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Using FIRST LEGO League Robotics Competitions to Engage Middle School Students in Physics

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As the nation and world grapple with looming crises in sectors such as energy, health care and the environment, it is critical that we keep today's youth interested in careers in science, technology, engineering and math (STEM). Studies indicate that many students lose interest in the sciences by ages 10-13, when they are in grades 4-8 in the U.S. educational system. Many of the interventions to counteract this trend focus on boosting interest in STEM in secondary schools and universities. However the case can be made that the greater need is actually earlier in the education of the child. How can we work with this age group in an exciting way that will promote the study of science? Student robotics competitions might be one effective answer. Programs are currently being run around the country and the world that engage young people in the study of science through robotic competition. Many of these programs rely on mentors to guide the students through the process, which in the most effective programs includes the study of physic concepts through engineering design. During this presentation we will discuss the options for participating in programs that help the students and teachers better understand the science, specifically the physics, which underlies robotics. In particular, we will focus on the international program called FIRST LEGO League (FLL), in which students ages 9-14 are challenged every year to construct a LEGO robot that can navigate and complete a course of theme-related missions. The FLL program is currently operating in almost every state in the U.S. and relies on recruiting qualified mentors and judges who want to impact young people's interest in STEM. Physics professionals can make a tremendous difference in the lives of these eager middle school students.