SUBJECT AREAS:

Technology

ACTIVITY DESCRIPTION:

Technology, solutions, impact.

OBJECTIVES:

Students will examine environmental justice issues from social sciences perspectives.

MATERIALS:

Articles or videos on technology and the environment, access to internet for research, writing materials, multimedia resources.

GRADE/LEVEL:

Upper Elementary School (12-14)

DURATION:

Preparation time: 1 hour

Activity time: 40- 60 min.

PLACE:

Classroom

AUTHOR:

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Technology and the Environment

INTRODUCTION:

Welcome, students. Today, we're diving into the intricate relationship between technology and the environment. We'll explore how advancements in technology can both harm and help our planet. Let's delve into the complexities and consider how we can harness technology for a more sustainable future.

BACKGROUND:

Technology has become an integral part of modern society, shaping nearly every aspect of our lives. While technological advancements have brought about convenience and innovation, they have also had profound effects on the environment. From industrial pollution to electronic waste, the environmental impacts of technology are far-reaching and complex. Understanding these impacts is crucial for addressing environmental challenges and fostering sustainable development.

Procedure:

1. Introduction (15 minutes):

Discuss technology's impact on the environment. Introduce technological solutions for environmental challenges.

2. Technology and Environmental Impacts (30 minutes):

Present case studies on technology's environmental impacts. Discuss ethical considerations.

3. Research and Presentation (30 minutes):

Groups research technology-related environmental issues. Prepare short presentations.

4. Group Discussion (20 minutes):

Discuss presentations and insights. Consider trade-offs and solutions.

5. Brainstorming Solutions (20 minutes):

Brainstorm technology-based solutions. Emphasize feasibility and sustainability.

6. Action Plan Development (20 minutes):

Develop action plans for proposed solutions.

7. Closing (15 minutes): Summarize key points. Encourage responsible technology use for sustainability.

FUN FACTS:

- *The average lifespan of a smartphone is only around two to three years, but it can take up to 1,000 years for it to decompose in a landfill due to its complex components.*

- *Data centers, which store and process digital information, consume massive amounts of energy. It's estimated that data centers worldwide use about 200 terawatt-hours of electricity each year, roughly equivalent to the energy consumption of entire countries like Brazil or Spain.*

- *E-waste, which includes discarded electronics like computers, smartphones, and TVs, is the fastest-growing waste stream globally. Only a small percentage of e-waste is recycled properly, leading to environmental pollution and health risks due to toxic substances such as lead, mercury, and cadmium.*

ASSESMENT:

1. **Quiz or Test:** Evaluate students' understanding of key concepts and their ability to apply knowledge through a written assessment. Include questions on environmental impacts of technology, sustainable solutions, and ethical considerations.

2. **Case Study Analysis:** Assess students' critical thinking skills by assigning case studies related to technology and the environment. Have students analyze the case studies and propose solutions, demonstrating their understanding of the complexities involved.

3. **Project-Based Assessment:** Assign a project where students research a specific environmental issue caused by technology and develop a solution or action plan. Evaluate their research, analysis, creativity, and presentation skills.

4. **Class Discussion Participation:** Observe students' engagement and contributions during class discussions on technology and the environment. Assess their ability to articulate insights, ask questions, and engage with peers in meaningful dialogue.

EVALUATION:

Evaluation of students' understanding of technology and the environment is vital to ensure effective learning outcomes. Through a combination of written assessments, project evaluations, class participation observations, peer feedback, reflection journals, performance tasks, and self-assessment, teachers can comprehensively evaluate students' comprehension, critical thinking skills, and ability to propose sustainable solutions.