

# Brick by Brick

## Lego Inspires Next Generation of Engineers, Manufacturers and Scientists



Harry Potter, Luke Skywalker, Indiana Jones and Captain Jack Sparrow have all been immortalized in Lego play sets. It's really no surprise since kids love those characters just as much as they love their Legos—an estimated 400 billion Lego bricks were manufactured by 2008 according to the company's website. But did you know that teachers, scientists and engineers might be even bigger fans of the world's most famous building blocks?

Take the recent spacecraft launch to investigate Jupiter, for example. NASA didn't invite Barbie, Mr. Potato Head, or a Slinky to hitch a ride, but they did send up three unique Lego figures—The Roman God Jupiter, his wife Juno and Galileo. "NASA has a long standing partnership with the Lego Company," says Scott Bolton, principal investigator for the Juno mission and space science and engineering director at the Southwestern Research Institute in San Antonio. "We hope that these [Lego figures] will increase awareness about the space program and get children interested."

Back on Earth, Lego bricks have been educating young engineers and manufacturers since 1982 when the first two Lego Technic sets were launched for classroom use. Today, the company boasts Simple and Powered Machine sets (exploring gear mechanisms with assorted gear wheels), Renewable Energy sets (building and exploring renewables through Lego models) and Robotics sets (incorporating software and bricks to bring robotic experiments to life). The company offers to send mini-figures to Jupiter as well as countless building block sets to engineering competitions like the FIRST Lego League (FLL).

"FIRST Lego League was developed in 1998 to introduce young people ages 9-16 to the fun and excitement of science and technology. It consists of three parts: A Robot Game, Project and Core Values. In the Robot Game, children use the Lego Mindstorms and Lego elements to create an autonomous robot that is programmed to perform various missions on a play-

ing field," says Kim Wierman, Program Manager, FIRST Lego League.

Wierman says the impact of FIRST Lego League has been tremendous around the world. "For the Food Factor season (The 2011 theme is food safety), we expect 20,000 teams to compete in more than 700 tournaments around the world. Approximately 200,000 children will participate. Through a study by Brandeis University it was determined that FIRST Lego League participants have an increased understanding of science and technology, improved attitudes toward education in general, and improved life and workplace-related skills."

This is occurring at a very important time for manufacturing, science and engineering education as many students initially scoff at the notion of getting their hands dirty after college in some of these fields. So what can the manufacturing community do to assist organizations like FIRST help get the message out?

"They can offer their time and expertise. There are many different roles volunteers can fill," Wierman says. "Currently, FIRST is supported by a large body of volunteers. Each year more than 90,000 people around the world help by coaching or mentoring a team, hosting or organizing events, and fundraising. In addition, FIRST has several strategic partners and more than 3,500 of the world's leading corporations, foundations and government agencies supporting its mission."

For more information on FIRST and its many innovations using Lego sets for engineering competitions, visit [www.usfirst.org](http://www.usfirst.org). For information on classroom Lego sets, visit [www.education.lego.com](http://www.education.lego.com).



**FIRST Lego League Robots have increased the understanding of science and technology for students around the world (courtesy of FIRST).**



**Lego versions of the Roman god Jupiter, his wife Juno and Galileo were recently sent into space on a fact-finding mission to Jupiter (courtesy of Lego).**