

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)  
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## IGNITING MINDS THROUGH ROCKET SCIENCE

**Abstract**

At Rocketeers, we understand, science is best learnt by curious minds through experiencing and imagination. The endeavor is to make the students from diverse age groups to learn and find science in daily activities of life, and use the principles with better understanding for applications and problem solving. The target is to ignite the minds of young kids in their developmental stage, with the curiosity and excitement of rocket science. The workshop model for ages 12-18 is a non-traditional method through which, we focus not only on space outreach but also on practical education for STEM. Focus for teaching model rocketry is to replicate some of the system design practices from bigger rockets, giving a holistic perspective to physics and engineering from implementation point of view, and teaching principles of aerodynamics and propulsion to young students, which otherwise the classroom may be inadequate for. When students realize through the two day workshop, how science coupled with systems engineering plays a role in launching systems as complex as rockets, they take away an approach of critically understanding science behind engineering systems. The feedback from students and parents has been very encouraging for our endeavor, with special one of 'I started loving science again!' from a student. By the time, this paper is discussed at IAC, we would have reached out to almost 10,000 students across the country, and conducted various workshops using the space education modules and advice on 'careers in space'. Given that there are plenty of modes for space education and outreach, the results from a dedicated two/three day workshops point towards an increasingly effective way to engage students in Space or STEM Education. With continuous engagement of students through model rocketry clubs, computer simulations, interactions with Indian Space Research Organization scientists and faculty interaction-cum-training after the workshop, we aim to create a space based education architecture in India backed by a sound business model to both sustain in long term and continuously add value. This paper will discuss the specific concepts and methods employed to educate the STEM students by us, about a new approach of learning sciences and addressing problems, and how to replicate this model in several places with respect to space outreach.