

Didactic Scenario

1. Title

Technology Bets

2. Keywords

Technology, gamification, nature, experiment.

3. Basic Information

STEAM Subject: Engineering

Typical interaction time with the instructional scenario in teaching hours for in-school work: 60 minutes

General description of the scenario:

| Phases | Stage | Time |
|--------|-------------------|------------|
| 1 | Introduction | 5 minutes |
| 2 | Basic Concepts | 10 minutes |
| 3 | Interactive Games | 30 minutes |

Age group: 6 – 11 years old

Estimated difficulty level:

| Very Easy | Easy | Moderate | Challenging | Very Challenging |
|-----------|------|----------|-------------|------------------|
| | | X | | |

Teaching resources

Material:

Question booklets containing questions related to lighting and sound technologies.
Betting cards with point values of 2, 4, 6, and 8.
Projector or screen for visuals.
Stage or significant area for presentations.

School infrastructure: Projector or screen for visuals.

Additional material from external sources/online tools:

https://www.youtube.com/watch?v=aXyCECMxhOs&ab_channel=PaulHamilton

Develop by: Jaqueline Rinaldi - CEIPES

4. Educational Problem

This activity aims to create awareness among students about the use of lighting and sound technologies. It provides an opportunity to seek solutions and utilize STEM skills. Students develop skills in energy efficiency, technological innovation, problem-solving, and communication, allowing them to explore the impact of technological advancements in their daily lives. This activity encourages active participation in the field of STEM.

To explain the applications and importance of lighting and sound technologies to students.
To help students understand the basic principles of lighting and sound technologies.
To enable students to critically evaluate technological products.
To enhance students' problem-solving and creativity skills.
To encourage collaboration and communication skills through group work.

5. Learning Objective (-s)

1. Increased knowledge and understanding of lighting and sound technologies, including their applications, principles, and importance.
2. Improved ability to evaluate and analyze technological products and solutions related to lighting and sound.
3. Enhanced problem-solving and creative thinking skills through hands-on engagement with lighting and sound technologies.
4. Developed collaboration and communication skills through group work and presentation of findings.

5. Integration of science, technology, engineering, and mathematics in real-world applications.
6. Strengthened critical thinking skills by evaluating the advantages, disadvantages, and future potential of lighting and sound technologies.
7. Improved observational skills and data analysis through the collection and interpretation of information related to lighting and sound.

These learning outcomes aim to foster a deeper understanding of lighting and sound technologies and their broader implications in the fields of science, technology, engineering, and mathematics. Additionally, they promote essential skills such as critical thinking, problem-solving, collaboration, and communication, which are valuable for students' overall academic and professional development.

6. Phases of the Scenario

Phase 1

Title: Introduction

| Indoor | Outdoor | Mixed |
|--------|---------|-------|
| X | | |

Phase duration in minutes: 10 minutes

Detailed description of the scenario phase:

Provide examples of how lighting and sound technologies are used in daily life.
Capture students' interest by sharing interesting facts or impressive videos.

Activity sheets:

Phase 2

Title: Basic Concepts

| Indoor | Outdoor | Mixed |
|--------|---------|-------|
| X | | |

Phase duration in minutes: 10 minutes

Detailed description of the scenario phase:

Explain the fundamental concepts of lighting technologies (bulb, lumen, color temperature, energy efficiency, etc.).

Explain the fundamental concepts of sound technologies (speaker, frequency, sound pressure level, stereo, etc.).

Activity sheets:

Phase 3

Title: Interactive Games

| Indoor | Outdoor | Mixed |
|--------|---------|-------|
| X | | |

Phase duration in minutes: 30 minutes

Detailed description of the scenario phase:

Divide students into groups and assign each group a "technology expert" role.

Provide each group with a set of question booklets containing lighting and sound technology-related questions.

Distribute betting cards to the groups and instruct them to express their one-word answers using the betting cards.

Each group takes turns presenting their answers using the betting cards.

Encourage other group members to discuss and collectively determine the final answer.

Activity sheets:

7. Evaluation Methodology

10 minutes

Discuss the advantages, disadvantages, and future potentials of lighting and sound technologies.

Evaluate the activity by encouraging students to share their observations and experiences.

This scenario allows students to acquire knowledge about lighting and sound technologies and understand technological products. Additionally, it fosters the development of research, teamwork, presentation, and critical thinking skills.