

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

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PRIMARILY IGNITING THE PASSION: STEM IN EARLY EDUCATION

Abstract

Young children have an innate interest in science. They behold the world around them, are natural questioners, and are not content to simply observe the natural world; they must utilize all their senses to make sense of what they see. Primary educators can and must capitalize on this interest by immersing students directly into the hands-on applications, but also into the collaborative and communicative aspects that make up the 21st century skillset. This proposal seeks to offer activities to excite students 11 and younger in science with a focus on space as well as ideas for teacher training.

Our school has an active and successful aerospace program in the form of the Wolverine CubeSat Development Team. Teammates in the middle school level have been selected not once but twice by NASA for their CubeSat Launch Initiative (CSLI). One satellite, the WeissSat-1 is currently on orbit, while the second, the CapSat-1 is in the planning stages. Because of the work of our older students, younger students (grade PreK-5) are exposed to the excitement over the real work of space leading up to but not limited to launches.

One way to engage primary students is with a school wide fair. Modeling older students who participate in the regional and state fairs gives younger students (and their teachers) experience in the scientific method. Our "SciencePalooza" places the focus on science in all grades, so even Kindergarteners present their research findings. A school-wide science fair may not seem like a novel idea, but it is when you include students at the primary level and it is the perfect combination of content and communication.

Another exciting activity incorporates "launch parties." While ours coincided with the actual launch of our cube satellite, these activities can be done in conjunction with any televised launch. At ours, older students created hands-on stations where younger students revolved. These stations addressed Newton's Laws, which were taught to the younger students by the older ones and included Stomp Rockets, A-E rockets, and engineering design contests with outdoor, oversized "Legos". Inside, students enjoyed a read-aloud from a student-created coloring book to teach about the history of our cube satellite.

Teachers should take part in learning along with their students. One way is to collaborate with mentors in their field as well as take part in professional organizations as ways to connect industry to academia.