

Title:

Applying Common Core State Standards in grades 4th – 10th using LEGO Robotics

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Common Core Standards includes critical content for all students in American education. Forty-eight of the fifty states have adopted the standards as of 2012. Previously, every state had its own set of academic standards and students in each state had been learning at different levels. In the new global economy, all students must be prepared to compete with students from around the world. Students are expected to develop deeper mastery of content and demonstrate what they know through writing and other projects. Changes to curriculum and instruction are more student-centered with greater focus on skills, abilities, and a shift towards more performance assessments. This research was designed to apply mathematical processes of the Common Core Standard in a lesson plan on the K-12 academic level: elementary, middle and high school. The team used NXT LEGO® robotics to teach various scientific, mathematical, and design concepts, through designing, building, and programming the robots at each level. The students' received hands on experience with physics, mathematics, motion, environmental factors, and use problem solving in a collaborative group setting. The data was collected through observations.

The North Carolina Mathematics Standard Course of Study is organized in five strands or goals for K-12: Number and Operations, Measurements, Algebra, Geometry, Data Analysis and Probability. These are the objectives for each goal in competencies at each grade level and throughout the high school courses. It is the framework upon which classroom instruction and assessment should be planned. It is the ultimate guide for textbook selections and the foundation of the North Carolina testing program. On June 2, 2010, North Carolina adopted the Common Core State Standards in K-12 Mathematics and K-12 English Language Arts released by the National Governors Association Center for Best Practices and the Council of Chief State School Officers. The Common Core State Standards Initiative is a state-led effort coordinated by the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO). The standards were developed in collaboration with teachers, school administrators, and experts, to provide a clear and consistent framework to prepare our children for college and the workforce. The Common Core Standard is designed to build upon the most advanced current thinking about preparing all students for success in college and their careers.

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