Natural Patterns
A participatory experience in the wild

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Conceptual Approach

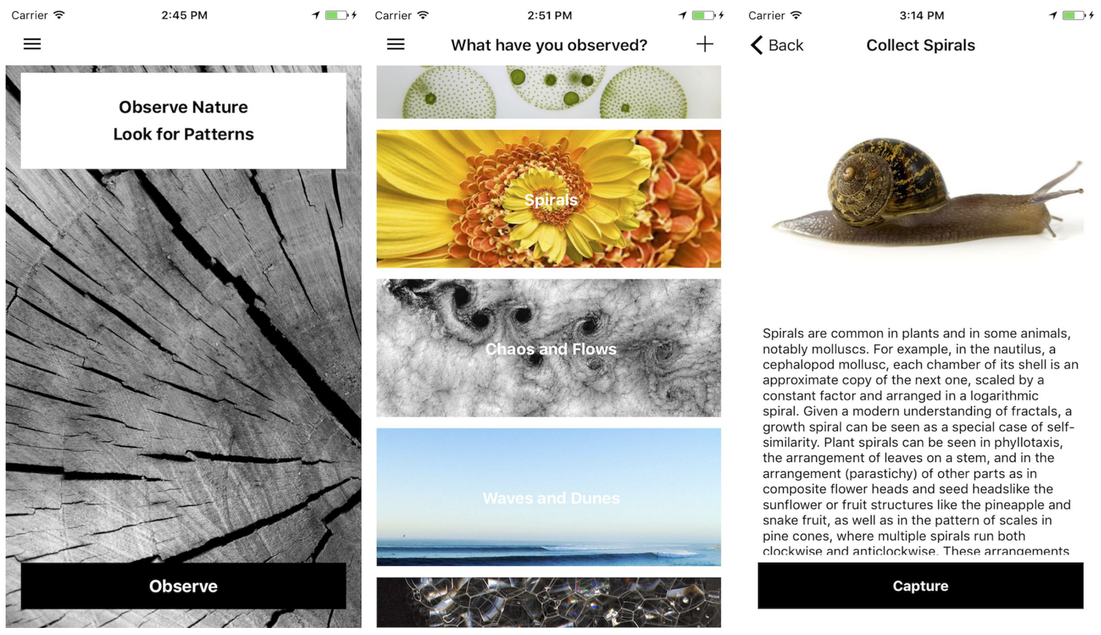
To design citizen science experiences that are primarily aimed at introducing a broad base of public in scientific activities by means of promoting engagement in and comprehension of the **scientific method**.

Natural Patterns

Natural Patterns proposes a participatory experience in which the participants, following the steps of the scientific method, interact with patterns in nature. Creating a link between **nature, science and the public**.

Design Goals

1. Promoting the disposition towards science, the understanding of scientific phenomena and the learning process in scientific activities in the wild.
2. Integrating the scientific method in the activities. Thinking like a scientist, observing the world, asking questions and boosting critical thinking.
3. Supporting exploration, discovery and understanding in the participatory experience.
4. Promoting interaction between nature, science and the public.



— Screenshots of *Observation*, *Classification* and *Capture* interfaces

Scientific Method

The basis of *Natural Patterns* and its activities is the scientific method. The scientific method is used to discover cause and effect relationships by asking questions, capturing and examining samples, experimenting, building models and inferring logical answers in a iterative process. We introduce the scientific method layer replicating its main steps: **observe, question, hypothesize, collect, analize, discuss and communicate**.

Game Mechanisms

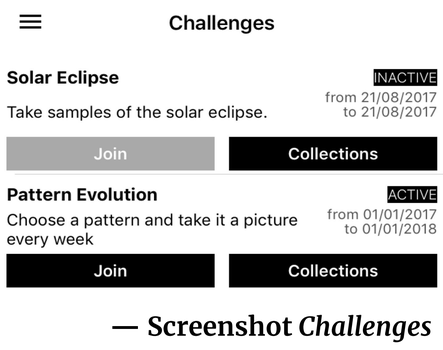
The game dynamics are created by means of the exploration of the physical space. The main game affordances are points, rewards, levels, missions and inventory. We design the game experience to evoke emotional responses in the player through: challenges, fellowships, exploration and discovery.

Main Microtasks

Challenges

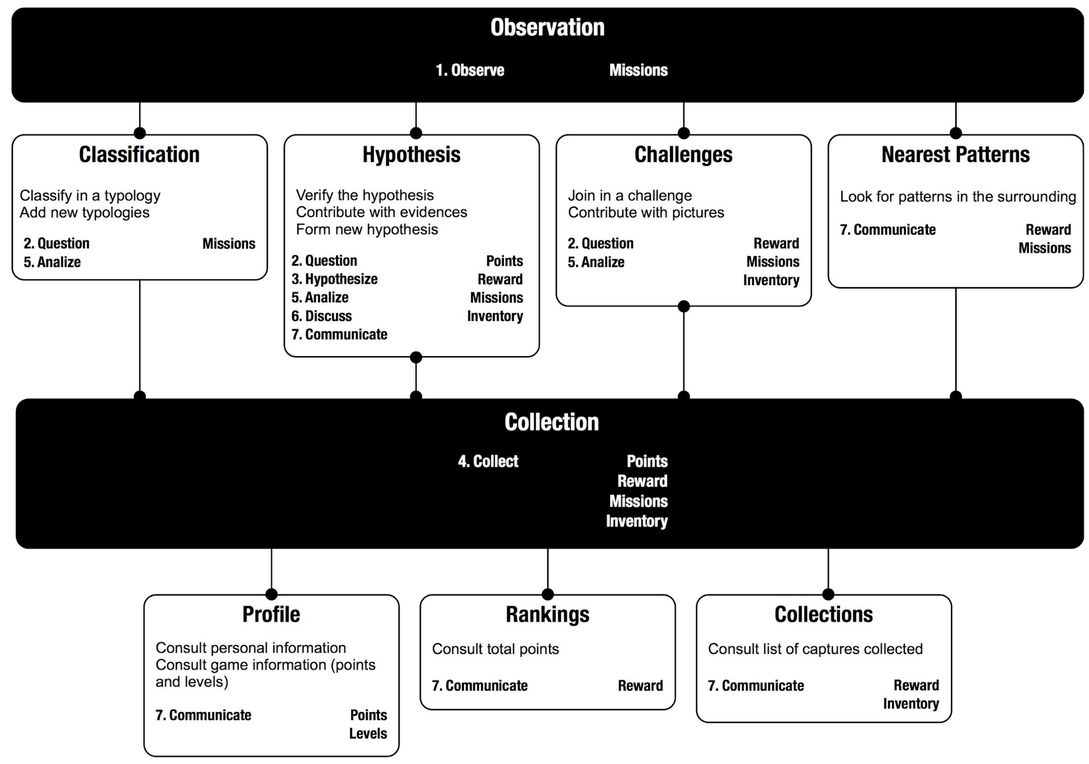
Periodically, a challenge is proposed to the community with the objective of deepening a particular subject. Contributions are accepted during a limited period of time. The participant can join and contribute with samples, basically taking a picture that responds to the call. Once the challenge is finished, the participants receive feedback with a brief study about the contributions, and the participant who contributed with the most interesting data receives a reward.

> **Collect samples of clouds with varied shapes. Hint: the most valuable are the lenticular clouds. Post the pictures in Instagram #naturalpatterns #clouds**



— Screenshot *Challenges*

— Flying saucer cloud

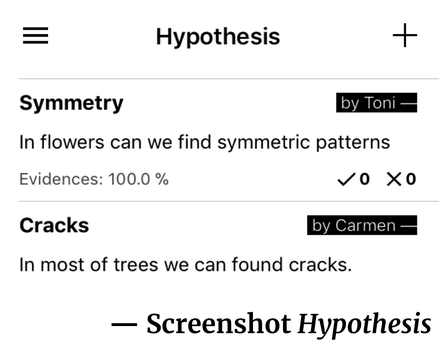


—Block diagram with the main actions in each microtask and the design features that represent the research method steps and the game components

Hypothesis

This activity promotes participation with evidences that support -or don't support- statements and hypothesis. A quick glance at the screen is enough to see if a hypothesis has been supported or not, and the activity helps participants understand the hypothesis concept. The players are able to create new hypotheses, inviting other participants to collect data.

> **Architecture has been strongly influenced by natural patterns. Take pictures of architectural and natural patterns closely interrelated and post them in Instagram #naturalpatterns #architecture**



— Screenshot *Hypothesis*

— Marina Towers, Chicago

Open Collaborations

Science disposition

To introduce *Natural Patterns* to new audiences, especially ones with low science disposition, and in formal or informal learning programmes.

Datasets

To create partnerships with a variety of citizen science projects, aiming at sharing the data collected with *Natural Patterns* and at codesigning and co-creating micro-tasks in order to collect accurate data for them, always with *Natural Patterns* as the storyline.

All the data collected with Natural Patterns is distributed in open repositories.

Acknowledgments

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