

SCENARIO		
Title	<b>Creating algorithms in LEGO MINDSTORMS. Geometric figures.</b>	
Summary	Students are to write a program for the robot, which after drawing a number specifying the number of sides will draw this figure.	
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Didactic objectives
<p>General objectives:</p> <p>the student knows the concepts: algorithm, instruction,  turning activities into instructions,  reminder and consolidation of the LEGO MINDSTORMS EV3 Home Edition program,  developing a solution project and its implementation using the program.</p> <p>Specific objectives:</p> <p>knows how to run the program and what the LEGO MINDSTORMS EV3 Home Edition window looks like,  knows the basic blocks for building algorithms in the program,  knows how to create simple algorithms in the program,  can write instructions to individual blocks,  knows how to run an algorithm built in the program,  the student can move the robot along a given path,  student is able to build simple scripts,  the student understands and knows how to apply loop instructions to repetitive activities.</p>
Physics <input type="checkbox"/> Mathematics <input type="checkbox"/> Computer science <input type="checkbox"/> Robotics <input checked="" type="checkbox"/> Programming <input type="checkbox"/>
Educational level: 10-12 years old <input type="checkbox"/> 12-14 years old <input checked="" type="checkbox"/>

### Problem Statement

What are the types of flat geometric figures? What will the algorithm in the form of a list of steps look like showing the robot's movement on the sides of the figures? How to convert an algorithm into a program?

### BOM (Bill Of Materials needed)

- computer station
- LEGO MINDSTORMS EV3 robot

### Activity description

1. Organizational and organizational activities
2. Group work (groups of 4) - voluntary selection of the group composition
3. Choosing the team's captain who will present the group
4. Introduction to the topic - a reminder of the basic concepts describing flat figures.
5. Introduction to conditional instructions
6. Robot control using conditional expressions.
7. Task specification: writing a program for a robot which after drawing a number determining the number of sides will draw this figure
8. Detailed discussion of the selected problem and division into smaller sub-problems
9. Exchange of experiences and ideas
10. Practical exercises - writing the program and working with the LEGO MINDSTORMS EV3 robot.
11. Presentation of programs
12. Summary and end of the lesson.



### Resources



### Students' Evaluation

The student will be assessed for commitment and proper performance of experiments.

### Bibliography

I like this! - Computer science textbook for the seventh grade of primary school Authors: Grażyna Koba  
<https://www.robocamp.pl/pl/lego-mindstorms-ev3-wersja-domowa-edukacyjna/>

### Scale / Scope

Script modification and improvement.

**More information**

Solving tasks using the program.

**„InnoExperiment – Innovative Approach to Teaching through Experiment”**  
**Project Leader:** Zespół Szkolno – Przedszkolny w Goniądzu (ZSP)

