

TEMPLATE TO DEVELOP GAME-BASED SCENARIOS

SCENARIO TITLE	NATURAL AND ARTIFICIAL SELECTION	
Key words	Evolution, genetics, evolutionary biology	
Whom do I want to teach to?		
Age range and students level	First year students of scientific disciplines	
Possible students needs	IT literacy	
What do I want to teach?		
Subject / field / expertise	Evolution Natural and artificial selection	
Specific aims	Make the concepts of the evolution of species experimentally understandable	
How do I want to teach?		Rate 0-5
Metaphors of learning that can facilitate the educational goals	Acquisition (I will communicate/present/ explain the contents to the students)	<input type="checkbox"/> <input type="checkbox"/> X <input type="checkbox"/> <input type="checkbox"/>
	Imitation (I will show students how to do things related to this topic / content, e.g. I will be a model for them)	X <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Discovery (I will provide students with the tools to discover a specific concept with their own strength. I will arrange tours and provide adequate reinforcement)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> X
	Participation (I will organize training sessions for students to discuss, share and collaborate in order to learn specific subjects and facilitate the interaction)	<input type="checkbox"/> <input type="checkbox"/> X <input type="checkbox"/> <input type="checkbox"/>
	Experimentation (I will organize activities where the students can understand, practice and exercise through the – Learning by doing)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> X
Description of the game	Narrative description	The game requires each player initially will receive some robotic artifacts. These artifacts can be exchanged between the players and genetically modified with the natural and / or artificial process. Players will change artifacts exchanging them again.
	Aims	The game is designed to facilitate the understanding of the biological basis of the natural selection process through the artificial one. The aim is to make the student able to understand what happens in the transition from one generation to another.

	Rules	The process is driven by the fitness. Therefore, if the species selected does not have characteristics that make it suitable to the environment, it will not evolve.	
	Challenges		
	Reward system/feedback cycle	Following the concept of fitness, the player will be rewarded with the survival of his own artificial artifact.	
		Learning venue	Estimated time
Narrative description of learning activities - step by step organization and structure	Before the game: 2 meetings 1. Concept of natural selection and evolution of the living species 2. The artificial simulation of natural selection 3. The platform Eutopia	In class	3 h
	During the game: 4 sessions of 30 minutes	online	2 h
	After the game: 4 meetings after the game sessions and 1 meeting in class to provide the students with a full understanding of the activity	Online / in class	3 h
			8 h
How will I assess the students?			
Value approach	Group discussion and gained knowledge assessment test		
What do the students need to achieve the educational goals?			
Prerequisites	Students must possess basic computer literacy.		
Setting and materials	Classroom with Internet connection		
What do I need to implement the scenario?			
Tools to use	Mandatory	EUTOPIA	
	Optional		
Infrastructure / equipment	Mandatory	* Internet connection * One PC each user	
	Optional		
Resources	Possible opportunity to work with real artifacts.		
Time and space resources	Classroom with Internet access		
Any additional elements to consider			

