

Create a function: collect all the hidden candies in n boxes using "if, then" and loops

Prerequisites: In the last lesson, we went over linear functions and started with loops, learned how to work with karel.

review of theory: what is a linear function? How to write a linear function? What are loops and how to write them?

Part 1 (goal: to learn the if else construct)

Setting up the task: there are 5 (for example) boxes/bags/pencil cases on the table (anything you can hide candy in). Some of them have candy inside.

Task: What is the algorithm that will collect all the available candies from 5 boxes(candies are not i every box)?

Implementation: Children are divided into teams and each team writes its function on the computer/on a piece of paper. Then we all test the written functions on real boxes. We correct the mistakes.

Possible mistakes we pay attention to:

-there are no "if, then" statements, without this construction, the algorithm breaks if it does not see a candy

-there are no cycles, there is a code repetition

conclusions, theory: read what the if, else construct in programming is, add it into our algorithm

Part 2 (goal: to understand the difference between different types of loops (while, do while, for, for each))

theory review: what are the types of loops?

Task: Modify the algorithm so that it works with exactly 10 boxes? (for)

task: Modify the algorithm so that it works with an unknown number of boxes while the next one is available? (while)

task: Modify the algorithm so that it works with an array of boxes, but we cannot check if there is a next one? (for each)

task: come up with a task that uses "do while" and give it to another team to solve

conclusion (theory): repeat all loops, repeat if else

task:(continue the task we did on previous lesson) now in every box we have different number of candies in some we have also 0, collect all(for+while+if else)

Part 3 (practical test)

Task: Write a function for karel to collect all the beepers in a string (if there are any)

Task: Write a function for the karel to collect all the beepers on the field (add turns and transition to another line)