“Tracce nel Mare – Ecosistemi da Salvare” a science evidence-based game to boost ecological knowledge transfer on young citizens

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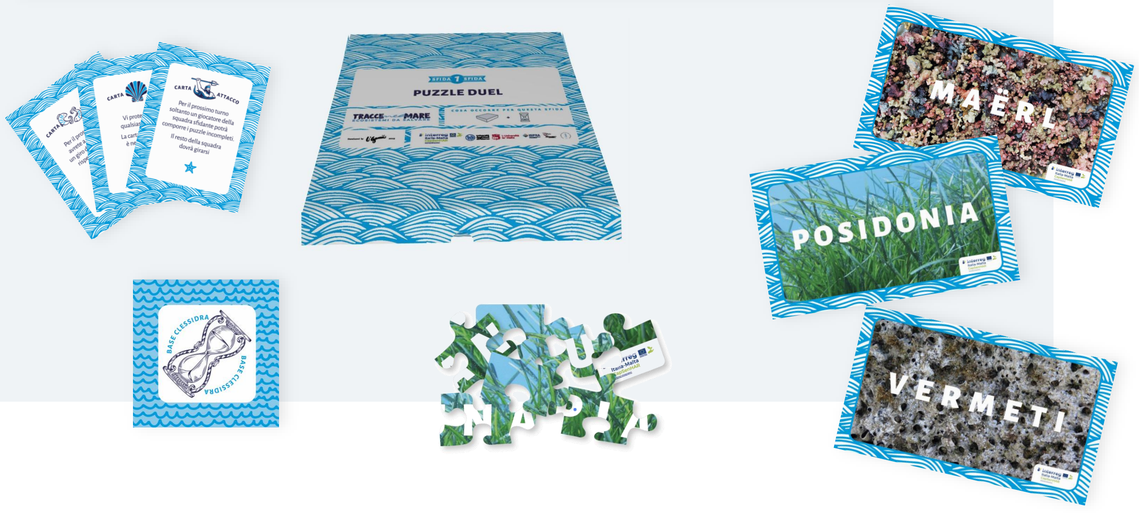
Games, due to their inherent propensity, combine knowledge to discern patterns, making them extremely useful for science education. Ecology, the science of patterns’ recognition, has significant potential for gamification. Within this framework, we developed a game wherein ecological principles are translated into game mechanics. This approach aims to significantly enhance students' comprehension of marine ecological patterns.

The primary ecological concepts incorporated into the game were:

1) **habitat fragmentation, encompassing both the identification and understanding of the various factors driving fragmentation and its potential impacts on ecological patterns;**
2) **the relationship between biodiversity and ecosystem functioning;**
3) **the provision of ecosystem services linked to the functions of key habitat-forming species.**

1

The game begins with a **"Puzzle Duel"** designed to familiarize players with the target habitats: ***Posidonia oceanica* meadows**, **vermetid reefs** and **coralline algae beds**. Elements for success in ecology, such as exploration (i.e., monitoring) and information synthesis, have been integrated into the game's five challenges (i.e., boxes).



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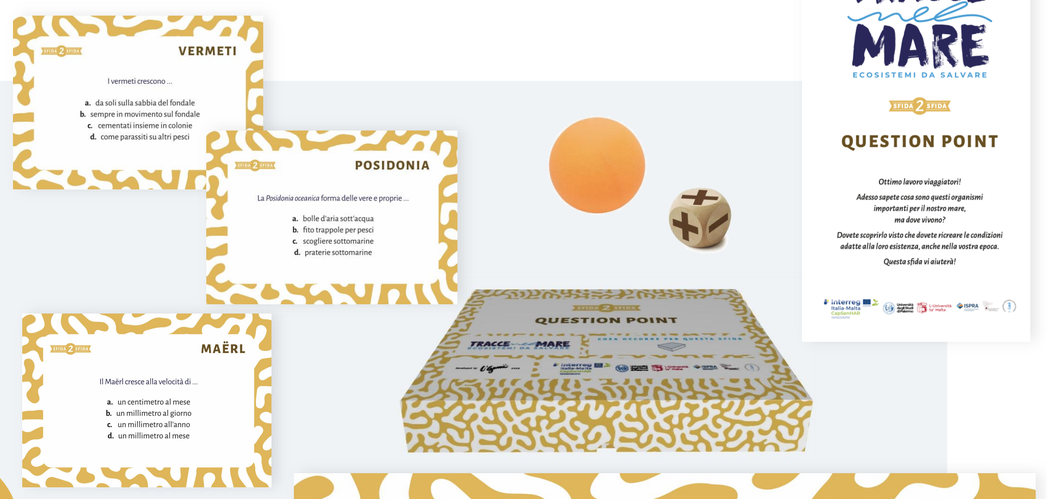
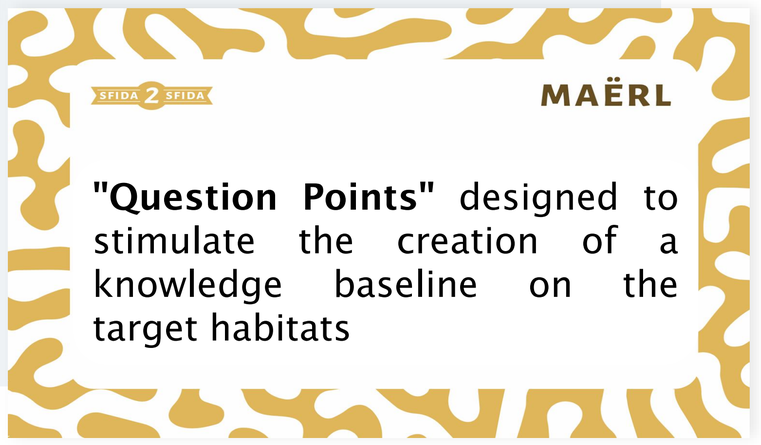


"Question Points" designed to stimulate the creation of a knowledge baseline on the target habitats

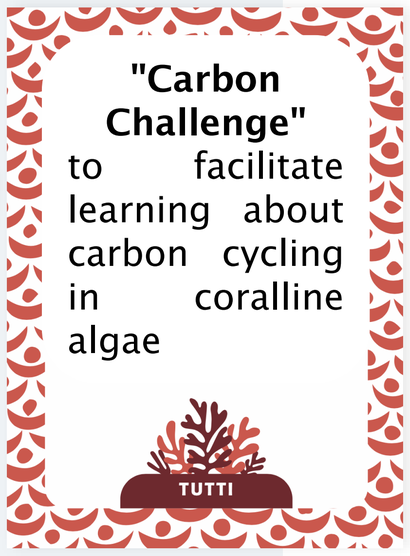


3

"Ecological Memory" aimed at memorizing habitat threats and the ecosystem services associated with healthy habitats

4

"Carbon Challenge" to facilitate learning about carbon cycling in coralline algae



5

"Vermetid Craft" to explore the functioning and services provided by reef-forming species

The game set contains a **"master" box** for teachers to guide the adventure, along with five challenge boxes. Each box is equipped with materials for two teams (2-10 players).

The game has been donated to four Sicilian Marine Protected Areas (https://eeb.unipa.it/tracce-nel-mare/), to a local library/community centre and to the eco-museum in Palermo, and to an aquarium in Malta.

https://eeb.unipa.it/tracce-nel-mare/

SCAN ME

TRACCE nel MARE
ECOSISTEMI DA SALVARE

The game was developed as a scale-up action of a capitalisation project Interreg VI-A Italy-Malta “CapSenHAR”, co-financed by the European Union's, Regional Development Fund

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