

Didactic Scenario

1. Title

Drawing with light

2. Keywords

light, colors, long maintenance, LED

3. Basic Information

STEAM Subject: arts, technology, science

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

General description of the scenario:

<u>Phases</u>	<u>Stage</u>	<u>Time</u>
Introduction	Preparation	10 minutes
Main part	Implementation	35 minutes
Conclusions	Evaluation	5 minutes

Age group: 10 years old

Estimated difficulty level:

Very Easy	Easy	Moderate	Challenging	Very Challenging
		X		

Teaching resources

Material: phones or iPads or tablets, light source - phone light/flashlight or other source

School infrastructure: Media, Computer, Darkened class

Additional material from external sources/online tools: lightroom app (optional)

Differentiated Instruction for students of differing abilities and learning styles in the same class: N/A

Developed by: Živilė Gulbinaitė, Simona Umaraitė

4. Educational Problem

Switching from traditional lights to LED lights is essential due to several reasons. Traditional lights like incandescent bulbs are inefficient, converting less electrical energy into light. They also have a short lifespan, leading to frequent replacements and increased maintenance costs. Additionally, traditional lights generate significant heat, posing safety concerns. LED lights address these issues by being highly energy-efficient, having a longer lifespan, emitting minimal heat, and offering versatile color options without additional accessories. This transition not only improves energy efficiency but also reduces maintenance expenses and enhances overall safety. Teaching children how to capture high-quality photos in low-light conditions can be an engaging and enlightening activity. In this endeavor, kids not only delve into the fascinating world of photography but also acquire valuable skills in mastering challenging scenarios. The art of taking pictures in the dark involves understanding the nuances of light, shadows, and camera settings. As they experiment with different techniques, such as adjusting ISO, aperture, and shutter speed, children develop a deeper appreciation for the technical aspects of photography. This hands-on experience not only nurtures their creativity but also boosts problem-solving skills as they adapt to varying lighting conditions. Furthermore, guiding children through the process of capturing images in low light fosters patience and perseverance, essential qualities that extend beyond photography into various aspects of life. Ultimately, this activity empowers children to overcome challenges, think critically.

5. Learning Objective (-s)

1. Set a long photographic retention (technology);
2. Drawing variations with the light sources (arts);
3. Teamwork;

6. Phases of the Scenario		
Phase 1		
Title: Introduction - Light sources		
Indoor	Outdoor	Mixed
X		
Phase duration in minutes: 10 minutes		
<p>Detailed description of the scenario phase:</p> <p>The teacher shows the slides to the children about LED lights.</p> <p>LED light sources are ubiquitous in our surroundings, playing a pivotal role in illuminating various aspects of our daily lives. From the energy-efficient lighting fixtures in our homes and offices to the vibrant displays on electronic devices, LED technology has become an integral part of modern living. Streetlights, traffic signals, and even automotive headlights often utilize LED bulbs for their efficiency and longevity. Beyond practical applications, LED lights are also employed for decorative purposes in festive displays, creating colorful and eye-catching installations. As a versatile and eco-friendly lighting solution, LEDs contribute significantly to shaping the visual landscape of our environment.</p> <p>LED lights are superior to traditional lights for several reasons. They are highly energy-efficient, lasting longer, and reducing electricity consumption. LEDs are durable, instant in providing light, and emit very little heat. They also offer directional lighting, come in various colors without the need for filters, and many are dimmable. While they may have a higher initial cost, the long-term benefits make LEDs a preferred choice for energy efficiency and performance.</p> <p>THE TASK:</p> <ul style="list-style-type: none"> -In the groups, experiment with the light (draw with the light - moving the hand with the light source) and take photos; - Variations: use just one light source, use two light sources, use light source + object or person; <p>*Important to know (if you get blurry photos, it's better to add a camera or phone on some surface to keep it stable.</p> <p>*IMPORTANT (to get light drawing photos) - long photographic retention - ISO 50, speed around 1/10-1/0.8 using pro function on phone or iPad/tablet. If you can set ISO and speed than you can use Lightroom app and set it.</p>		
Activity sheets: N/A		

Phase 2		
Title: Main part		
Indoor	Outdoor	Mixed
X		
Phase duration in minutes: 35 minutes		
Detailed description of the scenario phase: Children experiment with the light sources. This part is going on in the darkened room to get bright drawing lights.		
Activity sheets: N/A		
Phase 3		
Title: Conclusions - reflection		
Indoor	Outdoor	Mixed
X		
Phase duration in minutes: 5 minutes		
Detailed description of the scenario phase: The teacher with the children talks about an activity. What problems arise and what did you do well? What did you learn?		
Activity sheets: N/A		

7. Evaluation Methodology
Students are motivated to take an active part in the various stages of learning. Assessment components include: active participation in activities, taking interesting photos with the light, and looking for different ways to create a photo - experimenting.

8. Additional Resources for the teacher

Attached slides.