

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Ignition - Primary Space Education (1)

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A LEARNING METHOD BASED ON A MISSION TO MARS FOR PRIMARY SCHOOL CHILDREN

Abstract

“Retour à l’Ecole” is a project initiated by four PhD students, alongside Bachelor and Master’s students from Clermont-Auvergne University, willing to share their passion for science and research. Currently effective in two ground schools, this project involves children from 8 to 11 years old. On a weekly basis, the sessions take place during lunch break for about one hour. These sessions are organised in three-month periods, and are meant to cover a transdisciplinary project. Inspired and encouraged by current events in France (e.g. Thomas Pesquet flight to the ISS), this year’s project couldn’t be anything but a space-related project, and has naturally be entitled “Preparing for a trip to Mars”. This paper is motivated by the initiative to undertake the strong but fascinating challenge of addressing technical topics with a young audience.

In contrast with traditional learning methods, this project focuses on the fact the children must be actors of their learning process. Thus, the different sessions are built according to the questions they ask and in compliance with their expectations. In a relaxed and playful atmosphere, the children are introduced to diverse disciplines, from civil engineering to electronics, from botanics to space sciences. Around a quick but catchy speech, the children are expected to work as a team, with an emphasis on interdisciplinarity, solidarity and critical thinking. For instance, children built small rockets using plastic bottles to discover notions of physics (rocket trajectory), chemistry (propulsion) and engineering (rocket assembly). This perspective is based on the fact that an open mind is forged mostly by actions. The objective of the sessions is not to shape astronauts out of the children, but to trigger their curiosity through a wide range of STEM topics, allowing them to imagine a future in which they have endless possibilities After detailing the reasons that led to this project, describing the different sessions, this paper explores its contributions, which are threefold. First, the children proved to be able to learn and remember complex notions over the sessions. Secondly, the children have been introduced to disciplines they have never encountered before. Finally, the college students involved in the sessions improved their speaking and adaptation abilities in order to pass on technical knowledge to non specialists.