

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)

Ignition - Primary Space Education (1)

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FAKE MARS, REAL STEM

Abstract

The fight for STEM fields to gain popularity hinges on making these fields appealing to students before they form academic prejudices. One of the primary challenges that educators face is how to interest young students in complex problems without dooming them to failure. The HI-SEAS III Crew utilized several outreach strategies to maximize the impact that their interactions could have on students of all ages around the world. Short duration question and answer based activities provided classes with little time the opportunity to communicate with the crew about their lives in STEM fields and how they got to be the AstroNots they are. Longer duration programs emphasized continued communication between students and crew members and fostered a collaborative environment. One of the long term projects, Real Science on Fake Mars (RSoFM), connected the six-person crew to three elementary and a middle schools in the Clark County School District. The mission, should the students choose to accept it, was to take a real problem from the AstroNots' life on "Mars" and work with the crew to find practical solutions. These problems ranged from water recycling and habitat sound damping to robotics and space suit design; collaborating with the crew, student involvement led to great results in the project and in the level of interest showed by students in STEM subjects. This form of project based learning combined with an engaging group of scientists willing to share their time with students had an undeniably positive effect on students, parents, teachers, and all contributors.

The success of RSoFM in engaging students was a result of several factors: creating projects that fit within the school curriculum, so that teachers could easily fit the hands-on activities into the regular school learning schedule without letting other activities fall to the side; video interactions between the crew and the schools designed in such a way that it minimized crew energy expenditure and maximized the feeling of personal interaction with the students; feed-back from the schools showing the projects that were accomplished by the students to the crew; feed-back from the crew to the students showing their ideas in action at the Habitat. Not all designs had to be re-created at the Habitat – just showcasing one of the results from each project was able to show the students the difference their efforts made to the running of the simulation mission.