SPACE DETECTIVES

Using space to showcase science

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NUCLIO is a non-profit organisation involved in countless actions and projects related to teacher training. Bringing Astronomy to schools and using it as a first step to promote science learning.

We created CELESTE, in collaboration with the municipality of Cascais, Portugal, to cover other types of activities. Astronomy and Space exploration are subjects that never fail to excite the curiosity and sense of wonder of young people.

However...

Many kids tend to drift away from science subjects when beginning adolescence. Especially within the school context. Why not use space exploration, astronomy, to rekindle their interest?
Produce a story-driven educational adventure, focusing on:

- Investigating different subjects
- Following clues
- Solving problems
- Being creative
- Collaborating

Participants explored subjects such as rockets, communication, navigation, binary encoding and decoding, astronomical software, asteroids and impacts, robotics, Solar System exploration, the Martian environment and story-telling.
Key elements incorporated into the project include:

A strong narrative base – to intrigue, motivate and guide participants along a cohesive development path

Fun, hands-on activities – that demonstrate the underlying principles present in the narrative

Group discussion – to foster collaborative development

Integrated game mechanics – using structural game elements

Incorporation of digital technologies and tools – a fundamental element in today’s learning environment

We have run two pilot programmes, in the framework of CELESTE, as 3 - 5 day holiday clubs for a mixed gender and ability group of 8 to 12 year-olds.
Storyline: Mysterious signals received from unknown source in space

Goals: Identify origin (Mars)  
Create robot/rover capable of negotiating “martian” course

Communication  
Encryption / binary  
Stellarium  
Martian landscape  
Navigation on Earth and Mars  
Rover simulation  
Robotics and programming
#2 » Easter 2017 schoolbreak

Calendar problem prevented a real sequence of days

Stroyline: Series of puzzles told a story that participants had to recognize and piece together

Goal: create a story telling of their experiences and activities
Did it work?

During our development and trial implementation phases we have found that we can inspire intrigue and excitement in a diverse range of subjects, developing an understanding of context and demonstrating the links between subjects.

It should be stressed that this was not a formal education activity carried out in a school environment and, as a self selecting audience, the participants were children that may have already had a penchant for learning more about space exploration. They responded well, and we did see excitement and intrigue, understanding and engagement in research into advanced topics (for their age range).
STORIES OF TOMORROW

Students visions on the future of space exploration