# Teaching Scenario, Demo Lesson and Lesson Plan

Project: Robo STEAM – Inclusive Technologies

Platform: StreamIT – Robotic Tele-Visiting Platform

Work Package: WP4 – Methodology and Teachers' Toolkit

Document Type: Teaching Scenario / Demo Lesson / Lesson Plan

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Location: Sofia, Bulgaria

Institution: Profesionalna Gimnazia Po Elektrotehnika I Avtomatika (PGEA), Sofia

Museum / Exhibition: "National Ethnographic Museum"

## 1. Teaching Scenario Overview

This document provides an expanded framework for a specialized demo lesson facilitated by **PGEA** using the *StreamIT* platform. The primary goal is to provide students with a high-tech gateway to explore the cultural and historical exhibits of the ***National Ethnographic Museum*** from a remote location. By integrating advanced robotics directly into the classroom environment, the lesson evolves from a traditional lecture into a highly interactive, teacher-led virtual expedition, allowing for a dynamic exploration of Bulgarian heritage.

## 2. Educational Context

**Target Group:** This scenario is tailored for secondary students in upper grades, aligning with the technical background of students at PGEA.

**Learning Setting:** The lesson is classroom-based, utilizing a smart screen or projector for collective viewing, ensuring all students can see the robot's perspective simultaneously.

**Instructional Format:** The session is designed as a teacher-guided, non-guided exploration, where the instructor facilitates the journey rather than following a rigid pre-recorded path.

**Duration:** The total instructional time is set for 45 minutes.

## 3. Key Learning Objectives

Upon the successful completion of this lesson, PGEA students will achieve the following:

- Cultural Appreciation: Develop a significantly deeper appreciation for the cultural heritage and traditional artifacts curated within the National Ethnographic Museum.
- Critical Analysis: Learn to analyze the historical context of various ethnographic displays and determine their continued relevance within modern society.

- Technological Literacy: Gain valuable practical exposure to telepresence robotics, allowing students to understand the mechanics of remote-controlled systems and how they facilitate global access to education.

## 4. Curriculum Integration (STEAM)

This lesson plan bridges several core subjects to provide a holistic educational experience:

- History & Culture: Students explore institutional heritage and the broader ethnographic history of the region.
- Advanced Technology: A core focus is placed on understanding the mechanics of the StreamIT platform, including the nuances of digital communication and remote robotic control.
- Arts & Humanities: The lesson encourages students to interpret the visual and social narratives embedded in historical artifacts, connecting art with human experience.

## 5. Materials & Tools

- StreamIT Platform: Requires a stable connection with active robot connectivity located at the museum.
- Classroom Display: A high-quality Smart screen or projector system for the live feed.
- Digital Resources: Access to curated digital museum resources and a set of pre-arranged discussion prompts to stimulate student engagement.

## 6. Lesson Plan Structure

**I. Introduction and Technical Orientation (10 Minutes)**

The instructor opens the session by discussing the historical significance of the National Ethnographic Museum. This phase includes a detailed explanation of the technical workflow, showing students how a telepresence robot is utilized to bridge the physical gap between the school and the museum.

**II. Live Robotic Exploration (25 Minutes)**

The core of the lesson involves the teacher operating the robot through the museum galleries via the StreamIT platform.

- Interactive Observation: The robot is programmed to pause at key cultural artifacts, providing a live high-definition feed directly to the classroom screen.
- Active Engagement: Students are not passive observers; they are encouraged to ask questions in real-time and can request closer views of specific items to examine textures, craftsmanship, and details.

**III. Reflective Dialogue and Future Outlook (10 Minutes)**

The class concludes with a deep-dive discussion on the intersection of automation and robotics—which are central subjects of study at PGEA. Students reflect on how these technologies can be specifically applied to preserve and share human history, ensuring that cultural treasures remain accessible to future generations.

## 7. Assessment and Feedback

By utilizing the StreamIT platform, PGEA ensures that the museum's treasures are accessible to every student, regardless of physical mobility or external constraints, fostering an environment of equal educational opportunity.

## 8. Demo Lesson Evidence

The following sections describe the key visual components used to document the success of the PGEA demo lesson: (YouTube Link)

Figure 1: A walkthrough of the StreamIT booking interface, demonstrating how the school schedules and configures the robotic tour before the lesson begins.

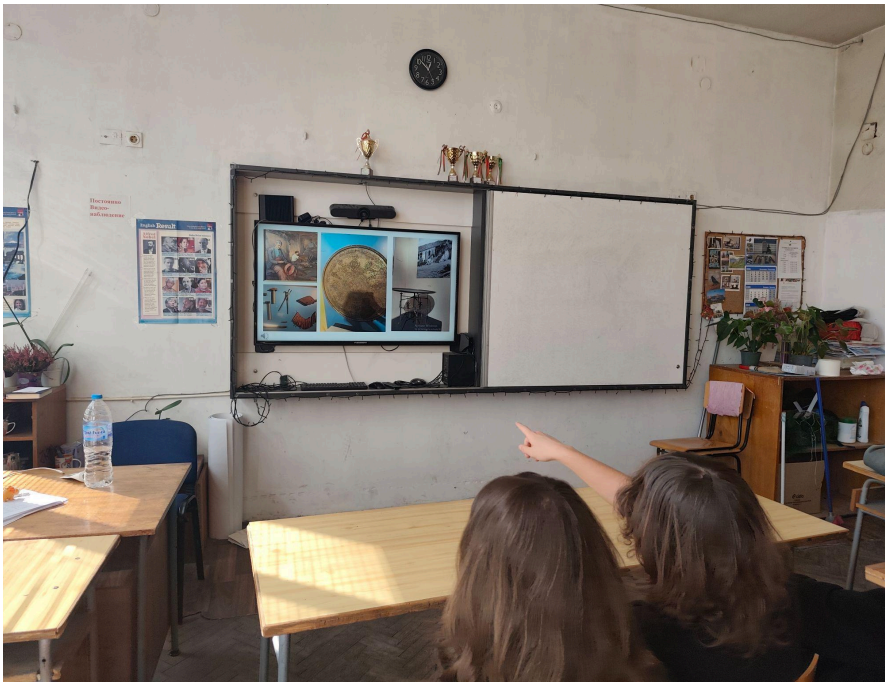

Figure 2: Student engagement and interaction, showing the classroom lively with questions as they examine specific ethnographic artifacts via the live robot feed.

Figure 3: Navigational overview, illustrating how the robot utilizes the museum's digital map to move autonomously between different exhibits.

## 9. Scalability & Transferability

The methodology developed for this lesson is highly scalable. It serves as a blueprint that can be implemented by other technical schools or cultural institutions within the Robo STEAM network to significantly enhance digital and inclusive learning initiatives.