| SCENARIO | |
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| **Title** | **Robotics and artificial intelligence** |
| **Summery** | Students will be introduced to the definition of robotics, artificial intelligence, the possibilities of using robots in industry and in everyday life. |
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| Didactic objectives |
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**General objectives:**
- learning the basic definitions related to robotics and artificial intelligence
- shaping attitudes and skills of creative thinking and decision making
- shaping the ability to work in a group

**Detailed objectives:**
- learning about the possibility of using robots in industry and everyday life
- the benefits of using robots
- advantages and disadvantages of robots
- ability to use LegoMindstroms set elements and software
- shaping imagination and creative thinking

Physics☐     Mathematics☐     Information Technology☒     Robotics☒     Programming☐

Education Level:     10-12 years☒     12-14 years☐

| Problem Statement |
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What is robotics and what can you achieve with it?
Can robots completely replace humans?
Where can you find the use of robots?
How to build a robot?
How does the robot make decisions?

| BOM (Bill Of Materials needed) |
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- computer station for a group of students (3-4 people)
- multimedia board with a projector for presentation
- Internet access
- sets of LegoMindtroms blocks for a group of students (3-4 people)
- robot software (EV3)

| Activity description |
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The scenario is planned for 3 lessons.

**Course of classes:**
1. Organization in the classroom. Division of students into groups.

2. Question for students: what is a robot? Where can you meet robots? Are they only used in industry? Can robots also be used in everyday life?
3. Introduction of the concept of robotics and artificial intelligence.
4. Searching for information about artificial intelligence in the Internet. Finding examples of the use of robots and artificial intelligence. List the benefits of using robots and artificial intelligence.
5. Topic for discussion: Can robots completely replace human labor? Indicating the advantages and disadvantages of using robots.
6. The role of the computer in the robot's work. Decision-making.
7. Elements of LegoMindstroms sets. Overview of the individual components of the set (cube, sensors, connecting elements, cables).
8. Installing the software on a computer / extension in Scratch.
9. Configuration of the set to work with a computer.
10. Programming a robot with a cube. Getting to know the possibilities of the LegoMindstroms set.
11. Summary of the classes. Self-evaluation of students.

| **Resources** |
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Introductory Presentation to Robotics and Robot Programming.

| Students' Evaluation |
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| **Evaluation tools:**<br>- observation of students' work and their activities,<br>- observation work in groups,<br>- students' self-assessment - what I have learned, what I can, what I would like to know, what algorithm I can create. |
| **Bibliography** |
| W. Rychlicki, LegoMindstroms EV3 Programowanie robotów, wyd. Helion |
| **Scalability** |
| Students who are more advanced in robotics and LegoMinstroms can build their own robots and create their algorithms. |
| **More information** |
| Scenario was created as part of the project "InnoExperiment - Innovative Approach to Teaching through Experiment" carried out under Key Action 2. Erasmus +. The scenario will be made available on the project platform. |