmental impacts can hardly be avoided. For example, energy is needed for recycling, greenhouse gases and other pollutants are emitted when waste is recycled, or land is permanently used for landfilling.

9. What are the negative consequences of the scarcity of resources?

Exploitation of developing countries, political conflicts due to unequal distribution of resources, risk for future generations

The effects of resource scarcity can be manifold and have negative consequences for different sectors:

EXPLOITATION OF DEVELOPING COUNTRIES: Resource scarcity can lead to increased exploitation of developing countries. Developed countries may seek to meet their resource needs by accessing natural resources in developing countries, which can lead to unfair trade practices, environmental degradation and social conflict.

POLITICAL CONFLICTS: The unequal distribution of scarce resources can lead to political conflicts. Resource-rich regions can become the target of political claims and conflicts, both nationally and internationally. This can lead to unstable political situations, tensions between countries and even armed conflicts.

RISK FOR FUTURE GENERATIONS: Resource scarcity poses a risk for future generations. If resources are not used sustainably, there is a risk that they will no longer be available in the future. This can lead to problems such as food shortages, water shortages, energy shortages and a reduced quality of life for future generations.

10. What do the SDGs - Sustainable Development Goals stand for?

The SDGs are designed to address the world's most pressing development challenges, including poverty, hunger, health, education, gender equality, water and sanitation, energy, environment and others. The SDGs are a universal call to action to end poverty, protect the planet and ensure all people have the opportunity to lead peaceful and fulfilling lives.

The Sustainable Development Goals (SDGs) are a set of 17 global goals adopted by the United Nations in 2015. They serve as a roadmap for sustainable development until 2030 and cover various areas such as poverty, education, health, gender equality, environmental protection and resource use.

The official source for the SDGs and further information is the United Nations website. There you will find detailed information on each SDG, the targets, the sub-targets and the indicators to measure progress. The website also offers reports, publications and data that illustrate the scope and importance of the SDGs.

Here is the source you can access:

United Nations: Sustainable Development Goals. Available at:
<https://sdgs.un.org/goals>.

This website provides a comprehensive overview of the SDGs, their importance and progress. You can click on individual SDGs for specific information and resources.

Please note that the United Nations website is updated regularly and it is possible that the page structure or URL may change over time. Therefore, I recommend visiting the official United Nations website for the most up-to-date information.
United Nations - Regional Information Centre for Western Europe (unric.org)



True or false

1. **Earth Overshoot Day is the day when most people were shot.**

False

In 2020, the natural resources that our earth can renew annually were used up on 22 August. This is known as "Earth Overshoot Day". This example shows that we are overexploiting the natural resources of our earth without thinking of future generations. The fact that the world population is expected to increase from 7 to 9 billion people in 2050 makes the growing demand for resources clear. This makes it all the more important to protect the earth's raw materials and strive for sustainable development.

2. **In 2009, over 68 billion tons of raw materials were used worldwide. That's twice as many as 30 years ago.**

True

3. **In 2018, the Earth would have needed multiple planets to sustain the population if everyone lived like the average person in the following countries: USA - 5, Spain - 2.3, China - 2.2, Brazil - 1.8, India - 0.7.**

True

4. **Organic food is always sustainable!**

False

"Sustainable" and "organic" are distinct terms often used interchangeably. "Sustainable" food production considers economic, social, and environmental aspects to preserve resources and human health for the future. "Organic" specifically refers to certain aspects of production and storage, including restrictions on synthetic pesticides and fertilizers. While both terms are related to environmental impact, "organic" certification may not cover all ecological aspects, and "sustainability" encompasses broader considerations such as economic and social factors.

5. Did you know? An average of 2,495 liters of water is used to make a 250-gram cotton T-shirt.

True

6. Do you guess that is true, that on average, every German buys three kitchens in their lifetime?

True

7. There are 300 million more cell phones than people in the world.

True

8. Every year, 10,000 square kilometers of tropical rainforest are cut down - for wood, paper, conversion into oil palm or soybean plantations, cattle pasture or for the exploitation of mineral resources such as iron ore, gold, oil or gas or for the construction of large dams.

True

9. In the European Union, the Italians use the most tap water with 243 liters per capita and day, while the Maltese use only 50 liters per capita and day.

True

10. The use of renewable resources is always sustainable.

False

Our resource consumption is also many times higher than what would be sustainable. This applies to both non-renewable resources (e.g. bauxite for aluminium or phosphate as fertiliser for agriculture) and renewable resources (e.g. wood). For even the use of renewable resources is not automatically sustainable. This is only the case if no more is deforested than grows back - the most original meaning of the word "sustainability", by the way.

Activity Cards

- 1. Discuss the following motto with the other players: "There is no "way"! When we throw something away, it has to go somewhere**
- 2. Explain! "The greenest product is the one you didn't buy."**
- 3. How can one explain this sentence? "Today's man has become more dangerous to nature than it ever was."**
- 4. How can one interpret this motto? "Plastic will be the main ingredient in all our grandchildren's recipes."**
- 5. Search the Internet for the "Waste Atlas" and discuss the information presented with the other players! Here is the link: [Waste Atlas - Interactive map with visualized waste management data \(d-waste.com\)](https://d-waste.com)**

The Waste Atlas is a free crowdsourcing map that visualises data on municipal waste management around the world for comparison and benchmarking purposes. The Waste Atlas is created with the contribution of researchers from different countries and using published data. Any contribution is more than welcome, but the published figures are first checked for errors or inconsistencies. The Waste Atlas already contains data (as of 2022) for: 164 countries (a total of 1,825,463,704 tonnes/year or 97% of global waste generation), 1799 cities, 1626 sanitary landfills (Sanitary landfills are specially designed disposal sites with engineered features to minimize environmental impact), 93 landfill sites, ect.

- 6. Too Good To Go is available in Austria, Portugal, Finland and Nesnězeno.cz in the Czech Republic? Please download the app on your smartphone and see where you can take advantage of offers in your immediate vicinity. Discuss the offers with your fellow players.**
- 7. The ecological footprint:**

Search the internet for a link to a personal footprint calculator and try it. Discuss the results! What do these results say?

Here are several links to apps that you can use to calculate your ecological footprint:

Ökologischer fußabdruck rechner - ClimateHero

WWF Footprint Calculator

All players should choose one of them and calculate their personal ecological footprint. Afterwards, compare the results!

Additional information:

The ecological footprint is a measure of the impact of human activities on the environment. It is calculated by determining the amount of land, water and other resources needed to produce the goods and services we consume and absorb the waste we produce. There are several ways to calculate an ecological footprint, including:



Personal footprint:

A personal ecological footprint calculates the amount of land, water and other resources required to sustain a person's lifestyle. This calculation takes into account the products and services a person uses, including food, shelter, transportation and consumer goods.

Organisational Footprint:

An organisational ecological footprint calculates the impact of a business or organisation on the environment. This calculation takes into account the products

and services the organisation produces, as well as its energy consumption, waste generation and other environmental impacts.

Regional footprint:

A regional ecological footprint calculates the environmental impact of a specific region, such as a city, state or country. This calculation takes into account the total resource consumption and waste generation of the region's inhabitants, businesses and authorities.

It is important to understand that the ecological footprint is not a perfect measure of environmental impact and that different calculations and methods can lead to different results. However, the ecological footprint can still be a useful tool to raise awareness of the impact of human activities on the environment and to promote sustainable practices.

The concept of the ecological footprint has been around for over 15 years and was introduced at Canada's University of British Columbia by Mathis Wackernagel.

Western (richer) countries have the largest footprint. Developing countries do much better in this respect, although they often have to suffer the heaviest blows when it comes to the consequences of our large footprint. The average footprint of a European Union citizen is 4.8 hectares. As of 2022, the leader in the European Union is Finland with an average footprint of 7.6 hectares and at the bottom of the list is Latvia with an average footprint of 2.6 hectares. If all people lived with the footprint calculated for the average European, we would need 4.8 Earths. For comparison with other continents: - Africa 1.1 hectares - Asia 1.3 hectares - South and Central America 2.0 Europe 4.8 hectares - Australia and New Zealand 6.5 hectares - North America 9.4 hectares.

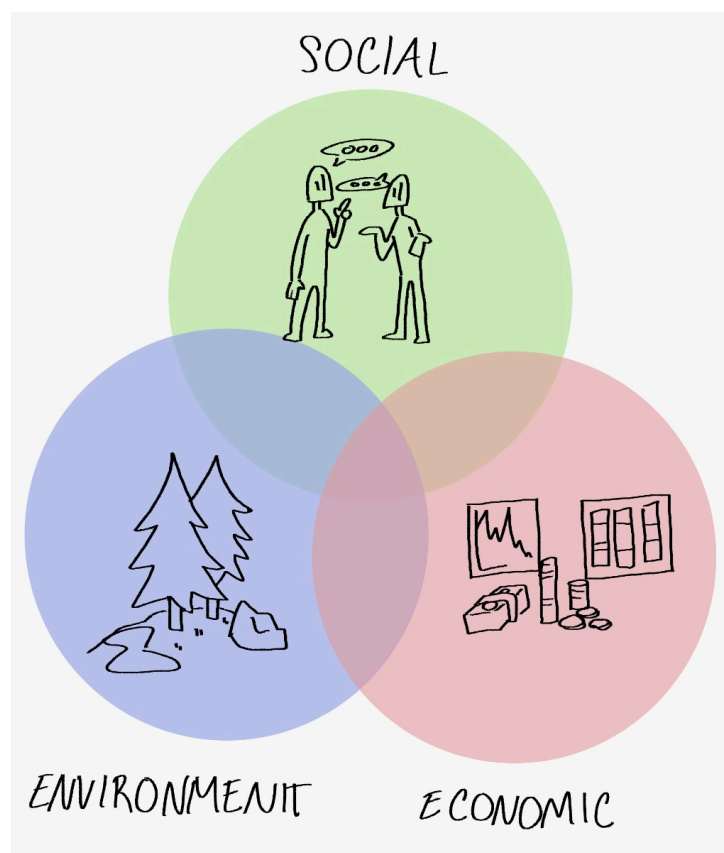
8. Do Internet Research

A mobile phone consists of a complex mixture of materials, including metals, minerals, plastics and other substances such as rare earth elements. Use the link <https://www.britannica.com/science/rare-earth-element> to find out what these rare earths are called and where they are found.

- Rare earth elements: These elements are used in the manufacture of electronic components such as LCD screens, batteries and magnets.
- Metals: Metals such as gold, silver and copper are used in the manufacture of electronic components such as cables and circuit boards.
- Minerals: Minerals such as quartz and feldspar are used in the manufacture of glass for LCD screens and other components.
- Plastics: Plastics are used for housings and other components of mobile phones.

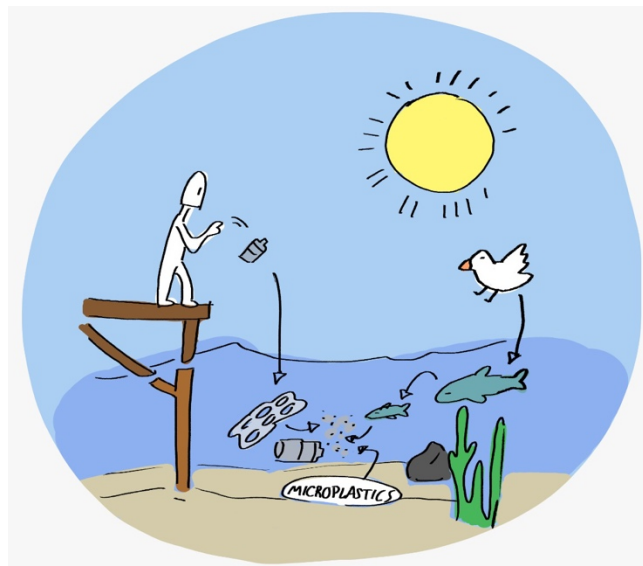
It is important to note that the extraction and processing of these resources can have a significant impact on the environment, including habitat degradation, greenhouse gas emissions and the depletion of finite resources. The use of recycled materials and the development of more sustainable production processes can help reduce the environmental impact of mobile phone production.

Use the link to find out what these rare earths are called and where they occur:
[Rare-earth element | Uses, Properties, & Facts | Britannica](#)



9. Discuss with your fellow players: Is sustainable packaging made from renewable raw materials also ethical, considering that food is produced for its production while many people are starving?

Consideration of social sustainability. Due to the constantly growing world population, consumption has increased dramatically in recent decades. In addition, our consumer goods are coming onto the market in a wide variety of plastic packaging to make our lives easier down to the smallest detail. However, it is not only plastic that is increasingly littering our planet, as it ends up in the oceans in the form of microplastics and in our bodies at the end of the food chain, and also contributes enormously to global warming. This is becoming a threat to the planet and humanity. How much longer can our planet cope with this situation?



Plastic is made from oil, a raw material that is finite and usually comes from politically unstable countries. In order to become independent of this and solve the problem with the mountain of waste and microplastics, the EU has set itself the goal of ensuring that all plastic packaging in the EU can be recycled by 2030. New alternatives to plastic have therefore been developed to pave the way for a circular economy. These include so-called bioplastics. But "organic" is not always the same as "organic". A distinction must be made between "bio-based plastics", whose origin can be found in renewable raw materials, and "biodegradable plastics". "Bio-based" does not automatically mean "biodegradable" and "biodegradable" does not necessarily mean that these raw materials come from renewable resources, as they can also come from crude oil and be biodegradable. Bioplastics have developed rapidly in recent years. To date, 4 generations of bioplastics can be distinguished.

In the first phases, bioplastics were produced from potato and maize starch. Then, renewable, non-edible raw materials such as wood or waste materials (fruit stones, coffee grounds, harvest residues, etc.) and non-cultivable raw materials (algae, bacteria, etc.) were used. Although bio-based plastics conserve oil reserves and generally reduce carbon dioxide emissions and the amount of plastic in the oceans, the impact of growing renewable raw materials for the production of bioplastics on agriculture can be enormous. Among other things, the increasingly intensive use of arable land in agriculture or the use of soil fertilisers, pesticides, genetic engineering and increasing water consumption, for example, put a strain on our environment. In addition, it is not possible to break down bioplastics in your own compost heap at home and they cannot decompose properly in recycling plants together with residual waste because they require much more time and higher temperatures for degradation (12 weeks, at around 65 degrees). As a result, bioplastics end up as residual items in compost waste and are ultimately regarded as unwanted by the recycling centre and incinerated. In order to avoid these negative effects, much more emphasis should be placed on sustainable production and a regional circular economy. Plastics are recyclable materials and should therefore be handled sensibly. However, in order to recycle them properly, consumers need more precise and clearer instructions and sufficient information about the recyclability of packaging. It is not enough for consumers to pay more for bioplastics and feel that they have done something good for the environment. This can lead to even higher mountains of plastic piling up. It would be much better to opt for reusable plastic and avoid plastic in general. Whether bioplastics are ethically justifiable at all when one in eleven people on earth suffers from hunger could also be discussed at length. One third of all food worldwide is lost or thrown away. The environment also suffers from the enormous amount of wasted food. Almost a tenth of all greenhouse gas emissions can be attributed to discarded food. Despite this, the reduction of food waste has not yet been included in the national climate protection targets of the Paris Climate Agreement. This could perhaps be a first step that could lead to a fair distribution of the world's resources and thus to a better world. (Project Sustainable Living in Europe)

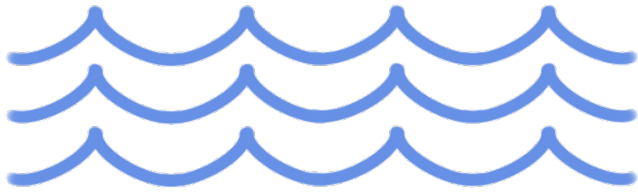
10. Discuss with your fellow players! Does it make sense to prefer silicone products to conventional baking paper or e.g. paper muffin cups?

No fossil raw materials are required for the production of silicone baking utensils, and silicone is a durable plastic and therefore kinder to the environment. However, this also means that the material is not easily biodegradable. If they are properly recycled, silicone products are easily recyclable. However, this is not yet common practice; in fact, only a very small



proportion of silicone is actually recycled. According to current knowledge, the silicone in the baking moulds is harmless to health, but there may be other harmful ingredients in the moulds, e.g. vapours. Consumers should heat the silicone baking moulds at 200 degrees for four hours before using them for the first time and ventilate them vigorously to evaporate potentially harmful substances. This approach is not very sustainable. There are doctors and scientists who point out the dangers of the hormone-like plasticisers that can be contained in silicone products. The green suppliers of silicone baking utensils (e.g. greenpicks.de) endeavour to be sustainable, act fairly, protect the climate and reduce harmful substances, etc. The products of such suppliers contribute to a sustainable, healthy life. Unfortunately, this approach cannot be recognised in the low-cost providers. Neither can you read about a sustainable concept on the packaging or website, nor do their moulds smell neutral.

Chapter 2: Water Management



For Teachers

CONTENTS

This chapter "Water Management" covers important aspects related to the management of water resources. It explains that water management is crucial to keeping clean water sustainably available. Water is crucial for the survival of all living things on earth. The chapter emphasises that only a small part of the water on earth is freshwater and that water scarcity is a serious global problem. It explains the different types of freshwater resources on Earth, including surface water, groundwater and atmospheric water. It further explains how groundwater can reach the Earth's surface and gives examples of flowing and standing freshwaters. The chapter emphasises the importance of water management, as it is a valuable resource that is essential for the survival of ecosystems, economic activities and human health. Finally, it explains that water scarcity is a serious problem and various factors such as population growth, climate change and pollution contribute to it.

LEARNING OBJECTIVES

The learning objectives of this chapter "Water Management" are:

Understand the concept of water management and why it is crucial.

To recognise the importance of water for the survival and health of people, animals and plants.

Identify the different types of freshwater resources on Earth, including surface water, groundwater and atmospheric water.

Understand the importance of surface water and its differences from groundwater. Knowing how groundwater reaches the earth's surface and the role it plays in different areas, such as drinking water supply, agriculture and ecosystem support. Understand the importance of flowing and standing freshwaters and give examples of these types of water.

- Why fresh water is considered a valuable resource and how it is used in different sectors such as agriculture, industry and ecosystems.
- Recognise the importance of water scarcity and understand the factors that contribute to it, including climatic changes, population growth and pollution.
- Understand the impact of water scarcity on different aspects of society and the environment.
- Appreciate the importance of water management and sustainable use of water resources.
- These learning objectives help readers develop a basic understanding of water management and the importance of clean water in different aspects of life.

SUGGESTED METHODS FOR TRAINERS AND TEACHERS TO IMPLEMENT THE TOPIC IN THE CLASSROOM

Implementing the topic of water management in the classroom can be done in a variety of ways to engage learners and enhance their understanding of the topic. Here are some suggested methods for trainers and teachers:

- **Discussions and debates:** Initiate a discussion on the importance of water management. Let learners discuss and debate different views on water management issues. This encourages critical thinking and opinion formation.

- **Case studies:** Provide learners with case studies that address real water management challenges and solutions. This allows learners to gain practical insights into the topic.
- **Experiments and demonstrations:** Conduct experiments or demonstrations to teach basic concepts of water management. This may include the groundwater model, water filtration or the effects of water pollution.
- **Interactive online resources:** Use interactive online tools and resources to allow learners to explore water management concepts through play. There are many free educational tools and websites that focus on environmental issues.
- **Field trips:** Organise field trips to water treatment plants, water protection areas or other relevant locations to provide learners with insights into real water management practices.
- **Group projects:** Assign learners to group projects where they develop water management plans for specific regions or scenarios. This encourages teamwork and creative thinking.
- **Guest lectures:** Invite guest speakers such as environmental management experts or staff from environmental organisations into the classroom to provide learners with first-hand insights into water management topics.
- **Current events and news:** Integrate current news and reports on water management issues into the lesson. Discuss how these issues affect society and what solutions are proposed.
- **Role plays:** Organise role plays where learners portray different actors in water management, such as government representatives, environmentalists or farmers. This promotes understanding of different perspectives.

- **Quizzes and competitions:** Organise water management quizzes and competitions to test and promote learners' knowledge.

CONCEPTUAL BACKGROUND

The conceptual background of the topic "water management" is primarily focused on the need to use and protect the precious resource water in a sustainable way. Various key concepts play an important role in this:

- **Sustainability:** The idea of sustainability is a central concept in water management. It refers to the use of water resources in a way that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. This means using water responsibly, avoiding waste and protecting ecosystems.
- **Water cycle:** The water cycle describes the continuous flow of water on Earth, from evaporation and precipitation to runoff into oceans and seepage into the ground. Understanding the water cycle is crucial to understanding how water moves, is purified and can be made available again.
- **Water resources:** Water resources include different types of freshwater, including surface water such as rivers and lakes, groundwater stored in underground aquifers, and atmospheric water in the form of clouds and precipitation. The concept of different water sources and their availability is crucial for water management.
- **Water quality and pollution:** The quality of water is as important as the quantity. Water pollution from industrial effluents, agricultural chemicals and sewage can threaten drinking water supplies and damage ecosystems. The concept of water quality includes the monitoring and protection of water bodies.
- **Water scarcity:** Water scarcity occurs when the demand for water exceeds the available resources. This is often the result of factors such as population growth, climate change and water waste. Addressing water scarcity requires effective water management strategies.

- **Ecosystem support:** Water resources are crucial for supporting ecosystems, which in turn are important for biodiversity and balance in nature. The protection of wetlands, rivers and lakes is an important aspect of water management.
- **Participation and policy:** Water management often requires the cooperation of different actors, including governments, communities, businesses and environmental organisations. Policy and governance play a key role in setting water management policies and laws.

Overall, the conceptual background of water management deals with the balance between human use of water resources and the protection of these resources for future generations and the environment. It includes environmental, social and economic aspects to ensure that clean water is available for all people in the world and that the environment is preserved.



Question Cards

1. What is water management?

Water management is the management of water resources available on earth, like rivers, streams, lakes, wetlands, seas and oceans.

It is very important to plan, develop, and manage the process of water resource management to be sustainable for humans to have access to clean water.



Responsible and sustainable water resource management is the most essential priority for the healthy and efficient functioning of a society. Water management impacts many aspects of life, like environmental protection, potable water access, or farming.

Every human's priority is to have drinking water. But every human should manage the water resources carefully, first asking, "What can I do to have clean, drinking water? What can I do for future generations to have clean, drinking water? What can I do to support the environment and have enough quality water resources? "

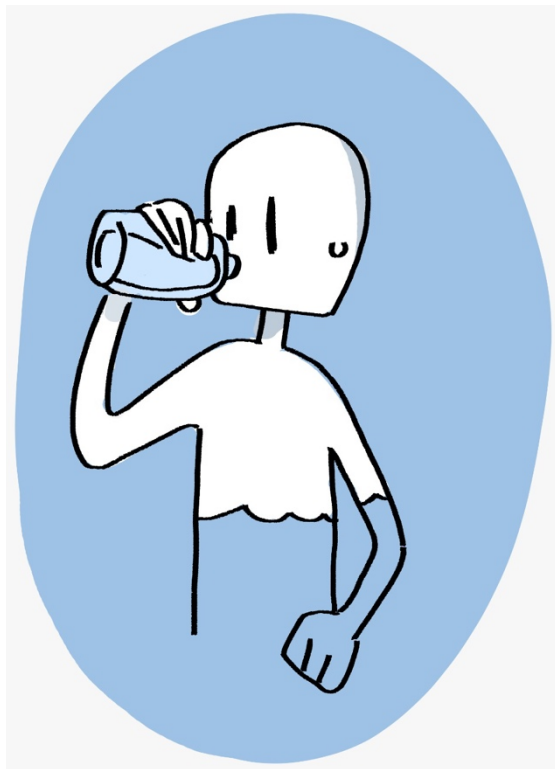
Humans need to consider these questions on a large scale and in relation to an entire region or country first, trying to do their best to meet the demand for clean water without running out in the future.

2. Why is water important?

There is no life on earth without water. All living organisms, humans, plants and animals, need water to survive.

Essential for Life

Water is essential for all living organisms to survive, including humans. It is a fundamental requirement for sustaining life and preserving health.



60% of our body is made up of water. Water is in all our body's cells, organs, and tissues. It regulates our body temperature, flushes out waste from our body, aids our cognitive functions, maximises our physical performance, and other bodily functions. It is very essential to consume fluids and foods that contain water to rehydrate and replace water since our body loses water through breathing, sweating, and digestion.

Limited resource

The amount of freshwater resources is limited and can be impacted by factors like rainfall patterns, human activities connected with overuse, pollution and climate change.

Since water is a finite resource, it is essential to maintaining ecosystems, human health, and economic development.

Only 3% of the world's water is fresh and drinkable. Even though water is a renewable resource, humans have access to less than 1% of the remaining 3% since the rest is frozen in glaciers and ice caps or is too far away to have access for practical use.

Water is essential for sustaining life, promoting health, supporting economic activities, and maintaining the balance of ecosystems. It is a valuable resource that needs to be managed and conserved responsibly to ensure its availability for current and future generations.

3. What are types of fresh water resources on earth?

Fresh water resources are found in glaciers, lakes, ponds, rivers, streams, wetlands, and ground water.

71% of the surface of the earth is covered by water.

97% of the earth's water is found in the oceans. Ocean water, however, is too salty to be used for industrial purposes, drinking, or producing crops.

Only 3% of the earth's water is fresh, and of that:

- 2.06% of the freshwater resources are trapped in glaciers and ice caps;
- 0.9% of the freshwater resources are underground;
- the remaining part is found in lakes, wetlands, and rivers.

The various freshwater resources on Earth include:

Surface Water

Surface water is found in bodies of water on the Earth's surface, such as rivers, lakes, reservoirs, ponds, and streams.

Groundwater

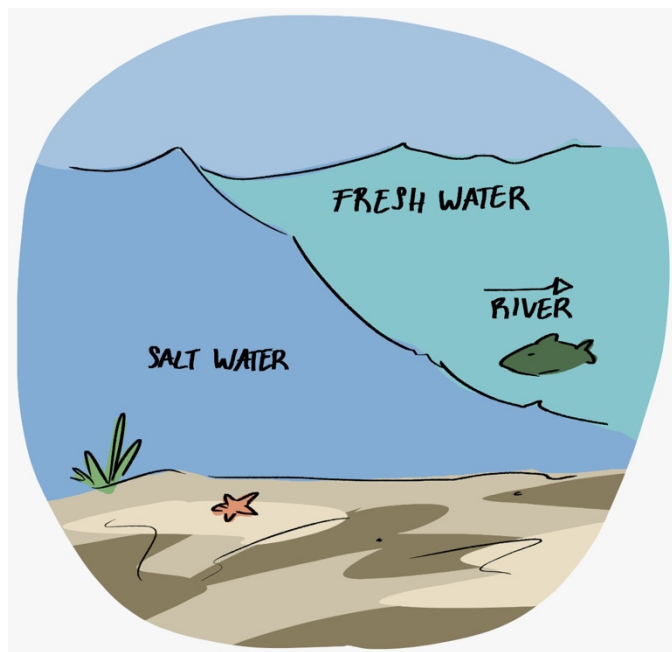
Groundwater is water that is stored below the surface of the Earth in porous rock formations called aquifers. Groundwater is a significant source of freshwater, especially in regions where surface water may be limited.

Glaciers and Ice Caps

These are massive ice bodies formed from accumulated snowfall in cold regions such as the Polar regions and high mountain ranges.

Atmospheric Water

Water is also present in the atmosphere as water vapour. This includes clouds, fog, and atmospheric moisture. While atmospheric water is not directly available as a freshwater resource, it plays a vital role in the water cycle and helps to produce rainfall and precipitation.



These types of freshwater resources are interrelated and vital for supporting various ecosystems, providing drinking water, sustaining agriculture, and meeting the water needs of human societies.

4. What is surface water?

Surface water is any area of water found on the earth's surface. This includes both the saltwater in the oceans and the freshwater in rivers, streams, lakes, wetlands, reservoirs, and creeks.

Surface water refers to water that is visible on the earth's surface, such as in rivers, lakes, ponds, streams, and reservoirs. It is the water that collects or flows on the surface of the land and is not absorbed into the ground or stored underground. Surface water is primarily derived from precipitation, such as rainfall or snowmelt.

Water that seeps deep into the ground is called groundwater.

Healthy surface water ecosystems are important both for nature and citizens, agriculture, and industry to have access to clean water.

5. What is ground water?

Groundwater is the rain and snowmelt water stored underground in the cracks and spaces in soil, sand, and rock. It is one of the most important resources of freshwater.

Groundwater is a crucial resource because it fills up streams, rivers, and lakes with water. It is found underground, beneath the soil surface. Groundwater can be found in numerous locations when given the opportunity to replenish itself.

Groundwater replenishes rivers and streams, so they can continue to flow even when it isn't raining.

Groundwater plays a crucial role in meeting humans demands for water for the following reasons:

Drinking water

Groundwater serves as a source of drinking water for humans all around the world. It is often cleaner and safer than surface water because it is naturally filtered as it travels through soil and rock layers.

Agriculture

The largest amount of groundwater is used for irrigation. This is the process of providing water to crops. Many farmers rely on groundwater to grow their crops, especially in areas with little or unpredictable rainfall.

Ecosystem support

Groundwater supports wetlands, lakes, and rivers, with water, and these provide water sources for plants and animals. It helps maintain habitats and supports a diverse range of aquatic life.

Industry and commercial use

Groundwater is used in various industries, such as manufacturing, mining, and energy production. It is also essential for commercial purposes, like cooling systems and water supply for buildings.

Drought resilience

Groundwater can be a useful backup supply during times of drought or dry conditions. It can help sustain water availability when surface water sources, such as rivers and lakes, are reduced.

Natural balance

Groundwater maintains the balance of water in the water cycle. It helps replenish surface water bodies through springs and seepage into rivers and lakes and thus ensures their flow.

6. How can groundwater emerge at the earth surface?

Groundwater is brought to the surface naturally through a spring, or can be discharged into lakes, wetlands, and streams.

Groundwater, which is water beneath the ground, can come up to the Earth's surface in different ways. Here are some ways it happens:

Springs

Springs are places where groundwater naturally comes out of the ground. When the level of groundwater meets the land surface, it flows into streams, rivers, or lakes. Springs can be small or big, with water flowing slowly or quickly.

Seepage

Groundwater can seep through materials like soil, sand, or gravel and reach the surface. This can be seen as wet or damp areas on the ground or even small pools of water.

Wetlands and Swamps

Wetlands and swamps are places where the water table is close to the surface. This creates wet and water-rich environments. In these areas, groundwater naturally emerges, providing water for plants, animals, and special ecosystems.

Wells

People drill wells into the ground to get access to groundwater. By pumping the water from the well, they can bring groundwater up to use for drinking at households, farming, or industries.

Riverbank Filtration

Groundwater sometimes comes up along riverbanks where there is a connection between the river and the groundwater. The river water seeps into the ground and mixes with the groundwater, creating a natural filtration process.

Remember, how groundwater emerges depends on different things like the land's shape, the type of soil and rocks, and how deep the water table is. So, the way groundwater comes up can vary in different places.

7. What are examples of flowing freshwaters?

Examples: streams, brooks, rivers, waterfalls, springs.

Examples of flowing freshwater include:

Streams and Brooks

Small to medium-sized streams and brooks that flow through forests, meadows, or mountainous regions often contain flowing freshwater. These water bodies are important for maintaining local ecosystems, supporting wildlife, and providing water for plants and animals.

Rivers

Freshwater rivers, such as the Danube river, Loire river, Volga river or Rhine river in Europe, are major sources of freshwater flow. They originate from various sources,

including springs, melting glaciers, and rainfall, and they provide vital freshwater resources for drinking, irrigation, and various aquatic ecosystems.

Waterfalls

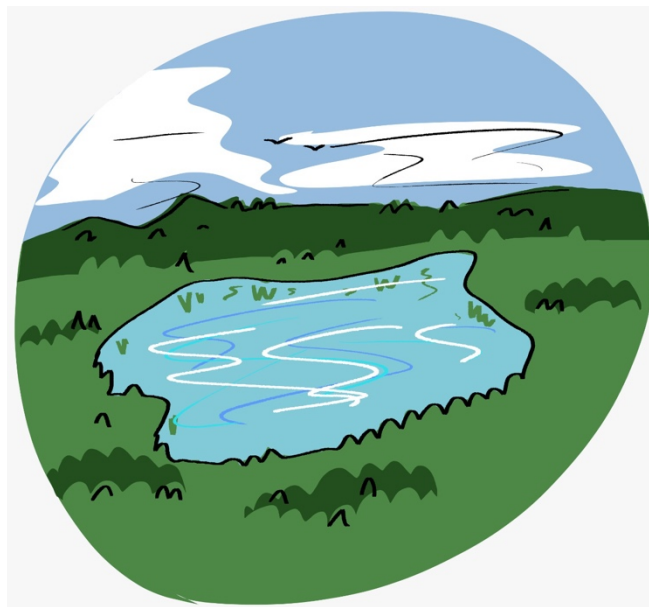
Waterfalls are created in the landscape. These are areas where freshwater cascades down steep slopes or cliffs, creating a spectacular flow of fresh water. Examples include famous waterfalls like Niagara Falls in North America, Rhine Falls in Switzerland, Gullfoss in Iceland or Victoria Falls on the border of Zambia and Zimbabwe.

Springs

Springs are places where freshwater emerges naturally from the ground, typically in the form of a small stream or pool. These sources of fresh water can be found in various landscapes and are important for sustaining local ecosystems.

Lakes and Reservoirs

Lakes and reservoirs are not like rivers and streams that constantly flow, but they still get freshwater from rivers and streams. These freshwater bodies are important since they store and supply water for people, animals and plants.



Glaciers and Ice Rivers

Glaciers are huge amounts of ice that move slowly because of their own weight. They can be considered flowing waters, but at a much slower pace. Glacier-fed

rivers, known as ice rivers, are formed when the melted ice from glaciers flows downstream.

It is important to know that the quality of flowing waters can vary as it depends on factors such as pollution, human activities, and the surrounding area. Preserving the quality and availability of flowing freshwaters is crucial for the well-being of ecosystems, humans and animals.

8. What are examples of lentic waters?

Examples: lakes, ponds, pools, wetlands, swamps, reservoirs.

Lentic waters are areas of still or standing water with minimal or no flow. They are calm and peaceful, without noticeable currents. These water bodies can be of different sizes, shapes, and types of water. They can be created naturally or made by people.

Examples of still water bodies include:

Lakes

Lakes are large bodies of freshwater, however, they can also be salty or brackish. Lake Superior in North America, Lake Baikal in Russia, and Lake Victoria in Africa are a few examples.

Ponds

Ponds are small bodies of water, not as deep as lakes. They are often found in parks, gardens, and other natural areas.

Wetlands

A wetland is an area of land that is permanently or seasonally submerged in water. It is characterized by distinctive soil types and vegetation adapted to the humid climate.

Wetlands are essential to the environment. They act as natural filters and help improve water quality by trapping sediments and filtering out pollutants. Wetlands provide important habitats for a wide variety of plants and animals, including migratory birds, amphibians, and aquatic species. They provide breeding grounds, nurseries, and feeding areas for many species, and thus support biodiversity and ecological balance.

Wetlands may belong to both the flowing and still water categories, depending on their specific qualities and location.

Swamps

Swamps are wetlands with still or slowly moving water.

Reservoirs

Reservoirs are man-made bodies of water created for water storage, irrigation, and making electricity. They were built by damming rivers.

Oxbow Lakes

Oxbow lakes have a distinctive shape. They are curved or U-shaped. They are created when a river bends and then cuts off a part of the bend, leaving behind a still body of water that is separated from the main river.

Still water bodies provide important habitats for various plants, animals, and microorganisms. They serve as sources of freshwater, recreational areas, and scenic landscapes.

9. Why is freshwater the most valuable commodity?

Freshwater is essential for the survival and well-being of all life on Earth, including humans, animals, and plants.

Why is freshwater highly valuable? Here are some key reasons:

Essential for Life

Freshwater is essential for the survival of all living organisms, including humans.

We rely on freshwater for drinking, cooking, sanitation, and hygiene. Without access to clean freshwater, our health and well-being are at risk.

Agriculture

Freshwater is crucial for irrigation, which is essential for growing crops. Agriculture is a major consumer of freshwater resources. It is one of the main global water users.

Ecosystem Support

Freshwater ecosystems, such as rivers, lakes and wetlands, are home to a wide range of plants, animals and microorganisms. These ecosystems support biodiversity, provide food sources, breeding grounds, and maintain ecological balance.



Industry and Energy Production

Many industries rely on freshwater for their operations, including manufacturing, mining, and energy production. Freshwater is used in processes such as cooling, cleaning, and generating hydroelectric power.

Economic Importance

Freshwater resources contribute to the economy through sectors such as tourism, fisheries, and recreational activities. Many regions rely on freshwater-based tourism, such as boating, fishing, and water sports, which generate revenue and employment opportunities.

10. What does freshwater water scarcity mean?

Freshwater scarcity is when people do not have enough quality water for drinking, growing food, taking care of animals, or sanitation. Freshwater scarcity does harm plants and animals that depend on water to survive.

The main causes of water scarcity are climate change, population growth, water pollution and contamination, increased human consumption, agricultural and industrial mismanagement, overuse and wastage of water, and ecological degradation.

Freshwater scarcity can be caused by various factors, including:

Physical Water Scarcity

This happens in areas where there are not enough water resources in a region, such as rivers, lakes, and aquifers, to meet the needs of the population. This can be due to factors such as low rainfall or high evaporation, dry climates, or a lack of freshwater sources like rivers and lakes.

Economic Water Scarcity

Economic water scarcity happens when people do not have the infrastructure, technology, or financial resources to access and use available water resources.

Population Growth and Urbanization

Increasing population and rapid urbanization put more pressure on freshwater resources. As more people move to cities, the demand for water increases, leading to a scarcity in the water supply, particularly in densely populated areas.

Climate Change

Freshwater resources play a role in climate regulation. They affect weather patterns, rainfall distribution, and temperature control.

Climate change causes more frequent and severe droughts, floods, and extreme weather events, emphasizing the importance of freshwater.

Changes in freshwater availability and quality can have significant impacts on climate and ecological processes.

True or false

1. **The Earth's surface is covered with two-thirds water, about three % is freshwater.**

True

2. **There is no need to be worried about freshwater scarcity, as there is enough for everyone.**

False

The statement is false because freshwater scarcity is a significant global concern that affects many regions around the world. While the Earth is abundant in water resources, only a small fraction of it is freshwater suitable for human use, such as drinking, irrigation, and industrial purposes.

Here are some reasons why freshwater scarcity is a real issue:

Essential for Life

Freshwater is essential for the survival of all living organisms, including humans. We rely on freshwater for drinking, cooking, sanitation, and hygiene. Without access to clean freshwater, our health and well-being are at risk.

Physical Water Scarcity

This happens in areas where there are not enough water resources in a region, such as rivers, lakes, and aquifers, to meet the needs of the population. This can be due to factors such as low rainfall or high evaporation, dry climates, or a lack of freshwater sources like rivers and lakes.

Economic Water Scarcity

Economic water scarcity happens when people do not have the infrastructure, technology, or financial resources to access and use available water resources. Economic development, urbanization, and changing lifestyles contribute to increased water demand.

Population Growth and Urbanization

Increasing population and rapid urbanization put more pressure on freshwater resources. As more people move to cities, the demand for water increases, leading to a scarcity in the water supply, particularly in densely populated areas.

Climate Change

Changes in freshwater availability and quality can have significant impacts on climate and ecological processes. Freshwater resources affect weather patterns, rainfall distribution, and temperature control. Climate change causes more frequent and severe droughts, floods, and extreme weather events, and emphasizing the importance of freshwater.

Ecosystem Support

Water scarcity not only affects human populations but also has severe consequences for ecosystems. Freshwater ecosystems, such as rivers, lakes and wetlands, are home to a wide range of plants, animals and microorganisms. These ecosystems support biodiversity, provide food sources, breeding grounds, and maintain ecological balance.

Pollution and Contamination

Water pollution from industrial activities, agricultural runoff, and inadequate wastewater treatment can render freshwater sources unusable or unsafe for human consumption.

3. Groundwater is a source of recharge for lakes, rivers, and wetlands.

True

4. Nearly 70% of global freshwater is used in agriculture for irrigation to grow crops and feed the animals.

True

5. More than half of the world's wetlands have disappeared due to the negative impacts of human activities.

True

6. Water scarcity brings cheap solutions.

False

The statement is false because water scarcity does not bring cheap solutions. In fact, water scarcity often leads to increased costs and economic challenges.

Here are some reasons why water scarcity does not have cheap solutions:

Infrastructure Costs: In water-scarce areas, developing the necessary infrastructure to access and distribute water can be expensive. This includes building dams, reservoirs, pipelines, and water treatment facilities.

Water Conservation: Measures Water scarcity necessitates the implementation of water conservation measures to reduce demand and preserve available water resources. However, these measures often require investments in technologies, education, and awareness campaigns, which can involve costs.

Environmental Costs: Water scarcity often leads to ecological degradation and environmental damage. Mitigating these impacts and restoring ecosystems affected by water scarcity can be costly, requiring investments in conservation measures, ecosystem restoration projects, and sustainable water management practices.

Agricultural Challenges: Agriculture is a major consumer of water, and water scarcity poses challenges for farmers. Implementing more efficient irrigation systems or transitioning to less water-intensive crops often requires financial investments.

Economic Impacts: Water scarcity can have severe economic impacts on various sectors. Industries that rely heavily on water, such as manufacturing or energy production, may face increased costs due to limited water availability. Additionally, water scarcity can lead to reduced agricultural productivity, job losses, and decreased economic growth in affected regions.

7. Plastic and oil pollution are huge problems for oceans.

True

8. Almost half of Europe's rivers and lakes face pollution.

True

9. Following 3 Rs can enormously help conserve and protect water.

True

10. As the temperature rises, more water evaporates into the air. Thus, climate change increases the frequency of heavy rains and droughts.

True



Activity Cards

1. Debate the value of water.

Water is the most precious resource that is essential for all livings - people, animals, and plants. Humans need water for drinking, cooking, having a shower, agriculture, industry, and other purposes.

2. Debate the impacts of freshwater scarcity.

Health impacts

Food security

Environmental degradation

Social and cultural impacts

Economic impacts

Climate change impacts

3. Discuss the ways to conserve water at households.

Examples

Replace a bath for a shower;

Replace your shower head with a water efficient one;

Pour water into a cup when cleaning your teeth, shaving or washing face;

Use the dishwasher or washing machine when they are full;

Fill the kettle with the amount of water you need when making tea or coffee.

4. Discuss the human activities that make water resources polluted and contaminated.

Examples

- Sewage and Wastewater
- Industrial waste
- Agriculture -
- Marine dumping
- Marine oil leakage
- Burning of fossil fuels
- Global warming

5. Debate the ways you can help protect water resources.

Examples

Participation in local clean-up activities;

Support water conservation initiatives, see To do no. 1 and/or as avoid water waste; use 3 Rs (reduce, reuse, recycle);

Spread awareness about the importance of water among friends and family.

6. Debate the ways you can conserve and protect water in the garden.

Examples

Collect rainwater in a bucket or a rain barrel to water plants or for other non-drinking purposes. Thus you can help reduce the use of tap water for outdoor purposes.

Use a watering can instead of a hose to water plants. This can help control the amount of water used and avoid overwatering.

7. Debate the ways you can use 3 Rs (reduce, reuse, recycle) at households to conserve water indirectly.

Reduce the consumption in general, reuse the items, and separate the garbage separation. Thus, you can conserve water used in further production and processing of goods.

8. Debate the ways you can reuse items.

Buy second-hand clothes or wear your older siblings/friends clothes;

Borrow books, toys, and sports equipment such as bikes, skis, snowboards, skates, and surfboards;

Household items such as glass jars, containers can be washed and reused again.

9. Discuss the impacts of poor quality drinking water.

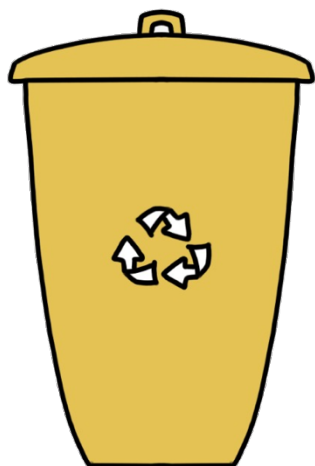
Health risks: contaminated drinking water can lead to diseases, such as diarrhea, cholera, dysentery, hepatitis, and other illnesses that can even be life-threatening;

Environmental impacts: contaminated drinking water can leach into the soil, contaminate groundwater, surface water, and other water bodies, and harm aquatic ecosystems, wildlife, and vegetation.

10. Debate the options for wastewater reuse.

Wastewater, also called grey water, is water that already has been used. At households, for example, this includes the leftover when washing vegetables, fruits and other items without using the detergents.

Chapter 3: Waste Separation and Recycling



For Teachers

CONTENTS

The chapter "Waste Separation and Recycling" covers the basic concepts of waste separation and recycling. It highlights the two commonly used categories of waste, namely biodegradable and non-biodegradable waste. It explains how certain materials such as plastic bottles, glass bottles and milk cartons can be reused and recycled. The chapter also explains how toxic waste should be treated and disposed of and provides information on how to dispose of large problem waste. Finally, it highlights ways in which used products can be acquired at low cost. It emphasises the importance of proper disposal and recycling of waste to protect the environment and promote sustainable practices.

LEARNING OBJECTIVES

The learning objectives for the chapter "Waste Separation and Recycling" could be as follows:

Students should understand what biodegradable and non-biodegradable waste is and how these categories are used in waste management.

Students should understand the production of products such as plastic bottles and glass bottles from recycled materials and understand the environmental impact of recycling compared to new production.

Students should be aware of the importance of proper handling of toxic waste and understand the steps for safe disposal of toxic waste.

Students should be aware of the different options for the disposal of large problem waste and understand the importance of disposing of bulky items in an environmentally friendly way.

Students should learn about alternatives for buying second-hand products at low prices and highlight the advantages of buying second-hand items.

Students should recognise the importance of recycling and waste separation for the environment and society as a whole and understand the role they can play in reducing waste and promoting sustainable practices.

SUGGESTED METHODS FOR TRAINERS AND TEACHERS TO IMPLEMENT THE TOPIC IN THE CLASSROOM

Here are some suggested methods that trainers and teachers can use when implementing the topic of Waste Separation and Recycling in the classroom:

Class discussions: Initiate a discussion on the importance of waste separation and recycling. Have learners discuss the advantages and disadvantages of recycling and come up with possible solutions to waste problems in the community.

- Case studies: Use case studies to present learners with real-life examples of waste management and recycling. This could include analysing recycling programmes in different cities or countries.
- Field trips: Organise field trips to recycling plants, landfills or recycling centres to offer learners insights into the practical aspect of waste management.

- Guest lectures: Invite experts or staff from environmental organisations or recycling companies to provide learners with first-hand information and answer questions.
- Group projects: Divide learners into groups and assign them projects to improve waste management in their school or community.
- Recycling sorting games: Create games or activities that teach learners how to separate and recycle waste correctly. This can promote learning through play.
- Creative writing: Ask learners to write essays or stories about the impact of waste and recycling on the environment.
- Craft projects: Use creative craft projects to teach students how to make useful items from recycled materials.
- Interactive presentations: Encourage learners to create presentations or training sessions for their classmates or other classes to raise awareness about waste separation and recycling.
- Reflection journals: Ask learners to keep regular reflection journals in which they record their thoughts, insights and action plans related to the topic.
- Learning games: Integrate learning games, puzzles and quizzes into lessons to test learners' understanding and encourage them through play.
- Community engagement: Encourage learners to actively participate in community service projects to protect the environment, such as riverbank clean-ups or community recycling drives.

The choice of method should be adapted to the age and educational level of the learners to ensure that the topic is taught appropriately. A combination of these methods can lead to a comprehensive understanding of the topic and the promotion of environmentally conscious practices.

CONCEPTUAL BACKGROUND

The conceptual background of the topic "Waste Separation and Recycling" is based on a comprehensive environmental, social and economic perspective of waste management. Here are some key concepts and aspects that make up this background:

- **Circular Economy:** One of the fundamental concepts of waste management is the idea of the circular economy. Instead of a linear model where products are disposed of at the end of their life, the circular economy aims to conserve, recycle and reuse resources. This reduces waste and minimises environmental impact.
- **Waste hierarchy:** The waste hierarchy is a framework concept that prioritises different measures for waste prevention and management. It includes the sequence of measures such as prevention, reuse, recycling and energy recovery from waste. The aim is to move waste as far up the hierarchy as possible to minimise environmental impacts.
- **Sustainability:** The conceptual background emphasises the importance of sustainable practices in waste management. This includes the conservation of natural resources, the reduction of environmental impacts and the promotion of social justice.
- **Environmental impacts:** Understanding the environmental impacts of waste and waste management is crucial. This includes aspects such as air pollution, water pollution, greenhouse gas emissions and ecosystem stress.
- **Social impacts:** Waste management also has significant social impacts, including issues of health and safety of workers in the waste industry, social acceptability of landfills and community participation in recycling.
- **Legal framework:** Waste management is subject to various legal regulations at local, regional and national level. The conceptual background takes these legal frameworks and compliance into account.

- Technological innovations: Technology plays an important role in waste management, including recycling technologies, waste incineration and advances in waste separation. The use of innovative technologies can improve the efficiency and sustainability of waste management.
- Environmental awareness and education: Promoting environmental awareness and educating the public are important components of the conceptual background. This is necessary to promote the acceptance of recycling and sustainable waste practices.
- Global perspective: The environmental impact of waste management does not end at national borders. Addressing global challenges such as plastic pollution requires international cooperation and strategies.
- Circular value chains: In the circular economy, value chains are designed so that products, components and materials can be reused or recycled after use. This requires cooperation between manufacturers, consumers and recyclers.

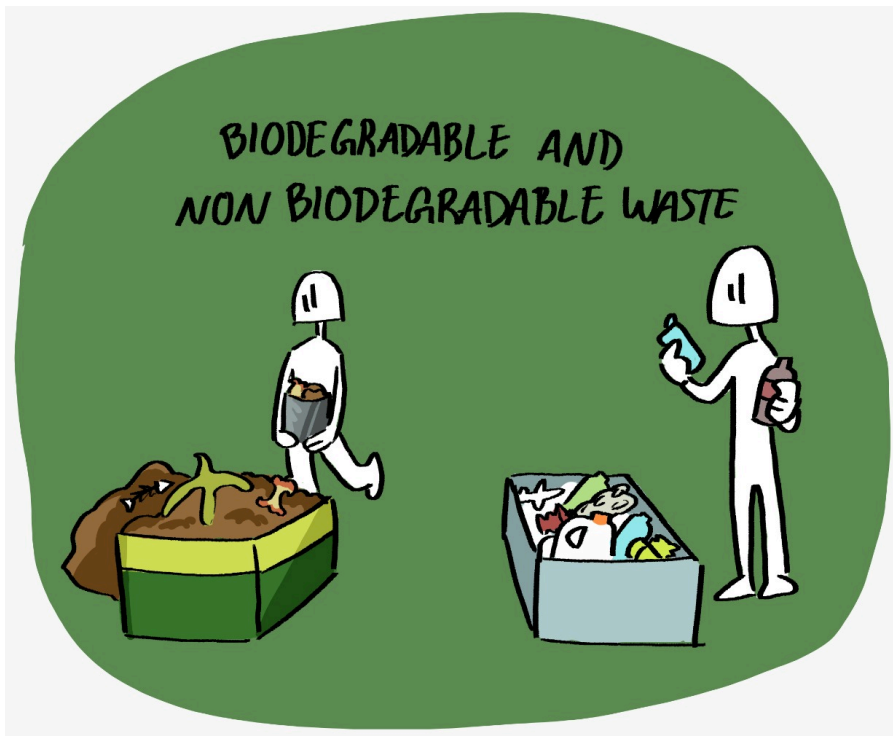
The combination of these concepts provides the framework for effective and sustainable waste management. This approach emphasises the need for a holistic view and a multidisciplinary approach to solving the complex problems associated with waste and recycling. Knowledge of these concepts is crucial to make learners informed and environmentally conscious decision makers for the future.

Question cards

1. What two categories of waste are commonly used?

Biodegradable and non-biodegradable.

In waste management, two commonly recognised categories of waste are biodegradable and non-biodegradable. These categories help in understanding the characteristics of different types of waste and guide appropriate disposal methods.



Biodegradable: Biodegradable waste refers to organic materials that can be broken down naturally by biological processes. These materials come from living organisms or their byproducts and can decompose over time. Examples of biodegradable waste include food scraps, yard trimmings, paper products, and certain types of packaging made from natural materials like wood or plant fibres. When biodegradable waste is disposed of in suitable conditions, such as composting facilities, it can undergo decomposition and turn into nutrient-rich compost, which can be used for soil enrichment.

Non-biodegradable: Non-biodegradable waste consists of materials that do not naturally break down or decompose easily through biological processes. These materials are typically synthetic or human-made and persist in the environment for extended periods. Non-biodegradable waste includes items like plastics, metals, glass, and certain types of chemicals. Due to their inherent properties, these materials can accumulate in the environment and cause pollution if not properly managed. Recycling and proper disposal methods, such as landfilling or incineration, are often employed for non-biodegradable waste to minimise its environmental impact.

Understanding the distinction between biodegradable and non-biodegradable waste is crucial for developing effective waste management strategies. It helps in identifying suitable treatment options, such as composting for biodegradable and recycling or proper disposal methods for non-biodegradable. By promoting responsible waste handling practices, we can minimise environmental pollution, conserve resources, and work towards a more sustainable future.

2. What kind of plastic is used to make plastic bottles?

PET.

Plastic bottles, one of the most commonly used packaging materials for beverages and personal care products, are typically made from a type of plastic known as polyethylene terephthalate, or PET. PET is a lightweight, strong, and transparent material that is well-suited for the production of bottles due to its desirable properties.

Polyethylene terephthalate, commonly abbreviated as PET or PETE, is a thermoplastic polymer derived from petroleum-based sources. It belongs to the polyester family of plastics and is formed through a polymerisation process involving the combination of terephthalic acid or its esters with ethylene glycol.

PET offers several advantages that make it a preferred choice for manufacturing plastic bottles:

Clarity and Transparency: PET has excellent optical properties, providing clarity and transparency to the bottles. This feature is essential for products that require visibility, such as carbonated beverages, water, juices, and personal care items.

Lightweight and Durable: PET bottles are lightweight, which makes them easier to handle, transport, and carry. Additionally, PET is a strong and resilient material, allowing the bottles to withstand pressure variations, impacts, and other stresses during storage and transportation.



Recyclability: PET is widely accepted for recycling, making it an environmentally favourable choice. When properly collected and processed, PET bottles can be recycled into various products, including new PET bottles, polyester fibres for textiles, carpeting, and other plastic items.

Barrier Properties: PET exhibits good barrier properties against oxygen, carbon dioxide, and moisture. This property helps in preserving the freshness and quality of the packaged products, extending their shelf life.

It's important to note that while PET is a commonly used plastic for bottles, there are other types of plastics used as well, depending on the specific requirements of the product or industry. Examples include high-density polyethylene (HDPE) for milk jugs and detergent bottles, polypropylene (PP) for yogurt containers, and polycarbonate (PC) for durable water bottles.

By understanding the type of plastic used in bottle manufacturing, such as PET, consumers and recycling facilities can ensure proper recycling and disposal

practices, contributing to a more sustainable approach to plastic waste management.

3. What is a commonly known way to recycle plastic and glass bottles?

By returning them to the store for money.

Returning plastic and glass bottles to the store for money, commonly known as bottle return or bottle deposit systems, is indeed a well-established and widely practiced method of recycling. This approach encourages consumers to participate actively in recycling efforts and promotes the recovery and reuse of valuable resources.

Bottle return systems operate on the principle of a refundable deposit placed on beverage containers at the time of purchase. When consumers purchase beverages packaged in plastic or glass bottles, a small deposit fee is included in the product price. This deposit serves as an incentive for consumers to return the empty bottles to designated collection points, such as supermarkets, convenience stores, or dedicated recycling centres.

The process of recycling bottles through a bottle return system typically involves the following steps:

Purchase: Consumers buy beverages packaged in plastic or glass bottles, paying an additional deposit fee at the time of purchase.

Consumption: After enjoying the beverage, consumers have the option to either discard the empty bottle as regular waste or choose to recycle it.

Collection: Consumers who wish to recycle their bottles can return them to the designated collection points. These collection points may have automated machines or staff-operated counters where consumers can deposit their bottles and receive a refund equivalent to the deposit fee paid.

Sorting and Preparation: Once collected, the returned bottles are sorted according to their material type (plastic or glass) and undergo cleaning and preparation processes. This ensures that the bottles are free from contaminants and ready for recycling.

Recycling: The sorted and prepared bottles are sent to recycling facilities where they undergo various processes depending on the material. Plastic bottles, for example, may be shredded, melted, and formed into pellets or flakes, which can



then be used as raw materials for manufacturing new plastic products. Glass bottles are crushed, melted, and moulded into new glass containers or used in other applications, such as road construction or fibreglass production.

Reuse: The recycled plastic and glass materials are utilised by manufacturers to produce new bottles, reducing the demand for virgin resources and conserving energy and water that would otherwise be required in the production of new bottles.

Bottle return systems have proven to be effective in promoting recycling and reducing the environmental impact of plastic and glass bottles. They help divert these materials from landfills and encourage a circular economy approach by closing the recycling loop. In addition to the environmental benefits, bottle return

systems can also contribute to reducing litter and promoting cleanliness in communities.

It's worth noting that the specific details of bottle return systems can vary between regions and countries, including the deposit amount, types of accepted bottles, and the process for returning and receiving refunds. However, the underlying goal remains consistent: to incentivise recycling and create a sustainable solution for managing plastic and glass bottle waste.

4. What groups would a milk carton be under?

A milk carton can be categorized under two main groups: cardboard and non-biodegradable waste.

Cardboard: Milk cartons are primarily made of cardboard, a type of paper-based material. Cardboard is commonly used for packaging due to its strength, durability, and versatility. It consists of multiple layers of paperboard that are laminated together, providing rigidity and protection to the contents inside, such as milk.

Cardboard is considered a recyclable material and falls under the category of paper waste. Recycling cardboard helps conserve valuable resources like wood pulp, energy, and water. It also reduces the need for raw materials and minimises the environmental impact associated with manufacturing new cardboard products. Recycling facilities process the collected cardboard, breaking it down into pulp, which is then used to produce new paper-based products like packaging materials, paperboard, or even new milk cartons.

Non-biodegradable Waste: While cardboard is recyclable, it is important to note that milk cartons also contain a thin layer of plastic on the inside to provide a barrier against moisture and ensure the contents remain fresh. This plastic lining, often made of polyethylene, makes the milk carton non-biodegradable.

Non-biodegradable waste refers to materials that do not naturally decompose or break down over time. In the case of milk cartons, the plastic lining prevents the carton from undergoing biological degradation. Consequently, if milk cartons are

not properly recycled, they can persist in the environment for a long time, contributing to pollution and waste accumulation.

To address the environmental impact of non-biodegradable materials, including the plastic lining of milk cartons, it is crucial to promote proper waste management practices, such as recycling. By separating the cardboard and plastic components of milk cartons, recycling facilities can ensure that both materials are appropriately processed. The cardboard portion can be recycled, while the plastic lining can be separated and sent to specialised recycling facilities or undergo alternative treatment methods.

Furthermore, efforts are being made to develop more sustainable packaging alternatives for milk and other beverages. For instance, some companies have introduced plant-based or compostable materials for milk cartons, reducing their environmental footprint and providing more environmentally friendly options.

In summary, a milk carton falls under the groups of cardboard and non-biodegradable waste. While the cardboard component can be recycled, the plastic lining makes it necessary to ensure proper separation and disposal to minimise environmental impact. By promoting recycling and exploring sustainable packaging alternatives, we can work towards reducing waste and fostering a more environmentally conscious approach to packaging milk and other products.

5. What can be made from organic waste?

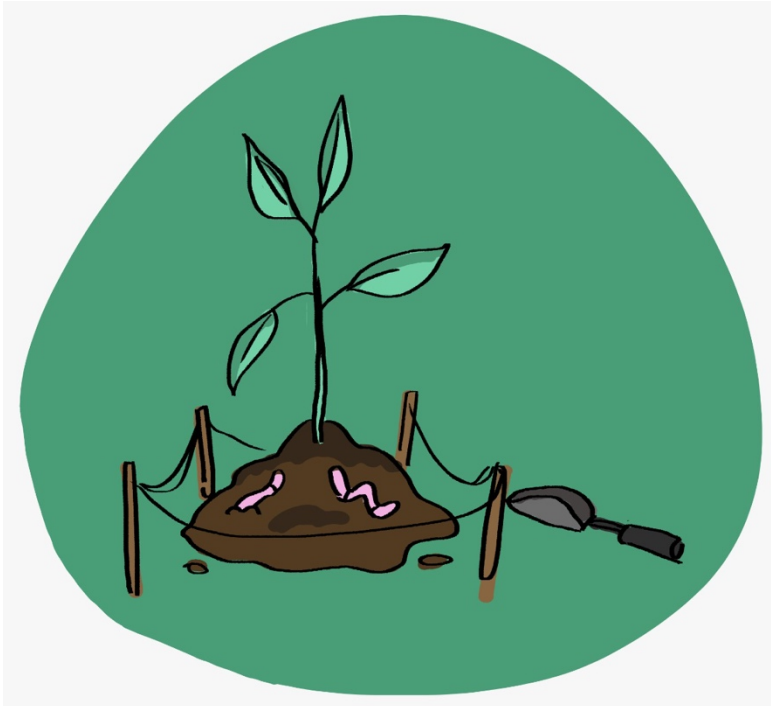
Organic waste can be transformed into compost, which is a nutrient-rich soil amendment used in gardening, agriculture, and landscaping.

When we refer to organic waste, we are talking about materials derived from living organisms, such as food scraps, yard trimmings, leaves, grass clippings, coffee grounds, and other biodegradable materials. These organic materials contain carbon compounds and are capable of decomposing naturally through the activity of microorganisms like bacteria and fungi.

Composting is the process of facilitating and accelerating this natural decomposition of organic waste. It involves creating an environment that supports

the breakdown of organic matter by providing the right conditions of moisture, oxygen, and temperature.

During composting, microorganisms break down the organic waste into simpler forms, resulting in the production of compost. The process typically takes a few months to a year, depending on various factors such as the composition of the waste, the size of the compost pile, and the management techniques employed.



Compost is a valuable end-product of this process, as it is rich in nutrients, organic matter, and beneficial microorganisms. It improves soil structure, enhances moisture retention, promotes healthy plant growth, and increases the fertility of the soil. Compost can be used as a natural fertiliser, soil amendment, or as a component in potting mixes and gardening substrates.

By converting organic waste into compost, several benefits can be achieved:
Waste Reduction: Composting diverts organic waste from landfills, reducing the volume of waste that needs to be disposed of. This helps to alleviate the burden on landfill capacity and reduces the production of greenhouse gases, such as methane, which are generated when organic waste decomposes in anaerobic conditions.

Soil Health: Compost enriches soil with essential nutrients, organic matter, and beneficial microorganisms, improving soil fertility and overall soil health. It

enhances soil structure, increases water-holding capacity, promotes aeration, and encourages the growth of healthy roots and plants.

Environmental Sustainability: Composting is an environmentally friendly practice that supports sustainable waste management. By recycling organic waste into compost, it reduces the need for chemical fertilisers, conserves natural resources, and promotes a circular economy approach by closing the nutrient loop.

Landscaping and Agriculture: Compost can be used in gardens, lawns, parks, and agricultural fields to enhance plant growth, improve soil quality, and restore degraded soils. It provides a natural and sustainable alternative to synthetic fertilisers, helping to maintain healthier ecosystems and reducing the reliance on chemical inputs.

In summary, organic waste can be effectively transformed into compost through the process of composting. This natural decomposition of organic materials results in a nutrient-rich product that benefits soil health, reduces waste, and supports sustainable practices in gardening, agriculture, and landscaping. By embracing composting, we can make a positive impact on the environment and promote a more sustainable and circular approach to managing organic waste.

6. What is made from recycled glass?

When glass is recycled, it goes through a series of steps to be transformed into new products. The recycling process begins with the collection and sorting of glass by colour, as different colours of glass have different chemical compositions. The glass is then cleaned and processed to remove any impurities like labels, caps, and other non-glass materials.

Once the glass is properly sorted and cleaned, it is crushed into small pieces called cullet. The cullet is then melted in a furnace at high temperatures, typically around 1500°C (2700°F), to form a molten glass mixture. During this melting process, additives may be included to adjust the properties of the glass, such as its colour or strength.

The molten glass can be shaped and moulded using various techniques, depending on the desired end product. For the production of new glass

containers, the molten glass is typically poured into moulds to form the desired shape. It is then cooled rapidly to solidify and harden the glass.

The resulting glass containers made from recycled glass can be used for a wide range of purposes, such as packaging food and beverages, storing personal care products, and holding various household items. These containers are similar to the original glass containers that were collected for recycling, but they are now made from recycled glass, reducing the need for new raw materials.

Recycling glass into new containers offers several benefits:

Conservation of Resources: By recycling glass, we conserve valuable natural resources, such as sand, soda ash, and limestone, which are the primary raw materials used in glass production. Recycling glass reduces the need for extracting and processing these resources, preserving them for future generations.

Energy Savings: Manufacturing glass from recycled glass requires less energy compared to producing glass from raw materials. The melting point of recycled glass is lower, which means less energy is required to reach the melting temperature. This leads to significant energy savings and a reduced carbon footprint.

Waste Reduction: Recycling glass helps divert glass waste from landfills, where it would take a long time to decompose. By recycling glass containers, we minimise the amount of waste sent to landfills and reduce the associated environmental impact.

Environmental Benefits: Recycling glass reduces air and water pollution associated with glass production. It also decreases greenhouse gas emissions that occur during the extraction and transportation of raw materials. By recycling, we contribute to a cleaner and healthier environment.

In addition to new glass containers, recycled glass can also be used to manufacture other glass products such as fibreglass insulation, reflective glass beads for road markings, decorative glass tiles, countertops, and various glass-based materials used in construction and manufacturing.

In summary, recycled glass is primarily used to produce new glass containers that serve similar purposes as the original glass containers. Through the recycling process, glass waste is transformed into valuable resources, conserving raw materials, saving energy, reducing waste, and benefiting the environment. By supporting glass recycling initiatives, we can contribute to a more sustainable and circular economy.

7. How do you have to dispose of toxic waste?

Disposing of toxic waste requires special handling and should never be done through regular waste disposal methods. The proper disposal of toxic waste is crucial to protect human health and the environment from potential harm. While paying a fee at a collection point is one way to dispose of toxic waste, there are several important considerations and steps involved in the process.

Identification and Segregation: The first step in disposing of toxic waste is to identify and segregate it properly. Toxic waste can encompass various materials, such as chemicals, solvents, batteries, electronic waste, medical waste, and more. It is important to understand the specific characteristics and hazards of the waste to determine the appropriate disposal methods.

Regulatory Compliance: Toxic waste disposal is often regulated by local, regional, and national authorities. It is essential to comply with any applicable laws, regulations, and guidelines that govern the disposal of toxic waste. These regulations are in place to ensure the safe handling, transportation, and final disposal of hazardous materials.

Professional Guidance: Due to the potential risks associated with toxic waste, it is advisable to seek professional guidance. This can be in the form of consulting with environmental agencies, waste management companies, or experts in the field. They can provide specific instructions on the proper disposal methods for different types of toxic waste and help you navigate the legal requirements.

Specialised Collection Centres: Many communities have established specialised collection centres or hazardous waste disposal facilities where individuals can safely dispose of toxic waste. These centres are equipped to handle and manage hazardous materials appropriately. Typically, these facilities have trained

personnel, containment systems, and proper infrastructure to ensure the safe handling and disposal of toxic waste.

8. What is considered toxic waste?

Toxic waste, also known as hazardous waste, refers to waste materials that pose a substantial threat to human health, animals, or the environment due to their inherent toxic properties. These wastes can be in various forms, including liquids, solids, or gases. Here are some examples of materials that are commonly considered toxic waste:



Chemicals: Various chemical substances can be toxic and classified as hazardous waste. This includes certain solvents, pesticides, fertilisers, paints, cleaning agents, and industrial chemicals.

Heavy Metals: Metals such as lead, mercury, cadmium, chromium, and arsenic are toxic in nature and can be found in waste from industrial processes, batteries, electronic devices, and certain types of wastewater.

Radioactive Materials: Waste materials containing radioactive substances, such as nuclear power plant waste, medical radioactive waste, or laboratory radioactive waste, are considered highly toxic and hazardous.

Pharmaceuticals: Some pharmaceutical drugs, such as certain chemotherapy agents or expired medications, can be considered toxic waste due to their potential harmful effects on human health and the environment.

Asbestos: Asbestos-containing materials, including insulation, roofing materials, and certain building products, are considered toxic waste due to the health risks associated with asbestos fibers when they are disturbed and released into the air.

It's important to note that the classification of waste as toxic or hazardous is typically determined by regulatory authorities and can vary between countries or regions. Proper handling, storage, and disposal procedures are necessary to ensure the safe management of toxic waste and to minimise its impact on human health and the environment.

9. Where do you take large problem waste?

When it comes to disposing of large problem waste, simply taking it to a waste dump may not be the most appropriate solution. Proper handling and disposal of large problem waste require adherence to specific guidelines to ensure environmental safety.

When you encounter large problem waste, such as bulky items or hazardous materials, it is important to follow the appropriate procedures for disposal to protect the environment and human health. Taking these types of waste to a waste dump, without considering the specific requirements, may result in improper disposal and potential harm to the surroundings.

Depending on your location, there are designated facilities or services available for handling and disposing of large problem waste. Here are a few options to consider:

Recycling Centres: Many communities have recycling centres or drop-off locations specifically designed to handle different types of waste, including bulky items like furniture, appliances, or electronics. These centres often have separate sections for different materials to facilitate recycling or appropriate disposal.

Special Collection Events: Some municipalities organise special collection events where residents can bring their large problem waste for proper disposal. These events may occur periodically or on specific dates, allowing individuals to dispose of items that are not suitable for regular waste collection.

Hazardous Waste Facilities: For hazardous materials like paints, solvents, batteries, or electronic waste, there are specialised facilities that handle these substances safely. These facilities ensure that hazardous components are managed and disposed of properly to prevent environmental contamination.

Donation or Reuse Programs: In some cases, items that are still in usable condition can be donated or given to organisations or charities that accept them. This option helps extend the lifespan of the items and reduces waste generation.

It is essential to research and consult local authorities, waste management services, or environmental agencies to identify the specific options available in your area for disposing of large problem waste. They can provide guidance on the nearest appropriate facilities, collection programs, or services tailored to handle such waste.

Remember, responsible waste management involves prioritising recycling, reuse, and safe disposal practices to minimise the environmental impact. By choosing the correct methods for disposing of large problem waste, you contribute to a cleaner and healthier environment.

10. Where can you buy used products for cheap?

While recycling centres primarily focus on accepting and processing recyclable materials, they may not be the most common or conventional places to buy used products for cheap. However, there are various other options available for purchasing used items at affordable prices. Here's an expanded answer:

If you are looking to buy used products for cheap, there are several alternative places to consider:

Thrift Stores: Thrift stores, also known as secondhand or charity shops, specialise in selling used items at affordable prices. These stores often have a wide range of products, including clothing, furniture, household items, books, and electronics.

Shopping at thrift stores not only helps you save money but also promotes sustainability by giving pre-owned items a new life.



Online Marketplaces: Online platforms such as Craigslist, eBay, Facebook Marketplace, and Letgo offer a vast selection of used products at competitive prices. You can browse through various categories, search for specific items, and connect with sellers directly to negotiate prices and make purchases conveniently from the comfort of your home.

Garage Sales and Yard Sales: Garage sales and yard sales are popular events where individuals sell their used items directly from their homes or community spaces. These sales often offer a wide range of products, including furniture, clothing, appliances, and more, at significantly reduced prices.

Consignment Shops: Consignment shops are stores that sell used items on behalf of the original owners, who receive a percentage of the sale price. These shops typically have a curated selection of clothing, accessories, and sometimes furniture or home goods. Consignment shops often have higher-quality items compared to thrift stores, but the prices may be slightly higher as well.

Online Swapping Platforms: Swapping platforms provide a unique way to acquire used items for free or at minimal cost. Websites and apps like Freecycle, Swap.com, and Bunz enable individuals to exchange goods with others, allowing you to declutter your belongings while finding new-to-you items without spending money.

Remember, when purchasing used items, it's important to inspect the quality and condition of the product to ensure it meets your requirements. Additionally, always prioritise safety and avoid purchasing items that may be compromised in terms of functionality or pose potential hazards.

By exploring these alternative options, you can find affordable used products while contributing to a more sustainable and circular economy by extending the lifespan of goods and reducing waste.

True or False

- 1. Recycling is the process of converting waste materials into reusable materials.**

True

- 2. Placing recyclables in the correct bin is an essential step in waste separation.**

True

- 3. Biodegradable waste cannot be recycled and should be thrown away in regular trash bins.**

False

Biodegradable waste can indeed be recycled through various methods such as composting. When disposed of in regular trash bins, it ends up in landfills or incinerators, contributing to environmental issues. Composting biodegradable materials, like food scraps and yard waste, allows them to break down naturally, turning them into valuable nutrient-rich compost that can be used to enrich soils and support plant growth. Recycling biodegradable waste in this manner not only reduces landfill waste but also promotes sustainable practices, making it a more eco-friendly choice compared to simply throwing it in regular trash bins.

- 4. Recycling paper saves trees and reduces the demand for new paper production.**

True

- 5. Glass can not be recycled indefinitely without losing its quality.**

True

- 6. It is not necessary to clean out food containers before recycling them.**

False

It is crucial to clean out food containers before recycling them to avoid contaminating other recyclables and to ensure the recycling process runs smoothly. When food residue or liquids are left in containers, they can attract

pests, create foul odors, and promote the growth of bacteria and mold in recycling facilities. Contamination can render entire batches of recyclables non-recyclable, leading to increased waste and additional processing costs. By taking a moment to rinse or wipe food containers before placing them in the recycling bin, we help maintain the integrity of the recycling stream, improve the efficiency of recycling operations, and contribute to more effective waste management practices overall. This simple step plays a vital role in ensuring that our recycling efforts are as environmentally friendly and sustainable as possible.

7. Electronic waste, such as old computers and cell phones, should be disposed of in regular trash bins.

False

Electronic waste, often referred to as e-waste, should not be disposed of in regular trash bins. E-waste contains hazardous materials, including heavy metals like lead, mercury, and cadmium, as well as toxic chemicals such as brominated flame retardants. If disposed of improperly in regular trash, these substances can leach into the environment, contaminating soil and water sources, and posing serious health risks to humans and wildlife. Instead, e-waste should be recycled or disposed of through designated e-waste recycling programs or facilities, where it can be safely and responsibly processed. Many communities offer e-waste collection events or drop-off locations to ensure that old computers, cell phones, and other electronic devices are recycled or disposed of in an environmentally friendly manner, preventing harm to both people and the planet.

8. Composting is a form of recycling that converts organic waste into nutrient-rich soil.

True

9. Recycling plastic is always more environmentally friendly than producing new plastic.

False

While recycling plastic is indeed a positive step towards reducing environmental impact, it is not always more environmentally friendly than producing new plastic. Several factors come into play, such as the energy and resources required to collect, transport, and process plastic for recycling. Additionally, not all plastic can

be efficiently recycled, and the quality of recycled plastic may not match that of virgin plastic, leading to limitations in its use. Therefore, the most environmentally friendly approach is to reduce plastic consumption and production altogether by opting for reusable items, minimizing single-use plastic, and supporting alternatives like biodegradable materials. Reducing plastic use at the source is a more effective strategy for mitigating the environmental consequences associated with plastic production and disposal.

10. Waste separation and recycling help conserve natural resources and reduce pollution.

True



Activity Cards

1. **Find out your nearest waste dump for problem waste.**
2. **Before buying new furniture, check how far away your local recycling centre is.**
3. **Repurpose glass jars as small herb gardens by filling them with potting soil and planting herbs like basil, mint, or parsley. These mini gardens can be placed on a windowsill, allowing you to have fresh herbs for cooking while adding a touch of greenery to your space.**
4. **DIY Candle Holders: Clean out glass jars and transform them into beautiful candle holders. Place a small candle or tea light inside the jar and use it as a centerpiece for your dining table or as decorative accents around the house. This way, you can give a new purpose to glass containers while creating a cozy and ambient atmosphere.**
5. **Make your own fairy house.**

<https://craftsbyamanda.com/plastic-bottle-fairy-house-night-lights/>

6. **Make a bird feeder from recycled waste.**

<https://youtu.be/QgJJ2OKdMM>

7. **Use sturdy cardboard boxes as storage solutions for organizing your belongings. Cut off the top flaps, reinforce the edges, and label each box according to its contents. Stack them neatly in your closet, garage, or storage area to store items like books, clothes, or toys.**
8. **Create a tin can robot.**

<https://www.creativejewishmom.com/2015/05/tin-can-robots-recycling-craft.html>

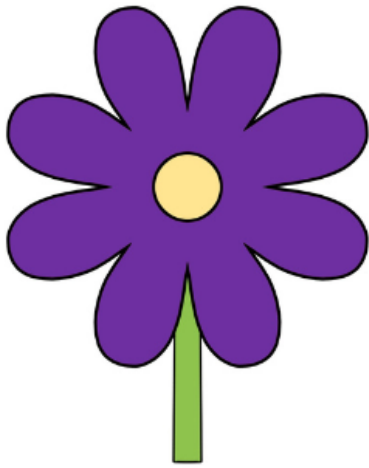
9. **Use magazines to create a bowl.**

<https://diyjoy.com/easy-diy-magazine-bowls-tutorial/>

10. **Build your own terrarium.**

<https://adironackgirlatheart.com/coke-bottle-terrariu/>

Chapter 4: Wildlife Gardens



For Teachers

CONTENTS

The chapter "Wildlife Gardens" revolves around the concepts and principles of wildlife gardens. It emphasises the importance of creating habitats that provide food, water, shelter and breeding sites for a variety of wildlife species. Wildlife Gardens are designed to promote biodiversity and support natural ecosystems. These gardens work in harmony with nature and promote a diverse and sustainable environment. They attract various species of animals such as birds, insects, small mammals, amphibians, and reptiles. The chapter explains how to make a garden friendly to wildlife, why this is important, and what materials are suitable for mulch and other aspects of the garden. Wildlife Gardens offer a wide range of benefits, from promoting biodiversity to natural pest control and creating a sustainable garden. Creating a garden plan and selecting suitable sites are important steps in designing a wildlife garden.

LEARNING OBJECTIVES

Here are some possible learning objectives that can be achieved by studying the Wildlife Gardens chapter:

Understanding the principles of a wildlife garden: Learners should be able to explain the basic principles of a wildlife garden, including the provision of food, water, shelter and breeding sites for wildlife.

Knowledge about the importance of wildlife gardens: learners should understand why the creation of wildlife gardens is important and what benefits they offer to the environment and biodiversity.

Knowledge of biodiversity in wildlife gardens: learners should be able to identify the different species of animals that can be attracted to wildlife gardens, including birds, insects, small mammals, amphibians and reptiles.

Designing a wildlife garden: learners should understand the steps and techniques required to design a wildlife garden, including the selection of appropriate plants and structures.

Selection of mulch materials: Learners should be able to identify different materials for mulch in a wildlife garden and understand how they affect soil health and water retention.

Understanding the importance of insects in wildlife gardens: learners should know why it is important to attract insects in a wildlife garden and how they help to promote biodiversity.

Recognise the environmental and human benefits of wildlife gardens: Learners should understand how wildlife gardens can help reduce the negative impact of human activities on the environment and how they can provide enjoyment and education for people.

Planning and site selection: Learners should be able to explain the steps involved in planning a wildlife garden and selecting a suitable site.

Sustainable garden design: Learners should understand how the design of a wildlife garden can promote soil health and fertility.

Water-efficient plant selection: Learners should know how selecting drought-resistant plants can help reduce water demand in a wildlife garden.

These learning objectives provide a comprehensive basis for understanding and implementing wildlife gardens and recognising their importance to the environment and society.

SUGGESTED METHODS FOR TRAINERS AND TEACHERS TO IMPLEMENT THE TOPIC IN THE CLASSROOM

Here are some suggested methods for trainers and teachers to successfully implement the topic "Wildlife Gardens" in the classroom:

- **Class discussion:** Start with an open discussion on the topic "Wildlife Gardens". Let the students share their ideas and prior knowledge. Then ask questions to stimulate their interest and understanding.
- **Practical activities:** Spend time outdoors creating a small wildlife habitat in the school environment. This could include planting native flowers, hanging birdhouses or creating a mini pond.
- **Guest speaker:** Invite a wildlife garden expert or a local gardener to inform the students about the design and maintenance of wildlife gardens.
- **Field excursions:** Plan field trips to local wildlife parks, gardens or nature reserves. Students can see first-hand how different species of animals live in these environments.
- **Multimedia presentations:** Use videos, pictures and presentations to provide students with visual impressions of wildlife gardens and their importance.
- **Group projects:** Divide the students into groups and let them develop a concept for a wildlife garden. Each group can then present their ideas.
- **School wildlife garden:** If possible, create a wildlife garden on the school grounds. Students can actively participate in the planning and maintenance of the garden.

- **Gardening crafts:** Teach students how to build birdhouses, make insect hotels or make seed bombs for biodiversity.
- **Project work:** Assign students projects where they research and present on different aspects of wildlife gardens, such as the role of insects, plant selection or the importance of water elements.
- **Teach each other:** Encourage students to teach each other. Each student can research a specific topic related to wildlife gardens and present it to their classmates.
- **Interactive games:** Create quizzes, puzzles or learning games to test and consolidate students' knowledge.
- **Visit garden shows or fairs:** Take students to local garden events to explore different garden styles and techniques.
- **Community projects:** Encourage students to share what they have learned about wildlife gardens with the community by setting up information stalls at local markets or school events.

These methods offer a wide range of approaches to make the topic of wildlife gardens lively and engaging in the classroom. Depending on the age and ability level of the students, the methods can be adapted. The aim is to raise awareness of the importance of wildlife gardens and to motivate students to actively participate in them.

CONCEPTUAL BACKGROUND

The conceptual background in the context of Wildlife Gardens refers to the basic principles, ideas and theories that guide the design, maintenance and importance of gardens or wildlife habitats. Such a background is based on various scientific findings, ecological principles and ethical considerations. Here are some key elements of the conceptual background of wildlife gardens:

Biodiversity: A central aspect is the promotion of biodiversity. The design of Wildlife Gardens aims to attract and support a wide range of plant and animal species. This increases the diversity of habitats and the richness of wildlife.

- **Native plants:** The use of native plants plays a crucial role. These plants are adapted to local conditions and provide food and habitat for many native animals.
- **Ecological interactions:** The background considers the complex interactions between plants, animals and microorganisms in an ecosystem. This includes the role of pollinators, herbivores and predators.
- **Sustainability:** The conceptual background emphasises the sustainable management of gardens. This means using resources such as water and energy sparingly and avoiding the use of chemicals.
- **Ecological benefits:** Wildlife Gardens are not only created for aesthetic reasons. They fulfil important ecological functions, including supporting plant pollination, pest control and improving soil health.
- **Habitat destruction:** The background also takes into account the threat to wildlife habitats from human activity. Wildlife Gardens are one way to help compensate for lost habitats.
- **Human benefits:** In addition to the ecological benefits, the background emphasises that wildlife gardens are also beneficial for people. They provide opportunities for nature observation, relaxation and education.
- **Ethics and responsibility:** Wildlife Gardens are based on ethical considerations for the protection of wildlife. This includes respect for nature and the responsibility to create habitats for animals.

The conceptual background serves as a basis for the planning and implementation of wildlife gardens. It helps to understand the objectives and principles and to ensure that the gardens really help to protect and enhance wildlife. It is important that people creating wildlife gardens have a sound knowledge of this background in order to create effective and sustainable habitats.

Questions Cards

1. What is the principle of a wildlife garden?

The basic principle of wildlife garden is to create a habitat that provides food, water, shelter, nesting and breeding areas for a variety of wildlife species.

The main goal of the wildlife garden is to support and promote biodiversity by attracting and sustaining a range of native plant and animal species. Wildlife gardens provide food, water, shelter, and breeding areas for wildlife in an effort to contribute to the balance of natural ecosystems.

Philosophy of wildlife gardens

Working in harmony with nature and developing a diversified and sustainable ecosystems are the guiding principles for a wildlife garden.

Diverse biodiversity

The main principle of wildlife gardens is to promote biodiversity by developing a habitat that supports a wide range of wildlife species. This involves providing a diversity of native plants, food sources, water sources, and shelter options to attract and support different types of wildlife.

It is crucial to minimize human activities that have a negative influence on natural habitats and biodiversity, such as urbanization, land development, frequent lawn mowing in the gardens, and the use of pesticides and herbicides, in order to achieve the goal of the wildlife gardens.

By creating wildlife-friendly spaces in our own gardens, we can help preserve and restore local ecosystems.

2. What species can a wildlife garden attract?

Example: various species of birds, insects, small mammals, amphibians, reptiles, soil invertebrates and vertebrates.

A well-designed wildlife garden can attract a wide range of wildlife species. The specific species that will be attracted depend on factors such as location, climate, habitat components, and plant choice.

The following common wildlife species can be attracted to a wildlife garden:

Birds

Various bird species can be attracted to a wildlife garden, such as songbirds, hummingbirds, woodpeckers, and finches. Bird feeders, nesting boxes, and water sources can be made to help attract and support them.



Butterflies

Planting nectar-rich flowers and providing host plants for butterfly larvae, such as nettles, thistles, plantains of the Nymphalidae butterflies, wildlife gardens can attract a diversity of butterfly species.

Bees

A wildlife garden with a range of flowering plants can attract various bee species that are significant pollinators. Keeping beehives, providing nesting sites such as bee hotels, or leaving bare soil areas can support solitary bee species.

Bumblebees

Bumblebees are excellent pollinators and can be attracted to wildlife gardens with a range of flowers that provide nectar and pollen throughout the season.

Insects

Beneficial insects like ladybugs, lacewings, praying mantises, and ground beetles can find a home in a wildlife garden. These insects help control pests and contribute to a healthy garden ecosystem.

Amphibians

Wetland or water features in a wildlife garden can attract amphibians such as frogs, toads, and newts, providing them with a breeding and habitat place.

Small mammals

Wildlife gardens with suitable shelter, food sources, and connectivity to nearby natural areas can attract small mammals like squirrels, hedgehogs, and hares.

Beneficial predators

Insects and rodents can be reduced by attracting beneficial predators like bats, owls, and specific types of snakes to a wildlife garden.

3. Why is it important to create a wildlife garden?

Wildlife garden supports biodiversity and enhances the overall health and resilience of the ecosystem.

By designing a wildlife garden, we may actively support the preservation of biodiversity, promote essential ecosystem functions, and foster a deeper connection with the natural world.

Wildlife garden is important for a number of reasons:

Biodiversity conservation

Wildlife gardens provide habitat for a diverse range of species, including birds, insects, mammals, and amphibians. We can considerably contribute to the conservation of local biodiversity and support healthy populations of native species by creating these habitats.

Ecosystem services

Wildlife gardens play a crucial role in providing ecosystem services. Many plants, especially food crops, depend on the pollination of bees and other insects to reproduce. Wildlife gardens also contribute to pest control by attracting beneficial insects and predators.

Mitigation of habitat loss

Natural habitats for wildlife have been lost as a result of habitat destruction and urbanization. By creating wildlife gardens, we can partially compensate for habitat loss and provide valuable refuges and stepping stones for wildlife in urban and suburban areas.

Education and awareness

Wildlife gardens provide an opportunity for education and raise awareness about the importance of biodiversity and ecological conservation. Children and adults can use them as outdoor classrooms to observe and learn about the natural world and the value of biodiversity.

Enjoyment and well-being

Wildlife gardens provide a connection with nature and opportunities for relaxation, observation of various plant and animal species, and enjoyment. Being in a wildlife garden can enhance mental health and well-being, reduce stress, and foster a sense of tranquillity.

Sustainable gardening

Wildlife gardens often promote sustainable gardening practices. By avoiding chemical pesticides and herbicides, saving water, and implementing organic gardening methods and techniques, we can reduce our impact on the environment and create a more sustainable approach to gardening.

4. What can make a garden more wildlife-friendly?

There are several criteria that can help to make a garden more wildlife-friendly: Use native plants as much as possible, as they are best adapted to the local climate, soil, and wildlife.

Native plants provide the right type of food, shelter, and habitat for local wildlife. Create different layers of vegetation, such as groundcovers, shrubs, and trees. Provide food sources like nectar-producing flowers, berries, and seeds. Provide water sources like a bird bath or a small pond.

Leave dead leaves and plant material in the garden to decompose naturally, and allow some areas of the garden to grow wild, as they provide important habitat for wildlife.

Incorporate nesting boxes, logs, and other structures that provide shelter and nesting sites for birds, insects, and other wildlife.



Minimize disturbance to the garden by avoiding excessive pruning or trimming, and by limiting foot traffic in sensitive areas.

The following common principles and practices make a garden more wildlife-friendly:

Use native plants

Using native plant species is crucial in wildlife gardens as they are well adapted to the local environment and provide food, shelter, and nesting sites for native wildlife. Native plants also support native pollinators and other beneficial insects. Native plants provide food, shelter, and nesting sites for local wildlife.

Support plant diversity

Create a variety of plants with different heights, colours, and bloom times to attract a wide range of wildlife. Aim for a mix of flowers, shrubs, trees, and grasses to provide various habitats and food sources.

Provide food sources

To incorporate plants that produce nectar, pollen, seeds, berries, or fruits that provide a food source for various wildlife, including birds, butterflies, bees, and mammals. Including plants with staggered bloom times ensures a continuous supply of food throughout the seasons.

Leaving leaf litter and deadwood

Allow a layer of leaf litter to accumulate in certain areas of the garden. Leaving dead wood or fallen branches provide habitat for insects and fungi.

Encourage water sources

Providing water sources such as birdbaths, ponds, shallow dishes filled with water is essential for wildlife. It allows them to drink, bath, and even breed.

Prevent applying chemicals

Avoiding the use of pesticides, herbicides, and chemical fertilizers is crucial in wildlife gardens. These chemicals harm wildlife and disrupt the ecological balance. Instead, practice natural pest control methods and create a healthy ecosystem that supports beneficial insects and birds.

Create shelter and nesting places

Wildlife gardens need to include a variety of shelter options, such as trees, shrubs, dense vegetation, brush piles, or rock crevices. These provide safe places for wildlife such as birds, insects, and small mammals to hide, rest, and nest. Wildlife gardens demand some undisturbed areas for ground-dwelling species.

Nesting boxes and bird feeders

Installing nesting boxes and feeders for birds attracts and supports bird populations in the wildlife garden.

Support sustainable practices

Incorporating sustainable practices such as composting, rainwater harvesting, and efficient irrigation systems promotes environmental stewardship and reduces the garden's impact on the surrounding ecosystem.

Minimize light pollution

Reduce outdoor lighting or use motion-sensor lights to minimize light pollution, which can disrupt wildlife behaviour and navigation.

5. Why are pesticides, herbicides and chemical fertilizers bad for the wildlife garden?

These kill beneficial insects, birds and mammals that rely on the garden for food and shelter. These also contaminate soil and water and can also enter the food chain.

Pesticides, herbicides, and chemical fertilizers all harm wildlife and gardeners for a variety of reasons:

Health risks to humans

Humans may be exposed to pesticides and herbicides through the skin, inhale them as vapours or particles, or swallow them through contaminated food or water. They cause respiratory issues, neurological disorders, hormonal disruption, reproductive problems, and even cancer.

Harm to beneficial insects

Pesticides and herbicides are designed to kill or control pests and weeds, but they can also affect beneficial insects such as bees, butterflies, and ladybugs. These

insects are essential for pollination, organic pest control, and preserving the overall health of the garden ecosystem.

Disruption of food chains

Pesticides and herbicides disturb natural food chains and ecological interactions in the garden. They can kill or reduce populations of insects, which serve as food for birds, amphibians, and other predators. This can lead to imbalances and a decline in biodiversity.

Water and soil contamination

Chemical fertilizers can leach into the soil and water systems, leading to pollution. This can negatively impact soil microorganisms, aquatic organisms, and plants. Additionally, runoff from gardens treated with chemical fertilizers can also contaminate water in nearby streams, rivers, and other water bodies.

Harm to birds and mammals

Pesticides and herbicides can be toxic to birds, small mammals, and other wildlife if ingested directly or indirectly through contaminated food sources. This can lead to illness, reduced reproductive success, and even population decline.

Residual effects

Pesticides, herbicides, and chemical fertilizers all have long-lasting residual effects on the ecosystem. This means that they continue to have an effect on wildlife and the garden ecology even after they have been applied.

Non-target species impact

Herbicides and pesticides are not necessarily specific to the weeds or pests they are meant to control.

They also harm non-target species, including beneficial insects, birds, and amphibians, as well as pets and humans who come into contact with the treated areas.

Wildlife gardeners can create a safer and more natural environment for wildlife, promoting biodiversity, and supporting the overall health of the ecosystem by avoiding or minimizing the use of pesticides, herbicides, and chemical fertilizers.

6. How to go peat free in the wildlife garden?

Example: make your own compost, mulch with organic materials, avoid purchasing peat-based products.

Going peat-free in a wildlife garden is an environmentally friendly choice. This process helps preserve important peat land habitats and reduce carbon emissions. Here are some steps to make a peat-free garden:

Make your own compost

Make your own compost using kitchen waste, garden trimmings, and other organic materials. This gives you the ability to manage the components and guarantees a sustainable stream of compost that is rich in nutrients for your garden.

Avoid purchasing peat-based products.

Peat is frequently found in products such as potting mixes, composts, and soil amendments. Read labels carefully and choose products that are marked as peat-free or made from alternative ingredients.

Choose peat-free alternatives

Look for peat-free composts and soil mixtures that are made of renewable and sustainable materials such as wood fibre, composted green waste, leaf mould, or well-rotted manure. These alternatives give the plants organic materials that are rich in nutrients.

Mulch with organic materials

Use organic mulches such as wood chips, straw, or chopped leaves to retain moisture, suppress weed growth, and improve soil health. These organic mulches decompose and improve the soil by adding organic matter.

Improve soil structure

Add organic matter like compost or well-rotted manure into the soil to improve its structure, fertility, and water-holding ability. This reduces the need for peat-based products and increases healthy plant growth.

Remember that transferring to a peat-free garden may require some experimentation and adjustment since different plants may react differently to peat-free soils. To preserve the health and growth of the plants, it is crucial to check their moisture levels and nutritional requirements and make any required modifications.

7. How to go chemical free in wildlife gardens?

Examples: rotate crops, use organic fertilizers such as compost, well-rotted manure and minerals, support natural pest control.



Making a chemical-free wildlife garden is a great way to develop a healthy and environmentally friendly habitat for wildlife.

The following steps support a chemical-free wildlife garden:

Natural pest management

Adopt natural pest management techniques to handle pests in your yard. Raise beneficial insects that eat garden pests, such as ladybugs and lacewings. Plant herbs and flowers attract pollinators and predatory animals.

Companion planting

Support companion planting by planting various plant species that can benefit each other. Some plants naturally repel pests or attract beneficial insects. For example, marigolds can deter aphids, and herbs like mint or rosemary can repel certain pests.

Crop rotation

Rotate the planting places of various crops each year to prevent the accumulation of pests and diseases. This helps maintain the natural balance in the garden and reduces the need for chemical treatments.

Organic fertilizers

Use organic fertilizers such as compost, well-rotted manure, or natural plant-based fertilizers to provide nutrients to your plants. These alternatives lessen the need for chemical treatments, are safe for wildlife, and improve soil health over time.

Mulching and soil health

Add organic mulch to your vegetable and plant beds, round shrubs to save moisture, reduce weed growth, and keep soil healthy. This helps develop a favourable ecosystem of beneficial soil organisms that can naturally regulate pests and diseases.

Weed control

Hand pulling or the use of equipment like hoes or weeders are effective chemical-free weed control methods. Regular weeding can prevent weeds from competing with your desired plants and reduce the need for chemical herbicides.

Watering practices

Water your garden properly to decrease plant stress and reduce the risk of pests and diseases. Water deeply and infrequently for deeper root growth.

Remember that transferring to a chemical-free garden may require some experimentation and adjustment. Nevertheless, it is a worthwhile attempt given the long-term advantages for wildlife, soil health, and your own wellbeing.

8. Why to attract insects in wildlife gardens?

They pollinate the plants, are a part of a food chain, support the biodiversity.

Attracting insects to a wildlife garden is important for several reasons:

Pollination

Insects, particularly bees and butterflies, play a crucial role in flower pollination. Pollination is essential for the reproduction of many plant species including those that produce fruits, vegetables, and seeds. The pollination process is enhanced, and promotion of growth and productivity in the garden by attracting insects.

Biodiversity

Insects make up a significant portion of the Earth's biodiversity. The overall biodiversity of the area is supported by attracting a diverse range of insects to the garden. A rich and diverse insect population supports a healthy ecosystem and helps maintain the balance of other wildlife species.

Natural pest control

A large number of insects are natural predators of garden pests. By attracting beneficial insects such as earwigs, ladybugs, green lacewings, flower flies, and many others, a natural pest control system in the garden is developed. These insects, which feed on pests like aphids, caterpillars, or mites, reduce the need for chemical pesticides.

Food for other wildlife species

Insects serve as a crucial food source for many other wildlife species. Birds, bats, frogs, lizards, and even some mammals need insects as a primary food source. Attracting insects to the garden provides a vital link in the food chain that supports the survival of these other wildlife species.

Ecological balance

Insects play a fundamental role maintaining ecological balance. Insects contribute to nutrient cycling, decomposition, and soil health. Attracting a diverse range of insects to the garden fosters a prosperous ecosystem where all components work together in harmony.

Aesthetics and enjoyment

A diverse range of insects, such as butterflies, bees, bumblebees, flower flies, dragonflies, lady bugs and many others, add inexpressible beauty and visual interest to your garden. Watching butterflies flutter from flower to flower or listening to the gentle hum of bees brings joy and a connection with nature.

Educational opportunities

Insects are fascinating creatures that offer abundant learning opportunities for all age categories, especially children. By attracting insects to the garden, a living classroom where children can observe, study, and appreciate the diversity of insects and their ecological roles is developed.

Attracting insects to your wildlife garden is essential for promoting biodiversity, supporting pollination, natural pest control, and maintaining a healthy ecosystem. Humans can contribute to the overall health and sustainability of their gardens and the surrounding environment by developing a welcoming habitat for insects.

9. What trees, shrubs and plants attract bees, bumblebees and butterflies in the wildlife garden?

Examples: dandelions, borage, clovers, comfrey, yarrow, marigolds, thyme, bugle, sage, lavender, thistles, fruit shrubs and trees, elderberry, buddleia, rose shrubs.

There are many trees, shrubs, and plants that attract bees, bumblebees, butterflies, ladybugs, or flower flies to a wildlife garden. Here are some examples:

Trees

Flowering fruit trees, such as apples, cherries, pears, peaches, and plums;

Linden (*Tilia* spp.): Its fragrant flowers attract bees and butterflies;

Willows (*Salix* spp.): Their catkins provide early-season pollen for bees.

Shrubs: Butterfly bush (*Buddleja* spp.): Butterflies love its nectar-rich flowers;

Elderberry (*Sambucus* spp.), Hawthorn (*Crataegus* spp.): Its clusters of small flowers are attractive to bees;

Lavender (*Lavandula* spp.): The aromatic flowers attract bees and butterflies.

Perennial Flowers: Black-eyed Susan (*Rudbeckia* spp.): Its bright yellow flowers attract bees and butterflies;



Coneflowers (*Echinacea* spp.): Bees and butterflies visit their daisy-like flowers;

Bee balm (*Monarda* spp.): Its vibrant blooms are a favourite of bees and hummingbirds.

Annual Flowers: Sunflowers (*Helianthus* spp.): The large, vibrant flowers are popular among bees and butterflies;

Zinnias (*Zinnia* spp.): Their colourful, long-lasting blooms are attractive to bees and butterflies;

Cosmos (*Cosmos* spp.): Bees and butterflies love their dainty, open-faced flowers.
Herbs

Borage (*Borago officinalis*): Its blue, star-shaped flowers are highly attractive to bees;

Thyme (*Thymus* spp.): Bees are drawn to the small flowers and fragrant foliage;

Mint (*Mentha* spp.): Its flowers provide nectar for bees and other pollinators.

Remember to choose native plant species whenever possible, as they are well-adapted to the local ecosystem and often attract a wider range of native pollinators. Additionally, planting a variety of flowers that bloom at different times throughout the season ensures a continuous food source for bees, bumblebees, and butterflies.

10. What material can mulch be of?

Example: organic materials such as wood chips, leaves, straw; compost, plant-based materials.

- Mulch can be made from a variety of materials, including:
- Organic materials
- Wood chips: chipped or shredded tree bark or branches;
- Straw: dried and chopped stems of grain crops such as wheat, rye or oat;
- Leaves: shredded or whole leaves from trees or shrubs (avoid using walnut tree leaves, for example);

Grass clippings:

Dry grass clippings from mowing the lawn (avoid using grass treated with chemicals).

Composted materials

Decomposed organic matter from kitchen scraps, yard waste, and other organic materials;

Leaf soil contains partially decomposed leaves that have broken down over time.

Plant-based materials

Coniferous needles: Needles from spruce or pine trees, often used as mulch for acid-loving plants.

Seaweed: washed-up or harvested seaweed from the ocean, which adds trace minerals to the soil.

The choice of mulch material depends on factors such as the specific needs of the plants in your garden, availability, and cost. Organic mulches retain moisture, suppress weed growth, and improve soil health.

True or false

1. **Wildlife gardens provide habitat for a diverse range of wildlife such as birds, insects, amphibians, mammals, soil fauna and flora.**

True

2. **Native plants isolate carbon, use less water, and their roots help with rainwater runoff to maintain healthy watersheds.**

True

3. **Mowing the grass regularly in the wildlife gardens increases water retention.**

False

In fact, mowing the grass regularly in wildlife, or any gardens actually reduces water retention.

Here's the explanation:

Short grass height

Longer grass and natural vegetation in wildlife gardens have a greater capacity to retain water. The roots of tall grasses and plants act like sponges, absorbing and holding water in the soil. This helps reduce runoff and soil erosion while increasing water infiltration and retention in the garden.

Soil compaction

Frequent mowing can lead to soil compaction, especially if heavy equipment or mowers are used. Compacted soil reduces pore spaces, makes it harder for water to infiltrate and be retained in the soil.

Evaporation

Mowing exposes more soil surface, increasing the exposure to sunlight and wind, which promotes faster evaporation. This leads to a higher rate of water loss from the soil, reducing water retention.

To increase water retention in the gardens, it is crucial to allow the grass to grow taller and establish a diverse range of plants, including those with deep root systems, to help absorb and retain water in the soil. Additionally, incorporating

organic matter, such as compost or mulch, can improve the soil's ability to hold water.

4. Wildlife gardens are only suitable for large, rural properties.

False

The statement is false because wildlife gardens are not only suitable for large, rural properties. In fact, wildlife gardens can be created and enjoyed in a variety of settings, including small urban spaces, suburban yards, and even balconies or rooftops. The size or location of a property does not determine its suitability for a wildlife garden.

Wildlife gardens can be designed and adapted to fit the available space and resources. Even in small areas, you can incorporate elements such as native plants, bird feeders, water sources, and insect habitats to attract and support wildlife.

5. Wildlife gardens support the pollination of plants and thus, the production of fruits, nuts, and seeds.

True

6. A healthy ecosystem with a variety of predators and prey can help control pests naturally and thus reduce the need for chemical pesticides.

True

7. Wildlife gardens are beneficial for wildlife only and do not provide any benefits for humans.

False

Attracting insects to a wildlife garden is important for several reasons:

Pollination

Insects, particularly bees and butterflies, play a crucial role in flower pollination. Pollination is essential for the reproduction of many plant species including those that produce fruits, vegetables, and seeds. The pollination process is enhanced, and promotion of growth and productivity in the garden by attracting insects.

Biodiversity

Insects make up a significant portion of the Earth's biodiversity. The overall biodiversity of the area is supported by attracting a diverse range of insects to the garden. A rich and diverse insect population supports a healthy ecosystem and helps maintain the balance of other wildlife species.

Natural pest control

A large number of insects are natural predators of garden pests. By attracting beneficial insects such as earwigs, ladybugs, green lacewings, flower flies, and many others, a natural pest control system in the garden is developed. These insects, which feed on pests like aphids, caterpillars, or mites, reduce the need for chemical pesticides.

Food for other wildlife species

Insects serve as a crucial food source for many other wildlife species. Birds, bats, frogs, lizards, and even some mammals need insects as a primary food source. Attracting insects to the garden provides a vital link in the food chain that supports the survival of these other wildlife species.

Ecological balance

Insects play a fundamental role maintaining ecological balance. Insects contribute to nutrient cycling, decomposition, and soil health. Attracting a diverse range of insects to the garden fosters a prosperous ecosystem where all components work together in harmony.

Aesthetics and enjoyment

A diverse range of insects, such as butterflies, bees, bumblebees, flower flies, dragonflies, lady bugs and many others, add inexpressible beauty and visual interest to your garden. Watching butterflies flutter from flower to flower or listening to the gentle hum of bees brings joy and a connection with nature.

Educational opportunities

Insects are fascinating creatures that offer abundant learning opportunities for all age categories, especially children. By attracting insects to the garden, a living classroom where children can observe, study, and appreciate the diversity of insects and their ecological roles is developed.

Attracting insects to your wildlife garden is essential for promoting biodiversity, supporting pollination, natural pest control, and maintaining a healthy ecosystem. Humans can contribute to the overall health and sustainability of their gardens and the surrounding environment by developing a welcoming habitat for insects.

8. Wildlife gardens can improve the health and fertility of the soil once organic matter such as dead leaves and plant debris are incorporated.

True

9. Wildlife gardens help reduce the negative impact of human activities on the environment.

True

10. Prior to creating a wildlife garden, it is critical to select a suitable location and develop a garden plan.

True



Activity Cards

1. Plant identification tour

Take a walk around the wildlife garden and identify the different types of plants and trees growing there. Make a list of 8 plants and 6 trees.

2. Cook NETTLE SOUP with your family.

Download the procedure.

<https://www.bbcgoodfood.com/recipes/nettle-soup>

3. Pollinator observation tour

Walk around the wildlife garden and observe the pollinators, such as bees, bumblebees, and butterflies.

Identify which flowers are the most attractive to them.

4. Discuss the ways to save water in the wildlife garden.

Use compost;

Plant drought-resistant plants;

Scythe max. twice a season;

 Create different layers of vegetation;

 Use mulch and bark;

 Use a water butt to catch rain water;

 Use native plants, shrubs and trees.

5. Debate how the following ways increase the biodiversity in the wildlife garden.

- Grow wildlife-friendly plants, shrubs, trees;
- Plant pollinating flowers,
- Make a pool or bog;
- Make a birdhouse, an insect hotel;
- Create a butterfly meadow.

6. What can be composted?

Grass cuttings and dead leaves; Glossy paper;

Organic fruit and vegetable; Scraps and peel;
Chemically treated fruit and vegetable scraps and peel;
Cat or dog poo; eggshells.

7. Bird Watching Tour

Set up a bird feeder and bird bath. Observe and identify the different bird species that visit the garden.

8. Make a poster

Choose a species in the wildlife garden. Make a title of the poster of the species name. Observe the species, its size, shape, colour, behaviour, and the habitat it likes. Draw all. Find more information about the species in relevant sources such as encyclopaedias, the internet, or scientific publications and write some facts on the species on the poster.

9. Debate on the importance of mulch.

Mulch has a lot of benefits such as:

Keeping the soil moist, cool, and stationery. |

Provides a habitat for soil life and forms a foamy layer of humus on the topsoil.

In the process, organic materials such as dead leaves, straw, wood chips, etc. cycle nutrients back into the soil as they decompose atop.

10. Debate the importance of dead leaves to use in the gardens.

Dead leaves are full of minerals, trace elements, and nutrients such as nitrogen, phosphorus, potassium, calcium, magnesium, and sulphur, which are essential for plant growth.

Dead leaves can be piled to make compost or can be saved for mulch in spring and summer.

Chapter 5: Zero Waste Household



For Teachers

CONTENTS

This chapter is all about reducing waste (zero waste) and running a sustainable household. It provides comprehensive guidance and practical tips to make the household more environmentally friendly and sustainable. Topics covered in this chapter include reducing food waste, switching to reusable shopping bags, reducing energy consumption at home, up-cycling old clothes and disposing of e-waste in an environmentally friendly way. Readers also gain insights into the basics of composting and learn how to rid their kitchen of single-use plastic items. In addition, important pros and cons are discussed when deciding between reusable cloth nappies and disposable nappies for babies, and between solar panels and traditional energy sources to power the household. This chapter serves as a practical guide for environmentally conscious consumers who want to make their household more sustainable and reduce waste.

LEARNING OBJECTIVES

The learning objectives for this chapter "Zero Waste and Run the Household Sustainably" could be:

Understand the importance of Zero Waste: Learners should understand what Zero Waste means and why it is important to reduce waste and implement resource efficient practices in the home.

To learn about methods to reduce food waste: Learners should learn about different techniques and strategies to reduce food waste, such as meal planning, proper food storage and creativity in using leftovers.

Explore sustainable alternatives to single-use plastic bags: Learners should learn about environmentally friendly alternatives to single-use plastic bags and understand how switching to reusable shopping bags helps to reduce plastic waste.

Understand practices to reduce energy consumption: Learners should learn about different ways to reduce energy consumption in the home, including using energy-efficient appliances, reducing standby consumption and improving household insulation.

Understand up cycling and sustainable use of old clothes: Learners should understand how to reuse and transform old clothes to reduce textile waste and promote sustainable fashion practices.

Learning the basics of composting: learners should understand the basics of composting, how to convert organic waste into valuable compost and how compost can be used in the garden or on the balcony.

Explore methods to reduce single-use plastic items in the kitchen: Learners should learn about different ways to reduce single-use plastic items in the kitchen and understand how this contributes to sustainability.

Identify advantages and disadvantages of reusable cloth nappies vs. disposable nappies: Learners should understand the advantages and disadvantages when deciding between reusable cloth nappies and disposable nappies for babies.
Understand advantages and disadvantages of solar panels vs. traditional energy sources to power the household: Learners should understand the advantages and

disadvantages in deciding between using solar panels and traditional energy sources to power their household.

Promote environmental awareness and sustainable thinking: This chapter aims to promote environmental awareness and inspire readers to implement sustainable practices in their households.

These learning objectives enable learners to develop a better understanding of environmentally friendly housekeeping and zero-waste practices and to actively contribute to reducing environmental impacts in their daily lives.

SUGGESTED METHODS FOR TRAINERS AND TEACHERS TO IMPLEMENT THE TOPIC IN THE CLASSROOM

Here are some suggested methods for trainers and teachers to implement the topic "Zero Waste and Run the Household Sustainably" in the classroom:

- **Discussion and group work:** Divide learners into groups and give them specific discussion topics, such as "How can we reduce food waste?" or "What are the advantages and disadvantages of reusable cloth nappies?" Then have the groups present their ideas and findings and encourage discussion and exchange of views.
- **Practical exercises:** Conduct practical exercises such as creating a personal meal plan for a week, practising proper composting or up-cycling old clothes. Learners can implement these exercises at home and share their experiences.
- **Case studies:** Use case studies or real world examples to show how people and families have successfully implemented Zero-Waste practices in their households. Discuss challenges, successes and long-term commitment.
- **Guest lectures and excursions:** Invite experts or activists to give guest lectures or organise field trips to local facilities such as recycling centres, farmers' markets or sustainable product shops. This gives learners first-hand insights.

- **Interactive online resources:** Use interactive online resources to give learners the opportunity to learn interactively. These can be videos, webinars, quizzes or online simulations.
- **Group projects:** Ask learners to carry out group projects where they develop Zero-Waste initiatives for their own household. This can include implementing measures to reduce plastic packaging, promote recycling or implement energy saving practices.
- **Self-reflection and diary keeping:** Encourage learners to keep diaries in which they document their progress in implementing Zero-Waste practices. This encourages self-reflection and conscious engagement with their habits.
- **Presentations and role plays:** Have learners prepare and give presentations on specific aspects of the topic, e.g. on "Why is up-cycling clothes important?" or "How can solar power reduce energy consumption?" Role plays can simulate situations where sustainable choices have to be made.
- **Action plans:** Ask learners to create personal action plans on how they will implement Zero-Waste practices in their own households. These plans can include goals, steps and time frames.
- **Open discussions and Q&A sessions:** Create space for open discussions and question sessions where learners can express their thoughts, concerns and ideas. This encourages active participation and knowledge sharing.

By combining these methods, trainers can ensure that learners thoroughly understand the topic of zero waste and sustainable budgeting and develop practical skills to implement it.

CONCEPTUAL BACKGROUND

The conceptual background of your theme "Zero Waste and Run the Household Sustainably" refers to the idea of sustainability, especially in the context of household management and environmental protection. This background can be based on different concepts and principles:

- **Zero Waste:** Zero Waste is a sustainable movement that aims to reduce waste to an absolute minimum and avoid landfills. This is achieved by reusing, recycling and switching to reusable products. Zero waste practices promote resource efficiency and help reduce waste and environmental impact.
- **Circular economy:** The conceptual background may include the idea of circular economy, where products and materials are designed to be reused, recycled or returned to the natural cycle at the end of their life cycle. Household management according to the principles of the circular economy aims to minimise resource consumption and waste.
- **Sustainable consumption:** The conceptual background can be based on the concept of sustainable consumption, where consumers make conscious decisions to choose products and services that are environmentally friendly and socially responsible. This includes buying products with a smaller environmental footprint and using sustainable purchasing practices.
- **Energy efficiency:** The background can also include a focus on energy efficiency in households. This includes responsible energy consumption, the use of renewable energy sources such as solar energy and the use of energy-efficient appliances and technologies.
- **Environmental protection and climate change mitigation:** The conceptual background can emphasise protecting the environment and contributing to climate change mitigation through sustainable budget management. This includes measures such as reducing greenhouse gas emissions and protecting biodiversity.
- **Education and awareness:** Promoting education and awareness of sustainable practices is an important part of the conceptual background. This includes raising people's awareness of environmental impacts and training them in sustainable solutions.

The conceptual background sets the theoretical framework in which the theme "Zero Waste and Run the Household Sustainably" is embedded. It emphasises the

importance of sustainable household management for environmental protection, climate protection and the creation of a sustainable future. This background serves as the basis for the development of learning objectives, teaching methods and activities to promote the understanding and implementation of sustainability practices in households.



Questions Cards

1. How can you reduce food waste in your household?

Reducing food waste in your household is an important step toward running it sustainably. Here are some practical tips to help you minimise food waste:

Plan your meals in advance, considering the ingredients you already have at home. This way, you can buy only what you need and avoid overbuying perishable items that might go to waste.

Store food correctly to extend its shelf life. Use airtight containers, wrap food properly, and ensure your refrigerator is set at the appropriate temperature. Understanding which foods need refrigeration and which ones can be stored at room temperature will also help.

Practice the "first in, first out" rule when organising your pantry, fridge, and freezer. Put newer items at the back and older items in the front, so you're more likely to use the older ones before they expire.

Serve appropriate portion sizes to reduce leftovers. Start with smaller portions and allow seconds if needed. You can always save any remaining food for later or use it creatively in another recipe.

Save and repurpose leftovers, instead of throwing away leftovers, get creative and find ways to incorporate them into new meals. For example, leftover vegetables can be turned into a delicious stir-fry or soup, and overripe fruits can be used in smoothies or baked goods.

Set up a composting system in your backyard or explore local composting options if available. Composting food scraps helps divert them from landfills and turns them into nutrient-rich soil for your garden.

Donate excess food, if you have surplus non-perishable items that you won't consume, consider donating them to food banks or local charities. Many organisations accept non-expired, packaged food to distribute to those in need.

Trust your senses of sight, smell, and taste to determine if food is still safe to consume. Expiration dates are often conservative, and many foods are still good beyond those dates. Use your judgment and don't discard food unnecessarily.

By implementing these practices, you can significantly reduce food waste in your household and contribute to a more sustainable way of running your home.

2. What are some sustainable alternatives to using disposable plastic bags for grocery shopping?

To reduce the reliance on disposable plastic bags for grocery shopping, there are several sustainable alternatives you can consider. Here are some options:

Invest in reusable shopping bags made of durable materials like cotton, canvas, or jute. These bags can be used repeatedly, are often more spacious than plastic bags, and can carry heavier loads.



Mesh produce bags, instead of using single-use plastic bags for fruits and vegetables, opt for reusable mesh produce bags. These lightweight bags allow for proper airflow and can be easily washed and reused.

Carry foldable tote bags in your everyday bag or keep them in your car, so you're always prepared for impromptu shopping trips. Tote bags are sturdy, reusable, and come in various sizes and designs.

String or net bags, often made from organic materials like cotton or hemp, are a popular alternative for grocery shopping. They are lightweight, stretchable, and can hold a considerable amount of produce.

If you frequently buy perishable items or frozen goods, consider using insulated bags. These bags help maintain the temperature of your groceries, reducing the need for plastic bags or excessive packaging.

Get creative and repurpose materials you already have at home. Old t-shirts, pillowcases, or fabric remnants can be transformed into reusable bags with a little sewing or knotting.

Consider using sturdy boxes or crates for transporting your groceries. They provide ample space, protect fragile items, and can be reused multiple times.

By opting for reusable bags, you can significantly reduce the consumption of disposable plastic bags and contribute to a more sustainable lifestyle.

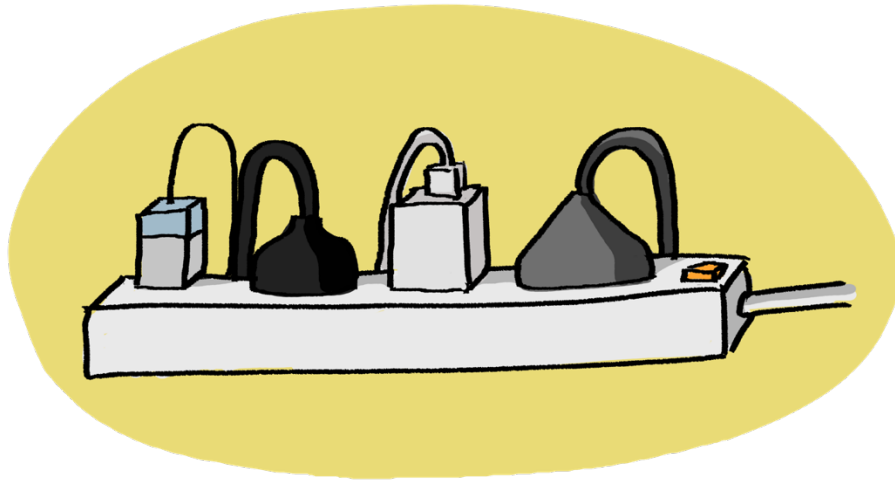
3. How can you reduce your energy consumption at home?

Reducing energy consumption at home not only helps the environment but also saves you money on utility bills. Here are some effective ways to reduce your energy consumption:

When purchasing new appliances, choose those with high energy-efficiency ratings. Look for the Energy Star label, which indicates that the appliance meets strict energy efficiency standards.

Unplug electronics and appliances, because electronic devices and appliances continue to consume energy even when they're turned off or in standby mode. Unplug devices like chargers, laptops, TVs, and gaming consoles when not in use, or use power strips to easily turn them off with one switch.

Replace traditional incandescent bulbs with energy-efficient LED bulbs. LED lights use significantly less energy, last longer, and emit less heat. Make it a habit to turn off lights when leaving a room to save even more energy.



Install a programmable or smart thermostat to optimise your heating and cooling system. Set energy-saving temperature levels when you're away from home or asleep, and schedule the thermostat to adjust accordingly.

Ensure your home is well-insulated to prevent air leaks and maintain a comfortable indoor temperature. Insulate walls, attics, and windows to reduce the need for excessive heating or cooling.

Regularly maintain your heating and cooling systems to keep them running efficiently. Clean or replace air filters, seal ducts, and schedule professional inspections to ensure optimal performance.

Take advantage of natural ventilation by opening windows strategically to allow fresh air in during cooler periods instead of relying solely on air conditioning.

Use energy-efficient cooking methods like using microwaves, slow cookers, or toaster ovens for smaller meals. Match pot sizes to burner sizes, cover pots while cooking, and use residual heat to finish cooking.

Wash clothes in cold water whenever possible, and only run the dishwasher and washing machine with full loads. Air dry clothes instead of using a dryer or use the dryer sparingly.

You can significantly reduce your energy consumption at home while maintaining a comfortable living environment by implementing these energy-saving practises.

4. What are some ways to repurpose old clothing instead of throwing it away?

Repurposing old clothing is a fantastic way to give new life to items that might otherwise end up in the landfill. Here are some creative ways to repurpose old clothing:

Donate or swap: If your clothing is still in good condition, consider donating it to local charities, thrift stores, or clothing banks. Alternatively, organise a clothing swap event with friends or neighbours to exchange clothes and give them a new home.

Up-cycling: Transform old clothing into new and useful items. Some up-cycling ideas include:

Turn t-shirts into tote bags or reusable produce bags.

Convert shirts or blouses into pillow covers or cushion cases.

Use denim from old jeans to create patchwork quilts, bags, or coasters.

Repurpose sweaters into mittens, scarves, or pet beds.

Cut out interesting patterns or designs from clothing and frame them as artwork.

Repair and mend: Extend the life of your favourite garments by repairing them.

Sewing on missing buttons, fixing tears, or patching holes can revitalise clothing and make it wearable again.

Fabric for crafts: Use old clothing as a source of fabric for various craft projects. For example:

Cut fabric into strips and braid them to make bracelets or necklaces.

Create fabric flowers or bows to use as accessories or embellishments.

Use fabric scraps to make quilt squares or patchwork designs.

Repurpose patterned fabrics into unique gift wrapping or greeting cards.

Cleaning rags: Cut up old t-shirts, towels, or other absorbent fabrics to make cleaning rags. These can be used for household chores, wiping surfaces, or cleaning up spills.

Fashion DIY: Get creative with alterations and modifications to transform old clothing into new fashion pieces. For instance:
Shorten or lengthen hems to create a different style.
Add embellishments like beads, sequins, or patches for a unique touch.
Dye or bleach clothing to give them a fresh look.
Combine different garments to make a completely new piece, such as a skirt made from an old dress.

5. How can you reduce your water usage in the bathroom?

Replace old, inefficient fixtures with water-saving alternatives. Install low-flow shower heads, faucets, and toilets that are designed to use less water without compromising performance.

Limit your shower time to reduce water usage. Consider using a shower timer or playing a favourite song to keep track of time and encourage shorter showers.

Don't let the water run unnecessarily. Turn off the faucet while brushing your teeth, lathering your hands, or shaving. Use the minimum amount of water needed for these activities.

Check for and repair any leaks in faucets, toilets, or shower heads. A small leak can waste a significant amount of water over time.

Opt for showers over baths, because showers generally use less water than baths. Choose showers when possible and reserve baths for special occasions.

Collect and reuse water: Place a bucket or basin in the shower to collect excess water while it warms up. This water can be used for watering plants, flushing toilets, or other non-potable purposes.

Consider installing dual-flush toilets that provide different flushing options for liquid waste and solid waste. Alternatively, you can use toilet dams or displacement devices in the tank to reduce the amount of water used per flush.

Upgrade to a water-efficient washing machine: If you have a washing machine in your bathroom, opt for an energy-efficient and water-saving model. These machines use less water while still effectively cleaning your clothes.

6. What are some sustainable cleaning products you can make at home?

Making your own sustainable cleaning products at home is a great way to reduce waste, minimise the use of harsh chemicals, and save money. Here are some examples of DIY cleaning solutions using simple, eco-friendly ingredients:

All-purpose cleaner: Mix equal parts white vinegar and water in a spray bottle. This solution works well for general cleaning on various surfaces like countertops, windows, and mirrors. Add a few drops of essential oils like lemon, tea tree, or lavender for a pleasant scent.

Citrus-infused vinegar cleaner: Fill a jar with citrus peels (lemon, orange, grapefruit) and cover them with white vinegar. Let it sit for a couple of weeks to infuse. Strain the mixture, dilute it with water, and use it as a versatile cleaner for surfaces, floors, and even as a natural disinfectant.



Baking soda scrub: Create a gentle abrasive scrub by mixing baking soda with a small amount of water to form a paste. Apply it to sinks, tubs, or other surfaces that

require scrubbing, and then rinse it off. Baking soda helps remove stains and odours.

Window and glass cleaner: Mix equal parts water and rubbing alcohol or white vinegar in a spray bottle. Spray the solution on windows, mirrors, or glass surfaces and wipe clean with a lint-free cloth or newspaper for streak-free shine.

Air freshener: Make your own natural air freshener by combining water with a few drops of essential oils in a spray bottle. Choose scents like lavender, peppermint, or citrus. Shake well before each use and spray as needed to freshen up your home.

Wood furniture polish: Mix one part olive oil with one part lemon juice in a spray bottle. Shake well before use, then spray a small amount onto a microfibre cloth and gently polish wood furniture. This mixture nourishes the wood while providing a natural shine.

Toilet cleaner: Sprinkle baking soda into the toilet bowl, then pour in white vinegar. Let it sit for a few minutes, scrub with a toilet brush, and flush. Baking soda and vinegar create a fizzy reaction that helps remove stains and odours.

Laundry detergent: Create a DIY laundry detergent by mixing grated castile soap, washing soda, and baking soda in a container. Use one to two tablespoons per load of laundry, depending on the size and dirtiness of the load. Add vinegar to the rinse cycle as a fabric softener.

7. How can you properly dispose of electronic waste in an eco-friendly way?

Proper disposal of electronic waste, also known as e-waste, is crucial to prevent environmental harm and promote recycling of valuable resources. Here are some eco-friendly ways to dispose of electronic waste:

Look for local recycling programs or facilities that specifically handle e-waste. Many municipalities and electronic retailers have designated drop-off locations or collection events for electronic items. Contact your local recycling centre or check their website for information on e-waste recycling options in your area.

Some electronics manufacturers or retailers offer take-back programs for their products. They may provide recycling services or accept old devices when you purchase new ones. Check the manufacturer's website or contact their customer support to inquire about their take-back programs.

Find certified e-waste recycling centres in your area. These facilities specialise in the proper dismantling and recycling of electronic devices. They ensure that valuable materials are recovered, and hazardous substances are handled safely.

If your electronic devices are still functional and in good condition, consider donating them to charitable organisations, schools, or community centres. Some organisations refurbish and distribute donated electronics to individuals or communities in need.

Many electronic retailers and manufacturers offer trade-in or buyback programs. They allow you to exchange your old devices for credit toward new purchases or receive payment for them. These programs often ensure proper recycling or refurbishment of the traded-in devices.

Before disposing of any electronic device, ensure that you've properly erased all personal data. Use data wiping or factory reset functions to remove personal information and consider physically destroying storage media if necessary. Larger electronic devices or complex systems, such as servers or networking equipment, consult professional e-waste disposal services. They have the expertise and resources to handle more extensive or specialised electronic waste.

Keep in mind that electronic waste contains hazardous materials that can leach into the environment and should not be disposed of in regular trash bins or landfills. By using proper e-waste disposal methods, you help to conserve resources, prevent pollution, and promote the recycling of valuable materials.

8. What are some tips for composting at home?

Determine the composting method that best suits your space, lifestyle, and needs. There are various options, including traditional backyard composting, vermicomposting (using worms), or indoor composting systems like bokashi composting.

Select a compost bin if you opt for backyard composting, choose a compost bin or build one yourself. Ensure it has good airflow, drainage, and insulation. If you have limited space or prefer indoor composting, consider smaller compost bins or specialised systems designed for indoor use.



Know what to compost: Compostable materials include fruit and vegetable scraps, coffee grounds, tea bags, eggshells, yard waste (like leaves and grass clippings), shredded paper, and plant trimmings. Avoid composting meat, dairy products, oily foods, and pet waste, as they can attract pests or cause odours.

Aim for a balance of green and brown materials in your compost pile. Green materials are rich in nitrogen and include fresh kitchen scraps and grass clippings. Brown materials are carbon-rich and include dry leaves, straw, shredded paper, and twigs. Layer them to provide a good carbon-to-nitrogen ratio.

Cut or chop larger materials to speed up the composting process, cut or chop larger materials into smaller pieces. This increases the surface area, allowing for faster decomposition.

Keep your compost pile moist, similar to a wrung-out sponge. Regularly check the moisture level and add water if it becomes too dry or cover it if it gets too wet. Turn or mix the compost regularly to provide airflow and distribute moisture evenly. Monitor temperature: Composting generates heat as organic materials break down. Aim for an optimal temperature range of 110-160°F (43-71°C) to facilitate decomposition. If the compost becomes too hot, turn it more frequently or add more brown materials to cool it down.

Composting takes time. Depending on the composting method and conditions, it can take several months to a year for the compost to fully mature. Be patient and allow nature to do its work.

9. How can you reduce single-use plastics in your kitchen?

Use reusable shopping bags: Bring your own reusable bags when grocery shopping. Keep a stash of reusable bags in your car or near your front door to ensure you always have them handy.

Opt for reusable produce bags: Instead of using plastic bags for fruits and vegetables, use reusable produce bags made from cloth, mesh, or other eco-friendly materials.

Say no to plastic water bottles: Invest in a reusable water bottle and fill it with tap water. Carry it with you when you're on the go or at work to avoid buying single-use plastic water bottles.

Use reusable food storage containers: Replace single-use plastic bags and wraps with reusable food storage containers. Choose containers made of glass, stainless steel, or BPA-free plastic for storing leftovers, packing lunches, or carrying snacks.

Ditch plastic straws: Use reusable alternatives to plastic straws such as stainless steel, glass, bamboo, or silicone straws. If you prefer using a straw, bring your own when dining out or drinking beverages at home.

Choose glass or stainless steel containers for food and beverages: When purchasing food items like sauces, condiments, or beverages, opt for products

packaged in glass jars or stainless steel containers instead of plastic bottles or containers.

Make homemade alternatives: Reduce reliance on store-bought items that come in single-use plastic packaging by making your own alternatives. For example, prepare homemade sauces, dressings, or snacks instead of buying pre-packaged versions.

Use washable dishcloths and sponges: Replace disposable paper towels with washable dishcloths, rags, or sponges. These can be reused multiple times, reducing the need for single-use paper products.

Buy in bulk: Purchase dry goods, such as grains, nuts, and legumes, from bulk bins using your own reusable containers or cloth bags. This reduces the amount of plastic packaging waste generated from individually packaged items.

Spread awareness: Educate your family, friends, and colleagues about the importance of reducing single-use plastics in the kitchen. Encourage them to adopt sustainable practices as well.

10. What are some sustainable alternatives to paper towels and napkins?

Use cloth towels made of natural fibres, such as cotton or linen, in place of paper towels. They are washable, reusable, and durable. Keep a stack of cloth towels in your kitchen for wiping spills, drying hands, or cleaning surfaces.

Unpaper towels are reusable cloth alternatives designed to resemble paper towels. They often come in a roll or stack and have snap or Velcro attachments for easy dispensing. Unpaper towels can be washed and reused, reducing waste.

Utilise washable dishcloths or sponges for cleaning countertops, dishes, and other kitchen surfaces. They are highly absorbent and can be reused multiple times before washing.

Replace disposable paper napkins with cloth napkins. Choose cloth napkins made from organic cotton, linen, or other sustainable materials. They add an elegant touch to your dining experience and can be washed and reused repeatedly.

Consider using reusable wipes made from bamboo or organic cotton. These wipes are soft, durable, and versatile. They can be used for cleaning spills, wiping surfaces, or even as baby wipes.

Use handkerchiefs instead of disposable tissues or paper napkins for wiping your face or hands. Choose organic cotton or bamboo handkerchiefs that can be washed and reused.

Repurpose old clothes, towels, or linens by cutting them into smaller pieces to use as cleaning rags or napkins. This gives a new life to the textiles and reduces waste.

If you prefer using disposable options occasionally, choose compostable paper towels or napkins made from recycled or sustainably sourced materials. Look for products labeled as compostable and ensure they can be composted in your local facilities.

True or false

1. Composting is a great way to reduce waste and improve soil health.

True.

2. The 5R's approach stands for "Refuse, Reduce, Reuse, Recycle, and Replace."

False

The 5R's approach stands for "Refuse, Reduce, Reuse, Recycle, and Rot" (which refers to composting).

The correct order of the 5R's is:

Refuse: The first step is to refuse or say no to unnecessary or excessive consumption. This involves avoiding single-use items, unnecessary packaging, or items that are not essential.

Reduce: The next step is to reduce the amount of waste generated by consuming less and making conscious choices to minimize waste production. This can involve purchasing products with minimal packaging or buying in bulk to reduce packaging waste.

Reuse: Reusing items instead of disposing of them is an important step in waste reduction. This can include using reusable bags, containers, and water bottles, as well as donating or selling items that are no longer needed.

Recycle: Recycling involves the proper separation and processing of materials to create new products. It is important to recycle items that cannot be refused, reduced, or reused. This helps conserve resources and reduces the amount of waste sent to landfills.

Rot (Compost): The final step is to compost organic waste, such as food scraps and yard trimmings. Composting allows organic materials to decompose naturally and be transformed into nutrient-rich soil for gardening and landscaping.

3. Running appliances like dishwashers and washing machines only when they are full is a great way to reduce water and energy usage in the household.

True.

4. Composting can help to reduce greenhouse gas emissions by diverting organic waste from landfills, where it would otherwise produce methane gas.

True.

5. Using a reusable water bottle instead of disposable plastic bottles is a great way to reduce waste and save money in the long run.

True.

6. It is important to rinse food waste from dishes before putting them in the dishwasher to ensure that they are clean.

False

It is not necessary to rinse food waste from dishes before putting them in the dishwasher to ensure that they are clean.

Modern dishwashers are designed to effectively clean dishes, including removing food particles. Pre-rinsing dishes before placing them in the dishwasher is not required and can actually waste water and energy. Dishwashers are equipped with filters and spray arms that are designed to remove food debris during the washing cycle.

However, it is important to scrape off excess food scraps from dishes before loading them into the dishwasher. Large food particles or chunks can clog the dishwasher's filter or drain, potentially affecting its performance. By scraping off solid food waste into the trash or compost bin, you can help ensure that your dishwasher operates efficiently.

Additionally, it is a good practice to follow the manufacturer's instructions and guidelines for loading the dishwasher properly. This includes avoiding overcrowding, arranging dishes appropriately, and using the recommended dishwasher detergent and settings for optimal cleaning results.

By not pre-rinsing dishes, you can save water, time, and energy, making your dishwashing process more sustainable and efficient.

7. The 5R's approach to sustainable living emphasizes the importance of recycling as much as possible.

False

The 5R's approach to sustainable living does not solely emphasize the importance of recycling as much as possible.

While recycling is one of the components of the 5R's approach, it is not the sole focus. The 5R's approach promotes a hierarchy of actions to reduce waste and promote sustainable living. The correct order of the 5R's is:

See explanation for answer 2.

8. Using energy-efficient light bulbs is a great way to reduce energy usage and save money on electricity bills.

True

Energy-efficient light bulbs, such as LED or CFL bulbs, use less energy than traditional incandescent bulbs and can help to reduce electricity usage and costs. (Source: Energy Star)

9. The 5R's approach to sustainable living emphasizes the importance of buying products with eco-friendly certifications, such as Energy Star or Fair Trade.

False

The 5R's approach to sustainable living does not solely emphasize the importance of recycling as much as possible.

While recycling is one of the components of the 5R's approach, it is not the sole focus. The 5R's approach promotes a hierarchy of actions to reduce waste and promote sustainable living. The correct order of the 5R's:

- Refuse;
- Reduce;
- Reuse;
- Recycle;
- Rot (Compost).

10. Using public transportation or carpooling instead of driving alone is a great way to reduce carbon emissions and air pollution.

True

Using public transportation or carpooling instead of driving alone is a great way to reduce carbon emissions and air pollution. According to the Union of Concerned Scientists, transportation is one of the largest sources of carbon emissions in the United States. By sharing a ride, either by taking public transportation or carpooling, individuals can significantly reduce their carbon footprint. (Source: Environmental Defense Fund. (n.d.). Transportation)

Activity Cards

1. Discuss the following statement with other players: "Composting is a simple way to reduce household waste and produce nutrient-rich soil for your garden." (Adapted from Greenpeace)

- Composting involves the natural decomposition of organic waste material, such as food scraps and yard trimmings, which creates a nutrient-rich soil amendment.
- Composting diverts waste from landfills and reduces the production of methane gas, a potent greenhouse gas.
- The resulting compost can be used to enrich soil, improve plant health, and reduce the need for chemical fertilizers.

2. Debate the pros and cons of buying second-hand clothing as a way to reduce textile waste and promote sustainable fashion.

Pros of buying second hand clothing:

Buying second-hand clothing helps divert items from ending up in landfills, reducing the environmental impact of textile waste. purchasing second-hand, people support the concept of circular fashion, where clothing is reused and given a longer lifespan, reducing the demand for new clothing production.

Second-hand clothing is often more affordable than buying brand new, allowing people to save money while still maintaining a fashionable wardrobe.

Shopping second-hand offers the opportunity to discover unique and vintage pieces that may not be available in mainstream stores, allowing for personal style expression.

Cons of buying second hand clothing:

Second-hand clothing may have limited sizes available, making it more challenging to find items that fit perfectly.

While second-hand stores offer a wide variety of clothing, finding specific styles or brands can be more challenging, depending on the inventory available.

Some second-hand items may show signs of wear or require minor repairs, which may not be appealing to all people

Shopping second-hand can require more time and effort compared to traditional retail, as people need to search through racks or browse online platforms to find desired items.

3. Debate the pros and cons of using cloth diapers versus disposable diapers for a baby.

Pros of Using Cloth Diapers:

Cloth diapers are reusable and significantly reduce the amount of waste sent to landfills, making them a more sustainable option.

Although cloth diapers have a higher upfront cost, they can save money in the long term since they are reusable and do not need to be continuously repurchased.

Cloth diapers are often made from natural, breathable materials, which may reduce the risk of diaper rash and other skin irritations.

Cons of Using Cloth Diapers:

Cloth diapers require more effort and time to clean and maintain. This includes washing, drying, and folding them properly, which may be challenging for busy parents.

Using cloth diapers adds to the laundry load, potentially increasing water and energy consumption, although advancements in washing machines and detergents have made this impact less significant.

Diapers need to be stocked and readily available, requiring parents to plan and prepare in advance to ensure an adequate supply is on hand.

Pros of Using Disposable Diapers:

Disposable diapers are easy to use and dispose of, requiring no additional effort beyond changing and discarding them.

Disposable diapers do not require washing or drying, saving parents time and effort in comparison to cloth diapers.

Disposable diapers are readily available in various sizes and brands, making them easily accessible for parents.

Cons of Using Disposable Diapers:

Disposable diapers contribute to landfill waste, and their decomposition can take hundreds of years. This impacts the environment and adds to the overall waste management challenge.

While disposable diapers may have a lower upfront cost, the continuous need to purchase new diapers can add up significantly over time.

Disposable diapers contain chemicals and synthetic materials that may irritate sensitive baby skin, leading to diaper rash or other skin issues.

4. Debate the pros and cons of using solar panels versus traditional energy sources to power a household.

Pros of Using Solar Panels:

Solar panels harness the power of the sun, which is a renewable and abundant energy source. They contribute to reducing dependence on finite fossil fuels.

By generating electricity from solar energy, households can potentially reduce their reliance on the grid and lower their electricity bills over time.

Solar panels produce clean energy, resulting in reduced carbon emissions and air pollution compared to traditional energy sources.

While there is an initial investment for installing solar panels, they have a long lifespan and can provide significant cost savings in the long run by generating free electricity.

Cons of Using Solar Panels:

The installation of solar panels requires a significant upfront cost, which may deter some households from pursuing this option.

The efficiency of solar panels depends on the availability of sunlight. In areas with limited sunlight or high shading, the energy generation may be reduced, making solar panels less feasible.

Solar energy production is dependent on sunlight, so energy generation may fluctuate depending on weather conditions and time of day. This may require additional grid connection or energy storage solutions.

Solar panels require regular maintenance to ensure optimal performance, and they occupy significant roof space or land, which may be a limitation for some households.

Pros of Traditional Energy Sources:

Traditional energy sources, such as coal or natural gas, have well-established infrastructure for electricity generation and distribution.

Traditional energy sources provide readily available energy on demand, without being dependent on specific weather conditions or geographical limitations.

Cons of Traditional Energy Sources:

Traditional energy sources, particularly fossil fuels, contribute to air and water pollution, greenhouse gas emissions, and climate change.

Traditional energy sources are subject to price fluctuations due to changes in fuel prices and geopolitical factors. Supply chain disruptions can also impact the availability and affordability of energy.

Fossil fuels are finite resources that will eventually run out, leading to increased energy insecurity and potential economic challenges.

5. Discuss the following statement with the teammates: "Composting is a simple way to reduce household waste and produce nutrient-rich soil for your garden."

Composting involves the natural decomposition of organic waste material, such as food scraps and yard trimmings, which creates a nutrient-rich soil amendment.

6. Explain the benefits of using a reusable water bottle instead of single-use plastic bottles with the teammates.

Reusable water bottles can save money and reduce waste by eliminating the need for single-use plastic bottles.

Using a reusable water bottle can help reduce plastic pollution in oceans and waterways, which harms wildlife and ecosystems.

7. Discuss the environmental impact of single-use plastics and ways to reduce their usage in a household setting.

Single-use plastics contribute to plastic pollution in our oceans and harm marine wildlife.

Ways to reduce their usage include using reusable alternatives like cloth bags, metal straws, and glass containers.

8. Discuss the impact of food packaging on the environment and ways to reduce it, such as buying in bulk or bringing your own reusable containers.

Food packaging contributes to landfill waste and greenhouse gas emissions from production and transportation.

Buying in bulk or using your own containers can reduce packaging waste and save money in the long run.

9. Brainstorm ways to reduce water usage in a household, such as fixing leaks or using low-flow fixtures.

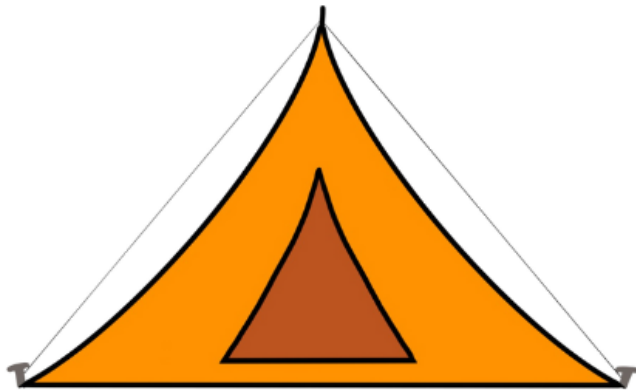
Fixing leaks can save hundreds of gallons of water per year and reduce water bills.

Installing low-flow toilets, shower-heads, and faucets can reduce water usage without sacrificing comfort.

10. Discuss the impact of transportation on the environment and ways to reduce it, such as carpooling or using public transportation.

Transportation is a major source of greenhouse gas emissions and air pollution. Carpooling or using public transportation can reduce traffic congestion, save money, and lower emissions.

Chapter 6: Green Tourism



For Teachers

CONTENTS

The Green Tourism chapter includes a comprehensive discussion and education on sustainable tourism and ecological aspects related to travel. It covers topics such as the importance of sustainable tourism, the impact of climate change on tourism, tips on reducing the ecological footprint when travelling, choosing environmentally friendly accommodation and tours, protecting fragile ecosystems and promoting cultural and social responsibility in tourism. The chapter also addresses common terms and misconceptions related to green tourism.

LEARNING OBJECTIVES

The learning objectives of this chapter on "Green Tourism" could be formulated as follows:

- Understand the concept of sustainable tourism and its importance for the environment, society and the economy.
- Recognise the impact of climate change on tourism and the importance of environmental sustainability in travel.
- Learn strategies and measures to reduce the environmental footprint of travel, including transport, accommodation, food and activities.

- Recognise differences between terms such as "Green Tourism," "Ecotourism," and "Sustainable Tourism" and be able to apply these terms correctly.
- Knowledge about the selection of environmentally friendly accommodation and tours and the importance of certifications and standards in sustainable tourism.
- Understanding the need to protect fragile ecosystems and be considerate of local cultures and communities.
- Identify green travel trends and be able to make conscious choices to make a positive impact on the environment and society while travelling.
- Awareness of the importance of "greenwashing" and the ability to distinguish authentically environmentally friendly suppliers and activities from superficial claims.
- These learning objectives are designed to help readers develop a comprehensive understanding of sustainable tourism and give them the tools and knowledge to make environmentally conscious choices when they travel.

SUGGESTED METHODS FOR THOSE WHO WOULD LIKE TO IMPLEMENT THE TOPICS OFFERED BY THE GAME IN THEIR TRAINING COURSES

Here are some suggested methods for trainers and teachers to implement the topic of green tourism:

- **Group discussion:** Divide the learners into groups and have them discuss in groups how they understand sustainable travel and what actions they can take to reduce their environmental footprint when travelling. Have each group present a summary of their findings at the end.

- **Case studies:** Present learners with case studies of destinations or hotels that focus on sustainable tourism. Have learners analyse what sustainable practices these destinations or businesses implement and how this affects the environment, society and the economy.
- **Brainstorming:** Conduct a brainstorming session where learners come up with ideas on how they can reduce their environmental footprint when travelling. This can be an interactive and creative way to find solutions.
- **Role plays:** Organise role plays where learners take on different roles, such as travellers, hotel managers or tour providers. Have them act out scenarios where they have to make sustainable decisions and then discuss the consequences of these decisions.
- **Excursions:** If possible, organise field trips to ecologically responsible places or businesses in the tourism sector. This offers learners the opportunity to experience sustainable practices first hand.
- **Guest lectures:** Invite sustainable tourism experts or travel entrepreneurs who focus on sustainability to offer learners insights and practical examples.
- **Project work:** Have learners do group projects where they develop and present concepts for sustainable tourism. This can promote the translation of learning into concrete solutions.
- **Online resources:** Use online resources such as videos, podcasts or interactive platforms to provide learners with additional material and information on sustainable tourism.
- **Environmental activism:** Encourage learners to get involved in environmental activism initiatives, whether through litter picks, tree planting or supporting sustainable tourism organisations.
- **Assessment:** Develop assessment criteria and tasks that require learners to demonstrate their understanding and commitment to sustainable tourism.

The choice of methods should be tailored to the age group of the learners, the curriculum and the resources available. Integrating interactive and hands-on approaches can help raise awareness of sustainable tourism and empower learners to make conscious and responsible travel choices.

CONCEPTUAL BACKGROUND

The conceptual background of Green Tourism is based on a variety of principles and concepts related to sustainability, environmental protection, social responsibility and economic development in tourism. Here are some key concepts that make up the conceptual background of Green Tourism:

- **Sustainability:** This is the fundamental concept behind Green Tourism. Sustainability means meeting the needs of the present without compromising the ability of future generations to meet their own needs. In tourism, this means protecting resources and the environment while having a positive impact on the local population and economy.
- **Environmental protection:** Environmental protection is a central concern of "Green Tourism". This includes measures to reduce the ecological footprint of travel, protect natural habitats, preserve biodiversity and minimise environmental impacts.
- **Social responsibility:** Sustainable tourism places great emphasis on social responsibility. This includes promoting social justice, involving local people in the tourism sector, creating jobs and supporting community projects.
- **Economic development:** Sustainable tourism aims to create positive economic impacts in the regions visited. This can be achieved by promoting local businesses, creating sources of income and increasing economic activity.
- **Ethics and culture:** Green Tourism values ethics and cultural sensitivity. This includes respecting the culture and traditions of the regions visited, protecting cultural heritage and avoiding harmful cultural impacts of tourism.

- **Awareness raising:** Another key concept is awareness raising. Travellers and tourism service providers should be made aware of the impacts of their behaviour and make sustainable choices.
- **Certification and standards:** There are various certification programmes and standards used in green tourism to define and measure sustainable practices. This includes organisations such as the Global Sustainable Tourism Council (GSTC) or Leadership in Energy and Environmental Design (LEED).
- **Climate change:** Climate change is an important driver for sustainable tourism. Awareness of the impact of tourism on climate change and the need to reduce greenhouse gas emissions is a key element.

The conceptual background of Green Tourism combines these concepts to promote a form of tourism that takes into account the needs of the environment, communities and travellers alike. The aim is to make tourism more sustainable to ensure that it has a positive impact not only today but also in the future.



Question Cards

1. What is meant by the term "green tourism" or "ecotourism"?

"Green tourism" or "ecotourism" - a form of sustainable tourism - seeks to minimise negative environmental impacts from tourism while still achieving sustainable economic development for host communities, such as protecting natural resources, promoting biodiversity and promoting the cultural integrity of local communities and to share the economic and social benefits of tourism in a fair and equitable manner.

The term "GREEN TOURISM" or "ECOTOURISM" refers to a form of sustainable tourism that focuses on protecting the environment and promoting local communities. It involves travel activities that have minimal impact on the natural environment, contribute to the conservation of biodiversity and respect cultural heritage.

ECOTOURISM aims to create a positive connection between tourists, the places they travel to and the local people. Through responsible planning and implementation of trips, sustainable development should be promoted. This includes supporting local communities, protecting natural resources, preserving biodiversity and promoting environmental education.

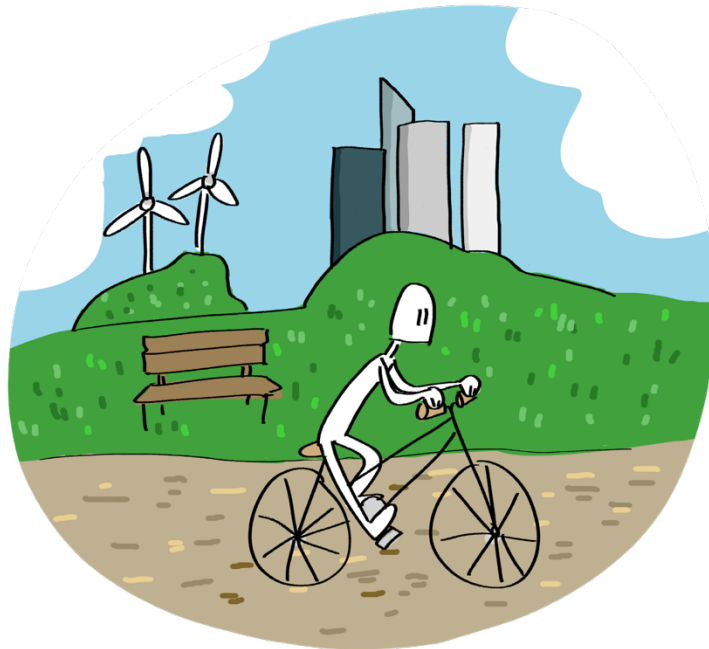
2. How can green tourism be implemented?

E.g. hiking in nature reserves, eco-friendly, accommodation and transport, respectful, interactions with local people and the environment, and supporting local sustainable development initiatives;

Green tourism can be implemented in different ways. Here are some examples:

PROMOTING ENVIRONMENTALLY FRIENDLY TRANSPORT: The use of public transport, bicycles or footpaths should be favoured over private vehicles to reduce CO2 emissions.

ENERGY EFFICIENCY IN ACCOMMODATIONS: Hotels and other accommodation should pay attention to energy efficiency, e.g. by using renewable energy, energy efficient lighting and installing water saving devices.



WASTE MANAGEMENT AND RECYCLING: Accommodation facilities should implement waste management programmes to reduce, separate and recycle waste. This can also be promoted to tourists by providing appropriate information and facilities.

PROTECTING NATURAL RESOURCES: Measures should be taken to protect natural resources such as water, land and biodiversity. This includes, for example, avoiding water wastage, promoting nature-friendly activities and protecting fragile ecosystems.

INVOLVING LOCAL COMMUNITIES: Green tourism should involve local people to respect and promote their culture and heritage. This can be achieved by supporting local businesses, buying locally made products and involving the community in decision-making processes.

SENSIBILISATION AND ENVIRONMENTAL EDUCATION: It is important to educate tourists about sustainable practices and provide them with information on

how to reduce their ecological footprint. This can be done through information materials, visitor centres or guided tours with environmental themes. These measures are not exhaustive and may vary depending on the destination and specific circumstances.

3. What role does the International Ecotourism Society play in ecotourism?

The International Ecotourism Society (TIES) plays an important role in the promotion and development of ecotourism worldwide. As one of the leading organisations in the field of sustainable tourism, TIES is committed to promoting and disseminating the principles and practices of ecotourism. Here are some of the key roles TIES plays in ecotourism:

PROMOTING BEST PRACTICES: TIES works to identify and promote best practices in ecotourism. The organisation develops guidelines and standards for sustainable tourism and encourages companies, organisations and travellers to put these principles into practice.

ENVIRONMENTAL EDUCATION AND AWARENESS: TIES is committed to environmental education and raising public awareness of sustainable tourism. The organisation offers training, workshops and information materials to inform travellers about the impact of their behaviour and encourage them to make sustainable choices.

RESEARCH AND DEVELOPMENT: TIES supports research projects and studies to evaluate and develop ecotourism. The organisation works with research institutions to gather data and insights that can be used to improve practices and create strategies for sustainable tourism.

4. What are the benefits of ecotourism?

- Promotion of the preservation of unspoilt natural landscapes
- Reduced soil, water and air pollution
- Reduced greenhouse gas emissions
- Minimisation of interventions in nature
- Strengthening of the local tourism industry
- Strengthening of the sense of responsibility
- Fair working conditions

- Advantages of ecotourism

PROMOTING THE CONSERVATION OF UNINVOLVED NATURAL

LANDSCAPES: Ecotourism places great emphasis on the protection and conservation of natural habitats. By promoting sustainable practices, pristine natural landscapes are preserved. This can help protect biodiversity and conserve endangered species.

REDUCING SOIL, WATER AND AIR POLLUTION: Ecotourism aims to minimise the negative impacts of tourism on the environment. Environmentally friendly practices such as waste reduction, wastewater treatment and the use of renewable energy reduce the impact on the environment.

REDUCING GHG EMISSIONS: Ecotourism promotes the use of environmentally friendly means of transport such as bicycles, electric vehicles or public transport. This helps to reduce greenhouse gas emissions and supports the fight against climate change.

MINIMISING INTERFERENCE WITH NATURE: Ecotourism emphasises minimal interference with natural ecosystems. Strict guidelines are set for visitor activities to minimise impacts on flora and fauna.

STRENGTHENING THE LOCAL TOURISM ECONOMY: Ecotourism can help to strengthen local communities economically. By involving local businesses and service providers, local communities benefit directly from tourism revenues.

STRENGTHENING RESPONSIBILITY: Through ecotourism experiences, visitors are encouraged to take action to protect the environment. They learn more about the ecological and cultural values of a particular area and are sensitised to make environmentally friendly choices.

FAIR WORKING CONDITIONS: Ecotourism promotes the creation of fair working conditions for local employees. This includes fair pay, training opportunities and the involvement of local people in decision-making.

5. What is soft tourism?

It is a form of travel based on three fundamental principles: minimizing the impact on nature, experiencing nature as intensely and originally as possible, and adapting as best as possible to the cultural characteristics of the country you are visiting.

Soft tourism, also known as soft tourism or gentle travel tourism, is a form of sustainable tourism that aims at a slow and mindful way of travelling. The term 'soft' refers to a gentle and respectful type of tourism that focuses on protecting the environment, preserving cultural values and the well-being of local communities.

Here are some characteristics and principles of soft tourism:

SMALL-SCALE: Soft tourism favours small and local accommodation, tour operators and transport. The emphasis is on a personal and individual travel experience, interacting with local people and recognising their needs.

SUSTAINABILITY: Soft tourism pays attention to the careful use of natural resources and the reduction of environmental impacts. This includes the use of renewable energy, waste prevention and recycling, water efficiency and the protection of fragile ecosystems.

CULTURAL VALUATION: Soft tourism values the recognition of and respect for local culture, traditions and heritage. Travellers have the opportunity to immerse themselves in local culture, support local crafts and interact with local people.

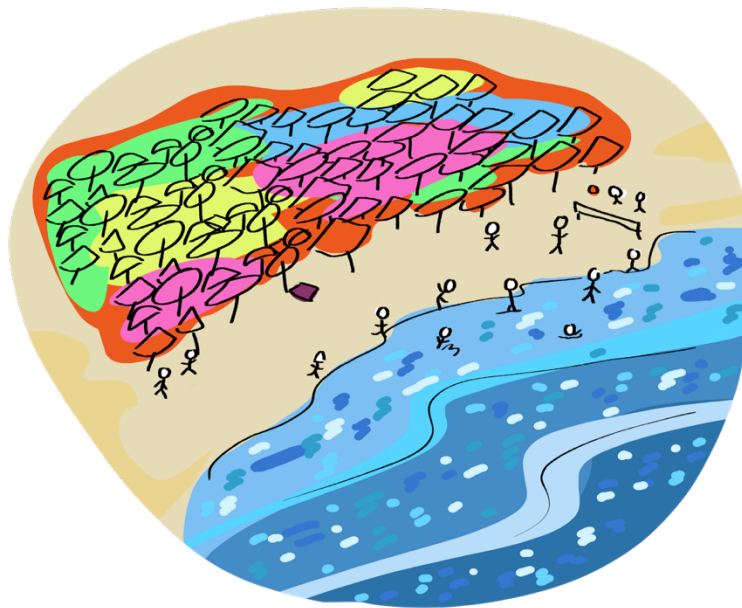
COMMUNITY INVOLVEMENT: Soft tourism involves the local community in the tourism process. This can be done by involving locals in tourism initiatives, supporting local businesses and creating income opportunities for the community.

EDUCATION AND SENSIBILISATION: Soft tourism promotes traveller education about local culture, the environment and sustainability. Through educational

programmes, workshops or guided tours, travellers are sensitised and encouraged to make conscious choices.

6. What is the difference between soft tourism and mass tourism?

The difference between soft tourism and mass tourism is that soft tourism focuses on sustainability and environmental and social impact, while mass tourism is an organized movement of large numbers of people to specialized locations.



SCALING AND VOLUME: Mass tourism refers to a large number of tourists flocking to a destination at the same time. It involves large numbers of visitors and intensive use of local resources. In contrast, soft tourism emphasises small scale and limited visitor numbers to minimise the impact on the environment and the local community.

ENVIRONMENTAL IMPACTS: Mass tourism can have significant impacts on the natural environment, such as increased energy consumption, water scarcity, waste problems and destruction of fragile ecosystems.

INTERACTION WITH LOCAL CULTURE: Mass tourism tends to commercialise and homogenise local culture. It can lead to alienation and loss of traditional practices. Soft tourism, on the other hand, emphasises appreciation and respect for local culture, traditions and heritage.

ECONOMIC IMPACT: While mass tourism can bring economic benefits in the form of increased revenue for the tourism industry, these benefits are often unevenly distributed and only benefit a few large companies. Soft tourism, on the other hand, seeks broader economic participation by involving local businesses and communities and creating alternative sources of income.

7. How can private individuals travel more sustainably?

- Avoidance of air travel
- Keep baggage small
- Book sustainable accommodation
- Saving resources in accommodation
- Eat local
- Shop local
- Leave nature as it was found
- Treat local people with respect

Individuals can travel more sustainably in a number of ways. Here are some tips:

TRANSPORTATION: Choose environmentally friendly means of transport such as train, bus or bicycle, if possible, instead of planes or cars. If you have to fly, choose direct flights and offset your CO2 emissions by buying carbon offset certificates.

ACCOMMODATION: Choose sustainable accommodation that implements environmentally friendly practices such as energy efficiency, waste separation and water conservation. Look for hotels with environmental certifications such as LEED or Green Key.

REDUCE DISPOSABLE PLASTICS: Bring reusable water bottles, drinking cups and cloth bags to reduce the use of single-use plastics. Avoid buying products packaged in plastic.

RESOURCE EFFICIENCY: Make sure you use resources such as water and energy sparingly in your accommodation. Turn off the lights and air conditioning when you leave the room and use towels and bed linen for longer to reduce the need for washing.

SUPPORT LOCAL BUSINESSES: Eat at local restaurants, buy local products and support local artisans and businesses to strengthen the local economy and preserve cultural authenticity.

NATURE PROTECTION: Respect the natural environment, follow rules and guidelines to protect nature and wildlife. Avoid disturbing animals and plants and leave no trace in nature.

CULTURAL SENSIBILITY: Find out about and respect the cultural norms and customs of the destination. Be open to other cultures and show respect for the locals.

RESPONSIBLE SOUVENIR SHOPPING: Buy authentic and sustainably produced souvenirs that support local culture and craftsmanship, rather than buying products from endangered species or illegal sources.

EDUCATION AND AWARENESS: Educate yourself in advance about the environmental and socio-economic impacts of the destination and engage in sustainable travel practices. Share your knowledge and experiences with others to create awareness about sustainable travel.

These tips can help reduce travellers' ecological footprint and make a positive contribution to protecting the environment and supporting local communities.

Here are some sources that provide information and tips on sustainable travel practices for individuals:

United Nations World Tourism Organization (UNWTO):

UNWTO is an international organisation concerned with sustainable tourism. It provides resources and guidelines for sustainable travel, including tips for individuals.

Global Sustainable Tourism Council (GSTC):

The GSTC is a global organisation that develops criteria and standards for sustainable tourism. Their website provides resources, certification programmes and information on sustainable travel practices for individuals.

National Geographic:

National Geographic is known for its coverage of travel and environmental issues. On their website they offer practical tips for sustainable travel and information about sustainable destinations.

The International Ecotourism Society (TIES):

TIES is an international organisation specialising in the field of ecotourism. Their website provides resources and information to promote sustainable travel.

These organisations provide extensive information and resources to help individuals travel more sustainably. Their websites contain further resources and information on sustainable travel practices.

8. What is UNWTO?

The World Tourism Organization (UNWTO) is a United Nations agency dedicated to promoting responsible, sustainable and universally accessible tourism.

The UNWTO (United Nations World Tourism Organization) is a specialised agency of the United Nations dealing with international tourism issues. It was founded in 1974 and has its headquarters in Madrid, Spain. UNWTO aims to promote sustainable and responsible tourism, to support socio-economic development through tourism and to strengthen tourism's contribution to international cooperation and mutual understanding.

UNWTO works closely with governments, tourism organisations, the private sector, non-governmental organisations and other stakeholders to promote the tourism sector worldwide. Its tasks include developing tourism guidelines and standards, providing capacity building and technical assistance to countries, promoting tourism research and statistics, and organising conferences and events to promote exchange and cooperation in the tourism sector.

UNWTO works to promote sustainable tourism that protects the environment, supports cultural diversity, promotes economic development and brings social benefits to the communities concerned. It aims to make the tourism sector a positive driver for sustainable development.

9. What are some of the key principles and practices that make a tourism activity or destination truly sustainable and aligned with the concept of ecotourism?

Here are some of the key principles and practices that make a tourism activity or destination truly sustainable and in line with the concept of ecotourism:

Protecting the environment: a sustainable tourism activity or destination aims to minimise its negative impact on the environment. This includes measures such as

waste reduction, efficient use of resources, energy conservation and protection of biodiversity.

Community involvement: Sustainable tourism practice takes into account the needs and interests of local communities. Partnerships should be established with communities to provide them with economic opportunities, respect their cultural values and encourage their participation in decision-making processes.

Education and awareness: Sustainable tourism places great emphasis on education and awareness. Travellers should be informed about the importance of sustainability, environmental issues and cultural heritage in order to make responsible choices.

Responsible travelling: Sustainable travellers respect wildlife and their natural habitats. They use resources sparingly, minimise their environmental footprint and support local businesses and service providers.

Economic sustainability: Sustainable tourism practices should contribute to the economic development of local communities. This includes generating income and economic benefits for local stakeholders to reduce dependence on external resources.

These principles and practices are based on the principles of ecotourism and help to make tourism activities more environmentally friendly, socially equitable and economically sustainable.

10. What is meant by "sustainable tourism"?

Sustainable tourism is a form of soft tourism. In addition to nature conservation, economic and socio-cultural factors are also important.

Sustainable tourism, also referred to as sustainable travel tourism or sustainable tourism development, refers to a form of tourism that protects the environment, is socially responsible and economically viable. It is an approach that aims to minimise the negative impacts of tourism on the environment, local communities and culture, while reaping the economic benefits of tourism.

Sustainable tourism takes into account a variety of factors and seeks to strike a balance between environmental, social and economic aspects. These include:

ENVIRONMENTAL PROTECTION: Sustainable tourism aims to preserve and protect the natural environment. This includes measures to reduce pollution,

preserve biodiversity, use natural resources sustainably and protect fragile ecosystems.

SOCIAL RESPONSIBILITY: Sustainable tourism takes into account the impact of tourism on local people and culture. It respects the rights and needs of local communities, promotes participation and benefits for local people and supports the preservation of cultural identity and heritage.

ECONOMIC SUSTAINABILITY: Sustainable tourism contributes to the economic development of destinations by creating local jobs, strengthening local economies and improving incomes and welfare in communities. It promotes fair trade and the involvement of local businesses and service providers.

VISITOR EXPERIENCE: Sustainable tourism provides visitors with high quality and authentic travel experiences. It promotes education, cultural exchange, understanding and respect for other cultures and creates opportunities for special nature experiences.

The basic idea of sustainable tourism is that the tourism sector can contribute to the protection of the environment and sustainable development while having a positive impact on local economies and communities. It is about creating long-term benefits rather than maximising short-term profits.

True or False

1. **"Greenwashing" is a term used to describe companies that pretend to be environmentally friendly practices but are in fact taking no actual action.**

True

2. **"Ecotourism" and "Sustainable Tourism" mean the same thing.**

False

While "ecotourism" and "sustainable tourism" have a lot in common, they don't mean the same thing. "Ecotourism" primarily refers to the protection and preservation of nature and the environment, while "Sustainable Tourism" is a broader concept that also includes social and economic sustainability.

3. **"Green tourism" only refers to environmental protection and not to social responsibility and economic development.**

False

No, that is not right. "Green tourism" or also "sustainable tourism" does not only refer to environmental protection, but also includes social responsibility and economic development.

Green tourism aims to minimise the environmental impact of tourism while achieving positive social and economic impacts on destinations. It is about protecting natural resources and cultural diversity, involving local communities, creating jobs and strengthening local economies.

Sustainable tourism considers the needs of current and future travellers, local people and the environment alike. It is about protecting natural and cultural resources, promoting environmental awareness, supporting local communities and ensuring fair economic benefits for all stakeholders.

Therefore, green tourism encompasses environmental protection, social responsibility as well as economic development as key principles.

4. If you stay in an ecological hotel, you can be sure that it is completely sustainable.

False

Not necessarily. Although a hotel calls itself "ecological", this does not necessarily mean that it is fully sustainable. There are several aspects that need to be taken into account to assess the sustainability of a hotel. These include:

Energy efficiency: A sustainable hotel should use energy-efficient technologies and practices, such as LED lighting, solar energy or energy-saving heating and cooling systems.

Water consumption: The hotel should take measures to save water, such as flow limiters on taps, rainwater harvesting or water treatment systems.

Waste management: A sustainable hotel should reduce waste, recycle and provide composting facilities. It can also take initiatives to avoid disposable products and use environmentally friendly cleaning products.

Environmentally friendly construction: The hotel should use sustainable materials that promote energy efficiency and are environmentally friendly. This may include the integration of green roofs, natural ventilation and environmentally friendly building practices.

Sustainable procurement: A sustainable hotel should prioritise environmentally friendly and local options when sourcing products and services. This includes organic food, fair trade products and environmentally certified materials.

It is important to note that not all organic hotels meet all of these criteria. To ensure that a hotel is truly sustainable, it is advisable to look for certifications such as LEED (Leadership in Energy and Environmental Design) or Green Globe, or to obtain information about the hotel's sustainability practices.

5. Tourists should avoid visiting sensitive ecosystems such as coral reefs or national parks when traveling to minimize their environmental impact.

True

6. Eco-friendly hotels should always receive certification from recognized organizations such as the Global Sustainable Tourism Council (GSTC) or

the Leadership in Energy and Environmental Design (LEED) to be recognized as sustainable.

True

7. Sustainable tourism can help fight climate change and help achieve the United Nations Sustainable Development Goals.

True

8. Hotels should always provide recyclable single-use items to minimize environmental impact.

False

No, that is not necessarily true. Although it may seem sensible to offer recyclable disposables in hotels to minimise the environmental impact, there are other aspects to consider.

Basically, it is more sustainable to avoid disposables, regardless of whether they are recyclable or not. Disposable items still generate waste even if they can be recycled. The best option is therefore to use reusable products that are durable and can be used over a longer period of time.

In hotels, measures can be taken to reduce the consumption of disposable items. For example, guests can be provided with reusable bottles and cups instead of providing disposable plastic bottles and cups. Refill stations for soaps and shampoos can also be set up instead of providing small disposable bottles. These measures can reduce waste and minimise environmental impact.

In addition, it is important to consider the entire supply chain and procurement policy. Hotels should select sustainable materials and products that are environmentally friendly and durable. This includes, for example, the use of recycled or biodegradable packaging materials.

It is therefore not sufficient for hotels to only offer recyclable disposable items to minimise their environmental impact. Reducing the consumption of disposable items and promoting reusable and environmentally friendly alternatives are important steps to achieve a more sustainable hotel industry.

9. When booking ecological excursions with tour operators, there is no need to worry about environmental protection, as these activities are by definition environmentally friendly.

False

Not necessarily. Although ecological excursions are advertised by tour operators as environmentally friendly, this does not necessarily mean that they actually take all environmental aspects into account or are completely sustainable.

It is important that travellers critically check whether the ecological excursions offered are actually environmentally friendly. Here are some factors to consider:

Transport: pay attention to how you get to the excursion destinations. If the transport is by a polluting means of transport such as a large tourist bus or a plane, this can increase the environmental impact. Look for excursions that use environmentally friendly means of transport such as bicycles, electric vehicles or public transport.

Conservation: Check if the excursion promotes the protection of the natural environment and wildlife. Make sure that no harmful activities such as wildlife interactions, habitat destruction or pollution are involved.

Cultural sensitivity: Make sure that excursions also respect the cultural aspects and concerns of local communities. It is important that the income from the excursions benefits the local communities and that their cultural integrity is respected.

Certifications: Look for tour operators or excursions that are certified by recognised certification organisations such as the Global Sustainable Tourism Council (GSTC). Such certifications show that certain sustainability criteria are met.

It is therefore not sufficient to rely solely on the designation "ecological". Travellers should carefully examine the environmental impact of the excursions and ensure that they actually promote sustainable practices.

10. It is better to avoid air travel and instead choose more environmentally friendly means of transport such as trains or buses.

True

Activity Cards

1. Sustainable Destination Brainstorm:

Challenge participants to brainstorm ideas for making a destination more sustainable and environmentally friendly. Give them 5 minutes to write down as many ideas as possible, focusing on areas like waste management, energy efficiency, conservation initiatives, or community involvement. After the brainstorming session, ask participants to share their ideas with the group, encouraging discussion and collaboration.

2. Read through the following effects of climate change and consider how this can affect tourism.

Increase in hot days (i.e. at least 30° C), heavy precipitation and flooding, drought and low water, forest dieback and drought damage, overall reduction in snow, increased occurrence of ticks, reduction in air quality, changes in the landscape;

3. A study showed that travelers are hardly willing to pay more for sustainable features of a tourist offer. How is it in your family? What would it mean if you as a family always traveled sustainably and paid more for it?

4. Try to explain to your fellow players how climate change can affect tourism.

Go into at least one of the following examples in more detail: change in weather, change in landscape, change in season, health risks, economic risks;

5. There are numerous studies examining the travel behavior of travelers. According to a survey by Lonely Planet, 70% of respondents have already traveled in an environmentally friendly way.

Discuss with your fellow players: How can private individuals travel in an environmentally friendly way? What problems do families have to solve when traveling in an environmentally friendly way (e.g. by train)?

6. Discuss: How could tourists reduce their ecological footprint when they travel?

The following criteria can be important: transport, accommodation, food and drink, waste management, sustainable activities, respectful treatment of the environment;

7. It is not only the holiday destination and the way of travelling that play a major role. Local holiday behaviour also has a significant influence.

What could be the motto for your next holiday to improve holiday behaviour on site?

8. How can you make sure that the "green" hotels you visit are actually environmentally friendly? What criteria should you consider when choosing a "green" hotel?

9. What measures should tourists take to respect and support the culture and communities of the region they visit? What actions should they avoid to avoid negative impacts on the local population?

10. How can families use natural resources, such as water and energy, responsibly when travelling?

Chapter 7: Eco Sports



For Teachers

CONTENTS

The chapter "Green Sports Activities" deals with environmentally friendly and sustainable practices in the field of sport. It covers various aspects of green sports, including the use of renewable energy sources, sustainable sports equipment, environmentally friendly sports events and stadiums, and the role of sports organisations in promoting environmental protection and sustainability. The chapter also covers measures that athletes, spectators and organisers can take to minimise the environmental footprint of sports activities. It emphasises the positive effects of environmentally conscious action in sport and how this sector can contribute to promoting sustainable lifestyles and combating climate change.

LEARNING OBJECTIVES

The learning objectives for the chapter "Green Sports Activities" could be formulated as follows:

Understand what is meant by Green Sports Activities and how they promote environmental friendliness and sustainability.

Identify examples of environmentally friendly sports activities and events.

Understand how sports equipment can be made more sustainable.

Learn how sports facilities can reduce their environmental impact.

Understand what a 'Green Team' means in relation to sport and how it helps to promote sustainability.

Identify how athletes can reduce their carbon footprint when travelling to competitions.

- Understand how renewable energy can be used in sport and the benefits it offers.
- Identify how sports organisations can work with sponsors to promote sustainability.
- Understand what a carbon offset programme is in sport and how it is used to offset CO₂ emissions.
- Learn how sports organisations can encourage fans to adopt environmentally friendly practices.

These learning objectives aim to provide learners with a comprehensive understanding of environmentally friendly and sustainable practices in the field of sport and encourage them to put their knowledge into practice.

SUGGESTED METHODS FOR TRAINERS AND TEACHERS TO IMPLEMENT THE TOPIC IN THE CLASSROOM

To implement the topic of Green Sports Activities in the classroom, trainers and teachers can use different teaching methods and activities. Here are some suggested methods:

- **Discussion group:** Have learners discuss the concept of Green Sports Activities in groups. Each group can then share their findings and ideas with the class. This encourages the exchange of opinions and critical thinking.
- **Practical exercises:** Organise outdoor practical exercises to demonstrate sustainable sports activities. For example, learners could play eco-friendly games or learn how to make eco-friendly sports equipment.

- **Guest speakers:** Invite sustainable sport experts or representatives of environmental organisations to the class. They can give insights into practice and answer learners' questions.
- **Group projects:** Divide learners into groups and ask them to do research on different aspects of Green Sports Activities. They can then make presentations or reports and present their findings.
- **Excursions:** Plan field trips to environmentally friendly sports facilities or sporting events. This allows learners to experience sustainable practices in action.
- **Debates:** Organise a debate on whether sporting events affect the environment or whether they help to promote sustainable practices. This encourages argumentation and critical thinking.
- **Case studies:** Use case studies of sports organisations or events that have successfully implemented sustainable practices. Learners can analyse what has worked and why.
- **Quizzes and games:** Create quizzes or games to test and deepen learners' knowledge of environmentally friendly sports activities in a fun way.
- **Writing exercises:** Ask learners to write essays or reports about how they themselves can implement sustainable practices in sport.
- **Creating action plans:** Ask learners to develop action plans for sustainable sport activities in their school or community. This can help to put what they have learned into practice.

The choice of methods depends on the age group of the learners, the resources available and the objectives of the lesson. It is important to make the topic engaging and interactive to stimulate learners' interest and engagement.

CONCEPTUAL BACKGROUND

The conceptual background of Green Sports Activities refers to the idea of integrating environmentally friendly practices and sustainability into the field of sport. This approach is based on the recognition that sporting events and activities consume a large amount of resources and can have an environmental impact. Therefore, it is important to develop strategies to make the sports sector more sustainable.

The conceptual background includes several key concepts:

- **Environmental protection:** This approach aims to reduce the environmental impact of sporting events. This can extend to energy efficiency, waste reduction, water conservation and the use of renewable energy.
- **Sustainable practices:** Green Sports Activities promotes the use of sustainable practices in sport, such as recycling materials, using environmentally friendly sports equipment and promoting sustainable transport for sporting events.
- **Awareness raising:** An important aspect is the education and awareness raising of athletes, organisers and fans on environmental issues. This includes education about environmentally friendly practices and the positive effects of sustainability in sport.
- **Reducing CO2 emissions:** Another goal is to reduce carbon emissions associated with sporting events. This can be achieved by integrating renewable energy, optimising travel and offsetting emissions through carbon offset programmes.
- **Responsibility of the sports community:** This conceptual background emphasises the role of the entire sports community, including sports organisations, clubs, athletes and fans, in promoting sustainability in sport.

The conceptual background of Green Sports Activities is very important in the context of a broader global movement to promote sustainability and combat

climate change. It shows how the sports sector can make a positive contribution to environmental protection and social responsibility by integrating sustainable practices and environmentally friendly choices into its actions. This approach also offers the opportunity to use sporting events and activities as platforms to create environmental awareness and engage fans in sustainable action.

Questions Cards

1. What is a "Green Sports Activity"?

A "Green Sports Activity" refers to any sporting event or activity that is conducted with a focus on environmental sustainability and minimising its ecological footprint. Green sports activities encompass various aspects, including:

Implementing energy-efficient lighting systems, utilising renewable energy sources, managing water usage, and adopting waste management strategies such as recycling and composting.

Encouraging sustainable transportation options for athletes, staff, and spectators, such as promoting public transportation, carpooling, and providing bicycle parking facilities. Minimising air travel and carbon emissions associated with long-distance sports events is also a focus.

Promoting the use of eco-friendly materials in sports equipment, uniforms, and infrastructure. This can include utilising recycled or sustainable materials and reducing the use of hazardous substances.

Implementing measures to conserve water through efficient irrigation systems for sports fields, promoting water-saving practices in locker rooms and facilities, and reducing overall resource consumption.

Encouraging waste reduction, implementing recycling programs, and adopting sustainable waste management practices in sports venues. This includes promoting proper waste sorting, composting organic waste, and minimising single-use plastics.

Raising awareness among athletes, coaches, and spectators about the importance of environmental sustainability in sports. This can include educational campaigns, promoting eco-friendly practices, and showcasing the positive environmental impacts of green sports activities.

2. What are some examples of green sports activities?

Green marathons and running events: Many marathons and running events have adopted eco-friendly practices, such as using compostable cups or encouraging participants to bring their own reusable water bottles, implementing recycling programs, and minimising waste generation.

Eco-friendly cycling races: Cycling events often prioritise sustainability by promoting bike commuting, organising eco-friendly bike races, and advocating for cycling infrastructure improvements to reduce carbon emissions and promote active transportation.

Sustainable hiking and trail races: Hiking and trail running events can focus on preserving natural landscapes by adhering to Leave No Trace principles, promoting responsible outdoor practices, and raising awareness about conservation efforts.



Eco-sailing and regattas: Sailing races and regattas can embrace sustainable practices by utilising wind power and eco-friendly materials in boat construction, reducing waste and pollution in waterways, and promoting marine conservation.

Green golf tournaments: Golf tournaments are adopting green practices by implementing water-saving measures, using organic fertilisers, promoting biodiversity on golf courses, and integrating renewable energy sources into course operations.

Eco-friendly skiing and snowboarding competitions: Winter sports events are embracing sustainability by implementing energy-efficient snowmaking systems, promoting public transportation to ski resorts, and raising awareness about climate change's impact on winter sports.

Sustainable surfing contests: Surfing competitions can promote environmental stewardship by raising awareness about marine pollution, organising beach clean-ups, and supporting coastal conservation initiatives.

Green football (soccer) matches: Football clubs and stadiums are adopting sustainable practices, such as using renewable energy sources, reducing water consumption in pitch maintenance, and implementing recycling programs in stadiums.

3. How can sports equipment be made more sustainable?

Choose sustainable and eco-friendly materials for manufacturing sports equipment. This includes using recycled or up-cycled materials, responsibly sourced wood, plant-based or biodegradable materials, and low-impact manufacturing processes.

Incorporate recycled materials, such as recycled plastics, rubber, or metals, into the production of sports equipment. Additionally, explore renewable materials like bamboo, cork, or natural fibres as alternatives to conventional materials.

Ensure that the manufacturing process of sports equipment minimises the use of toxic substances and reduces emissions. This includes using environmentally friendly adhesives, dyes, and coatings, as well as implementing energy-efficient manufacturing techniques.

Design sports equipment to be durable, long-lasting, and resistant to wear and tear. This helps extend the lifespan of the products and reduces the need for frequent replacements.

Encourage reparability by designing sports equipment with easily replaceable parts or modular components. This allows users to repair and upgrade equipment instead of discarding it entirely.

Consider the end-of-life disposal of sports equipment. Design products that are recyclable or biodegradable to minimise waste. Establish take-back programs or recycling initiatives to facilitate responsible disposal or recycling of old or damaged equipment.

Implement energy-efficient manufacturing processes, such as using renewable energy sources, optimising production lines, and reducing energy consumption during production.

Adhere to eco-certifications and standards, such as eco-labels or environmental management systems, to ensure compliance with sustainable practices in the production of sports equipment.

Raise awareness among consumers about the environmental impact of sports equipment and encourage responsible use, maintenance, and disposal. Provide information on sustainable practices and the benefits of choosing eco-friendly products.

Foster collaboration among manufacturers, designers, researchers, and sports organisations to drive innovation and develop more sustainable materials, technologies, and manufacturing processes for sports equipment.

4. How can sports venues reduce their environmental impact?

Efficient water management: Install low-flow fixtures in restrooms and kitchens to minimise water consumption. Utilise rainwater harvesting systems for irrigation purposes. Implement water-efficient technologies, such as sensor-controlled faucets and toilets, to reduce water waste.

Waste reduction and diversion: Implement strategies to minimise waste generation within the venue. This includes promoting the use of reusable containers and utensils, minimising single-use plastics, and offering water refill

stations. Establish comprehensive recycling and composting programs to divert waste from landfills.

Renewable energy integration: Install renewable energy systems, such as solar panels or wind turbines, to generate clean energy for the venue's operations. Explore partnerships with local utilities or invest in off-site renewable energy projects to offset energy consumption.

Green procurement: Implement sustainable procurement policies by sourcing environmentally friendly products and services. Give preference to vendors and suppliers that adhere to sustainable practices, such as using organic or locally sourced materials and offering eco-friendly packaging options.

Sustainable landscaping: Adopt sustainable landscaping practices by choosing native and drought-resistant plants that require minimal irrigation. Use organic fertilisers and integrated pest management techniques to maintain landscape health without harming the environment. Implement permeable surfaces to reduce stormwater runoff.

Carbon offset programs: Offset the venue's carbon emissions by investing in verified carbon offset projects. These projects can include reforestation initiatives, renewable energy projects, or methane capture programs. Communicate the venue's commitment to carbon neutrality or reduction to stakeholders and fans.

5. What is a "green team" in the context of sports?

The primary role of a green team is to advocate for and implement sustainable initiatives within the sports organisation or event. They work towards raising awareness, educating stakeholders, and driving positive change towards sustainability. Some key responsibilities of a green team may include:

Conducting environmental assessments and audits to identify areas of improvement and measure the environmental impact of sports activities or events.

Creating and implementing sustainability plans, policies, and guidelines specific to the sports organisation or event. This may include setting goals and targets for reducing waste, energy consumption, and water usage.

Educating athletes, staff, spectators, and stakeholders about sustainable practices and encouraging their adoption. This can involve organising workshops, campaigns, or information sessions to raise awareness about topics such as waste reduction, energy efficiency, and sustainable transportation.

Developing and implementing waste management programs that prioritise recycling, composting, and reducing waste generation. Coordinating recycling initiatives, ensuring proper waste sorting, and monitoring waste diversion rates.



Identifying opportunities for energy and water conservation within sports facilities. This includes promoting energy-efficient lighting, water-saving fixtures, and implementing strategies for efficient water and energy usage.

Establishing partnerships with sustainability-focused organisations, local businesses, and suppliers to exchange knowledge, share best practices, and collaborate on sustainability initiatives. This can involve coordinating with local

waste management facilities, renewable energy providers, or sustainable product suppliers.

Tracking and reporting on the progress of sustainability initiatives, measuring key performance indicators, and providing regular updates to stakeholders. This helps demonstrate the impact of sustainability efforts and encourages transparency and accountability.

6. How can athletes reduce their carbon footprint when traveling for competitions?

Athletes can take several steps to reduce their carbon footprint when traveling for competitions:

Whenever possible, opt for more sustainable modes of transportation such as trains or buses instead of flying. If flying is necessary, consider booking direct flights to minimise emissions from takeoff and landing.

Athletes can calculate the carbon emissions generated from their travel and support certified carbon offset projects to compensate for their footprint. These projects can include reforestation initiatives or renewable energy projects that help mitigate greenhouse gas emissions.

Traveling with lighter luggage helps reduce fuel consumption. Athletes can pack efficiently, carrying only the essentials and avoiding unnecessary items that add weight to their bags.

Choose eco-friendly accommodation options that prioritise energy efficiency, waste reduction, and sustainable practices. Look for hotels or accommodations with green certifications or sustainability initiatives in place.

Utilise public transportation systems or shared transportation services like carpooling or ride-sharing apps whenever possible. This helps reduce individual emissions by maximising vehicle occupancy.

Bring reusable water bottles, coffee mugs, and food containers to avoid using single-use plastics and reduce waste generated during travel. Refill these containers at water stations and avoid disposable items offered during the journey.

Seek out accommodations and venues located in environmentally conscious areas that offer sustainable transportation options, access to recycling facilities, and promote sustainable practices.

Choose to diner at local restaurants or purchase products from local businesses that emphasise sustainable and ethical practices. This supports the local economy and reduces the carbon footprint associated with long-distance shipping.

Utilise digital platforms for communication, document sharing, and registration processes whenever possible to reduce the need for paper-based materials and transportation of physical documents.

Athletes can use their platform to raise awareness about sustainable travel and advocate for more sustainable practices within their sport. They can encourage their peers, teams, and organisations to prioritise sustainability when planning travel for competitions.

7. What are some benefits of using renewable energy in sports?

Reduced carbon footprint: Renewable energy sources, such as solar, wind, hydro, and geothermal power, produce electricity with minimal or no greenhouse gas emissions. By switching to renewable energy, sports organisations can significantly reduce their carbon footprint and contribute to mitigating climate change.

Cost savings: While the initial investment in renewable energy infrastructure may require upfront costs, over time, organisations can experience long-term cost savings. Renewable energy sources have lower operating costs compared to fossil fuels, as they rely on freely available natural resources and require less maintenance.

Positive brand image and public relations: Embracing renewable energy aligns with sustainability goals and demonstrates a commitment to environmental responsibility. Sports organisations that use renewable energy can enhance their brand image, attract environmentally conscious sponsors, and appeal to fans who value sustainable practices.

Community engagement and partnerships: By investing in renewable energy, sports organisations can engage with local communities and build partnerships with renewable energy developers, suppliers, and technology providers. This collaboration can lead to shared resources, knowledge transfer, and mutual support in achieving sustainability goals.

Improved air quality and health benefits: Unlike fossil fuel-based energy sources, renewable energy systems produce minimal air pollution and do not emit harmful pollutants like sulphur dioxide, nitrogen oxides, or particulate matter. This contributes to improved air quality and potential health benefits for athletes and spectators.

Innovation and technological advancement: Embracing renewable energy stimulates innovation within the sports industry. This encourages the development of new technologies, solutions, and practices that can be shared and implemented in other sectors, contributing to the overall advancement of renewable energy systems.

Inspiring and motivating fans and athletes: The adoption of renewable energy by sports organisations can inspire and motivate fans and athletes to embrace sustainable practices in their own lives. It sends a powerful message that positive change is possible and encourages individuals to take action towards a more sustainable future.

8. How can sports organisations encourage fans to adopt sustainable practices?

Sports organisations have the power to influence and inspire fans to adopt sustainable practices.:

Sports organisations can demonstrate their commitment to sustainability by implementing eco-friendly practices within their operations and venues. This includes using renewable energy, implementing waste reduction and recycling programs, promoting sustainable transportation, and showcasing sustainable infrastructure and technologies. By leading by example, organisations set a positive precedent and inspire fans to follow suit.

Launch educational initiatives to raise awareness among fans about the importance of sustainability and the positive impact of adopting eco-friendly practices. Utilise various platforms such as social media, websites, and stadium signage to share sustainability messages, tips, and success stories. Engage athletes, coaches, and staff in spreading the sustainability message through interviews, videos, and social media posts.

Create fan engagement programs focused on sustainability. Offer incentives for fans who actively participate in eco-friendly activities such as carpooling, using public transportation, or biking to games. Organise sustainability-themed contests, quizzes, or challenges to engage fans and reward sustainable actions.

Encourage fans to use sustainable transportation methods to attend games and events. Provide information on public transportation routes, organise shuttle services, and offer bicycle parking facilities. Collaborate with local transportation authorities to facilitate sustainable transportation options and offer incentives such as discounted tickets or priority access for fans who use eco-friendly transportation.



Implement comprehensive waste management systems within stadiums and arenas. Place recycling and composting bins throughout the venue and provide

clear signage on proper waste sorting. Engage fans in recycling and waste reduction initiatives by educating them on the importance of responsible waste disposal and promoting the use of reusable containers.

Work with vendors and partners to offer sustainable merchandise options such as organic cotton apparel, recycled materials, or merchandise made from sustainable sources. Encourage the use of reusable cups, plates, and utensils at concession stands to reduce single-use plastic waste. Provide water refill stations to discourage the use of single-use plastic bottles.

Collaborate with sponsors and partners who share the commitment to sustainability. Promote their sustainable initiatives and products to fans, creating a collective effort towards sustainability. Encourage sponsors to adopt sustainable practices and offer exclusive sustainability-themed promotions or events to fans.

Engage with the local community and environmental organisations to organise joint initiatives and events focused on sustainability. Collaborate on environmental clean-up campaigns, tree planting activities, or educational workshops. Build partnerships with sustainability-focused organisations to leverage resources, expertise, and community support.

Highlight and recognise fans who demonstrate sustainable practices and actions. Feature their stories on social media, website, or during game broadcasts. By celebrating sustainable behaviours, organisations inspire others to follow suit and create a sense of community around sustainability.

Measure and report on the organisation's sustainability efforts, including fan engagement initiatives. Share progress, achievements, and challenges transparently to build trust and accountability with fans. Communicate the collective impact fans can make through their sustainable actions, emphasising the role they play in creating a more sustainable sports community.

By using these tactics, sports organisations can empower and engage fans to adopt sustainable practises, thereby reducing environmental impact and establishing a culture of sustainability within the sports community.

9. What is a carbon offset program in the context of sports?

In the context of sports, a carbon offset program is a strategy employed by sports organisations to compensate for their carbon emissions by supporting projects that reduce or remove greenhouse gas (GHG) emissions from the atmosphere. The goal is to achieve carbon neutrality or reduce the overall carbon footprint associated with sports activities, events, and operations.

Sports organisations first assess their carbon footprint by calculating the GHG emissions generated from their activities, including travel, energy consumption, waste management, and other relevant factors. This assessment provides a baseline understanding of their emissions.

Once the carbon footprint is determined, organisations identify and select carbon offset projects to support. These projects are typically third-party verified and adhere to recognised standards such as the Verified Carbon Standard (VCS) or Gold Standard. Offset projects can include activities such as reforestation, renewable energy development, methane capture from landfills or agriculture, or energy efficiency initiatives.

Sports organisations purchase carbon offsets equivalent to the amount of GHG emissions they wish to offset. The funds from offset purchases are then directed towards the selected projects. Once the offsets are purchased, they are retired, ensuring that the emission reduction credits associated with those offsets are not sold or used by anyone else.

Organisations monitor and track the progress and impact of the offset projects they support. This involves regular reporting on the number of offsets purchased, the projects supported, and the emission reductions achieved. Transparent reporting helps demonstrate the organisation's commitment to offsetting their carbon emissions and provides accountability to stakeholders.

Organisations communicate their participation in the carbon offset program to fans, sponsors, and stakeholders, raising awareness about their sustainability efforts. This includes educating the public about the importance of carbon

offsetting, the projects supported, and the overall benefits of reducing greenhouse gas emissions.

10. How can sports organisations work with sponsors to promote sustainability?

Sports organisations can collaborate with sponsors to promote sustainability and to work with sponsors to advance sustainability:

Prioritise sponsors who share a commitment to sustainability and align with the organisation's sustainability goals and values. Look for sponsors that have demonstrated sustainable practices in their own operations, products, or services.

Collaborate with sponsors to develop sustainability-themed campaigns or activations that engage fans and promote sustainable practices. This can include joint initiatives such as recycling drives, clean-up campaigns, or educational programs focused on environmental conservation.

Highlight sponsors' sustainable products or services through various channels, including digital platforms, social media, and in-venue promotions. Feature sustainable attributes, such as eco-friendly materials, energy efficiency, or recyclability, to educate fans about sustainable options.

Work with sponsors to organise eco-friendly events or initiatives, integrating sustainability practices into event planning and execution. This can involve sustainable transportation options, waste reduction strategies, energy-efficient technologies, or promoting sustainable food and beverage options.

Collaborate with sponsors on sustainability reporting, sharing information about joint initiatives, carbon offset programs, or sustainable practices implemented throughout the partnership. This transparent reporting demonstrates the collective commitment to sustainability and showcases the impact achieved.

Engage sponsors in knowledge-sharing sessions or workshops focused on sustainability. Exchange best practices, case studies, and experiences related to sustainability implementation. This collaborative approach fosters continuous improvement and inspires innovation.

Incorporate sustainability themes into sponsorship activation strategies. For example, sponsor logos or branding can be displayed on recycling bins, reusable water stations, or sustainable transportation options. This reinforces the sponsor's commitment to sustainability and aligns their brand with environmentally responsible practices.

Partner with sponsors to fund and conduct research and development projects focused on sustainability in sports. This can include studies on renewable energy integration, waste management strategies, sustainable venue design, or fan behaviour analysis related to sustainable practices.

Collaborate with sponsors to develop employee engagement programs centred around sustainability. This can involve joint volunteering activities, educational workshops, or initiatives promoting sustainable lifestyles among sponsor employees.

Recognise and showcase sponsors that demonstrate leadership in sustainability. Provide branding opportunities that highlight their commitment to sustainability during events, on websites, or in promotional materials. This recognition fosters a positive brand image and motivates other sponsors to embrace sustainability.

Sports organisations may amp up their sustainability efforts by collaborating closely with sponsors and leveraging their support, resources, and influence. They may motivate fans, partners, and other stakeholders to embrace sustainable practices and contribute to a greener and more ecologically responsible sports community by working together.

True or false

- 1. Green sports facilities are designed to be energy-efficient and minimize their carbon footprint.**

True

- 2. Solar panels are a popular and effective way to power sports facilities.**

True

- 3. Composting is an effective way to manage organic waste generated by sports facilities.**

True

- 4. The 5 R's approach (Refuse, Reduce, Reuse, Recycle, and Rot) can be applied to sports facilities to reduce waste and promote sustainability.**

True

- 5. Wind power is not a viable option for powering sports facilities.**

False

Wind power is a viable option for powering sports facilities in some regions where wind resources are available.

Wind power is a renewable energy source that harnesses the power of the wind to generate electricity. While the viability of wind power for sports facilities depends on various factors such as location, wind resources, and infrastructure, it has been successfully implemented in many regions worldwide.

Sports facilities, such as stadiums and arenas, can install wind turbines or partner with wind energy providers to generate clean electricity on-site or purchase wind power from off-site wind farms. This allows them to reduce their carbon footprint, decrease reliance on fossil fuels, and contribute to sustainable energy practices.

The viability of wind power for sports facilities depends on factors such as average wind speed, wind turbine technology, available space, and regulatory considerations. In regions with favourable wind conditions, wind power can be a cost-effective and environmentally friendly option for meeting the energy needs of sports facilities.

However, it is important to assess site-specific factors and conduct feasibility studies to determine the suitability and economic viability of wind power for each individual sports facility.

6. Smart lighting systems can help reduce energy consumption in sports facilities.

True

7. Energy-efficient appliances and equipment can help reduce energy consumption in sports facilities.

True

8. Solar-powered stadiums are becoming more common around the world.

True

9. Using recycled rubber for sports field surfaces is not environmentally friendly.

False

Using recycled rubber for sports fields can actually be an environmentally friendly option, as it diverts rubber waste from landfills and provides a durable, safe surface for athletes.

Using recycled rubber for sports field surfaces, such as artificial turf or rubberised tracks, can be an environmentally friendly choice. Recycled rubber is often sourced from recycled tires, diverting them from landfills and reducing waste. There are several environmental benefits to using recycled rubber in sports field surfaces:

By repurposing discarded tires and converting them into sports field surfaces, the amount of rubber waste sent to landfills is reduced. This helps minimise the environmental impact of tire disposal and promotes a circular economy.

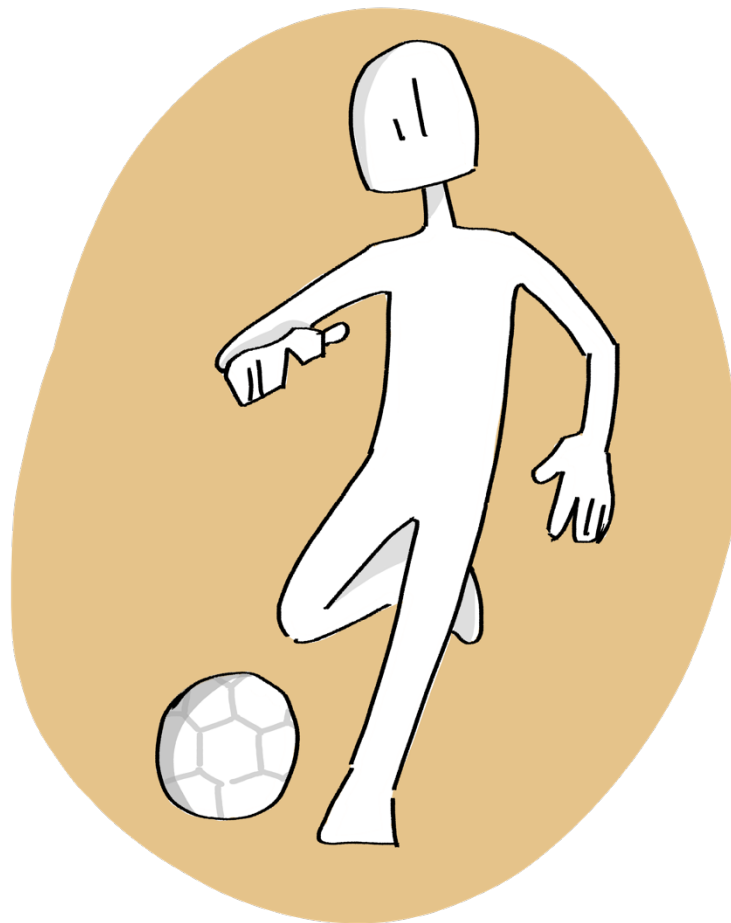
Incorporating recycled rubber into sports field surfaces reduces the demand for new raw materials. It conserves natural resources such as rubber and reduces the need for energy-intensive manufacturing processes associated with producing new materials.

The production of recycled rubber requires less energy compared to manufacturing new rubber products. By using recycled rubber for sports field surfaces, energy consumption and associated greenhouse gas emissions can be minimised.

Recycled rubber can provide durability, shock absorption, and traction, making it suitable for sports field surfaces. It offers similar performance characteristics to traditional materials but with the added benefit of being environmentally friendly.

10. Renewable energy sources like solar and wind power can be used to power sports facilities and events.

True



Activity Cards

1. Debate the pros and cons of using renewable energy sources like solar or wind power for sports facilities.

Pros: Renewable energy sources are environmentally friendly and reduce carbon emissions. They also provide long-term cost savings for sports facilities.

Cons: The initial investment in renewable energy infrastructure can be high, and it may not be feasible for all sports facilities.

2. Discuss the impact of sports equipment production on the environment and ways to reduce it.

Impact: sports equipment production can lead to resource depletion, energy consumption, and waste generation.

Ways to reduce impact: Using recycled materials, reducing packaging, and encouraging consumers to repair and reuse equipment can all help reduce the impact of sports equipment production.

3. Debate the pros and cons of holding eco-friendly sports events.

Pros: Eco-friendly sports events can reduce the carbon footprint of events, promote environmental awareness, and inspire positive change.

Cons: Implementing eco-friendly measures may require additional time and resources, and some fans may not prioritise sustainability.

4. Discuss the impact of sports tourism on the environment and ways to reduce it.

Impact: Sports tourism can lead to carbon emissions from transportation, waste generation, and habitat destruction.

Ways to reduce impact: Encouraging sustainable transportation options, promoting local conservation efforts, and reducing waste generation at events can all help reduce the impact of sports tourism.

5. Debate the pros and cons of using electric vehicles for transportation to and from sports events.

Pros: Electric vehicles are environmentally friendly and can reduce carbon emissions from transportation.

Cons: The infrastructure for charging electric vehicles may not be widely available, and the cost of electric vehicles may be prohibitive for some fans.

6. Discuss the impact of sports sponsorships on the environment and ways to reduce it.

Sports sponsorships can increase consumption, waste, and carbon emissions. To reduce impact, partner with eco-friendly companies, promote sustainable products, and encourage fans to make green choices.

7. Debate the pros and cons of using renewable energy sources like solar or wind power for sports events.

Pros: Renewable energy sources are environmentally friendly and can reduce the carbon footprint of sports events.

Cons: The initial investment in renewable energy infrastructure can be high, and it may not be feasible for all sports events.

8. Discuss the impact of synthetic turf on the environment compared to natural grass and explore alternative solutions.

Synthetic turf harms the environment due to petroleum-based materials, poor biodegradability, and water drainage issues. Alternatives like natural grass or eco-friendly turf made from organic materials can be used. Also, smaller fields, rainwater harvesting, and recycled water for irrigation minimise the impact.

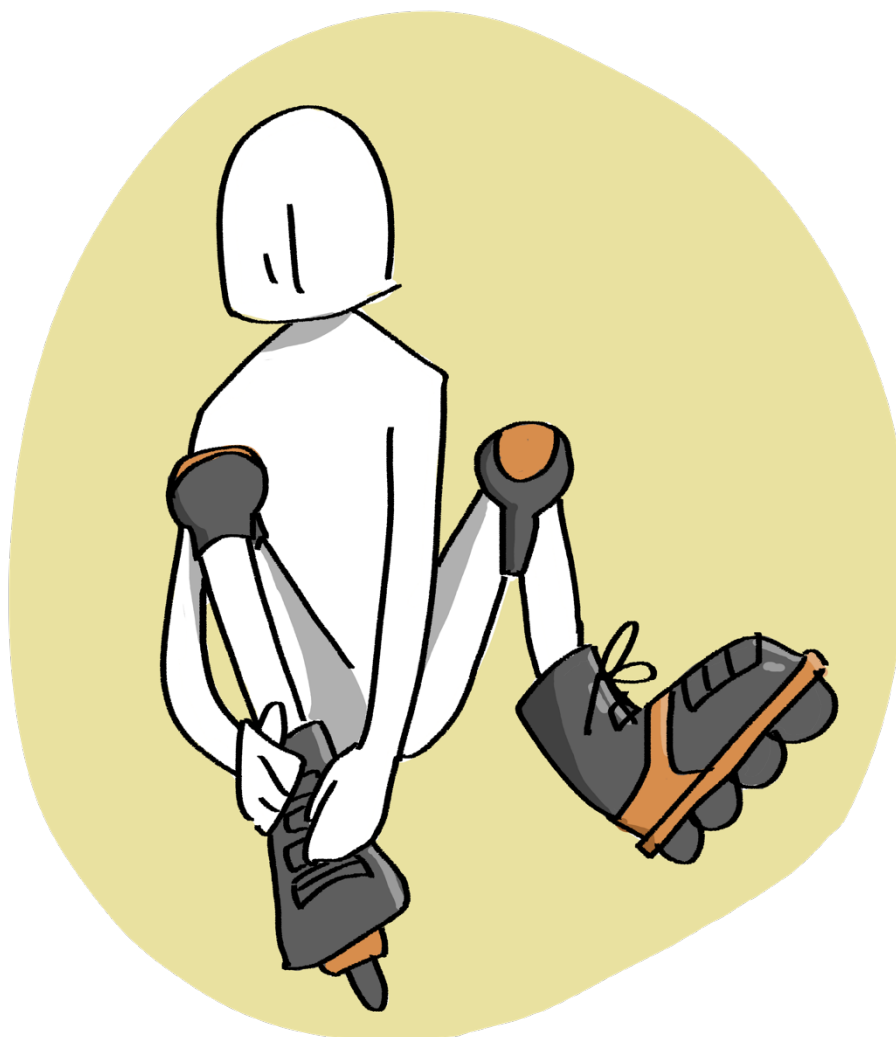
9. Debate the pros and cons of using electric golf carts versus traditional gas-powered golf carts for golf courses.

Electric golf carts are eco-friendly, emitting no emissions and being quieter. However, they may have higher upfront costs, require more charging stations and

maintenance compared to gas-powered carts. Golf courses can explore walking or biking as alternative transportation options to reduce environmental impact.

10. Discuss the environmental impact of producing sports equipment and ways to make it more sustainable.

Sports equipment production has negative environmental impacts due to resource use, energy consumption, and carbon emissions. To increase sustainability, use recycled or biodegradable materials, reduce packaging, and implement eco-friendly manufacturing. Promote the secondhand market and eco-conscious brands for a greener sports industry.



Chapter 8: Volunteering for the Environment



For Teachers

CONTENTS

The chapter "Volunteering for the environment" informs that environmental volunteering is accessible to people from all walks of life. Regardless of background, age or skills, there are opportunities to volunteer for environmental protection. Activities range from practical tasks such as tree planting and cleaning up natural areas to organisational tasks such as event planning and public relations for environmental organisations. The flexibility of volunteer projects allows for different schedules and commitments.

Environmental volunteering not only offers the opportunity to contribute to environmental protection, but also promotes personal growth, learning new skills and building a network with like-minded people. In addition, Citizen Science projects are presented, where volunteers participate in scientific research and data collection. These projects enable people, regardless of their scientific background, to contribute to research in a meaningful way. The collaboration of volunteers and professional scientists makes significant contributions to scientific research. Citizen Science projects cover a wide range of scientific disciplines. The collective efforts of citizen scientists have led to significant insights and discoveries and deepened understanding of complex scientific questions. Volunteers in Citizen Science projects also benefit personally by learning scientific methods, developing new

skills and building a deeper connection with nature. Environmental volunteering offers numerous benefits, including a sense of purpose, personal growth, networking, improved well-being and the opportunity to learn from nature. The chapter also shows that environmental volunteering is accessible to everyone, regardless of experience or background, and encourages taking the opportunity to work towards a sustainable future for our planet.

LEARNING OBJECTIVES

The learning objectives of this chapter "Volunteering for the environment" can be summarised as follows:

Understand that environmental volunteering is accessible to people from different walks of life.

Recognise that environmental volunteering involves a wide range of activities, including practical work such as planting trees and cleaning natural areas, as well as organisational tasks such as event planning and public relations.

Develop awareness of the flexibility of volunteering projects to accommodate different schedules and commitments.

Understand that environmental volunteering not only contributes to environmental protection, but also promotes personal growth, learning new skills and building a network with like-minded people.

Recognise that Citizen Science is an inclusive method where people without a scientific background can contribute to scientific research and data collection.

Gain knowledge about the different types of Citizen Science projects and their contributions to scientific research.

Understand how volunteering in Citizen Science projects can foster personal growth, environmental awareness and promote science education.

Recognise that environmental volunteering is not limited to specialised skills or knowledge but is accessible to all, regardless of experience or background.

Develop awareness of how environmental volunteering helps to raise awareness of environmental issues and inspire others to actively participate.

Understand that environmental volunteering offers a significant opportunity to contribute to sustainability and the protection of our planet.

These learning objectives are designed to help readers understand and appreciate the diversity of environmental volunteering and the positive impact it can have on both the environment and individual growth.

SUGGESTED METHODS FOR TRAINERS AND TEACHERS TO IMPLEMENT THE TOPIC IN THE CLASSROOM

To implement the topic "Volunteering for the environment" in the classroom, trainers and teachers can use different methods and approaches. Here are some suggested methods:

- **Discussion sessions:** Start with an open discussion session where students can share their thoughts and opinions on environmental volunteering.
- **Ask questions to stimulate conversations,** e.g. "Why is environmental volunteering important?" or "What environmental issues should volunteers tackle?"
- **Case studies:** Present students with case studies of successful environmental volunteering projects or organisations and discuss how they have contributed to environmental conservation.
- **Discuss challenges,** successes and the long-term impact of these projects.
- **Practical activities:** Organise practical activities such as planting trees, cleaning school grounds or carrying out recycling projects in the classroom. These activities give students hands-on experience in environmental protection and increase their environmental awareness.
- **Guest speakers:** Invite environmental activists, volunteer coordinators or members of environmental organisations to speak about their experiences

in environmental volunteering. Students can ask questions and benefit from the guest speakers' experiences and insights.

- **Role plays:** Conduct role plays to put students in the shoes of environmental volunteers. You can simulate different scenarios, e.g. planning a cleanup event or participating in a Citizen Science project.
- **Citizen Science projects:** Encourage students to participate in Citizen Science projects. They can collect observations of wildlife or environmental phenomena and analyse their data. Discuss the importance of these projects and how citizen scientists contribute to research.
- **Group discussions:** Divide students into groups and ask them to explore different aspects of environmental volunteering, such as the role of young people, the importance of volunteering in urban areas or the impact of volunteering on the community.
- **Field trips:** Organise field trips to environmental organisations, nature reserves or volunteer projects near the school to offer students practical insights into environmental volunteering.
- **Presentations:** Ask students to prepare presentations on environmental issues or volunteering projects and present them to the class. This encourages research, presentation and sharing of information.
- **Project-based learning:** Guide students to plan and implement their own environmental volunteering projects. This can include initiating recycling programmes, tree planting campaigns or awareness campaigns.

The choice of method should be appropriate to the learning objectives and age of the students. Through a variety of teaching methods, students can develop a deep understanding of environmental volunteering and be motivated to become actively involved.

CONCEPTUAL BACKGROUND

The conceptual background of Volunteering for the environment is based on a number of key principles and concepts that form the basis for environmental volunteering. Here are some of the key concepts:

- **Environmental protection:** This concept is at the heart of environmental volunteering. It refers to actions and efforts aimed at protecting, preserving and restoring the natural environment. Environmental protection includes preserving ecosystems, protecting endangered species and combating environmental problems such as climate change, pollution and species loss.
- **Volunteering:** Volunteering is a fundamental concept based on the principle of unpaid commitment and willingness to work together. Volunteers give their time and energy to make a positive contribution to society without financial compensation. In terms of environmental volunteering, this means that individuals voluntarily take action to protect and preserve the environment.
- **Sustainability:** Environmental volunteering is strongly linked to the concept of sustainability. Sustainability refers to the use of resources in a way that meets the needs of the present without compromising the ability of future generations to meet their own needs. Environmental volunteering contributes to promoting a sustainable environment and lifestyle.
- **Community participation:** Environmental volunteering often involves broad community participation. This concept emphasises the importance of community members working together and getting involved to achieve environmental goals. It can refer to citizen action in local communities, community gardening projects or cleanup initiatives.
- **Education and awareness:** Environmental volunteering aims to promote education and environmental awareness. It provides opportunities for education on environmental issues, ecological interrelationships and sustainable practices. Creating awareness is an essential step in promoting environmental protection and sustainability.

- **Variety of activities:** Environmental volunteering covers a wide range of activities, from direct conservation work such as planting trees and cleaning beaches to advocacy, political work and educational initiatives. This broad spectrum allows individuals to volunteer in ways that suit their skills, interests and availability.
- **Citizen Science:** An emerging concept in environmental volunteering is Citizen Science. Here, volunteers are actively involved in scientific research projects, collecting data and assisting researchers in data collection. This helps to broaden our understanding of the environment.
- **Global networking:** Environmental volunteering has a global dimension as environmental problems are often transboundary. Volunteers can be part of global movements and get involved in protecting the environment on an international level.

Overall, environmental volunteering is based on a variety of principles and concepts that aim to protect the environment, raise environmental awareness and create a sustainable future. These concepts serve as a guide for the implementation of environmental volunteering projects and the promotion of environmental protection in society.

Question cards

1. Can anyone become a volunteer?

Absolutely! The doors of volunteering for the environment are open to individuals from all walks of life. Regardless of your background, age, or skill level, there are volunteer opportunities that can cater to your interests and abilities. Whether you're passionate about conservation, sustainability, or simply want to make a positive impact on the planet, there is a role for you.

Volunteering for the environment encompasses a wide range of activities,



providing diverse options for engagement. If you enjoy getting your hands dirty, you can participate in hands-on tasks such as planting trees, cleaning up natural areas, or assisting with wildlife conservation efforts. These activities allow you to directly contribute to the well-being of ecosystems and promote environmental sustainability.

For those who prefer behind-the-scenes work, there are administrative and organizational roles available. These may involve tasks like event planning, fundraising, or spreading awareness through social media and communications.

Such roles are essential in supporting environmental organisations and their initiatives.

Volunteer opportunities are often flexible, accommodating different time commitments. You can choose to volunteer for a few hours a week, dedicate a full day on weekends, or participate in short-term projects and campaigns. This flexibility allows you to find a volunteering arrangement that suits your schedule and commitments.

Becoming a volunteer for the environment not only allows you to contribute to a



cause you care about but also provides an opportunity for personal growth and learning. You can acquire new skills, gain valuable experience, and expand your network by connecting with like-minded individuals who share your passion for environmental stewardship.

So, whether you're an experienced environmentalist or just starting your journey, there is a place for you in the world of environmental volunteering. Take the first step, reach out to local environmental organisations, and join the global community of dedicated volunteers working towards a sustainable future for our planet.

2. What is citizen science?

Citizen science is a powerful and inclusive approach that involves the general public in scientific research and data collection. It harnesses the collective power of volunteers from all walks of life to contribute to scientific projects and expand our understanding of the world around us.

In citizen science, volunteers actively participate in various stages of scientific research, from data gathering and observation to analysis and interpretation. This active involvement enables individuals, regardless of their scientific background, to contribute meaningfully to research efforts. By engaging in data collection, citizen scientists provide researchers and scientists with an extensive and diverse dataset that would otherwise be challenging to obtain.



Volunteers engaged in citizen science projects often work alongside professional researchers and scientists. They receive guidance and training to ensure data quality and consistency. This collaborative approach fosters a sense of ownership and connection to the scientific process, empowering individuals to become active contributors to scientific knowledge.

Citizen science projects cover a wide range of scientific disciplines, including ecology, astronomy, climate science, biology, and more. Volunteers can engage in various activities, such as collecting samples, monitoring wildlife populations, recording weather patterns, documenting species sightings, or even analyzing data through online platforms.

The collective efforts of citizen scientists have led to significant contributions in scientific research. They have helped identify new species, track environmental changes, monitor biodiversity, discover patterns and trends, and even provide insights into complex scientific questions. By involving the general public, citizen science has the potential to accelerate the pace of scientific discovery and bring about real-world applications and solutions.

Engaging in citizen science offers numerous benefits for volunteers as well. It provides an opportunity to learn about scientific methodologies, develop new skills, and gain a deeper understanding of the natural world. Citizen scientists often report increased environmental awareness, connection to nature, and a sense of contributing to a larger cause.

In summary, citizen science empowers individuals to actively participate in scientific research and data collection. By bridging the gap between scientists and the general public, citizen science enhances our understanding of the environment and enables collective action towards a more sustainable future. So, whether you're an amateur nature enthusiast or a curious mind, join the citizen science movement and make your mark in advancing scientific knowledge for the benefit of all.

3. What kind of wage do you get in an internship?

Internships are commonly unpaid positions that provide valuable work experience and learning opportunities for individuals. Unlike regular employment, interns typically do not receive a salary for their work. Instead, the focus of an internship is on acquiring practical skills, gaining industry knowledge, and making professional connections.

Internships serve as a stepping stone for individuals entering the workforce or seeking to explore a specific career field. They offer a chance to apply academic

learning in a real-world setting, understand industry practices, and develop essential workplace skills. By working closely with professionals in their field of interest, interns can gain valuable insights and mentorship that can shape their future career paths.

While internships are often unpaid, there are exceptions where interns may receive a stipend or some form of compensation. These exceptions typically occur in specific industries or sectors where there are regulations or agreements in place to provide financial support to interns. Additionally, some internships may offer benefits such as travel reimbursements or meal allowances to alleviate certain expenses associated with the internship.

Despite the lack of financial compensation, internships offer numerous intangible benefits. They provide an opportunity to network and build professional relationships, which can lead to future job opportunities. Interns can gain practical experience, develop relevant skills, and enhance their resumes, making them more competitive in the job market.

It is important to note that labor laws and regulations vary from country to country, and some jurisdictions have specific rules regarding internships. These regulations may outline criteria that determine whether an internship should be paid or unpaid. It is crucial for both interns and employers to understand and adhere to the applicable legal requirements in their respective regions.

Ultimately, the value of an internship lies in the knowledge gained, the skills developed, and the connections made rather than immediate financial compensation. Internships provide a platform for personal and professional growth, preparing individuals for future career success. As such, individuals should carefully consider the potential benefits and opportunities an internship offers when deciding to pursue this valuable learning experience.

What is citizen science?
Citizen science is a powerful and inclusive approach that involves the general public in scientific research and data collection. It harnesses the collective power of volunteers from all walks of life to contribute to scientific projects and expand our understanding of the world around us.

4. Where can you go to visit nature?

Nature is abundant and can be explored in various breathtaking locations. Whether you're an outdoor enthusiast, a nature lover, or simply seeking a peaceful retreat, there are numerous places you can visit to immerse yourself in the beauty of the natural world.

One of the most prominent destinations for experiencing nature is national parks. These protected areas boast stunning landscapes, diverse ecosystems, and an array of flora and fauna. From the vast savannahs of Africa to the towering mountains of North America, national parks offer unparalleled opportunities for wildlife sightings, hiking, camping, and connecting with nature on a grand scale.

Wildlife reserves and sanctuaries are another option for nature enthusiasts. These areas are dedicated to the conservation and protection of wildlife species. Here, you can witness the wonders of the animal kingdom up close and personal, observe their natural behaviours, and gain a deeper understanding of the delicate balance of ecosystems.



Forests provide a serene and awe-inspiring experience. From ancient forests with towering trees to mystical rainforests teeming with life, these green havens offer a chance to reconnect with nature's tranquility. Forests provide opportunities for hiking, birdwatching, and exploring the unique flora and fauna that call these habitats home.

Mountains are majestic and offer breathtaking views. Whether you're an avid mountaineer or prefer a leisurely hike, mountains provide an escape from the hustle and bustle of daily life. The crisp air, stunning vistas, and the challenge of reaching new heights make mountainous regions an ideal destination for nature lovers.

Beaches are nature's playground, where the land meets the sea. These coastal areas offer a serene retreat, where you can relax, soak up the sun, and listen to the soothing sounds of crashing waves. Beaches provide opportunities for swimming, snorkelling, beach combing, and enjoying the unique marine ecosystems.

Even in urban areas, local parks and gardens provide a respite from the concrete jungle. These green spaces offer a taste of nature within reach, with manicured lawns, vibrant flower beds, and tranquil ponds. Parks provide a place for leisurely walks, picnics, and enjoying the beauty of nature in an urban setting.

Wherever you go, nature's wonders are waiting to be explored and appreciated. Each destination offers a unique experience, providing an opportunity to connect with the natural world and gain a deeper appreciation for its wonders. So, venture out and discover the beauty that nature has to offer in the places that resonate with you.

5. How can volunteering in the environment help you?

Volunteering in the environment offers a wealth of personal benefits. Here's how getting involved can positively impact you:

Sense of Purpose: By volunteering in the environment, you can actively contribute to a cause you care about. Working towards environmental conservation and sustainability gives you a sense of purpose and fulfillment, knowing that your efforts are making a difference in protecting our planet for future generations.

Personal Growth: Volunteering provides opportunities for personal growth and learning. You can acquire new skills, expand your knowledge about environmental issues, and gain practical experience in fields such as conservation, ecology, or sustainable practices. These experiences can enhance your resume, broaden your perspectives, and open doors to new opportunities.



Making Connections: Volunteering in the environment allows you to connect with like-minded individuals who share your passion for the natural world. You can build a network of friends, mentors, and professionals in the environmental field. Collaborating with others who share your values and interests can inspire and motivate you, fostering lifelong connections and a sense of community.

Improved Well-being: Spending time in nature has been shown to have positive effects on mental and physical well-being. Volunteering in the environment offers an opportunity to immerse yourself in natural settings, surrounded by the beauty of landscapes, wildlife, and plants. This connection with nature can reduce stress, improve mood, boost creativity, and promote overall well-being.

Learning from Nature: Nature is a powerful teacher. Volunteering in the environment provides a chance to learn from the natural world. Observing the intricacies of ecosystems, understanding the interdependencies between species, and witnessing the resilience of nature can impart valuable lessons about

adaptation, sustainability, and balance. These insights can be applied to various aspects of your life, fostering a deeper understanding of our interconnectedness with the environment.

Active Lifestyle: Volunteering in the environment often involves physical activities such as trail maintenance, tree planting, or beach clean-ups. Engaging in these hands-on tasks promotes an active lifestyle and allows you to enjoy the health benefits of outdoor exercise. Being physically active in nature can boost energy levels, improve cardiovascular health, and strengthen muscles while enjoying the natural surroundings.

In summary, volunteering in the environment is a win-win situation. Not only does it allow you to make a positive impact on the planet and contribute to a cause you believe in, but it also brings personal growth, connections, improved well-being, and valuable lessons from nature. So, consider dedicating your time and skills to environmental volunteering and experience the countless rewards it can bring to your life.

6. What is the name of some global environmental volunteering organisations?

Let's Do It World: Let's Do It World is a global movement that organises large-scale cleanup events to address waste management issues. Their goal is to mobilise volunteers worldwide to clean up waste and raise awareness about the importance of environmental sustainability.

Earthwatch Institute: Earthwatch Institute is an international environmental organisation that engages volunteers in scientific research and conservation projects around the world. They offer opportunities to work alongside scientists, conducting field research and contributing to environmental solutions.

Conservation Volunteers International Program (CVIP): CVIP is an organisation that provides volunteer opportunities for individuals interested in conservation and environmental restoration projects. They work in collaboration with local communities and organisations to protect and restore natural habitats.

Greenpeace: Greenpeace is a renowned global environmental organisation known for its activism and advocacy work. They focus on a wide range of environmental issues, including climate change, deforestation, marine conservation, and sustainable agriculture.

World Wildlife Fund (WWF): WWF is a leading international conservation organisation dedicated to protecting the world's wildlife and their habitats. They work on various environmental initiatives and offer volunteer programs that contribute to their conservation efforts.

350.org: 350.org is a global grassroots movement focused on addressing climate change. They organise campaigns, events, and volunteer actions to promote climate awareness, advocate for sustainable solutions, and push for policies that reduce carbon emissions.

These are just a few examples of global environmental volunteering organisations. There are many more organisations and initiatives worldwide, each with their unique focus and approach. Exploring these opportunities can help individuals find the right fit for their interests and passion for environmental conservation.

7. How can you help your local neighbourhood environmentally?

There are several ways you can help your local neighbourhood environmentally. Here are some impactful actions you can take:

Organise or Join Cleanup Events: Arrange community cleanup events to remove litter from public spaces, parks, or water bodies. Encourage neighbours to participate and raise awareness about the importance of keeping the neighbourhood clean.

Promote Recycling and Waste Reduction: Educate your neighbours about proper recycling practices and the benefits of reducing waste. Encourage the use of reusable items, composting, and responsible disposal of hazardous materials.

Advocate for Green Spaces: Support the creation and preservation of green spaces in your neighbourhood. Work with local authorities and community groups

to develop parks, gardens, or urban green areas. These spaces improve air quality, provide habitat for wildlife, and enhance the overall well-being of the community.

Support Local Sustainability Initiatives: Get involved with local sustainability initiatives such as community gardens, renewable energy projects, or sustainable transportation efforts. Volunteer your time or resources to help these initiatives thrive.

Educate Others: Raise awareness about environmental issues by organising educational events or workshops. Share information on topics like climate change, biodiversity, energy conservation, or sustainable living. Encourage your neighbours to adopt eco-friendly practices in their daily lives.

Reduce Energy Consumption: Advocate for energy-efficient practices in your neighbourhood. Encourage the use of energy-saving light bulbs, promote insulation, and encourage neighbours to monitor their energy usage. Consider organising energy-saving challenges or providing resources on energy conservation.

Plant Trees and Native Plants: Work with neighbours to plant trees, shrubs, and native plants in public spaces or even on private properties. Trees provide shade, improve air quality, and support local ecosystems.

Reduce Single-Use Plastics: Encourage neighbours to reduce their consumption of single-use plastics by promoting alternatives such as reusable bags, bottles, and containers. Advocate for plastic-free events and support local businesses that prioritise sustainable packaging practices.

Support Local Environmental Organizations: Collaborate with local environmental organisations or community groups focused on sustainability. Volunteer your time, participate in their events, or contribute to their initiatives to amplify their impact.

Remember, even small actions can make a difference when multiplied across a neighbourhood. By actively participating in these environmental initiatives, you can contribute to a cleaner, healthier, and more sustainable local community.

8. What does a movement do?

A movement serves as a catalyst for social, cultural, or political transformation. It brings people together who share a common purpose or belief, creating a collective force to advocate for change. Movements are driven by a shared goal or cause and strive to raise awareness, mobilise communities, and drive action towards their objectives.

In the context of environmental movements, their primary focus is to address environmental issues, promote sustainability, and protect the planet. They aim to generate awareness about the importance of environmental conservation, advocate for policy changes, and encourage individuals to adopt sustainable practices in their daily lives.

Movements often employ various strategies to achieve their goals. These may include organising rallies, protests, or demonstrations to capture public attention and generate momentum. They may also utilise social media, campaigns, and grassroots outreach to engage and educate individuals about the issues at hand.

One crucial aspect of a movement is the power of collective action. By bringing together a diverse range of individuals, including activists, experts, community members, and organisations, movements create a unified force with the potential to drive significant change. This collective effort amplifies the voices of those advocating for the cause and increases the likelihood of influencing policy decisions, societal attitudes, and individual behaviours.

Movements not only focus on immediate change but also aim to create a lasting impact. They strive to shift societal norms, foster long-term sustainability, and instil a sense of responsibility towards the environment. By mobilising individuals and communities, movements can achieve systemic change and create a legacy of environmental consciousness and stewardship.

In summary, a movement unites people around a common goal or cause, aiming to raise awareness, drive change, and mobilise collective action. Environmental movements specifically focus on addressing environmental challenges, promoting sustainable practices, and advocating for the protection of the planet. By harnessing the power of collective action, movements have the potential to bring

about significant transformation and create a more sustainable and equitable world.

9. What do trees provide us with?

Trees offer a wide range of essential benefits to our lives and the environment. Here are some key contributions of trees:

Oxygen Production: Through photosynthesis, trees absorb carbon dioxide and release oxygen, playing a vital role in generating the oxygen we breathe. They help maintain a healthy balance of oxygen in the atmosphere, supporting the well-being of all living organisms.

Air Purification: Trees act as natural air filters by absorbing various pollutants, including harmful gases and particulate matter, from the air. They help improve air quality, reducing the negative impacts of air pollution on human health and the environment.

Shade and Cooling: Trees provide shade, reducing the intensity of the sun's rays and lowering temperatures in their vicinity. This natural cooling effect helps create more comfortable outdoor environments, reducing the need for excessive air conditioning and energy consumption.

Biodiversity Support: Trees serve as habitats and food sources for a wide array of species. They support biodiversity by providing shelter, nesting sites, and nourishment for birds, insects, mammals, and other organisms. Trees play a crucial role in maintaining ecosystems and promoting biodiversity conservation.

Soil Conservation: The roots of trees help hold the soil together, preventing erosion by stabilising slopes and reducing the impact of rainfall. They also enhance soil fertility by enriching it with organic matter through the shedding of leaves and other debris.

Water Management: Trees play a crucial role in water regulation. Their canopies intercept rainfall, reducing soil erosion and surface runoff. The roots of trees also help absorb water, preventing excessive runoff and contributing to groundwater recharge.

Aesthetics and Well-being: Trees enhance the aesthetic appeal of landscapes, parks, and urban areas. Their beauty and calming presence can positively impact mental well-being, reducing stress, enhancing mood, and creating a sense of tranquility in natural surroundings.

Economic Benefits: Trees provide economic value in various ways. They contribute to the timber industry, support ecotourism through the preservation of natural areas, and increase property values in neighbourhoods with well-maintained tree cover.

It is important to recognise the immense value that trees offer us and the environment. By preserving existing trees and planting new ones, we can continue to enjoy their countless benefits and create a more sustainable and livable planet for future generations.

10. How can you make sure that you are helping wildlife correctly?

To help wildlife correctly, consider the following guidelines:

Seek Professional Guidance: Reach out to wildlife rehabilitates or local environmental organisations with expertise in wildlife conservation. They can provide accurate information and advice on how to assist wildlife in a safe and ethical manner.

Do Not Disturb: Avoid unnecessary contact with wildlife, as they may become stressed or injured. Observe animals from a distance to minimise disturbance and allow them to carry out their natural behaviours without interference.

Educate Yourself: Learn about the native wildlife species in your area and their specific needs. Understand their habitats, dietary requirements, and behaviour patterns to provide appropriate support when necessary.

Provide Habitat Support: Create a wildlife-friendly environment in your own backyard. Plant native vegetation, provide water sources like birdbaths or small ponds, and avoid using harmful pesticides or chemicals that may negatively impact wildlife.

Secure Trash and Food Sources: Properly secure garbage cans and food storage areas to prevent wildlife from accessing human food waste, which can lead to

dependency and health issues. Dispose of trash responsibly to minimize the risk of attracting wildlife into urban areas.

Wildlife Rescue and Rehabilitation: If you encounter an injured or orphaned animal, contact local wildlife rehabilitators or authorities trained in wildlife rescue. Do not attempt to rehabilitate the animal on your own unless you have the necessary knowledge and expertise.

Responsible Feeding: Avoid feeding wildlife as it can disrupt their natural foraging behaviors and lead to dependency on human-provided food. Feeding wildlife can also attract unwanted animals and create conflicts with humans.

Be Mindful of Wildlife Habitat: Respect protected areas, nature reserves, and critical habitats designated for specific wildlife species. Observe regulations and guidelines set by local authorities to ensure the preservation and conservation of wildlife and their habitats.

Promote Conservation Efforts: Support conservation organizations and initiatives that work towards protecting wildlife and their habitats. Get involved in local conservation projects, contribute to research efforts, and raise awareness about the importance of wildlife conservation in your community.

Remember, the well-being and conservation of wildlife should always be a priority. By seeking professional guidance, staying informed, and taking responsible actions, you can make a positive impact and ensure that your efforts align with the best interests of the wildlife you seek to help.

True or false

- 1. Volunteering for the environment involves activities such as planting trees and cleaning up litter.**

True

- 2. Volunteering for the environment is only beneficial for the natural world and does not have any positive impacts on human communities.**

False

The benefits of environmental volunteering extend beyond the natural world and have positive impacts on human communities. Environmental volunteering offers a range of benefits for individuals, environmental organisations, and the natural environment. These include enhanced mental and social health, connection to place, learning about the environment, and the development of new skills and abilities

Environmental volunteering also fosters a sense of purpose, increased social connections, and opportunities for skill development and learning. Moreover, it promotes global perspective, cultural sensitivity, and global awareness, and provides opportunities for individuals to connect with like-minded people and build relationships with community members. Additionally, environmental volunteering has the potential to address key determinants of health, such as social inclusion, employment, and education, and can produce co-benefits for human health and the protection of the environment. Therefore, it is evident that environmental volunteering not only benefits the natural world but also has positive impacts on human communities, contributing to personal growth, mental well-being, and fostering a sense of purpose, while promoting social connections and skill development.

- 3. Volunteering for the environment can help raise awareness about environmental issues and inspire others to take action.**

True

- 4. Volunteering for the environment requires specialised skills and knowledge, and anyone without such expertise cannot contribute effectively.**

False

Volunteering for the environment doesn't always require specialised skills and knowledge. While there are certainly roles that benefit from expertise, there are numerous opportunities for individuals without specific environmental qualifications to make a positive impact. Many environmental volunteering activities involve tasks such as tree planting, beach cleanups, community garden maintenance, or raising awareness about environmental issues. These activities often require more enthusiasm, dedication, and a willingness to learn than specialised knowledge. Everyone, regardless of their background, can contribute to environmental initiatives and gain valuable experience and understanding through volunteering. The key is finding the right opportunity that aligns with an individual's interests and abilities. Many environmental organisations welcome and provide training for volunteers with various skill levels, fostering inclusivity and broadening the reach of environmental initiatives.

5. Volunteering for the environment is only a short-term solution and does not address the root causes of environmental problems.

False

Volunteering for the environment is not solely a short-term solution; it plays a crucial role in addressing both immediate issues and underlying causes of environmental problems. While volunteering may involve activities like cleaning up polluted areas, planting trees, or rescuing wildlife, these actions contribute to broader environmental goals.

Immediate Impact: Volunteer efforts provide immediate relief by addressing specific environmental challenges. For instance, cleaning up a beach removes harmful debris, protecting marine life and ecosystems. These actions can have direct, positive effects on the environment in the short term.

Community Engagement: Volunteering fosters community engagement and awareness. By actively participating in environmental initiatives, volunteers become advocates for sustainable practices. This heightened awareness can lead to changes in individual behaviours and lifestyles, influencing others to adopt eco-friendly habits.

Advocacy and Education: Many environmental volunteering programs include elements of advocacy and education. Volunteers often engage in spreading awareness about environmental issues and promoting sustainable practices. This educational aspect helps address the root causes by influencing public opinion and policy.

Pressure for Change: Collectively, volunteers contribute to a growing movement advocating for systemic changes. By participating in environmental activism, volunteers put pressure on governments, businesses, and institutions to adopt more sustainable practices. This can result in long-term, structural changes that address the root causes of environmental degradation.

Research and Data Collection: Some environmental volunteering involves scientific research and data collection. This information is valuable for understanding the root causes of environmental problems. Research outcomes can influence policies and strategies aimed at addressing the underlying issues.

While individual volunteer efforts may seem small, the cumulative impact, coupled with the ripple effects on society and policy, can contribute to a more sustainable and environmentally conscious world. Therefore, volunteering is not just a short-term solution; it actively participates in addressing the root causes of environmental challenges.

6. Volunteering for the environment is limited to outdoor activities and does not involve any indoor tasks or initiatives.

False

Volunteering for the environment is not limited to outdoor activities; it encompasses a wide range of tasks and initiatives, both indoor and outdoor. While outdoor activities like tree planting, beach cleanups, and wildlife conservation are common, indoor tasks are equally essential and contribute significantly to environmental conservation.

Research and Analysis: Environmental volunteering often involves indoor tasks related to research and data analysis. Volunteers may work on projects that require studying environmental patterns, analysing data on pollution, or assessing the

impact of climate change. This research provides valuable insights for developing effective conservation strategies.

Policy Advocacy: Many environmental volunteer organisations engage in indoor activities focused on policy advocacy. Volunteers may participate in writing reports, creating awareness campaigns, or lobbying for environmentally friendly policies. These indoor initiatives play a crucial role in influencing decision-makers and promoting sustainable practices on a broader scale.

Educational Programs: Volunteers frequently contribute to indoor educational initiatives. This can include developing educational materials, conducting workshops, or creating online content to raise awareness about environmental issues. Indoor education is vital for fostering a deeper understanding of environmental challenges and promoting sustainable behaviours.

Technology and Innovation: Environmental volunteering often involves tasks related to technology and innovation. Volunteers may contribute to developing digital platforms, apps, or tools that promote environmental awareness, monitoring, or resource management. These indoor initiatives leverage technology to address environmental issues effectively.

Administrative Support: Many environmental organisations require indoor administrative support. Volunteers may assist with tasks such as organising events, managing databases, coordinating outreach efforts, and handling communication. These administrative functions are essential for the smooth operation of environmental initiatives.

Advocacy Campaigns: Volunteers may engage in indoor advocacy campaigns, creating content for social media, writing articles, or participating in online forums to promote environmental causes. These activities harness the power of digital platforms to reach a broader audience and mobilise support for environmental conservation.

In summary, environmental volunteering is a multifaceted endeavour that goes beyond outdoor activities. Volunteers contribute to research, policy advocacy, education, technology, administration, and advocacy campaigns, demonstrating

that their impact extends across various indoor tasks and initiatives. This diversity allows volunteers to address environmental challenges comprehensively and make meaningful contributions to conservation efforts.

7. Volunteering for the environment is primarily done by environmental scientists and professionals, and the general public does not play a significant role.

False

Volunteering for the environment is not exclusively carried out by environmental scientists and professionals; the general public plays a crucial and significant role in environmental volunteering efforts. While environmental scientists and professionals bring specialised expertise, the collective engagement of the general public is essential for achieving widespread impact and addressing diverse environmental challenges.

Community Engagement: Environmental volunteering often involves local communities and individuals who may not have formal scientific training. Community members actively participate in initiatives like tree plantings, clean-up events, and habitat restoration projects. Their involvement contributes to the overall success of environmental conservation efforts.

Awareness and Education: The general public plays a vital role in raising awareness about environmental issues. Volunteers without professional scientific backgrounds contribute to educational programs, outreach campaigns, and public events that aim to inform and mobilise communities. Their involvement fosters a broader understanding of environmental challenges.

Citizen Science: Environmental volunteering frequently includes citizen science projects where individuals without scientific credentials actively contribute to data collection and monitoring efforts. Volunteers can participate in activities such as bird counting, water quality testing, or biodiversity surveys, providing valuable information for scientific research.

Advocacy and Policy: Volunteers from diverse backgrounds engage in advocacy and policy-related activities. They may participate in campaigns, write letters, or engage with policymakers to promote environmentally friendly policies. The

collective voice of the general public is instrumental in influencing decision-makers and driving policy changes.

Sustainable Practices: Everyday actions by the general public contribute to environmental conservation. Volunteering can involve initiatives that promote sustainable practices at the individual and community levels, such as reducing waste, adopting eco-friendly habits, and supporting local environmental initiatives.

Social Media and Digital Activism: The general public leverages social media and digital platforms to advocate for environmental causes. Volunteers without scientific expertise use these platforms to share information, organize campaigns, and build online communities, amplifying the impact of environmental volunteering efforts.

Community-Led Projects: Many environmental projects are initiated and led by local communities or grassroots organizations. The active participation of residents, regardless of their professional background, is fundamental to the success of these community-led initiatives.

In conclusion, environmental volunteering thrives on the collective efforts of both environmental scientists and professionals and the general public. The engagement of individuals without formal scientific training is essential for fostering a sense of shared responsibility, building widespread awareness, and implementing sustainable practices that contribute to the overall well-being of the environment.

8. Volunteering for the environment can provide personal benefits such as improved physical and mental well-being.

True

9. Volunteering for the environment is a time-consuming commitment that requires a significant amount of weekly hours.

False

Volunteering for the environment does not necessarily require a significant amount of weekly hours; the time commitment can vary widely based on the nature of the

volunteering opportunity, individual preferences, and the specific project's requirements.

Flexible Opportunities: Many environmental organizations and initiatives offer flexible volunteering opportunities. Individuals can choose projects that align with their schedule, allowing them to contribute based on the time they have available. This flexibility accommodates those with busy lifestyles or other commitments.

One-Time Events: Numerous environmental volunteering activities are one-time events or short-term projects. These could include community clean-up days, tree planting events, or educational workshops. Such activities provide opportunities for individuals to contribute without a long-term, time-intensive commitment.

Weekend Projects: Volunteering for the environment often includes weekend projects, enabling individuals who work or study during the week to participate in meaningful activities during their free time. Weekend volunteering allows for greater inclusivity and participation from a diverse range of people.

Online Volunteering: With advancements in technology, there are opportunities for online volunteering in the environmental sector. Individuals can contribute their



skills and time remotely, engaging in tasks such as digital advocacy, content creation, or data analysis without the need for a physical presence.

Project-Based Commitments: Some environmental volunteering opportunities are project-based, meaning volunteers commit to a specific task or initiative rather than ongoing, long-term involvement. This structure allows individuals to choose projects that align with their interests and time availability.

Student and Youth Programs: Environmental organisations often collaborate with educational institutions and youth programs to offer volunteering opportunities for students. These initiatives are designed to accommodate academic schedules and provide students with hands-on environmental experiences.

Ad Hoc Volunteering: Individuals can engage in ad hoc volunteering, participating in activities whenever their schedule permits. This casual approach allows people to support environmental causes without committing to regular, structured hours.

Volunteer Vacations: Some individuals prefer to contribute to the environment through volunteer vacations or eco-tourism. These experiences involve traveling to specific locations to participate in short-term, impactful projects, combining leisure with environmental stewardship.

In summary, the time commitment for environmental volunteering is diverse and adaptable to individuals' availability. There are opportunities for various levels of engagement, from short-term, low-commitment activities to more intensive, long-term projects. This flexibility enables a broad range of people to contribute to environmental causes based on their preferences and availability.

10. Volunteering for the environment is an opportunity for individuals to make a meaningful contribution to the sustainability and preservation of our planet.

True

Activity Cards

1. Green Initiatives Speed Sharing:

Ask participants to think of one green initiative or action they have taken recently to contribute to environmental sustainability. In a quick round-robin format, allow each participant to share their initiative within a 1-minute time limit. This activity promotes idea sharing and inspires others to take small actions towards a greener lifestyle.

2. Quick Internet Research:

Assign participants a specific environmental topic, such as "sustainable fashion" or "renewable energy innovations." In the given time, ask participants to conduct a brief internet search to find one interesting fact, statistic, or solution related to the assigned topic. Each participant can share their findings with the group, sparking a quick discussion on the importance and potential impact of the chosen topic.

3. Eco-Challenge Brainstorm:

Present participants with a sustainability-related challenge, such as "How can we reduce plastic waste in our daily lives?" In the given time, ask participants to brainstorm as many ideas and solutions as possible. Encourage them to think creatively and come up with practical actions that can be implemented individually or collectively. After the time is up, allow each participant to share their ideas, fostering a brief discussion on the feasibility and effectiveness of different approaches.

4. Eco-Debate:

Choose a controversial environmental topic, such as "Should plastic bags be banned?" Divide participants into two groups and assign each group a different perspective (e.g., pro or con). In the given time, ask participants to prepare and present their arguments supporting their assigned position. After the presentations, allow for a brief debate where participants can exchange viewpoints and discuss the environmental, social, and economic impacts of the topic.

5. Environmental Action Pledge:

In the given time, ask participants to think about one specific action they can commit to taking in support of the environment. It could be something small, such as reducing water usage or starting a composting system. Each participant can share their pledge with the group, fostering a sense of collective responsibility and inspiring others to take action.

6. Action Planning Session:

Set aside time for participants to develop their own action plans for volunteering in environmental projects. Provide them with resources, such as a list of local environmental organisations or a guide to eco-friendly activities. Participants should use the given time to research and identify opportunities that align with their interests and skills. Each participant can then share their action plan with the group, fostering a sense of commitment and inspiring others to get involved.

7. Volunteer Experience Sharing:

Invite participants who have volunteered for environmental organisations or participated in eco-friendly initiatives to share their experiences. Each participant can briefly describe their involvement, the impact they made, and the lessons they learned. Allow time for questions and discussions, encouraging others to consider volunteering for environmental causes.

8. Sustainable Solutions Brainstorm:

Divide participants into small groups and assign them different environmental challenges, such as reducing plastic waste or conserving energy. In their groups, participants should brainstorm and list as many sustainable solutions as possible within the given time. Afterward, each group can present their ideas to the whole group, fostering creativity and collaborative thinking.

9. Nature Scavenger Hunt:

Create a list of natural items or environmental features for participants to find and photograph within a specific area, such as a park or nature reserve. Participants can either work individually or in small teams. Give them 15 minutes to explore the area and locate as many items as possible. Afterward, gather everyone together to share their photos and discuss the significance of each item in relation to the

environment. This activity promotes hands-on exploration and appreciation of the natural world.

10. Spend 15 minutes researching and finding information about these volunteer opportunities using the internet or other resources.

They can look for specific organisations, projects, or initiatives that align with their interests. After the allotted time, ask each participant to briefly share one or two volunteer opportunities they discovered and explain why they find them compelling. This activity introduces participants to various volunteer options and encourages them to explore potential avenues for getting involved.

Chapter 9:

Avoiding Over Production and Over Consumption



For Teachers

CONTENTS

Chapter 9 of the booklet addresses the topic of "Preventing Overproduction and Overconsumption." and it explains that overproduction is the manufacturing of goods to an extent that exceeds the needs of consumers, resulting in increased waste and environmental pollution. Both overproduction and overconsumption contribute to environmental impacts such as climate change, and air and water pollution, as well as negative economic consequences.

The chapter elucidates overconsumption as the excessive and unsustainable consumption of goods and resources, leading to environmental, social, and economic repercussions. Key aspects of overconsumption are discussed, including environmental impacts, resource consumption, waste generation, and the stress of consumerism.

Concrete examples of overconsumption in daily life are provided, ranging from food waste to fast fashion and the use of single-use plastics. The chapter emphasizes how these behaviors have environmental impacts and underscores the necessity for conscious and sustainable actions.

The influence of overproduction and overconsumption on the environment and natural resources is further explored, covering aspects such as resource depletion, environmental pollution, climate change, water scarcity, and biodiversity loss.

The subsequent section delves into the damage caused by the consumption of natural resources, highlighting the environmental impacts of product manufacturing, especially in the production of plastics, shoes, and the fashion industry.

The chapter concludes with considerations of measures that can be taken to avoid overproduction and overconsumption. Sustainable practices at both political and individual levels are presented, ranging from promoting responsible consumption to supporting sustainable brands.

Finally, the chapter addresses the inequality in consumption between rich and poor countries, with wealthier nations often consuming an excessive share of resources. The accuracy of statements on the discussed topics is evaluated in a "True or False" section.

LEARNING OBJECTIVES

The learning objectives for Chapter 9 on "Preventing Overproduction and Overconsumption" can be outlined as follows:

- **Understanding Overproduction:** Define overproduction as the manufacturing of goods that surpass the needs of consumers. Recognize the consequences of overproduction, including increased waste and environmental pollution.
- **Understanding Overconsumption:** Define overconsumption as the excessive and unsustainable consumption of goods and resources. Identify

the environmental, social, and economic consequences of overconsumption.

- **Key Aspects of Overconsumption:** Examine the key aspects of overconsumption, including its environmental impacts, resource consumption, waste generation, and its influence on consumerism.
- **Examples of Overconsumption in Daily Life:** Explore concrete examples of overconsumption in daily life, such as food waste, fast fashion, and the use of single-use plastics. Understand the environmental impacts of these examples.
- **Impacts on the Environment and Natural Resources:** Examine the broader impacts of overproduction and overconsumption on the environment and natural resources. Understand the connections between overconsumption and issues like resource depletion, environmental pollution, climate change, water scarcity, and biodiversity loss.
- **Damage from Natural Resource Consumption:** Investigate the environmental damage caused by the consumption of specific products, with a focus on plastics, shoes, and the fashion industry.
- **Measures to Avoid Overproduction and Overconsumption:** Evaluate measures that can be taken at both political and individual levels to prevent overproduction and overconsumption. Explore sustainable practices, including responsible consumption and support for sustainable brands.
- **Inequality in Consumption:** Understand the disparities in consumption between rich and poor countries. Explore how wealthier nations often contribute to a disproportionate share of resource consumption.
- **True or False Statements:** Assess the accuracy of statements related to overproduction, overconsumption, and their environmental and social impacts.

These learning objectives aim to provide a comprehensive understanding of the issues related to overproduction and overconsumption, their consequences, and potential measures for mitigation.

SUGGESTED METHODS FOR TRAINERS AND TEACHERS TO IMPLEMENT THE TOPIC IN THE CLASSROOM

To effectively implement the topic of "Preventing Overproduction and Overconsumption" in the classroom, trainers and teachers can use a variety of methods to engage students and facilitate meaningful learning. Here are some suggested methods:

- **Interactive Discussions:** Begin the session with open discussions to gauge students' prior knowledge and opinions on overproduction and overconsumption. Encourage students to share personal experiences or observations related to the topic.
- **Case Studies:** Present real-world case studies that highlight instances of overproduction and overconsumption. Discuss the consequences of these cases and encourage students to analyze the environmental, social, and economic impacts.
- **Visual Aids and Multimedia:** Use visuals, such as infographics, charts, and videos, to illustrate the concepts of overproduction and overconsumption. Share multimedia content that showcases the environmental effects and real-life examples.
- **Guest Speakers:** Invite guest speakers, such as environmentalists, experts in sustainable practices, or professionals from related industries, to share their insights. Q&A sessions with guest speakers can provide students with a broader perspective on the topic.
- **Class Debates:** Organize debates on topics related to overproduction and overconsumption, encouraging students to research and present arguments for and against specific practices. This can enhance critical thinking and communication skills.
- **Role-Playing Activities:** Create role-playing scenarios where students take on different roles in the production and consumption chain. This can help students understand the interconnectedness of various actors in the system.
- **Field Trips:** Arrange field trips to relevant locations, such as recycling facilities, sustainable production sites, or eco-friendly businesses. Observing

real-world practices can provide students with a practical understanding of sustainable initiatives.

- **Group Projects:** Assign group projects that require students to research, analyze, and propose solutions to address overproduction and overconsumption. Projects could include creating awareness campaigns, designing sustainable practices, or conducting a product life cycle analysis.
- **Critical Reflection:** Encourage students to critically reflect on their consumption patterns and consider how they can make more sustainable choices in their daily lives. Journaling or reflective essays can be assigned to document personal insights.
- **Interactive Workshops:** Conduct workshops on sustainable practices, such as upcycling, responsible consumerism, or circular economy principles. Allow students to participate in hands-on activities related to waste reduction or sustainable product design.
- **Assessment through Quizzes and Games:** Reinforce learning through quizzes or interactive games that test students' understanding of key concepts. Games can make the learning process enjoyable and memorable.
- **Collaborative Learning Platforms:** Utilize online platforms for collaborative learning, where students can share resources, discuss topics, and collaborate on projects related to overproduction and overconsumption.

CONCEPTUAL BACKGROUND

Methods for integrating the game: Provide concrete guidance on how the game can be integrated into the classroom or training context. This could include how to integrate the game into existing curricula.

- **Activities and discussions:** Provide activity ideas that can be done after playing the board game. These can be discussions, group activities, role plays, and practical exercises.
- **Resources and materials:** Recommend resources, books, online sources, and materials that teachers and trainers can use to deepen knowledge.

- **Assessment and feedback:** Explain how teachers or trainers can assess students' or participants' progress and understanding.
- **Related links and organizations:** List organizations, communities, and online platforms that specialize in the topics covered in your game.
- **Additional resources:** Offer supplementary resources such as worksheets, quizzes, or discussion guides to support teachers and trainers in their work.
- **Contact information:** Provide contact information for questions or support in implementing the game and accompanying activities.



Questions Cards

1. What is overproduction?

Overproduction is the production of goods that exceeds the needs of the consumers who are consuming them. Factories and farms produce more goods than the consumers, people, can afford to buy.

This excess production leads to increased waste and contributes to air and water pollution. The demand for more resources results in deforestation, impacting nature and its ecosystems, and leading to the disappearance of various animal and plant species.

Overproduction and overconsumption add to the already high levels of pollution and toxic gases that contribute to global warming. The impacts of climate change extend beyond borders and affect levels of privilege and wealth. This is evident in the intensification and severity of phenomena like wildfires, hurricanes, droughts, and floods.

The negative effects of overproduction and overconsumption also extend to the economy. In the last decades, various industries, including fashion, agriculture, manufacturing, and automobile production, have faced significant challenges due to producing more goods than people can afford to buy or are able to consume.

2. What is overconsumption?

Overconsumption refers to the excessive or unsustainable consumption of goods and resources beyond what is necessary for a good quality of life. In other words, it means using too much of something or buying too many things that are very bad for the environment, like using too much water or making too much trash.

Overconsumption cannot occur without overproduction. This is capitalism's goal to continually increase profits. To generate more profits, more commodities must be made, which creates a need for more raw materials.

Overconsumption is what happens when an ecosystem can no longer sustain the use of its resources. It strips the earth of natural resources, such as forests, fish, soil,

minerals and water, which collapses ecosystems, ruins habitats and endangers the survival of countless species.

Ecosystems are unable to cope with excessive resource extraction. As a result, the planet faces biodiversity loss and degradation of the natural world.

Overconsumption can also make some people rich and others poor. It's important to use things wisely and not take too much so that everyone can have enough.



Overconsumption is often associated with various negative environmental, social, and economic consequences.

3. What are key aspects of overconsumption?

When people use or buy too much stuff, this leads to various problems associated with various negative environmental, social, and economic consequences.

Key aspects of overconsumption

Environmental impact

Overconsumption can lead to the depletion of natural resources such as fossil fuels, minerals, and forests. It can also result in excessive pollution, deforestation, habitat destruction, and increased greenhouse gas emissions, contributing to environmental problems like climate change, air and water pollution, and loss of biodiversity.

Resource depletion

Overconsumption can use up Earth's resources and ecosystems too quickly. For example, overfishing the oceans, the depletion of freshwater sources, and the unsustainable use of agricultural land.

Waste generation

When people buy too many things and throw them away, it creates a lot of trash. This trash can harm the planet if it is not managed properly.

Economic and social consequences

Overconsumption can make some people rich and others poor. It can also lead to money problems, like debts and financial instability.

Stress on consumerism

Overconsumption is connected to always wanting more things. This can make people focus too much on stuff and forget what is truly important.

To avoid overconsumption, it is important to use resources wisely, not waste, and think about what we really need. Sharing, recycling, and being mindful of our choices can help reduce the negative effects of overconsumption.

Efforts to address overconsumption often involve sustainable consumption practices, such as reducing, reusing, and recycling (3 Rs), and adopting more efficient and environmentally friendly technologies.

4. What are some examples of overconsumption in our daily lives?

Uneaten food that is thrown away; purchasing trendy clothing items that are worn only a few times; using disposable plastic items like liquid bottles; frequent purchasing of toys, new electronic devices, shoes, accessories, and cosmetics.

Overconsumption can manifest in various aspects of our daily lives, such as:

Excessive food waste

Not finishing meals and leaving them as waste;
Throwing away large amounts of uneaten food, either at home or in restaurants;
Allowing fruits and vegetables to spoil before eating them.

Fast fashion

Buying and discarding cheap, low-quality clothing frequently rather than investing in durable, long lasting items;
Frequent buying of inexpensive, low-quality shoes and accessories;
Participating in "fast fashion" sales and promotions regularly.

Unnecessary packaging

Buying individually wrapped snacks and convenience foods;
Choosing products with excessive plastic packaging like food or toys encased in plastic;
Using disposable utensils and plates instead of reusable ones.
Single-use plastics
Buying single-use water bottles instead of using a reusable water bottle;
Using plastic straws and stirrers for drinks;
Opting for plastic shopping bags rather than reusable totes.

Constant gadget upgrades

Upgrading to the latest smartphone model every year;
Buying a new laptop when the current one is still functional;
Frequently replacing digital cameras and gaming consoles.

Uncontrolled energy use

Leaving lights on in unoccupied rooms;
Keeping the air conditioning or heating running unnecessarily;
Failing to unplug chargers and electronics when not in use.

Excessive driving

Driving alone for short distances;
Using a car for a short commute when public transportation is available;

Opting for driving even for social events nearby.

Impulsive shopping

Buying things on a whim without considering if they are truly needed

Buying multiple items on sale just because they're discounted;

Acquiring gadgets or fashion items impulsively without considering their utility.

5. What are the impacts of overconsumption and overproduction on the environment and natural resources?

These have significant impacts on the environment and natural resources such as natural resources depletion, air-water-soil pollution, deforestation, climate change, water scarcity, land degradation, habitat loss, biodiversity loss, loss of ecosystem services, and energy consumption.

Resource Depletion

These deplete natural resources at an unsustainable rate such as minerals, fossil fuels, and water, as companies extract and use these resources at an unsustainable rate.

Air-Water-Soil Pollution

Increased industrial production associated with overproduction releases pollutants and contaminants into the air, water, and soil, harming ecosystems and public health. So does using chemicals, pesticides and other harmful substances at home premises contaminate water and soil, and does harm ecosystems and public health.

Deforestation

To meet the demand for raw materials, overproduction can drive deforestation, which destroys vital ecosystems, disrupts biodiversity, and releases carbon stored in trees into the atmosphere.

Climate Change

Overconsumption contributes to climate change by increasing greenhouse gas emissions. Excessive production and consumption lead to the burning of more fossil fuels and deforestation, which release carbon dioxide into the atmosphere.

Water Scarcity

Excessive consumption of water for agriculture, industry, and domestic use strains freshwater sources, leading to water scarcity in some regions.

Land Degradation

Overproduction may lead to soil degradation, erosion, and reduced soil fertility due to intensive agriculture and land use.

Habitat Loss

As land is cleared for agriculture, housing, and infrastructure to meet consumer demands, natural habitats are lost, impacting species and ecosystems.

Biodiversity Loss

The expansion of agriculture and manufacturing to meet overproduction demands can reduce biodiversity as natural habitats are converted into farmland or industrial areas.

Energy Consumption

Demands of overconsumption and thus overproduction require more energy to manufacture, transport, and store excess goods. This increased energy consumption leads to higher greenhouse gas emissions and contributes to climate change.

6. How does natural resource consumption cause harm?

The creation of nearly every product involves the extraction, processing, purchase, and sale of raw materials, often transported over long distances. Natural resources like metals, trees and fertile land are used to produce countless everyday products, from smartphones containing cobalt to soaps made with palm oil.

The extensive global supply chains, controlled by major corporations, contribute to significant environmental damage by exploiting these resources. This environmental harm is closely linked to human rights violations, particularly affecting communities in the Global South. These communities face the adverse effects of deforestation, mining, and displacement, while global corporations harvest profits.

It is crucial for businesses to be held responsible for any social and environmental harm resulting from their operations.

This underscores the need for people to advocate for new legislation requiring companies to ensure that their supply chains do not negatively impact people and the planet.

7. How does the production and disposal of items like plastic, shoes or fashion contribute to environmental problems?

It contributes to environmental problems by depleting resources, generating significant waste, and emitting pollutants. These processes contribute to climate change, pollution, and ecological degradation.

Plastic pollution

Plastics decompose in the environment for ages, threatening wildlife and spreading toxins. Plastic plays a significant role in climate change by releasing greenhouse gases during its manufacturing and disposal.

The majority of all plastics are made from chemicals that come from the production of planet-warming fuels like gas, oil, and even coal.

To address this issue, individuals must reduce plastic usage across various sectors, from supermarkets to households.



Shoe industry

Over 20 billion pairs of shoes were produced last year in the world. Nearly 300 million of them end up in landfills in the United States annually.

Shoes are made up of rubber, which many producers source from trees across Thailand, Indonesia, China, and West Africa. The industry relies on millions of workers to feed the demand. These workers produced more than 13 million metric tons of rubber in 2020.

Those trees are now in fragile supply, but that's just part of the problem. Shoes persist in landfills for an unexpectedly long time, with some materials taking up to 1,000 years to decompose. Overconsumption is evident not only in shoes but in various other products.

Shoes are just one of many products we tend to over-consume.

Fashion industry

Fashion overconsumption is a significant environmental worry, driven by the fast fashion trend promoting frequent buying and discarding.

The consequences are substantial – from the extensive use of water and energy in production to the pollution caused by the disposal of textile waste. Clothing often ends up in landfills, where it takes years to decompose, releasing harmful substances into the environment.

Fabric and clothing material production also contribute to deforestation and involve the use of chemicals.

8. What examples of thinking ahead actions could be made?

Examples: encouraging responsible consumption, policy and regulation implementation, promoting sustainable agriculture, implementing water conservation measures, adopting circular economy practices, investing in renewable energy, fostering biodiversity conservation, investing in sustainable transportation.

Thinking ahead actions involve proactive and sustainable measures to address environmental challenges. Here are examples of such actions:

Encouraging Responsible Consumption

Promoting awareness about the environmental impact of overconsumption and encouraging mindful and sustainable consumer choices.

Policy and Regulation Implementation

Enacting and enforcing policies and regulations that promote environmental sustainability, resource conservation, and responsible business practices.

Promoting Sustainable Agriculture

Supporting practices like organic farming, agroforestry, and regenerative agriculture that prioritise soil health, reduce chemical use, and promote biodiversity.

Implementing Water Conservation Measures

Adopting technologies and practices that reduce water consumption in agriculture, industry, and households to address water scarcity issues.

Adopting Circular Economy Practices

Encouraging the design and production of products with a focus on reuse, repair, and recycling to minimise waste and extend the life cycle of goods.

Investing in Renewable Energy

Shifting towards renewable energy sources such as solar, wind, and hydroelectric power to reduce dependence on fossil fuels and mitigate climate change.

Fostering Biodiversity Conservation

Implementing measures to protect and restore natural habitats, conserve endangered species, and promote biodiversity for a more resilient ecosystem.

Investing in Sustainable Transportation

Developing and promoting eco-friendly transportation alternatives, such as electric vehicles, public transportation, and cycling, to reduce carbon emissions.

9. What examples of thinking ahead actions can individual make?

Examples: keep 3 Rs (Reduce, Reuse, Recycle), save energy, save water, use sustainable transportation, plant trees and develop wildlife/forest gardens, shop mindfully, support sustainable brands, follow conscious eating, educate others, follow responsible disposal.

Individuals can contribute to thinking ahead actions by adopting sustainable practices in their daily lives.

3 Rs - Reduce, Reuse, Recycle

Minimise waste by recycling materials, reusing items, and reducing unnecessary consumption. Opt for products with minimal packaging and recycle whenever possible.

Save energy

Turn off lights and electronic devices when not in use, switch to energy-efficient appliances, and consider using renewable energy sources like solar panels.

Save water

Use water-efficient appliances, practice mindful water use in daily activities like washing dishes and taking showers.

Use sustainable transportation

Choose eco-friendly transportation options such as walking, cycling, carpooling, or use public transportation. Consider electric or fuel-efficient vehicles whenever possible.

Plant trees and develop wildlife/forest gardens

Contribute to local biodiversity and absorb carbon dioxide by planting trees and creating wildlife/forest gardens with native species of plants, shrubs, trees, thus supporting local ecosystems.

More on wildlife/forest gardens, see chapter 4 on Wildlife gardens.

Shop mindfully

Prior to shopping think twice if you need to buy the thing, be careful and thoughtful when buying things. Shopping is about thinking if the stuff you buy is good for the environment, made in a fair way, and if it is something you really need.

Support sustainable brands

Choose products from companies that prioritise sustainability, ethical sourcing, and environmentally friendly production methods.

Follow conscious eating

Choose a plant-based diet or reduce meat consumption to lower the environmental impact associated with livestock farming. Support local and sustainable food sources.

Educate others

Raise awareness about environmental issues by sharing information with friends, family, and communities, encouraging others to adopt sustainable practices.

Follow responsible disposal

Dispose of waste properly, recycling materials, and participating in community clean-up events. Avoid littering and use proper disposal methods for hazardous materials.

10. What inequality in consumption there is between the rich and poor countries?

Wealthy countries use a lot more stuff, like energy and resources, compared to poor countries. It is like some places have too much food they do not need, and others starve.

The inequality is in resource consumption, water usage, food consumption, waste generation, carbon footprint, goods consumption, access to technology, access to education and information, economic inequality.

The inequality in consumption between rich and poor countries is apparent in various aspects including:

Resource consumption

Wealthier countries often consume a disproportionate share of the world's resources, including energy, water, and raw materials, compared to poorer nations. This excessive consumption contributes to environmental degradation and resource depletion.

Water consumption

Affluent countries generally have higher per capita water consumption, often for non-essential purposes like unsustainable agriculture, urban and home gardening, and recreation. This imposes additional strain on global water resources.

Food consumption

Developed countries often have higher levels of meat consumption and food waste compared to less affluent nations. This imbalance in dietary habits contributes to environmental problems, including deforestation for livestock and food production.

Waste production

More developed countries often generate a higher amount of waste per person due to increased consumption and disposable income. This waste includes not only everyday products but also electronic waste and other materials that contribute to environmental pollution.

Carbon emissions

Wealthier nations generally have a higher carbon footprint per person, driven by increased energy consumption, industrial activities, and transportation. This contributes significantly to global greenhouse gas emissions and climate change.

Goods consumption

The consumption patterns in wealthier countries involve a higher demand for goods consumption, leading to the increased production and the depletion of natural resources for manufacturing.

Access to education and information

Unequal access to education and information contributes to disparities in consumption patterns. Wealthier nations may have more educated populations that are aware of sustainable practices, influencing consumption behavior.

Access to technology

Wealthier nations have greater access to and consumption of advanced technologies, contributing to electronic waste and the environmental impact associated with the production and disposal of electronic devices.

True or False

- 1. Overproduction means the production of goods that exceeds the needs of consumers, often leading to excess a stock of goods and waste.**

True

- 2. Overconsumption is the excessive or unsustainable consumption of goods and resources beyond what is necessary for a good quality of life.**

True

- 3. Overproduction and overconsumption have no significant impact on the environment or natural resources.**

False

The statement is false because overproduction and overconsumption have significant and far reaching impacts on the environment and natural resources. The key impacts are:

Harming Nature Making too much stuff (overproduction) uses a lot of materials, energy, and water. This harms nature by causing pollution, cutting down trees (deforestation), and destroying where animals live (habitat destruction).

Resource Depletion

Buying and using too many things (overconsumption) makes us use up important things like fossil fuels, minerals, and water. This can hurt nature by taking away what animals and plants need to live.

Waste Generation

When we make and buy too many things, we create a lot of waste, especially things that don't break down (non-biodegradable materials) like plastic. Getting rid of this waste in the wrong way affects land, water, and air quality, i.e. these are polluted.

Climate Change

Making and using a lot of things involves energy-intensive processes that contribute to greenhouse gas emissions. This, in turn, contributes to climate change, leading to shifts in weather patterns, like rising temperatures, different weather patterns, causing problems for people, animals, and plants.

Loss of Biodiversity

Using too much of the Earth's resources and making more homes and farms can make some plants and animals disappear forever (loss of biodiversity).

Deforestation for new homes or agricultural land, driven by overproduction, can disrupt the connection among living organisms (ecosystems) and lead to the extinction of plant and animal species.

Air and Water Pollution

Making too many things can put dirty stuff in the air and water.

This pollution makes people sick, harms fish and other creatures in the water, and make the environment less clean and safe.

4. Overproduction contributes to environmental problems by generating more waste, leading to pollution and resource depletion.

True

5. Overconsumption is linked to consumerism, emphasizing the acquisition of material goods as a source of happiness and fulfilment.

True

6. Overconsumption in the fashion industry has no impact on the environment.

False

Overconsumption in fashion industry leads to excessive production, which contributes to far-reaching consequences for the environment, including pollution, resource depletion, and waste generation. Addressing these issues requires a shift toward more sustainable and mindful consumption practices, such as supporting

ethical and eco-friendly fashion brands, embracing circular fashion, and reducing the overall demand for disposable clothing.

Overconsumption in the fashion industry significantly impacts the environment due to several interconnected factors:

Excessive production

Overconsumption in fashion results in the demand for a constant stream of new clothing items. To meet this demand, fashion companies engage in excessive production, leading to the extensive use of raw materials, energy, and water. The manufacturing processes involved, such as dyeing and finishing textiles, release pollutants into the air and water.

Pollution

The production of textiles and clothing involves the use of chemicals, including dyes and finishes, which can be harmful to the environment if not properly managed. Improper disposal of these chemicals leads to water pollution, affecting aquatic ecosystems and potentially harming human health.

Resource depletion

The fashion industry relies heavily on natural resources such as water, cotton, and other fibres. Overconsumption contributes to the depletion of these resources, with consequences for ecosystems and communities dependent on them.

Waste generation

Fast fashion, characterised by rapid production and quick turnover of clothing items, leads to a significant amount of waste. Clothing that goes out of style or is discarded after only a few uses contributes to the growing problem of textile waste. This waste often ends up in landfills, where textiles may take a long time to decompose, releasing greenhouse gases in the process.

Social and ethical issues

Overconsumption in the fashion industry is also linked to social and ethical concerns. The pressure for fast and cheap production may result in poor working conditions, exploitation of labor, and human rights violations in the supply chain.

7. Overproduction is needed to meet the increasing demands of a growing population.

False

Overproduction happens because people often want more things (consumerism), not because they really need them. People can make and buy things in a smarter, more sustainable way that meets their real needs without harming the environment and using up too many resources.

8. Overconsumption of food does not affect the environment or contribute to resource depletion.

False

Overconsumption of food has environmental consequences, including excessive use of water, energy, and land resources. Additionally, food waste generated by overconsumption contributes to landfill issues and greenhouse gas emissions.

9. Overproduction contributes to social problems in poorer countries, like bad working conditions and mistreatment of workers.

True

When companies make too much, they might choose to produce in countries where labor is cheaper, often leading to social challenges in those regions.

10. Following 3 Rs can enormously help conserve and protect water.

True



Activity Cards

1. Repair clothes

Repair and extend the life of your clothing items instead of discarding them.

Research and learn basic sewing and mending techniques. This could include stitching up small tears, sewing on missing buttons, or patching up holes.

2. DIY Repair workshop

Spend time repairing a household item instead of replacing it. You may involve other family members to

join this repair time activity.

Share your repairing journey on social media or with friends, or family.

Encourage others to join the challenge.

3. DIY - homemade cleanings

Create a homemade cleaning solution using simple ingredients like vinegar and baking soda.

4. Buy local food

Visit a local farmer, farmers' market or shop and buy one item produced locally or regionally.

5. Discuss the ways to help the environment by decreasing the consumption in your family.

Examples: reducing single-use plastics, choosing energy-efficient products, saving water and electricity,

supporting local and environmentally responsible businesses, avoiding buying items with excessive

packaging, avoiding excessive food waste, composting uneaten food, thinking about buying new items if

necessary, using sustainable transportation.

6. Homemade snacks

Instead of buying individually wrapped snacks, challenge yourself and other family members to make

homemade snacks and store them in reusable containers. Follow it for a week and at the end of the week

assess this process with your family.

7. Walk or jogging in nature

Take a short walk or jogging in a nearby park or natural area to appreciate the outdoors without consuming.

8. Reusable plastic challenge

Challenge yourself or your family to go an entire week or longer without using single-use plastics. This

includes items like plastic bags, bottles, and utensils.

9. Digital detox

Have a digital detox for a few hours - no screens or electronic devices.

10. BYO (Bring Your Own) challenge

Whenever you go out, challenge yourself to bring your own reusable items, such as a tea or coffee cup, water bottle, and utensils.

Rules of the game for GoNature

Number of players

2-9 persons or 2-9 groups

Age of players

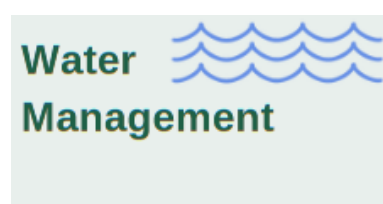
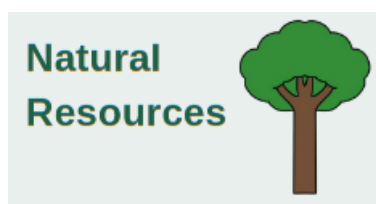
9 - 99+

The game board is designed for nine players or groups. It features nine rows, each containing nine playing fields. Each playing field is marked with a symbol corresponding to one of the nine thematic areas of the game.



9 Starting Cards - one for each chapter

At the beginning of the game, nine starting cards are placed face down on the table. Each starting card depicts the symbol of one of the nine thematic areas of the game. Players or groups select a card, revealing the theme they will start with. For example, if a player or group draws the starting card for the "Natural Resources" thematic area, they must answer a question related to this theme.



Explanation of the Game Cards:

Each thematic area is represented by a distinct color; for instance, the "Natural Resources" thematic area is depicted in green. Additionally, each thematic area is subdivided into three categories of tasks:

Question Cards: Designed for answering specific questions.

Activity Cards: Meant for completing tasks, including internet research or discussing statements in the context of critical thinking.

True or False Cards: Present statements and players or groups must decide whether these statements are true or false.

Question-Cards for each chapter



Activity-Cards for each chapter



True or False-Cards for each chapter



Additionally, there are special cards that players can use:

Each player or group receives ONE Joker card, ONE Take Another Card, and ONE Take a Break card per game.

The **JOKER** card can be used if a question is answered incorrectly to advance to the next square.

The **TAKE A BREAK** card can be played to prevent another player/group from winning. When it's a player's/group's turn, others can give them this card, and the player/group must take a break for one round. This card can be played at any time. However, no more than two TAKE A BREAK Cards may be used per player or group.

The **TAKE ANOTHER CARD** can be used when a player or group arrives at a square and believes they cannot answer the question related to that thematic area. However, this card must be discarded without seeing the question that would have come up. This way, the player or group moves on to the next round.

JOKER Cards



TAKE A BREAK Cards



Take another card Cards



Preparation of the game:

Kindly print both the game board and the game cards. Organize the cards into thematic stacks, with each stack comprising a blend of question cards, activity cards, and true or false cards.

Starting the Game:

At the beginning of the game, each player or group draws a starting card. There are a total of nine starting cards. Each starting card bears a colored symbol representing one of the nine chapters. Each chapter forms a thematic focus of the game. Subsequently, each player or group looks for their starting square on the game board and places the card there.

The player or group drawing the card with the theme "Natural Resources" starts, and the game proceeds clockwise.

If fewer than 9 players or groups participate in the game and no one draws the starting card "Natural Resources," the player or group whose symbol/theme comes next begins.

Now the game can start:

The player or group with the theme "Natural Resources" starts and places the starting card on the square with the same symbol and color in the first row. If there are fewer than 9 players or groups, the player or group that is next or closest to "Natural Resources" starts.

After all the cards have been sorted by theme – each stack containing mixed question, activity, and true or false cards – a player or group draws a card. Another player or a player from another group reads the cards and indicates whether the answer is correct or wrong.

Please remember:

The Question Cards are designed for answering specific questions.

The Activity Cards are meant for completing tasks, including the option to conduct research on the internet, or for discussing statements in the context of critical thinking.

The True or False Cards present statements, and players or groups must decide whether these statements are true or false.

Each player or group receives ONE Joker card, ONE Take Another Card, and ONE Take a Break card per game.

The JOKER card can be used if a question is answered incorrectly to advance to the next square.

The TAKE A BREAK card can be played to prevent another player/group from winning. When it's a player's/group's turn, others can give them this card, and the player/group must take a break for one round. This card can be played at any time. However, no more than two TAKE A BREAK CARD may be used per player or group.

The TAKE ANOTHER CARD can be used when a player or group arrives at a square and believes they cannot answer the question related to that thematic area. However, this card must be discarded without seeing the question that would have come up. This way, the player or group moves on to the next round.

If the question was answered incorrectly, the player or group must remain on this square and try their luck again in the next round or use the Joker card. Now it is the next player's or group's turn - clockwise.

The winner is the first player or group that reaches the finish line.

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