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Learning Excellence Grants Program
Award #: 19-26 LE
Award Title: Learning to Code and Program with Lego Mindstorms

Project Report

The grade six students in the Engineering classes at Chenery Middle School have benefited from the additional Lego Mindstorm Robots. We first piloted a few Lego Mindstorm robots with 1-2 classes before writing a Learning Excellence Grant to increase the quantity available to students. The Lego Mindstorms unit has been a nice way for grade six students to learn about robots and do some intro level coding to segwaying to more advanced coding in grade seven.

The most significant impact is the hands-on project based learning experience. Students work in groups of 2-3 when going through various lessons/activities that may include building a robot for a task, coding the robot to complete a challenge, testing out their code, and redesigning. Students learn early on to follow the Engineering Design Process. A system of steps used in all three years of learning in the Engineering program at Chenery. The Lego Mindstorms robot unit allows students to problem solve various real life challenges like autonomous driving. The students really enjoy creating the various robot designs and making the robots come to life. My colleague (David Beebe) and I regularly share student projects, successes, and challenges with each other. We are still developing a way to share student success with the Lego Mindstorms beyond the Engineering classroom walls.

The simplest project success was being able to see students' awareness of the very close relationship between software and hardware. The excitement of figuring it all out and understanding why it worked is a special highlight. They especially learn valuable teamwork skills, critical thinking, and programming concepts. We will continue to build and grow the Lego Mindstorms unit as it connects with other extension lessons/units.. Many thanks for this generous FBE grant!

Examples of a Lego Mindstorms Robot with touch sensors and a sample code using the Lego program.