

Playing and changing gaming (or programming) rules

Previous compulsory steps / Prior students' knowledge	Basic programming concepts
Learning objectives	Familiarizing themselves with the process of algorithmic logic in a fun way Assessing the value of rules in the problem-solving process
Subjects	Computer Science, Informatics, Logic
Recommended Age	10-14
Material needed	Game: Baba is You
Sequence duration	120-130 minutes
Individual or group activity	Both
Skills developed (after learning objectives)	Critical thinking, problem solving, creativity, communication, presentation skills, collaboration and teamwork
Price range of the game	<20 € (12.49€)
Extension / differentiation activities (at the end of the sequence)	This pedagogical sequence as a spectator could later be used as a single player or multiplayer activity so students could explore more and more about rules and creativity.
Similar games to use with the approach of the sequence	Unit 404, Markov Alg, Inbox Unbox

Step by step: how to implement the sequence

In this pedagogical sequence, the game “Baba is You” will be used. The game aims to educate students about the value of the rules by which one or more goals are achieved. In our point of view, it is a fun and educational approach to the concept of "thinking outside the box" applied into algorithmic logic and programming.

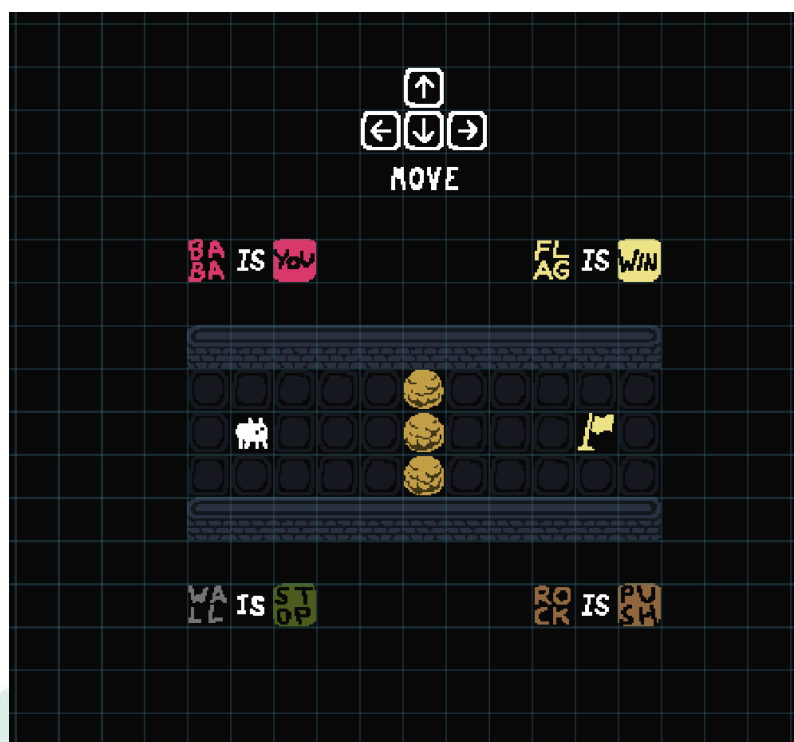
For every step the process is as follows:

- the teacher will present a possible solution of a game’s level,
- the teacher and the students discuss the solution at another level,
- students discuss in groups other possible solutions and choose a person who will present the solution process verbally throughout the class
- the teacher solves the problem/challenge at that level and the process continues.

Each step presented is also a different level and a different way of thinking about problem solving. If teachers have time, they can do all steps, and if not, they can do them at several teaching hours.

- **Step 1 – Presenting the concept of the game (10 minutes)**

Projecting the gameplay of the level 0 of the video game “Baba is You” to the class (either by the teacher or by a student who has experience with this game). The basic rules of the game (for level 0) and the main gameplay is shown below.



Snapshot from “Baba is You” game (creator: Hempuli Oy)

The rules are stated at the beginning and are presented as blocks with which the player can interact with. Therefore, the player can replace the rules with new ones. The new rules can be created by moving the words with the help of keyboard keys.

- **Step 2 – Presenting the value of rules in problem solving and programming (10-15 minutes)**

The teacher presents to the students the value of rules in games and in problem-solving processes. They can solve an IT problem as an example, and they can also use various first level/simple examples from the game to enhance this concept (the value of rules in problem solving and in programming).

- **Step 3 – Creating new rules to solve a challenge (15 minutes)**

In this step critical thinking of the students can be cultivated by discussing the possible solutions of the challenges in first island levels 1,2,3,4,5.

- **Step 4 – Small group discussion (25 minutes)**

First, we divide the students into small groups (3-5 students). In this step, what is called "Thinking outside the box" will be attempted through the discovery and use of rules that are not obvious (explicitly written and known) to solve the challenges of levels 6 and 7. In this step use of imagination is a must.

- **Step 5 – Class discussion (25 minutes)**

In this step we can discuss the pathway (step by step procedure) that needs to be created to solve a problem (Lake levels 1,2,3,4). Creating an algorithm to solve the challenge in other words.

- **Step 6 – Students propose innovative solutions (15 minutes)**

In this step we can discuss and cultivate innovation through innovative solutions proposed by students. For example, in Level Lake-2 we need to define the process by which two or more rules are combined to solve the challenge/problem.

- **Step 7 – Small group and Class discussion (15 minutes)**

Each group of students will focus on the idea of creating new rules to solve a problem drawing conclusions about it and representatives of each group will note their

conclusions in the (interactive) whiteboard. The teacher then will help students to associate the process of changing existing or creating new rules during the game with creating programming rules to solve a problem in programming.

Resources

Getting the game

https://store.steampowered.com/app/736260/Baba_Is_You/

<https://www.nintendo.com/games/detail/baba-is-you-switch/>

<https://play.google.com/store/apps/details?id=org.hempuli.baba&hl=el&gl=US>

<https://apps.apple.com/us/app/baba-is-you/id1517281887>

https://www.humblebundle.com/g/baba_is_you

<https://hempuli.itch.io/baba>

Information

All screenshots used in this lesson were taken from Baba is You, Hempuli Oy (2019)

