

SCENARIOS

BIOSEM

**Bioethics and sustainable environment management
(2022-1-SI01-KA220-SCH-000086423)**





PA2: SCENARIOS:

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PA3 ELECTIVE COURSE

AUTHOR (PARTNER ORGANISATION)	CONTRIBUTION
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INTERDISCIPLINARY CASE / SCENARIO-BASED COURSE

This study consists of sustainable environment and bioethics scenarios created during the Erasmus+ project named "Bioethics and Sustainable Environmental Education in Schools" numbered 2022-1-SI01-KA220-SCH-000086423, approved by the Slovenian National Agency. Project partners; Ljubljana Faculty of Theology, International Balkan University, Osmangazi District Directorate of National Education, Şükrü Şenkaya Anatolian High School, Daugavpils 3. Vidusskola High School from Latvia, PERMACULTURA CANTABRIA non-governmental organization from Spain, ISTITUTO DI ISTRUZIONE SUPERIORE LEONARDO High School from Italy, Urban Research and Education company from Germany.

Bioethics teaching is not integrated into the curriculum of high schools and equivalent schools. In the literature review, no scenario-based educational content was found to be used in in-class or extra-curricular activities in high schools and equivalent schools on sustainable environmental education. In this regard, scenarios were created with the scenario-based teaching method to increase awareness of the concepts of sustainable environment and bioethics among high school students. 7 headings were determined for the scenarios to be developed by the project partners within the framework of bioethics:

- 1- **Global justice**
- 2- **Climate change**
- 3- **Human development**
- 4- **Ecosystem health and water resources**
- 5- **Science and technology**
- 6- **Animal living**
- 7- **Minimalist living.**

The developed scenario samples are intended to serve as an example for educators at bioethics education, sustainable environment, and climate change education and for those work in this field at high schools and equivalent schools. In addition, this study emphasizes the importance of bioethics in climate change and sustainable environmental education.

In the creation of the scenario, a template was created by examining the Socio-scientific Issue Scenarios and the literature by OMEM (Osmangazi District Directorate of National Education) and it includes the following titles: Subject- Title -Aim-Association with the Purpose- Brief Objective Information on the Subject- Situation/Event- Dilemma- Suggested activities and Questions.



PREFACE

Ethics is not mathematics! Although there are ethical norms that are universal and always apply (Respect every person! Be fair! Don't cheat! Don't lie! Don't steal!), in our everyday decisions we often find ourselves in a dilemma about which value to prioritize. An ethical decision is one where we choose the best possible good in a given situation and context (respecting ethical principles, of course).

Moral dilemmas are situations in which two possible solutions are in conflict, neither of which is entirely good. In each case, there is a risk that the decision will have a negative consequence. »Whatever we choose to do, some evil will be involved. An obvious response is that we should choose the least evil, and this makes sense. « (Hannon, 2005, 58) However, balancing moral values is not so simple. Moral dilemmas are about the ethical reasoning of the individual: what hierarchy of values does each person have, who are the main authorities in their lives, what are the underlying motivations for moral action, and what are the foundations of their ethical attitudes?

Many researchers in the past (Piaget, Kohlberg...) have used moral dilemmas to explore moral judgment and to promote moral education in young people. Through discussion of concrete examples, the ability to make moral judgments sharpened. It is an inductive method of learning, since through the concrete example one tries to reach generally valid conclusions. We found this approach to teaching bioethics to be the most appropriate for adolescents. We wanted to find examples that were at least partly relevant to their concrete lives. We wanted to show that bioethical dilemmas are real dilemmas on which they have to take a stand. Above all, their reflection should lead to responsible action at an individual and collective level.

The collection of scenarios you are about to see is part of the process of creating teaching materials for the elective subject Bioethics in high schools. The examples or dilemmas you will find can be useful input for a short discussion on ethical issues in almost any subject in high school. The designers of the teaching materials feel it is important to discuss ethical issues in almost all subjects to encourage young people to take responsibility for the future of life on our planet. We would like to see as many teachers as possible integrating the ethical dilemmas we propose, or other ethical dilemmas, into their regular lessons in a meaningful way¹.

¹Patrick Hannon. 2005. Moral Decision Making. Dublin: Veritas.
(P.S.: Thanks to Project coordinator Roman Globokar for the foreword)



INTRODUCTION

Problems such as rapidly increasing world population, decreasing arable land, and global warming have made it necessary to take some precautions for the future, develop new technologies, and benefit from biological systems. Genetic engineering and biotechnology, which are technologies developed for this purpose, have an important place today with their applications in different fields. In general terms, these branches of science, which “use² biological systems and living organisms or their derivatives to transform or create products or processes for a specific use”, are among the first branches of science that are expected to make a significant contribution to the welfare of humanity in the 21st century and beyond.

Researchers have revealed that in the preparation of individuals for their future social roles, not only the basic knowledge acquisitions but also the social effects of the application of this knowledge in various fields should be addressed in all aspects (social, cultural, religious, moral, and legal). Because gaining knowledge alone is not sufficient to make rational decisions (Harding and Hare, 2000). For this reason, there is a complete consensus among educators that science and its applications should be handled and taught together with their ethical and social aspects in helping students gain scientific knowledge and grow up as conscious and well-equipped citizens (Aikenhead and Ryan, 1992, Bybee, 1987; Yager and Hofstein, 1986; Yager and Penick, 1988; Yager and Tamir, 1993; Booth and Garrett, 2004).

From this point of view, the developments in biological sciences and especially in biotechnology in the 20th and 21st centuries and the applications of these developments in various fields have recently brought bioethics education, which is a different teaching approach that will increase social information, awareness, and awareness at all levels of education.

WHAT IS BIOETHICS AND BIOETHICS EDUCATION?

In the light of the concepts of ethics and morality, Bioethics is defined as "the field in which ethical problems related to human health (medicine) and other biological sciences are discussed" (Kushe and Singer, 2001, p: 3-4).

After the 1960s, both the discussions on the use of nuclear weapons in the Vietnam War and the women's rights issue that arose due to the developments in feminism and reproductive technologies have brought the content of this concept to a different point today, enabling bioethics to gain a more general and interdisciplinary structure (Kushe and Singer, 2001, p: 8).

²Convention on Biological Diversity, Article 2. Use of Terms, United Nations, 1992.



Bioethics is a discipline that studies ethical issues related to the applications of biological and medical sciences. On the other hand, bioethics education is an educational process that aims to gain skills and attitudes in recognizing, analyzing, and producing solutions to bioethics issues. It sheds light on ethical problems encountered in areas such as bioethics education, biomedical research, clinical practices, genetic technologies, organ transplantation, artificial insemination, embryo transfer, human rights, and health policies. Bioethics education can be provided with both theoretical and practical methods. Theoretical methods include lectures, presentations, discussions, and seminars. According to research, scenario-based education and bioethics education increase the permanence of learning in students.

WHY IS BIOETHICS EDUCATION NECESSARY?

In modern societies, people, while benefiting from the advantages offered by science and technology, have to adapt to the developed technologies, at the same time, they have to face the social reflections of these technologies and make choices and decisions when necessary.

Based on the idea that students will be citizens and decision-makers of the future, it emphasizes that education programs should include processes that will address the social, cultural, environmental, political, and ethical aspects of science and technology. The basis of these processes is discussions (arguments) that will develop students' interest in the subject, their motivation, and their thinking skills (Chen and Stroup, 1993).

Discussing "values" on sociological issues requires questioning skills. According to Bloom's taxonomy, this requires skills that include "higher-level cognitive processes" above the level of remembering and understanding information, and when it comes to sociological issues, these skills can be listed as follows:

- Ability to analyze environmental and ethical issues,
- Ability to ask questions,
- Ability to structure discussions,
- Ability to apply these skills to one's own (individual) thinking system (Dori, Tal and Tsaushu, 2003).

However, in this process, teachers and students gain the ability to think and decide using ethical values while researching opposing views on the subject, examining potential benefits and harms, and examining social and political factors (Pedretti, 1999). When evaluated in this context, bioethics education enables individuals to understand the value problems caused by biological sciences and to develop decision-making skills based on ethical theories and principles (Macer, Asada, Tsuzuki, Akiyama, & Macer, 1996; Reich, 1995).



Bioethics education is based on the principle of improving discussion and decision-making skills by ensuring that students have the scientific background to discuss issues that cause ethical debate, rather than making the "right" decision on a particular issue. Because, for educated individuals to use their scientific knowledge in evaluating personal and social issues and to express their opinions, they need a scientific infrastructure as well as discussions with their peers and the discussion skills they develop in this way (Sadler and Donnelly, 2006).

Being aware of these needs, as the BIOSEM team, we hope that the scenarios created on Bioethics and sustainable environment will be a useful document for students and teachers in all high schools and equivalent schools.

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FAIR TRADE

TOPIC: GLOBAL JUSTICE 1

TOPIC

GLOBAL JUSTICE

TITLE

FAIR TRADE

OBJECTIVES

- To explore interconnectedness of the world.
- To explore how globalization influences our daily lives.
- To understand how delicate chains of supply as great demand on one side is damaging to providers on the other side.
- To accept personal responsibility when using privileges of globalization.
- To present concepts of globalization, trade, and fair trade.

ASSOCIATING WITH COMPETENCY FRAMEWORK

- To understand the concepts of globalization and global justice
- To be aware of interconnectedness and interdependence of all people and all living beings
- To be aware of the advantages and disadvantages of globalization.
- To make connections between causes and consequences of globalization related to the bioethical issues.
- To be empowered to take personal responsibility related to globalization and global justice.

SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

- Globalization is a set of multidimensional processes that create, deepen, expand, and intensify interdependence and exchange at the world (global) level, encouraging at the same time the awareness of the connection of global and local processes.
- Globalization went hand in hand with the introduction of recent technologies such as the Internet, mobile phones, social media and new institutions such as the World Trade Organization, multilateral agreements for trade in goods and services and protection of intellectual property. (Source: Competency Framework BIOSEM)



CASE

Daniel got some money from his mother to go and do some grocery shopping. Along with the money, he also got a shopping list. Daniel's mother knows how much the items on the list cost, so Daniel has approximately the right amount for everything on the list. Once he gets to the store, he sees a homeless person that asks him if he can spare a Euro or some change. He says that he will see if he has any money left after he buys everything they need at home. He goes into the store and finishes most of the shopping. One item left on the list are bananas. There are two assorted brands. One brand is marked Fairtrade and is more expensive. He has a bit of extra money. He can decide to buy the more expensive bananas, he might give some extra money to the homeless person in front of the store, he might buy a little gift for his younger sister that just had her first music school recital or he might just save the money for himself. But Daniel has heard something about the fairtrade and how it supports global justice in school and now is facing a dilemma.

DILEMMA

Should Daniel buy the more expensive fairtrade bananas or the regular, cheaper ones?

SUGGESTED ACTIVITY 1 (PROS AND CONS)

Fairtrade:

He supports a fairer compensation of plantation workers.
He is contributing to a more stable market system where workers and plantation owners are ensured that the prices will not drop below a required minimum.
He is contributing to the development of communal projects in the worker communities with the fairtrade premium (1\$ per box for a project that workers jointly decide on).
He is contributing to worker protections (health and safety).
He is providing consumer feedback/pressure to the supermarket that they should behave socially just.

Regular:

They are cheaper.
He can give more money to the needy in his vicinity.
He can use the money on his family.
He is not sure if fairtrade really works.
He is not sure that his decision would even make a difference.

SUGGESTED ACTIVITY 2

You can have the students play out the situation in terms of assigning them roles in the story. One student can play the role of Daniel, other students play his mother, his sister, the homeless man and you can add roles like cashier, another shopper, someone who confronts the homeless man ...

Students can play out the scenario and other students observe. After the role-play the observing students can offer their remarks, what they noticed and then the students who played the roles can explain how they felt defending their positions.

QUESTIONS

- Am I willing to pay a bit more for fair trade bananas?
- What change that brings to the world?
- Why is banana so popular?
- What difference does it make to choose banana or locally grown fruit for a snack?
- Can I see the impact of influencers on my eating habits?



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MEDICAL TOURISM

TOPIC: GLOBAL JUSTICE 2



TOPIC

GLOBAL JUSTICE

TITLE

MEDICAL TOURISM

OBJECTIVES

- To understand the importance of health in people's lives
- To understand that it is not only the act of doing something for one's own good that is good, but that responsibility needs to be understood more broadly
- To recognise that medical tourism is both a cause and a consequence of inequalities

ASSOCIATING WITH COMPETENCY FRAMEWORK

- To be aware of the significance of globalization and global justice for health
- To be aware of the advantages and disadvantages of globalization
- To understand how different levels of development lead to severe inequalities between nations, countries and cultures
- To develop critical thinking regarding the process of globalization
- To be able to apply the bioethical principles in connection with the process of globalization
- To cope with specific situations in which dilemmas related to globalization arise

SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

Medical tourism is a trend that is gaining momentum with globalization. When patients from developed countries go to developing countries to receive medical treatment that is unavailable to them in their country of residence, for financial or legal reasons. Several ethical dilemmas arise here: the unequal availability of medical treatment in the most developed countries, due to which a part of people have to seek a solution to their medical problems in doing the intervention outside the country. Medical tourism has been known to involve the transplantation of organs from illegal donors. The surgical interventions themselves can take place in unlicensed hospitals, with equipment whose



SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

quality is questionable, etc. Medical tourism can also go in the opposite direction. The wealthier strata of the population in developing countries travel to developed countries, with more advanced standards in medicine, for more serious medical interventions. The dilemma arises, whether instead of going abroad for treatment, people who belong to the elite of a society should pay higher contributions for health insurance and correct the image of the health system in their own country.

CASE

Your close friend, Sarah, has been courageously battling cancer for several years. Despite numerous treatments locally, her condition has worsened, and her doctors are now recommending a cutting-edge cancer treatment only available in a developing country. The treatment shows promising results but comes with significant challenges. As Sarah's close friend, you're in a tough spot. You want the best possible outcome for Sarah's health, and the foreign treatment offers hope for a potential cure at a lower cost. However, you're also concerned about the safety, quality of care, living conditions, the impact on her education, and the emotional toll it may take on her.

DILEMMA

Your friend looks to you for support and advice on whether to pursue this risky medical tourism option or continue with conventional treatments at home. How can you provide the support and guidance she needs to make this life-changing decision, all while keeping her best interests at heart and maintaining a strong friendship?

SUGGESTED ACTIVITY 1 (PROS AND CONS)

YES:

- Medical tourism can provide access to medical treatments that are not available in one's home country.

NO:

- The quality of medical care can vary widely between countries and facilities, which can put patients at risk.

SUGGESTED ACTIVITY 1 (PROS AND CONS)

- It brings reduced costs by visiting a poorer country.
- Reduced wait times for procedures.
- There can be risk to patient safety, particularly if the facility or medical staff are not properly accredited or regulated.
- Travel-related risks such as infections, transportation mishaps, and language barriers can occur.

SUGGESTED ACTIVITY 2 (PLAYING DIFFERENT ROLES)

Students are asked to take on different roles. They should act out the people who want to have the procedure; the staff who will carry it out; a meeting with the police at home who are checking the legality of a procedure (for example, in the case of surrogacy); a conversation in the family when someone decides to have a procedure abroad, a conversation with a person who, because of her poverty, is going to sell her own organs to a rich foreigner, and so on.

Many people travel to other less developed countries for affordable dental treatments, such as implants, root canals, and crowns.

- Cosmetic surgery procedures like facelifts, breast augmentation, and liposuction are also popular among medical tourists.
- Some people travel abroad for specialized cancer treatments that are not available in their home country. Countries like Germany, Japan, and the United States are known for offering cutting-edge cancer treatments.
- Patients may travel abroad for organ transplants, particularly if they are unable to find a donor in their home country.
- Fertility treatments like in vitro fertilization (IVF) and surrogacy.

QUESTIONS

- Is it ok that the access to medical care is being based on a patient's ability to pay, rather than on medical need?
- Is it fair that low-income countries may not have access to the same quality of medical care as those from wealthier countries?
- What about the patients from low-income countries that may be subjected to exploitation or substandard medical care?



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THINKING OF CLIMATE CHANGE WITH BIOETHICS AND ITS SUB-PRINCIPLES TOPIC: CLIMATE CHANGE 1



TOPIC

CLIMATE CHANGE

TITLE

THINKING OF CLIMATE CHANGE WITH BIOETHICS AND ITS SUBPRINCIPLES

OBJECTIVES

To know the connection between ethical principles, the application of bioethics, and climate change

- The choices we make now have an impact on the present and on people everywhere.

- Making decisions that are environmentally friendly are frequently complicated by other considerations like financial gain and reliance on fossil fuels.

ASSOCIATING WITH COMPETENCY FRAMEWORK

- To understand the basic aspects of climate change
- To understand specific situations in which problems related to climate change arise
- To know the connection between bioethical principles and climate change
- To be able to give an example of the connection between bioethical principles and climate change
- To know some possible actions to address climate change
- To demonstrate knowledge of the basic aspects of climate change

SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

The effects of climate change are one of the most difficult problems the world is currently facing. In this course, we show how ethical analysis can help us understand both the character of the climate problem and the limitations posed by potential solutions. (Vanderheiden 2008, Gardiner et al. 2010, Arnold 2011). In doing so, we will focus our attention on the ways in which climate change

SHORT OBJECTIVE INFORMA- TION ABOUT THE SUBJECT

poses a threat to core values and how the actions taken will raise significant concerns about fairness and accountability.

The threat posed by climate change has been compared to the “ideal moral storm”. Because it brings together three interconnected fundamental issues of moral action. (Gardiner 2011a).

1- The fact that climate change is a problem affecting people all over the world is the root of the first problem. Greenhouse gas emissions, once released into the atmosphere, have the potential to affect climate everywhere on the planet, regardless of where they originate. (IPCC 2007). It is often said that this will lead to a prisoner’s dilemma, or a tragedy of the commons played out between nation-states: While all countries collectively choose to limit global emissions to reduce the risk of serious or catastrophic impacts, each acts individually. In other words, the prisoner’s dilemma or the tragedy of the commons will be played out between nations. chooses to continue emitting gas into the atmosphere. (Helm 2008, Gardiner 2011a)

2- The second issue is that current emissions have important consequences for future generations. Emissions of carbon dioxide, the most important greenhouse gas, typically remain in the atmosphere for a long time and have detrimental effects on the climate for centuries or even millennia. (IPCC 2007). This does not seem fair, especially given that the negative impacts on the future are serious and cumulative.

3- The third problem with ethical action is that our theoretical tools are not fully developed in many related areas such as international justice, intergenerational ethics, scientific uncertainty, and the appropriate relationship between humans and the rest of nature. (eg Jamieson 1992). For example, climate change raises questions of (ethical) value, such as whether we have obligations to protect animals, unique places, or nature, and what form, if any, such obligations take. Another example is when climate change raises questions about the (legal) value of historical artifacts such as fossil fuels and whether they exist.



CASE

You are living in Ireland and John and Greta are president of the student organization in a High school. They saw in the media that under their school, there has been a significant oil discovery. It might be extracted, sold, and used in factories, residences, power plants, and transportation. This would generate a lot of revenue and offer oil for usage by the public. However, if it is utilized and burned, the carbon dioxide it releases will accelerate climate change.

It is not yet known whether the oil can be drilled or if chemicals must be pumped into the soil to extract the oil. Many say this process, which uses chemicals, pollutes local water supplies and harms the environment.

The oil industry companies say that they have been extracting oil at many sites for many years with great care for the environment and limited impact on local communities.

DILEMMA

Should Greta and John organize a student protest against the oil extraction beneath their school or should they choose to support the extraction?

SUGGESTED ACTIVITY 1

The Town Hall Debate:

- Student Leaders (Greta and John): They organize this debate as the future generation of the community, they demand it to make sure that their decision is the best one for all. They are the moderators.
- Oil Industry Representatives who argue for the economic benefits of oil oil extraction, emphasizing responsible practices and the potential for local job creation.
- Environmental Activists who advocate against the oil extraction, highlighting the environmental risks associated with carbon emissions, water pollution, and climate change.



SUGGESTED ACTIVITY 1

- Community Members: they express the concerns of the local community, addressing both the potential economic benefits and the environmental impacts on their daily lives.
- Scientific Experts: they share factual information about climate change, the consequences of burning fossil fuels, and the potential long-term effects of oil extraction.
- School Officials who consider the financial implications for the school, including how the revenue generated from extraction could impact educational resources and opportunities.

QUESTIONS

- What role do you think human activities play in causing climate change, and how can we balance development with environmental protection?
- How might climate change disproportionately affect different communities, and what ethical responsibilities do we have toward those communities?
- Should countries be held morally accountable for their carbon emissions? How can we address the ethical dimension of the climate crisis at an international level?
- What personal lifestyle changes can individuals make to contribute positively to addressing climate change, and do you think there's a moral obligation to make these changes?
- How might climate change impact public health and access to healthcare resources? What are the ethical implications of these impacts?
- As we develop technologies to mitigate climate change, like carbon capture, what potential ethical dilemmas might arise in terms of resource allocation and unintended consequences?
- How might climate change affect biodiversity and the ethical responsibilities we have toward other species?
- Should we prioritize investing in technologies that directly combat climate change or technologies that help us adapt to its effects? What ethical considerations come into play?

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COSTS OF FAST FASHION

TOPIC: CLIMATE CHANGE 2



TOPIC

CLIMATE CHANGE

TITLE

COSTS OF FAST FASHION

OBJECTIVES

- To explore the environmental and ethical implications of the fashion industry.
- To understand the concept of sustainable fashion and its impact on climate change.
- To analyze the role of personal choices in reducing carbon footprint.
- To promote critical thinking and decision-making skills in the context of sustainability and ethics.
- To encourage students to take responsibility for their consumption patterns and make informed choices.

ASSOCIATING WITH COMPETENCY FRAMEWORK

- To be aware of the importance of climate change.
- To be aware of the bioethical aspects of climate change.
- To be aware of the importance of personal examples in the prevention of climate change.
- To be able to give an example of the connection between ethical principles and climate change.
- To identify specific, relevant and achievable personal goals to address climate change
- To be trained to take initiatives regarding the prevention of climate change.
- To be willing to take personal responsibility for changing their lifestyle in order to help address climate change with their behavior

SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

The fashion industry is known for its negative environmental impact, including carbon emissions, water pollution, and exploitative labor practices. Sustainable fashion aims to minimize these effects by promoting ethical sourcing, reducing waste, and embracing environmentally friendly production processes.



SHORT OBJECTIVE INFORMA- TION ABOUT THE SUBJECT

Climate Change and Fast Fashion: Fast fashion is a significant contributor to climate change. The production processes involved in fast fashion, such as textile manufacturing, dyeing, and garment production, emit greenhouse gases and consume large amounts of energy and water. Additionally, the fast fashion industry relies heavily on global supply chains, which contribute to transportation emissions. The disposal of fast fashion items also leads to textile waste, which further exacerbates environmental issues. Overall, the fast fashion industry's high production volume, rapid turnover, and resource-intensive practices contribute to the carbon footprint and environmental impact associated with climate change.

Climate Change and Sustainable Fashion: Sustainable fashion aims to mitigate climate change and reduce its impact on the environment. Sustainable fashion brands prioritize eco-friendly materials, adopt sustainable production practices, and promote circular economy principles. By using organic or recycled materials, minimizing waste, and employing energy-efficient processes, sustainable fashion helps reduce greenhouse gas emissions, water usage, and pollution associated with the fashion industry. Sustainable fashion also encourages conscious consumption, urging individuals to buy fewer items of higher quality and make use of existing garments for longer periods. By embracing sustainability in fashion, the industry can play a role in addressing climate change by reducing its carbon footprint and promoting more responsible practices.

Fast Fashion and Sustainable Fashion: Fast fashion and sustainable fashion represent contrasting approaches within the fashion industry. Fast fashion prioritizes quick and cheap production, leading to environmental degradation and social issues. In contrast, sustainable fashion focuses on minimizing environmental impact, promoting ethical production practices, and encouraging conscious consumer choices. Sustainable fashion aims to disrupt the fast fashion model by advocating for slower production cycles, better quality garments, and more transparent supply chains. By supporting sustainable fashion, individuals can make a conscious choice to move away from the negative environmental and social consequences associated with fast fashion and contribute to a more sustainable and ethical fashion industry.



CASE

- Sophie, a high school student passionate about sustainability, received an invitation to the highly anticipated prom party. Excitement filled the air as her classmates buzzed with anticipation about finding the perfect dress. However, Sophie couldn't shake off her concerns about the environmental and ethical implications of the fashion industry. She actually has some money saved. She wants to use this money to avoid activities that increase the carbon footprint, such as private cars or public transportation, especially by buying an electric bike.
- She knew that conventional fashion practices often involved harmful chemicals, excessive water usage, and exploitative labor conditions. The more she learned about the dark side of the industry, the more conflicted she felt about participating in the prom culture that often prioritized trends over sustainability. But if she makes a sustainable clothing choice, it will take less time to buy an electric bike.
- However, Sophie faced a dilemma. Sustainable fashion choices often came with a higher price tag, and her limited budget made it challenging to afford an ethically made dress. She didn't want to compromise her values but also didn't want to feel excluded or judged by her peers and she also wants to take the opportunity to reduce his carbon footprint by buying an electric bicycle.

DILEMMA

Should Sophie choose a fast fashion dress at an affordable price and buy an electric bike or invest in a sustainable and ethically made dress, even if it means spending more money?

SUGGESTED ACTIVITY 1

Research and Presentation

Divide students into small groups and assign each group a specific aspect of sustainable fashion, such as eco-friendly materials, fair trade practices, or upcycling. Instruct them to conduct research and prepare a presentation highlighting the importance of their assigned aspect, its impact on carbon footprint reduction, and examples of brands or initiatives that embody it. Encourage students to include visuals and real-life case studies to support their findings.

SUGGESTED ACTIVITY 2

Design Challenge

Challenge students to design and sketch their own sustainable fashion piece or collection. Provide them with information about sustainable design principles, such as zero-waste patterns, use of organic or recycled materials, and innovative production techniques. Allow students to present their designs and explain the sustainable elements incorporated. This activity promotes creativity, critical thinking, and understanding of the practical application of sustainable fashion concepts.

QUESTIONS

1. Should Sophie prioritize sustainable fashion choices despite their higher price tag? Why or why not?
2. How does sustainable fashion contribute to reducing the carbon footprint and promoting ethical practices in the fashion industry?
3. What other ways can Sophie reduce her carbon footprint apart from sustainable fashion choices?
4. How can individual choices in fashion influence industry practices and drive change?
5. What are the potential challenges Sophie might face in making a sustainable fashion choice? How can she overcome them?



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HUMAN DEVELOPMENT, CYBER BULLYING AND BIOETHICS

TOPIC: HUMAN DEVELOPMENT 1



TOPIC

HUMAN DEVELOPMENT

TITLE

HUMAN DEVELOPMENT, CYBER BULLYING AND BIOETHICS

OBJECTIVES

- To be able to define human dignity, human rights, and human development
- To demonstrate knowledge and understanding of human dignity, human rights, and human development
- To demonstrate knowledge of the basic aspects of human development
- To know the connection between ethical principles, the application of bioethics and human development
- To be able to independently reproduce the basic aspects of human development
- To be able to give an example of the connection between ethical principles and human development

ASSOCIATING WITH COMPETENCY FRAMEWORK

- To be aware of the importance of human development
- To be aware of the bioethical aspects of human development
- To be aware of the risk of not applying bioethical principles to human development
- To be aware of the importance of personal example in human development

SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

The right to privacy is a basic human right, but in modern society, especially with the development of new media, it has started to be seen as a luxury. People trade their privacy to be accepted and popular in the environment in which they live. People often by themselves expose their privacy to the public when they post their photos on social media to get more attention. But also private data about individuals may be collected to be used for commercial purposes. With McLuhan's words, people are returning to the tribal times when everything was public (McLuhan 2013). In addition to



SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

exposing their own privacy, in order to gain more popularity, people are willing to treat with indignity and humiliate other people. It seems that these processes do not provide a platform for personality development and fulfillment of people's potential.

Initially, the right to privacy was associated with negative freedom, human dignity and personal autonomy. The positive and negative understanding of freedom was broken down by Isaiah Berlin in his legendary book *Two Concepts of Liberty*. According to Berlin, negative freedom is defined as freedom from an entity or from certain activities (for example, while on summer vacation you have freedom from daily responsibilities), while positive freedom is defined as freedom to do something (for example, what will you do with your free time while on summer vacation). Human dignity is related to the value and status that every human being as a unique individual has. Personal autonomy is the capacity of each individual to independently manage his own life, make his own choices and make decisions based on his own worldview and values. The question arises whether if the right to privacy is not respected, people can have personal development, i.e. can we talk about human flourishing?

Article 9 of the Universal Declaration of Bioethics and Human Rights indicates that the privacy of individuals and the confidentiality of their personal information should be respected. Data about individuals may not be used or disclosed for purposes other than those for which they were collected or for which consent was given (UNESCO 2005).

Cyberbullying consists of sending insulting and threatening messages via email and in public media, posting images or videos that embarrass the victim, creating fake profiles, and creating false or harmful information about the victim.

As a consequence of cyberbullying, people may have physical and mental health problems, use drugs, alcohol, have lower self-esteem, etc. The consequences of cyberbullying can be bad grades in school, college, reduced ability to act, motivation to succeed in life and a decrease in the chances of human development.

CASE

Cyberbullying is a phenomenon that is unfortunately being faced more and more. The more the Internet is used, the more cases of cyberbullying. This is especially true for a population that is vulnerable and has little experience with the dangers of using private life information for cyberbullying. Can you point to examples of cyberbullying from your personal experience or from the experience of someone you know? The dignity of individuals may be compromised if they are treated in a degrading manner. The threat to dignity is even greater if it is published on social media. Three influencers in Bulgaria released a video in April 2023 in which a man was treated like a dog. Did the man who was treated like a dog have his human dignity respected? After the influencers were arrested for the incident, they defended that they had the consent of the person who was treated like a dog. Additional information showed that it was a person with a disability in mental development. Is the consent of a person disabled in mental development legitimate? Can consent from any human being justify treating it like an animal? Imagine that the man did not have an impaired mental development, but had existential problems and therefore agreed to be treated like a dog. Would his consent be legitimate? Would his eventual treatment as a dog be legitimate? If a man had no mental developmental disabilities and no existential problems, and he agreed to be treated like a dog in order to gain popularity or a large sum of money, would his consent be legitimate? Would his treatment as a dog be legitimate? Why is it unacceptable to treat people like animals? Is there a problem in the behavior of the individual as a dog? In posting the footage of it? Are both things problematic? Or is none of the above problematic? What is your opinion about the dangers of being treated in a humiliating manner in the public space (on social media). An example of showing your pictures that you would not want to appear in public. Or to be humiliated and insulted on social networks through comments. How would you act if that happened? What measures did you take to prevent this from happening?



DILEMMA

The dilemma arises whether if an individual humiliates himself in a public space without intending to do so, we can talk about cyberbullying. The second dilemma is whether one individual humiliates another individual on a public stage without intending to do so, one can talk about cyberbullying. The third dilemma is whether two individuals perform in public at the same time with the intention of each humiliating the other and if this happens, whether it is cyberbullying. Can you name specific cases of bullying? If someone who bullies others becomes a victim of bullying, does he deserve help? How to help victims of cyberbullying?

Is it cyberbullying if you knowingly participate in a public event and receive negative comments about it? Is it cyberbullying if someone posts a picture of himself and receives negative comments about it? Is every negative comment cyberbullying? Why do the majority of people post pictures on social media? Why do people comment on pictures? Why do they put negative comments on pictures?

SUGGESTED ACTIVITY 1

<https://www.youtube.com/watch?v=vtfMzmkYp9E>

Organize discussion about differences between bullying and cyber bullying

https://www.youtube.com/watch?v=-C_T-CtgIEs

<https://www.youtube.com/shorts/wUpGnraLbnc>

Teacher-led in-class talk.

Watch a short videos and organize discussion about them

QUESTIONS

Cyberbullying can be related to the violation of the privacy of individuals, if they are threatened with public disclosure of parts of their private lives. Cyber bullying can threaten a person's integrity, dignity and opportunity for development.

- What is bullying?
- What is cyber-bullying?
- Is cyberbullying related to the violation of privacy of individuals?
- Have you ever been a victim of cyberbullying?
- How should one react to cyberbullying?



SCENARIOS BIOSEM

Bioethics and sustainable environment management
(2022-1-SI01-KA220-SCH-000086423)



HUMAN DEVELOPMENT, MENTAL DISABILITIES AND BIOETHICS

TOPIC: HUMAN DEVELOPMENT 2



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TOPIC

HUMAN DEVELOPMENT

TITLE

**HUMAN DEVELOPMENT, MENTAL
DISABILITIES AND BIOETHICS**

OBJECTIVES

- To demonstrate knowledge and understanding of human dignity, human rights, and human development
- To demonstrate knowledge of the basic aspects of human development
- To know the connection between ethical principles, the application of bioethics and human development
- To be able to independently reproduce the basic aspects of human development
- To be able to give an example of the connection between ethical principles and human development

ASSOCIATING WITH COMPETENCY FRAMEWORK

- To be aware of the importance of human development
- To be aware of the bioethical aspects of human development
- To be aware of the risk of not applying bioethical principles to human development
- To be aware of the importance of personal example in human development
- To be able to apply the bioethical principles in concrete situations concerning human rights and human development
- To dare to express their personal beliefs in a respectful and tolerant manner

SHORT OBJECTIVE INFORMA- TION ABOUT THE SUBJECT

Respecting the dignity and enabling the development of the potentials of every person is a constantly topical issue. Society has an obligation to give every individual the opportunity to realize his potential, if he is ready to make efforts to realize them. In that sense, individuals have formal equality in rights and obligations

SHORT OBJECTIVE INFORMA- TION ABOUT THE SUBJECT

towards society, and society has a duty to provide its members with access to educational and health services under accessible and equal conditions.

The difference in the realization of the potential of individuals should not be conditioned by social factors such as stereotypes, segregation, and discrimination, but it should be due to individual factors such as the talent that individuals possess, the willingness to work and make efforts in developing their own talents etc.

Growth can be understood as a process in which someone or something develops, changes, improves. The concept of human development is related to the measurement and comparison of the quality of life of people. The first human development report of the United Nations Development Program states that people must be at the center of all development (Solbeck 2016). The ethical dilemmas that arise are whether the dynamics of life, the changes in individual life cycles of humans, other forms of life and nature as a whole can be called development? The improvement of the living conditions of one species may mean the deterioration of the living conditions of other species, so that what is development for one species (if we define development in a utilitarian way), may be a setback for other species on the planet. If humans have priority in development, does this mean that they can use other species and value nature as an instrument to achieve their own development? Does the achievement of human development not threaten the existence of other species on the planet and nature as a whole?

In order to achieve human development, people need to have a long and healthy life, access to knowledge and necessary resources that will provide them with a decent standard of living. Prerequisites for human development are the enjoyment of political, economic and social freedoms, giving the opportunity to be creative and productive, to be respected as a person and to enjoy human rights (Solbeck 2016). From an ethical point of view, many dilemmas arise. For example, if there are stereotypes, segregation and discrimination in society, do all people enjoy the same degree of political, economic and social freedom? If people

SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

from a certain social group due to discrimination are not able to get an education, can they make a successful business career (enjoy economic freedom), have significant influence in politics (enjoy political freedom), and have a respectable social status (to enjoy social freedom).

CASE

Let's imagine a situation where it is possible to save the life of a critically ill premature baby who is still in his mother's womb with medical intervention. There is a high probability that he will survive, but he will have mental deficiencies.

DILEMMA

What to do in such a situation. One answer is that because human dignity rests on the mental capacities of individuals, it is wrong to bring into the world a person who will be mentally incompetent. The second answer would be that every measure would have to be taken to save the life of the premature, because the equality of human dignity forbids some lives to be considered not worth living. The third answer is that the parents' dignity should be respected and they should be given the autonomy to make their own decisions and resolve this moral dilemma. What do you think about this situation? What would be the right decision? Why?

SUGGESTED ACTIVITY 1

- Teacher-led in-class talk.
- Is every life equally valuable? Why?
- Should awareness be raised to help people with mental disabilities?



SUGGESTED ACTIVITY 1

- Should people with mental disabilities have the same rights as all other people?
- Is ignoring people with mental disabilities a form of discrimination?
- Is ignoring people with mental disabilities a form of inequality?

SUGGESTED ACTIVITY 2

Watch a short video about mental disability and organize class discussion regarding questions arising from the video:
Proposed videos:

<https://www.youtube.com/watch?v=F02hGK8Ko3>

<https://www.youtube.com/watch?v=zzTCrz9Xynw>

QUESTIONS

- Do you know a person with a mental disability?
- How should people with mental disabilities be integrated into society?
- How can you help people with intellectual disabilities in your local community?

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Bioethics and sustainable environment management
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RECYCLING PLANT WITHIN THE CITY NATURAL AREA

TOPIC: ECOSYSTEM HEALTH 1



TOPIC

ECOSYSTEM HEALTH

TITLE

RECYCLING PLANT WITHIN THE CITY NATURAL AREA RECYCLING PLANT WITHIN THE CITY NATURAL AREA

OBJECTIVES

- To explore the interconnectedness of the world.
- To know the connection between ecosystem services and human benefits
- To understand the importance of maintaining healthy ecosystems and the impacts that human activities can have on these systems
- To understand whether economic benefits outweigh sustainability of the ecosystem.
- To accept personal responsibility when interfering in ecosystem health.

ASSOCIATING WITH COMPETENCY FRAMEWORK

- To be able to define the concept of ecosystem health
- To know that everything in the nature is interconnected
- To know different factors that influence the health of an ecosystem
- To know the ethical principles connected with ecosystem health
- To feel empowered to deal with specific situations in which problems with ecosystem health and water resources arise

SHORT OBJECTIVE INFORMA- TION ABOUT THE SUBJECT

Human well-being depends on the services they receive from ecosystems, either directly or indirectly. Humans enjoy the well-being of services that they receive from completely natural ecosystems such as grasslands, forests, oceans, but also those whose management is more present in the intervention of the human factor such as culture and cities. In modern society, many



SHORT OBJECTIVE INFORMA- TION ABOUT THE SUBJECT

ecosystems are threatened due to over-exploitation. The amount and variety of waste generated by people's activity is overwhelmingly humongous and requires construction of more powerful and conveniently located recycling plants. The location of these plants slowly approaches and takes over natural areas in the city suburbs.

CASE

A rapidly growing city is expanding its borders and is planning to build a new garbage recycling plant on a large plot of land that has remained undeveloped and preserved as a natural area for many years. It contains natural walking trails for moms with kids and a built-in playground for children. This may result in the destruction of natural habitats such as water reservoir (lake), grassland, a forest zone and deprive the city residents from the natural leisure place. Moreover, this construction may be causing the displacement of numerous animal species and the destruction of biodiversity. The government argues that the project is necessary for economic growth, solvation of excessive garbage disposal problems and job creation, while critics argue that the long-term costs to the environment and future generations outweigh the short-term benefits. The city council conducts a public poll, followed by a meeting with the city residents, allowing them to voice their concerns, provide suggestions, and engage in a constructive dialogue with the government representatives in order to make the final decision.

DILEMMA

Should the city build the recycling plant in the city natural area?



SUGGESTED ACTIVITY 1

Students are divided into groups to discuss the ethical considerations and potential solutions to this scenario. They consider the following questions and create a see-saw balance of for and against arguments. They have to give each argument a score from 0 to 3 depending on how convincing they find it. At the end they add up the scores and see which side of dilemma outweighs

Points to consider:

1. Consider arguments for construction of the recycling plant. Benefits people and the city will get.
2. Consider disadvantages of this project and ecosystem benefits people deprive themselves from?
3. Consider how to compensate for the take over for construction of part of land and its ecosystem?
4. Consider how do we balance the need for economic growth and job creation with the potential negative impacts of urbanization on the environment?
5. What ethical considerations need to be taken into account when making decisions about urbanization?
6. What alternative solutions could be explored to accommodate the industrial project without destroying natural habitats and biodiversity?

SUGGESTED ACTIVITY 2

The meeting with the city council board. The meeting is attended by representatives of different social groups who present their vision of the case.

1. Government Representative: Argues in favor of the garbage recycling plant, highlighting the economic benefits, job creation, and the need to address the garbage disposal problem. Emphasizes the potential positive impact on the city's development and growth.
2. Volunteer of the Youth Organization: Opposes the construction of the garbage recycling plant, expressing concerns about the destruction of natural youth and family relaxation place.
3. Local Resident: Represents a resident living near the proposed site. Shares personal experiences and concerns about the potential negative impacts on the community, including

SUGGESTED ACTIVITY 2

increased traffic, noise pollution, and reduced quality of life. Expresses a desire to protect the natural area and preserve the existing ecosystem.

4. Wildlife Expert: Opposes the construction of the garbage recycling plant, expressing concerns about the destruction of natural habitats, loss of biodiversity, and long-term environmental consequences. Argues that alternative solutions should be considered to address the garbage problem without compromising the environment. Provides scientific knowledge about the specific animal species present in the area and their reliance on the natural habitats. Explains the potential consequences of habitat destruction, such as species displacement, reduced biodiversity, and ecosystem imbalance.

5. Business Owner: Supports the construction of the garbage recycling plant due to potential economic opportunities. Highlights the job creation aspect and discusses how it could benefit the local economy and businesses. Raises concerns about the economic costs of alternative solutions.

6. City Planner: Presents the technical aspects of the project, including the design, waste management capabilities, and environmental impact assessments. Provides information about potential mitigation measures, such as habitat restoration and environmental monitoring.

7. Concerned Parent: Expresses worries about the possible loss of the recreation place for families with children, long-term effects on future generations and the importance of preserving natural areas for children's education and well-being. Emphasizes the responsibility of the city council to consider sustainable and environmentally friendly solutions.

QUESTIONS

1. Should public opinion be heard when making a decision to build a strategically important object within the city?

2. Does public opinion matter and is it actually decisive after being listened to?

3. Would you agree to the initiative to build a recycling plant in your city's natural area?

SCENARIOS BIOSEM

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THE ROLE OF PHOSPHATES IN EUTROPHICATION

TOPIC: ECOSYSTEM HEALTH 2



TOPIC

ECOSYSTEM HEALTH AND WATER RESOURCES

TITLE

THE ROLE OF PHOSPHATES IN EUTROPHICATION

OBJECTIVES

- To demonstrate knowledge and understanding of eutrophication
- To demonstrate knowledge of the basic aspects of eutrophication
- To know the connection between ethical principles, the application of bioethics, and eutrophication

ASSOCIATING WITH COMPETENCY FRAMEWORK

- To be able to define the concept of ecosystem health
- To know that everything in nature is interconnected
- To know the different factors that influence the health of an ecosystem
- To understand the importance of water resources for the vitality of the ecosystem
- To know the ethical principles connected with ecosystem health
- To know the importance of water resources for human beings and the whole environment

SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

Humans have a deep and long-term connection with water. People are dependent on water. Hence the need for ethics in the use and management of water resources. The competition for water, for its use for the needs of households, agriculture, and industry, will become more and more acute. Quality water supply and sanitary-hygienic conditions are related to improving people's health and economic productivity. Water is very important for human life and health. A diagnosis of the ecosystem is made to evaluate whether it is in good condition or not. If there are problems in the ecosystem, we try to find the reasons why they appeared. The state



SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

of the ecosystem is dynamic and can change depending on the influence of a number of factors. If a problem with the health of the ecosystem is diagnosed, we try to find a cure, and measures that will bring the ecosystem back to normal.

Recently, there has been a deterioration in the state of water bodies in the European Union used for drinking and household purposes, associated with eutrophication processes. 95% of phosphorus ends up in urban wastewater as a result of the use of phosphates in synthetic detergents, and 5% of phosphorus ends up in wastewater as a result of the use of fertilizers in agricultural activities. Phosphates cause enormous damage to the environment. The discharge of wastewater with a high content of phosphorus is a factor contributing to the rapid multiplication of cyanobacteria (eutrophication) in surface water bodies. Cytotoxins produced by cyanobacteria pose a threat to the life and health of humans and animals. There are also invisible threats: due to the abundance of phosphates in water bodies, the chemical composition of water changes, the microflora is destroyed, and the water ceases to be suitable for drinking. In European countries, the limitation of the phosphorus content in synthetic detergents has been achieved through legislative measures or voluntary agreements, as well as the implementation of the Municipal Waste Water Treatment Directive.

CASE

As a result of anthropogenic pollution, phosphorus enters water bodies in the form of H_2PO_4^- , HPO_4^{2-} , PO_4^{3-} or polyphosphate ions.

Special technology is required to clean wastewater from phosphate ion pollution. Two methods are used: biological and chemical.

The biological treatment uses bacteria that accumulate phosphorus, forming biomass.

In chemistry, phosphate ions are separated by precipitation. The resulting chemical sludge is difficult to process, and the reagents can also be expensive, however, the equipment required for this method is simpler than for biological treatment. In addition, the method is safer in areas where the composition of the wastewater



CASE

makes it difficult for the biological separation of phosphates. Phosphate ions form slightly dissociated compounds with ions of many metals, however, two of them are used for practical water treatment.

The company “Kemira” offers coagulants for water treatment, the name of which reflects their main component: “Ferix-3” and “ALS-7.2%”.

The Smith family has lived near Crystal Lake for generations. The lake has always been a central part of their lives, providing them with fishing, swimming, and recreational opportunities. However, in recent years, the water quality of Crystal Lake has declined due to eutrophication caused by excessive phosphates in the water. Algae blooms have become more frequent, making the lake unappealing for activities the Smith family once enjoyed. The Smiths have a small family business that manufactures laundry detergents, and their flagship product contains phosphates. The family business is an important source of income and has been passed down through generations. Their detergent is widely used in the community and neighboring towns.

DILEMMA

Should we pay attention to the composition of synthetic detergents used in everyday life?

Ethical Dilemma: The Smith family is facing an ethical dilemma. On one hand, they care deeply about the environment and the health of Crystal Lake. They are aware that their phosphate-containing detergent contributes to the eutrophication problem. On the other hand, a ban on phosphates in their detergent could jeopardize the future of their family business and the livelihoods of their employees



SUGGESTED ACTIVITY 1

Presenting a topic with questions and watching two videos
Group Discussion

- What detergents do you use for
 - * Personal hygiene
 - * Dishes
 - * Laundry?
- How do you choose them?
- Detergents for which of these three groups cause the greatest harm to the environment and why?

Watching a video that metaphorically shows what occurs with the Baltic Sea every day which can be perceived as absurd_
<https://www.youtube.com/watch?v=qkOkO5tYGF4&t=26s>

Watching a video on Eutrophication which is a significant threat to the Baltic Sea
<https://www.youtube.com/watch?v=YfEV3qkbPRO&t=58s>

SUGGESTED ACTIVITY 2

Laboratory Practice
MODELLING OF WASTEWATER TREATMENT

Experiment equipment, substances

1% Na₃PO₄ solution, washing powder solution; 0.5M FeCl₃ solution, 0.5M Al₂(SO₄)₃ solution, 0.5M CaCl₂ solution.

6 tubes, dropping pipette, funnels, conical flasks, glass funnel, and filter paper.

Experiment process

1. Into the first tube, pour the sodium orthophosphate solution into a layer of ≈ 1 cm
2. Add ≈ 10 drops of the first selected reagent for the precipitation of phosphate ions
3. Record the observations in the table
4. Into the second tube, pour the washing powder solution in a layer of ≈ 1 cm
5. Add ≈ 10 drops of the first selected reagent for the precipitation of phosphate ions

SUGGESTED ACTIVITY 2

6. Record the observations in the table
7. Repeat the experiment with the second and the third proposed reagents.

Registration of obtained data

Table 1. Effect of reagent on wastewater samples

Composition of wastewater addition	Observations after reagent
Na ₃ PO ₄ / PO ₄ ³⁻ ions	1.. 2.. 3..
Washing powder solution	1.. 2.. 3..

QUESTIONS

Is it possible to treat wastewater from phosphates to prevent eutrophic pollution?
Which of the reagents is the most effective for precipitating phosphate ions?
How to choose an eco-friendly detergent?

SCENARIOS BIOSEM

Bioethics and sustainable environment management
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GENETIC ENGINEERING

TOPIC: SCIENCE AND TECHNOLOGY 1



TOPIC

SCIENCE AND TECHNOLOGY

TITLE

GENETIC ENGINEERING

OBJECTIVES

- To showcase comprehension and knowledge of scientific principles and technological concepts.
- To grasp the effects of science and technology on society and the environment and evaluate their significance.
- To effectively understand and interpret scientific ideas and concepts.
- To cultivate an appreciation for the systematic approach of the scientific method in exploring and understanding natural phenomena within the context of agriculture.

ASSOCIATING WITH COMPETENCY FRAMEWORK

- To understand the ethics of scientific progress, especially in genetic modification in farming.
- To effectively communicate bioethical aspects of altering plant DNA to diverse audiences.
- To identify ethical dilemmas in science and technology, especially in genetically modified organisms in farming.
- To apply bioethical principles in agriculture, ensuring responsible decisions.
- To engage in ethical debates and propose solutions in the context of scientific advancements like genetic modification in farming, considering potential consequences.

SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

The concept of genetics is the study of how traits and characteristics are passed from one generation to the next. Genetics is the scientific study of genes and heredity, or how certain qualities or traits are passed from parents to offspring as a result of changes in DNA sequence. A gene is a part of DNA that contains instructions for creating one or more molecules that help the body work. Also, genetic engineering produces a variety of drugs and hormones for medical use.



CASE

In a cozy little village in Germany, the Weber family loved farming. They grew the most delicious corn in town, making everyone happy. One special day, a smart scientist named Dr. Emma Hoffmann visited them. She knew a lot about changing plant DNA to make crops even better.

While walking through their cornfield, Dr. Hoffmann told the Weber family about changing plant DNA. This could help the plants fight bugs, sickness, and bad weather. It might make the crops bigger and tastier, helping farmers all around. But changing DNA had some problems too. Sometimes, it could cause unexpected things to happen to the plants or even humans, because it is not yet known what the far-reaching consequences of genetically modified organisms will be for humans. The Weber family had a big decision to make.

DILEMMA

Should the Weber family try changing plant DNA for their farm to make better crops, or should they keep farming the way they know?



SUGGESTED ACTIVITY 1

Pros and Cons Debate

To encourage students to think critically about the benefits and risks of changing plant DNA.

1. Divide the class into two groups: “Pros” and “Cons.”
2. Assign each group to prepare arguments for either changing plant DNA or sticking to traditional methods.
3. Conduct a debate where students from each group present their viewpoints.
4. After the debate, facilitate a discussion about the different perspectives and the ethical considerations involved.

SUGGESTED ACTIVITY 2

Plant DNA Exploration

To introduce the concept of changing plant DNA and its potential effects on crops.

1. Provide students with various pictures or models of plants.
2. Explain that scientists like Dr. Hoffmann can change a plant's DNA to make it better in different ways.
3. Have students use art supplies to modify the pictures or models of plants by adding new features or traits.
4. Discuss as a group how the changes might affect the plant's growth and qualities.

QUESTIONS

- Why do you think changing plant DNA might be helpful for farming? Can you give an example?
- What are some potential challenges or risks that could arise from altering plant DNA?
- How might changing plant DNA impact the environment and other living creatures?
- If you were a farmer like the Weber family, would you choose to change plant DNA or stick with traditional farming? Why?
- Why is it important to consider both the benefits and the ethical concerns when making decisions about genetic engineering in agriculture?



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BIOTECHNOLOGY

TOPIC: SCIENCE AND TECHNOLOGY 2



TOPIC

SCIENCE AND TECHNOLOGY

TITLE

BIOTECHNOLOGY

OBJECTIVES

- To foster knowledge and comprehension of scientific principles and technological concepts.
- To recognize and analyze the effects of science and technology on both society and the environment.
- To effectively grasp and interpret complex scientific concepts.
- To cultivate an appreciation for the systematic approach of the scientific method in investigating and understanding natural phenomena.

ASSOCIATING WITH COMPETENCY FRAMEWORK

1. To recognize ethical dilemmas in science and technology, especially in medical research and treatment.
2. To engage in debates and propose solutions for ethical dilemmas arising from scientific and technological advancements.
3. To develop a critical understanding of ethics in scientific progress, especially in healthcare and biotechnology.
4. To effectively communicate complex bioethical aspects to diverse audiences in the context of science and technology.
5. To apply ethical thinking in practical activities and discussions related to science and technology for responsible decision-making in research and development.

SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

Biotechnology is a multidisciplinary field that uses living organisms, cells, and biological processes to develop products, technologies, and processes that improve various aspects of human life and the environment. It involves the application of principles from biology, genetics, molecular biology, biochemistry, and other related disciplines to manipulate and utilize biological systems for practical



SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

purposes. Biotechnology seeks to address global challenges, such as food security, disease treatment, sustainable resource utilization, and environmental sustainability while promoting economic growth and scientific advancement.

CASE

In a lively school, there was a student named Luka. Luka was a curious and happy kid who had a rare illness. One day, he got a special letter. It asked him to be part of a science project. The scientists had a new way to treat Luka's illness. They used a special science stuff called biotechnology. It looked like this treatment could make Luka better forever. But, the treatment was still being tested. The scientists told Luka that about 90 out of 100 people who tried it got better. That's great news! But, 10 out of 100 people got worse. That's not so good. The scientists said they made the treatment even better, but there might still be some bad things that could happen. Luka didn't know what to do, so he asked his friends in class. His classmates, filled with compassion and empathy, pondered the question, offering their own perspectives on what Luka should do, ultimately creating a thoughtful and supportive discussion.

DILEMMA

Should Luka take the risk and go into research that promises to cure him of a rare genetic disease, or should he wait until the therapy is finally approved as safe?

SUGGESTED ACTIVITY 1

Ethical Dilemma Brainstorm

1. Divide the class into small groups.
2. Assign each group the task of brainstorming ethical solutions for Luka's situation.
3. Provide them with a brief overview of Luka's dilemma and the potential risks and benefits of the gene-editing technique.
4. Encourage each group to generate creative solutions that balance the urgency of eradicating the virus with ethical considerations.
5. Each group presents their top three solutions, explaining the rationale behind their choices.
6. Facilitate a class discussion where students compare the different solutions and analyze their ethical implications, feasibility, and potential outcomes.
7. Conclude with a reflection session on the challenges of ethical decision-making in the field of biotechnology.

SUGGESTED ACTIVITY 2

Luka's Ethical Interview

1. Assign pairs of students to play the roles of interviewer and Luka.
2. In the interview, the interviewer asks Luka questions about her thought process, emotions, and ethical considerations in the story.
3. Luka responds in character, explaining her motivations, concerns, and decisions.
4. After the interviews, have students switch roles for a new round of interviews.
5. Engage in a class discussion where students reflect on the insights gained from the interviews.
6. Facilitate a deeper analysis of Luka's ethical dilemma based on the responses provided during the interviews.

QUESTIONS

- How does biotechnology help more than just rare genetic diseases in healthcare and medicine?
- What are some important things we should think about when using biotechnology for medical research and treatment in our society?
- How does biotechnology affect new inventions and technology in fields other than healthcare, and what could happen in our society because of it?



SCENARIOS BIOSEM

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FACTORY FARMING

TOPIC: ANIMAL LIVING 1



TOPIC

ANIMAL LIVING

TITLE

FACTORY FARMING

OBJECTIVES

- To understand the difference between the inalienable dignity of human beings and the intrinsic value of animals.
- To explore the level of responsibility human beings have for animals and nature as whole.
- To understand what ethical treatment of animals is and how it is related to different human survival needs.

ASSOCIATING WITH COMPETENCY FRAMEWORK

- To explore an ethical dilemma related to the relationship between humans and animals in case of farming.
- To understand the interdependency between humans and animals
- To explore the level of responsibility human beings have for animals and nature as whole.
- To accept responsibility for the fact that their personal decisions impact the welfare of animals and the environment.
- To develop a critical overview on personal relationship with animals and animal consumption.

SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

Every day there is increasing evidence of the urgent need to do things differently and move towards a healthy, sustainable humane food and farming system. A substantial proportion of the world's sustainability and health challenges arise from industrial livestock production and its use of huge quantities of cereals and soy as animal feed. Deforestation, land use change, soil degradation,

SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

biodiversity loss, water overuse and pollution, and greenhouse gas (GHG) emissions are some of the consequences of the current farming and food system that is known as factory farming. Consumers -humans- need to become more aware of where their food comes from and the impact of their food choices on the environment.

(Source: Competency Framework BIOSEM)

CASE

Martin comes from a family with four generations of farmers. He loves taking care of all of these animals and working on the farm. But he finds that using traditional methods is hard and takes a lot of time, so he wants to switch to more modern ones. He did some research and found that it would be a good idea to start factory farming by using modern technology to make his work easier and produce more in less time. This would give him more time to spend with his family. On the other hand, he knows that this plan could lead to some bad things, like animals being kept in small, dirty places and the process damaging the water, land, and air, which are all important for healthy living. Martin wants to run his farm so well that it saves him time, treats the animals well, helps the environment, and makes money.

DILEMMA

Should Martin use the traditional way of farming or switch to modern one?

SUGGESTED ACTIVITY 1

PROS:

- Cheap meat production rather uncomplicated for farmers (easy & practical)
- High profits

CONS:

- Animals are treated quite poorly
- Animals might bully each other

SUGGESTED ACTIVITY 1

- Space optimization
- Processes around factory farming are optimized
- Ensures large variety of meat products
- Fast meat production
- High level of automation
- May strengthen the local economy
- Meat supply for large number of people
- Almost NO geographic limitations
- Meat production all year long
- Low-quality meat
- Animals are raised to unnatural growth
- Fast family separation (for animals)
- Some animals are killed solely due to their gender
- Unnatural form of animal raising
- Genetic engineering might be used for factory farming
- Fraction of fat in the meat is quite high
- Meat may be contaminated with antibiotics
- High level of water consumption
- Soil pollution
- Groundwater pollution
- Global warming
- Job losses through automation

SUGGESTED ACTIVITY 2

DEBATE: Teacher makes three groups in class.

- Group 1 consists of students who answer the above question as traditional farming;
- Group 2 with students supporting factory farming and
- Group 3 with students who believe that it is possible to find a way between.

Teacher writes the following question on the board and asks students to keep this in their minds while discussing within their groups: **"Who and what will be affected in the short and long term?"** They work to debate on the issue. During the debate, it is important that each group has equal time to present their arguments.

QUESTIONS

- What kind of benefits will this new technology bring to a community?
- Does factory farming lead to sustainable practices? Why / Why not?
- What problems do you see with factory farming affecting the ecosystem?
- What kind of pollution will be caused?
- What are some of the main issues with factory farming, and why are they controversial?
- What are some of the factors that drive the growth of factory farming, and how have these changed over time?
- What are some of the ethical considerations involved in raising animals for food, and how do different perspectives on animal welfare influence the debate?
- What are some of the environmental impacts of factory farming, and how do these relate to broader sustainability concerns?
- What are some of the health implications of factory farming, and how do these affect both animals and humans?
- What are some of the alternatives to factory farming, and how feasible are these from a social, economic, and ecological perspective?
- What are some of the policy options for addressing the challenges of factory farming, and what are the trade-offs involved in each approach?



SCENARIOS

BIOSEM

Bioethics and sustainable environment management
(2022-1-SI01-KA220-SCH-000086423)



ANIMAL

TESTING

TOPIC: ANIMAL LIVING 2



TOPIC

ANIMAL LIVING

TITLE

ANIMAL TESTING

OBJECTIVES

- To understand the difference between the inalienable dignity of human beings and the intrinsic value of animals.
- To develop the ability to constructively engage in debate about animal welfare and to be able to present diverse arguments to reinforce her/his opinion.
- To understand what ethical treatment of animals is and how it is related to different human needs.

ASSOCIATING WITH COMPETENCY FRAMEWORK

- To explore an ethical dilemma related to using animals for scientific progress leading to societal well-being.
- To apply the ethical principles in the concrete case of animal experimentation.
- To explore the level of responsibility human beings have for animals.
- To accept the responsibility of humans for animal welfare.
- To accept responsibility for the fact that their personal decisions impact the welfare of animals and the environment.
- To develop a critical overview on personal relationships with animals.

SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

The use of animals in scientific research has been a contentious issue for decades. While some argue that animal testing is necessary to advance medical research and develop new treatments, others claim that it is cruel and inhumane. This dilemma raises important ethical questions about the value of animal life and the importance of scientific progress. On one hand, it is described



SHORT OBJECTIVE INFORMA- TION ABOUT THE SUBJECT

as the only way “to learn more about health problems that affect both humans and animals, and to assure the safety of new medical treatments” (APS - American Physiological Society) On the other hand; it is a procedure “... that causes an alteration on the animal’s well-being with the likelihood of causing it pain, suffering, anguish or discomfort.” (Aguilar, T. A. F., & Bañuelos, E. G. 2018)

CASE

Dr. James Mitchell, a researcher at a leading pharmaceutical company, was tasked with developing a new drug to treat a rare genetic disorder. The drug had the potential to save thousands of lives, but it needed to be tested extensively before it could be approved for human use. Animal testing was deemed necessary to assess the drug’s safety and efficacy. Dr. Mitchell’s team used mice for the drug trials. The mice were genetically modified to develop the same genetic disorder as humans. The first few tests were successful, and the drug showed promising results. However, as the testing progressed, the team encountered unexpected side effects. The mice began to suffer from a range of symptoms, including weight loss, loss of fur, and seizures.

The team was faced with a difficult decision. Should they continue the testing, hoping to find a solution to the side effects, or abandon the project altogether? Dr. Mitchell knew that abandoning the project would mean giving up on finding a cure for the genetic disorder, which would be devastating for the patients and their families. On the other hand, continuing the testing would mean subjecting the mice to more suffering.

DILEMMA

If you were a member of this team, would you go on testing or stop it? Why / Why not?



SUGGESTED ACTIVITY 1 (DEBATE)

Group 1:

You think that you should continue. (focus on pros)

Group 2:

You are against this violence. (focus on cons)

SUGGESTED ACTIVITY 2 (CREATE A MOTTO / HASHTAG)

Create a motto / hashtag for animal testing (either for or against) and start a campaign on social media to raise awareness.

QUESTIONS

- Is it ethical to use animals for scientific testing?
- How much suffering is acceptable for animals in scientific research?
- Should animal testing be conducted if there is a chance of significant harm to the animals?
- How do we balance the potential benefits of scientific research against the harm done to animals?
- Are there alternative methods of testing that could be used instead of animals?
- Is it ethical to genetically modify animals for the purpose of scientific research?
- How do we determine the value of animal life in relation to scientific progress and human well-being?
- Should researchers be held responsible for the suffering caused to animals during scientific testing?
- How do we ensure that animal testing is conducted in an ethical and humane manner?
- Should society prioritize the welfare of animals over the potential benefits of scientific research?

SCENARIOS BIOSEM

Bioethics and sustainable environment management
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A RICH LIFE WITH LESS STUFF

TOPIC: MINIMALIST LIVING 1



TOPIC

MINIMALIST LIVING

TITLE

A RICH LIFE WITH LESS STUFF

OBJECTIVES

- To be aware of the meaning of minimalistic living
- To be aware of the bioethical justification of minimalist living
- To be aware of the importance of the decisions of each individual for the preservation of the biological balance of the planet

ASSOCIATING WITH COMPETENCY FRAMEWORK

- To demonstrate a critical opinion towards minimalist living
- To be able to take responsibility related to minimalist living
- To be able to apply knowledge about minimalist living
- To be able to make an assessment for themselves which parts of minimalistic living they will apply
- To be able to respect the autonomy of individuals in choosing their own lifestyle

SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

The minimalist lifestyle means living with the minimum amount of resources that are necessary for a quality and healthy life. People should determine what gives them the most value and discard the rest as superfluous. The idea is to reduce the things that are owned, to open up more space both physically and mentally for the things that are really important to people. A minimalist lifestyle is a choice not to spend more resources than necessary and to focus only on the things that are meaningful and give life meaning. For many people to deprive themselves of the abundance of objects, products, services in the modern consumerist society may seem unimaginable. However, the number of people living according

SHORT OBJECTIVE INFORMA- TION ABOUT THE SUBJECT

to the principles of minimalism is growing. People choose to live minimalistic lives in order not to overload themselves with unnecessary clutter, not to be distracted from what is really important to them, and in order to reduce living expenses. As a consequence of the minimalist life, people have more time to devote to their loved ones, family, friends, and community, but because they use less resources, they also pollute the environment less.

CASE

Michele is turning 18 in a few months and he has been thinking how to celebrate his birthday for a while. He is a very shy boy and it is very difficult for him to mix and join with all his classmates, especially the coolest and smartest ones of the class. Organizing a unique and successful party might be the occasion for him to draw people's attention to him and be accepted and appreciated by the other teenagers. So first he talks to a 18 birthday planner to arrange a venue rental, catering with lots of food and drinks, fireworks and decorations such as garlands and balloons, a professional photographer and a DJ. Secondly he asks his parents for the latest version of iphone as a gift because many of his schoolmates have it. However, his parents say that the budget available for his party is not enough. Therefore his father is ready to work extra hours, but it is necessary to cancel the English course in London booked for him some months ago. Finally, he decides to talk with his best friend and comes up with a second option: He can have the party at home, offer pizza and soft drinks, ask friends to take pictures and select good music. As regards the gift he can buy a cheaper version of iphone and join the English course in London. In addition he can spend more time with his father as he is not obliged to work harder. Michele is very confused and doesn't know what to do.

DILEMMA

Should Michele organize the expensive party or the cheaper one? Do material things make him happier? Does more stuff make him richer?

SUGGESTED ACTIVITY 1 (PROS AND CONS)

Expensive Party:

- He can feel self-confident and adult.
- He can impress his classmates.
- He can integrate into his group class and make new friends
- He deserves a unique party and expensive gifts because He is turning 18.
- He can be sure of having good pictures and good music with a professional photographer and a DJ

Cheap Party:

- His father doesn't work extra hours and can spend more time with him.
- He spends money for more important things such as the English course in London.
- No waste of food and drinks.
- No waste of plastic and paper.
- To make new friend you don't need to impress them

SUGGESTED ACTIVITY 2 (CREATE A MOTTO / HASHTAG)

You can have the students play out the situation in terms of assigning them roles in the story. One student can play the role of Michele, other students play his mother, his father, the party planner, Michele's best friend and you can add roles like DJ, photographer, some classmates. Students can play out the scenario and other students observe. After the role-play the observing students can offer their remarks, what they noticed and then the students who played the roles can explain how they felt defending their positions.

QUESTIONS

- Do material things make us happier?
- Is appearance more important than personality?
- Do you think that more stuff makes you richer?
- What difference does it make to choose an expensive party or a cheaper one?
- Can you see the impact of influencers on your lifestyle?



SCENARIOS

BIOSEM

Bioethics and sustainable environment management
(2022-1-SI01-KA220-SCH-000086423)



SHOPPING...HOW POWERFUL IS IT?



TOPIC

MINIMALIST LIVING

TITLE

SHOPPING...HOW POWERFUL IS IT?

OBJECTIVES

- To highlight how individuals make ethical choices when transitioning to a minimalist lifestyle
- To explore the environmental ethics of minimalism
- To analyze the social and ethical responsibilities of individuals in a consumer-driven society.
- To consider how minimalism can challenge and reshape societal norms related to overconsumption.

ASSOCIATING WITH COMPETENCY FRAMEWORK

- To demonstrate a critical opinion towards minimalist living
- To be able to take responsibility related to minimalist living
- To be able to apply knowledge about minimalist living
- To be able to make an assessment for themselves which parts of minimalistic living they will apply
- To be able to respect the autonomy of individuals in choosing their own lifestyle

SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

The minimalist lifestyle means living with the minimum amount of resources that are necessary for a quality and healthy life. People should determine what gives them the most value and discard the rest as superfluous. The idea is to reduce the things that are owned, to open up more space both physically and mentally for the things that are really important to people. A minimalist lifestyle is a choice not to spend more resources than necessary and to focus only on the things that are meaningful and give life meaning. For many people to deprive themselves of the abundance of objects, products, services in the modern consumerist society may seem unimaginable. However, the number of people living according



SHORT OBJECTIVE INFORMATION ABOUT THE SUBJECT

to the principles of minimalism is growing. People choose to live minimalistic lives in order not to overload themselves with unnecessary clutter, not to be distracted from what is really important to them, and in order to reduce living expenses. As a consequence of the minimalist life, people have more time to devote to their loved ones, family, friends, and community, but because they use less resources, they also pollute the environment less.

CASE

Lisa is a 16 years old girl, whose favorite hobby is shopping. Sure, she does some other things, like going to the movies, taking walks, working out, and reading, but none of those pastimes occupies nearly as much of her time and attention as shopping. Shopping is her go-to activity. If she has some extra time, she goes shopping. If she wants to avoid doing something – or thinking about something, she goes shopping. If she needs an emotional boost, she goes shopping. The list goes on and on... shopping is actually fulfilling for her. Sure, it brings some excitement to her life. There is a certain thrill in the new and in finding good “deals.” She also enjoys being out and about and interacting with salespeople and other shoppers. She wants to believe that the sales people who recognize her and ask her questions about her life are actually friends of a sort. She does not have a best friend and that’s fine for her. Today she got a bad mark in the math test. She is really upset and she fears her parents. What should she do?

DILEMMA

How can she feel better? Should she go shopping or should she see a friend? Should she go and talk with her math teacher or should she go shopping?



SUGGESTED ACTIVITY 1 (WRITING TASK)

Write about something you bought but never used (or have rarely used).
In your answer, you could include some of the following topics:

- What it is
- Why you bought it
- Why you haven't (or have rarely) used it.

SUGGESTED ACTIVITY 2 (GROUP DISCUSSION TASK)

These days, people buy too many things that they do not need or want. What are the reasons people buy things that they will never use? What are the problems associated with this?

QUESTIONS

- Do material things make us happier? Does shopping have the power to heal a disease?
- Is appearance more important than personality?
- Do you think that more stuff makes you richer?
- Can you see the impact of influencers on your lifestyle?

SCENARIOS BIOSEM

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