

## Didactic Scenario

### 1. Title

Robots in the World

### 2. Keywords

LEGO, construction, functions, drawing

### 3. Basic Information

**STEAM Subject:** Engineering, technology, arts

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

**General description of the scenario:**

<u>Phases</u>	<u>Stage</u>	<u>Time</u>
Introduction	Preparation	7 minutes
Main part	Implementation	33 minutes
Conclusions	Evaluation	5 minutes

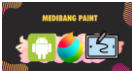

**Age group:** 10 years old

**Estimated difficulty level:**

Very Easy	Easy	Moderate	Challenging	Very Challenging
		X		

**Teaching resources**

**Material:** LEGO bricks, slides, worksheets, tablets with downloaded procreate app  or MediBang

 	
<b>School infrastructure:</b> Media, Computer	
<b>Additional material from external sources/online tools:</b> N/A	
<b>Differentiated Instruction for students of differing abilities and learning styles in the same class:</b> N/A	
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#### 4. Educational Problem

In the contemporary landscape, robots have become integral to various aspects of our lives, playing a crucial role in shaping the world we live in. Far from being mere mechanical entities, robots are problem-solving marvels that contribute significantly to addressing complex challenges across diverse fields. For students, it is good to know what types of robots are created already in the world and what functions robots do.

#### 5. Learning Objective (-s)

1. Robots' types and functions (Engineering);
2. Building the robot (Engineering);
3. Drawing robot design (Arts);
4. Documenting their own learning process;

#### 6. Phases of the Scenario

##### Phase 1

**Title:** Introduction

Indoor	Outdoor	Mixed
X		

**Phase duration in minutes:** 7 minutes

**Detailed description of the scenario phase:**

The teacher shows slides to the children about robots.

The teacher discusses with children by asking questions - what is the robot? What functions are robots doing? Why robots are important - how can robots help people? Who is doing a better job - a robot or a human?

Teacher talks about types of robots.

After that the teacher shows examples of the robots.

Teacher tells children today's tasks ( work in the groups in four):

- to draw a robot's design on tablets/iPads
- Fill the worksheet tasks;
- Build a robot model from LEGO blocks;
- Represent to the class your work - robot design, worksheet and LEGO model;

**Activity sheets:**

The teacher shares worksheets with the groups and explains the worksheet's tasks.

Worksheet.

- Create a team's title.
- Create a robot's name.
- Write your robot's type (choose one) - for example:  
industrial/medical/service/educational/entertainment/humanoid/telepresence/agricultural/autonomous vehicles/search and rescue
- Write robot functions - (use verb tense) to weld, to assist, to communicate, to plant, to carry and etc.

**Phase 2**

**Title:** Main part

Indoor	Outdoor	Mixed
X		

**Phase duration in minutes:** 33 minutes

**Detailed description of the scenario phase:**

Children in the groups share the work and do the task.

Teacher assist if anyone needs help

Teacher invites every team - one by one to come and show what they built and present it by

telling what they wrote on the worksheet.

**Activity sheets:** N/A

### Phase 3

**Title:** Conclusions

Indoor	Outdoor	Mixed
X		

**Phase duration in minutes:** 5 minutes

#### Detailed description of the scenario phase:

Teacher asks questions for reflection.

- How did they get along in the team?
- Did they have any problems?
- Was everyone active in the team?
- What would you do differently next time?

The teacher asks children to think - how overall they did the work as a team - very well, normal, or not good and this reflection their mark in the worksheet by circle one of the robots.

**Activity sheets:** N/A

## 7. Evaluation Methodology

The Teacher evaluates children's participation in the teams, their active role and also their work (worksheets, robot's design, robot's model and presentation).

## 8. Additional Resources for the teacher

Attached an example of the worksheet.

\*Types of robots and their functions (verb words):

Industrial Robots: Designed for manufacturing tasks, these robots are used in factories for tasks like assembly, welding, and material handling.

Medical Robots: Assist in surgical procedures, rehabilitation, and diagnostics, enhancing precision and minimizing invasiveness.

**Service Robots:** Serve various non-manufacturing purposes, including cleaning robots, delivery robots, and customer service robots.

**Educational Robots:** Designed for learning purposes, these robots teach programming, engineering, and problem-solving skills to students.

**Entertainment Robots:** Include robots used for recreational purposes, such as robot toys, robotic pets, and interactive entertainment systems.

**Humanoid Robots:** Resemble humans in form and function, often used for research, social interaction, and assistance tasks.

**Telepresence Robots:** Enable remote communication by allowing users to control a robot's movements and interact with the environment.

**Agricultural Robots:** Assist in farming tasks, like planting, harvesting, and monitoring crop conditions, to improve efficiency.

**Autonomous Vehicles:** Include self-driving cars, drones, and other vehicles capable of navigating without human intervention.

**Search and Rescue Robots:** Designed for locating and aiding individuals in disaster-stricken or hazardous environments.

Advice.

Set a time how long children have time for the practical part to finish it.