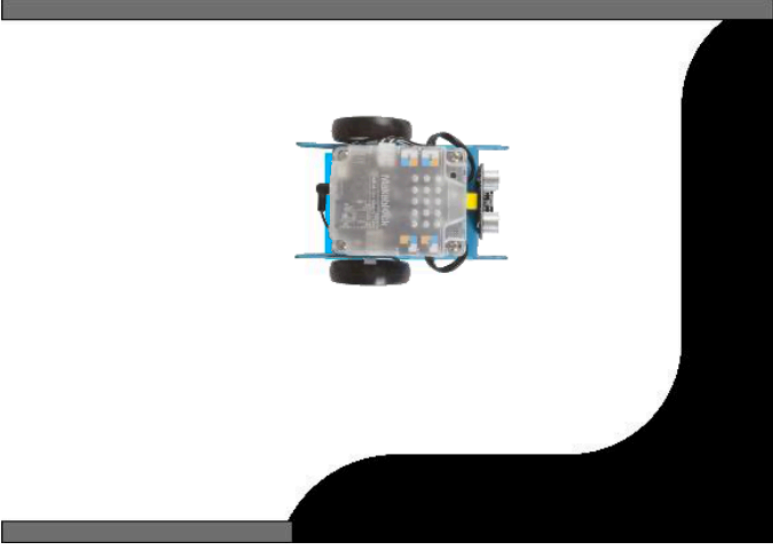


Rescue robot	
Solve Problem	Problem: How to program a rescue robot?
<p>1. Understand the problem</p> <ul style="list-style-type: none"> a) Describe the problem b) Abstract the problem c) Disassemble the problem <p>2. Solve the problem</p> <ul style="list-style-type: none"> a) How can (partial) problems be solved? b) Implementation in Scratch <p>3. Analyze the problem</p> <ul style="list-style-type: none"> a) Test the program b) Debug the program c) Transferred to other problems 	<p>The robot is to be programmed so that it drives autonomously and does not fall into the abyss or hit a rock face!</p> 

Problem 1: Beware of the mountain!

Program the mBot so that it drives independently and stops in front of a mountain wall.



1. Understand problem

- a) **Describe** the problem briefly and generally in your own words - without thinking about the specific mBlock programme.
- b+c) Abstract and decompose the problem by considering what information you need during the journey so that the robot stops in front of the mountain wall.

2. Solve problem

- a) **Describe** how to solve the problem (e.g. required sensor, required programme components...).

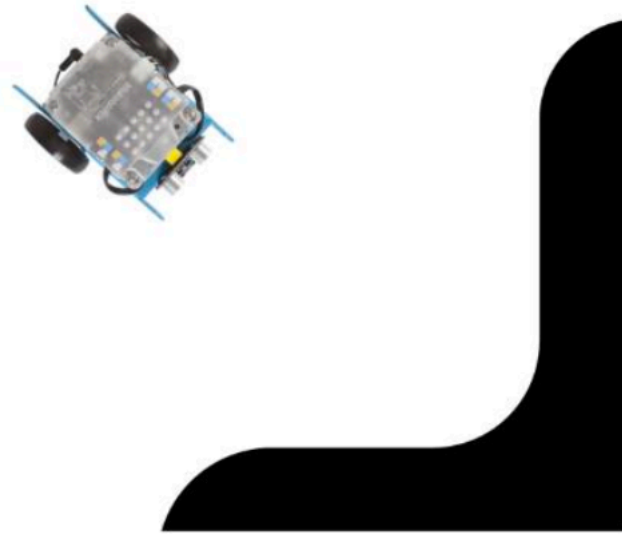
b) Implement your solution in mBlock.

3. Analyze problem

Test your programme using the mBot and improve both the mBlock programme and your solution on the worksheet if necessary.

Problem 2: Beware of the abyss!

Program the mBot so that it drives independently and turns around at the precipice (black area) and drives back.



1. Understand problem

- a) **Describe** the problem briefly, in general terms, in your own words - without thinking about the specific mBlock programme.
- b+c) Abstract and decompose the problem by considering what information you need during the journey so that the robot stops before the abyss.

2. Solve problem

- a) **Describe** how to solve the problem (e.g. required sensor, required programme components...).

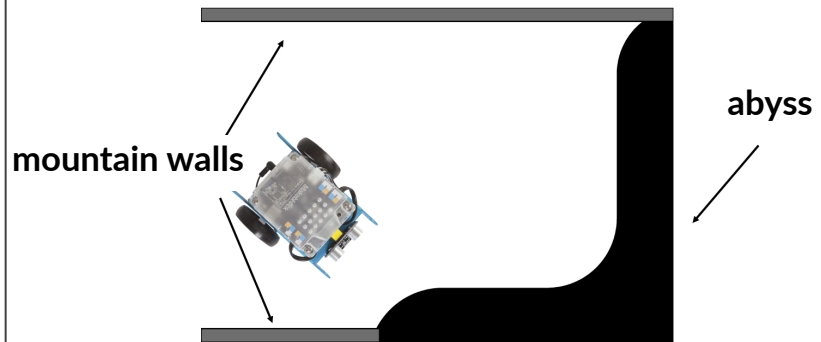
- b) **Implement your solution in mBlock.**

3. Analyze problem

Test your programme using the mBot and improve both the mBlock programme and your solution on the worksheet if necessary.

Problem 3: Universal rescue robot

Program the mBot so that it drives independently and neither hits the mountain walls nor falls down the precipice!



1. Understand problem:

- a) **Describe** the problem briefly, in general terms, in your own words - without thinking about the specific mBlock programme.
- b+c) Abstract and decompose the problem by considering what information you need during the journey so that the robot neither hits mountain walls nor falls into the abyss.

2. Solve problem

- a) **Describe** how to solve the problem (e.g. required sensors, required program modules...).

- b) **Implement your solution in mBlock.**

3. Analyze problem

Test your programme using the mBot and improve both the mBlock programme and your solution on the worksheet if necessary.

If you still have time, improve your programme by adding, for example, the LED display for special danger or a special display for mountains or the abyss or whatever else you think makes sense! There are no limits to your creativity!