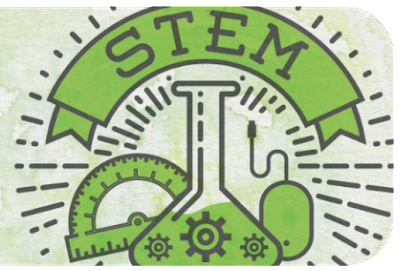


Louisiana STEM INITIATIVE



Robotics Lab Pilot Overview

The Middle Grades (7-8) Robotics Lab Pilot is an innovative effort blending mathematics and technology to provide exposure to beginning concepts in robotics and computational thinking through hands-on learning. The pilot will engage students in explorations and applications of robotics utilizing structured online [resources](#) and [reconfigurable modular robots](#). Students analyze real life situations, identify variables, formulate mathematical steps to find a solution, analyze the results for accuracy, and practice computational thinking through the lens of computer programming. Robotics extension activities allow students to reenact physically derived mathematical problems through robotics technologies to visualize situations, associate graphs with physical phenomenon, predict and identify key features of the graphs as they occur in physical situations, and solve problems through algebraic means. [Grade 7](#) and [grade 8](#) materials are designed to complement and align with LSSM and current HQIM materials.

Leveraging STEM to Support Student Learning

Engaging students in STEM experiences, such as the Middle Grades Robotics Lab pilot, provides students with the opportunity to build positive math experiences through problem solving, understand patterns, engage in critical and analytical thinking, and communicate thoughts and ideas flexibly. Allowing students to engage in work such as this builds their confidence and persistence while avoiding frustration due to the level of interest that most students have shown in the tasks. These materials support the development of modeling skills through a process that brings abstract mathematics concepts into the context of a robot's physical functioning. Early adopters have reported positive implementation results including

- increases in student [motivation](#);
- improved language acquisition; and
- increased student [achievement](#) in mathematics.

Professional Learning

Participating schools and teachers will be supported by both in person and virtual professional learning sessions to ensure successful pilot implementation. Teachers will be supported through professional learning consisting of a two day in person "getting started" session to examine the materials and navigate best practices facilitated by the vendor. During implementation, teachers will have access to a statewide community of practice network which consists of monthly online sessions throughout the school year. Additional support will be provided through coaching and support through the LDOE STEM Specialists.

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What is the commitment involved?

Offer the course for the 2024-2025 school year	Recruit teacher(s) and students	Teacher and student participation
<p>Participating pilot sites should agree to offer at least one section of the course as part of the 2024-2025 master schedule.</p> <p><i>Needed Materials:</i> Linkbots Activity Mats Computer lab or laptops Educator License</p> <p><i>Projected cost:</i> Suggested 1- 1 ratio Linkbots- (16) \$6389 Activity Mat- (2) \$288 Educator License \$1200 each 2- 1 ratio Linkbots- (12) \$4798 Activity Mat- (2) \$288 Educator License \$1200 each</p> <p><i>Technology requirements:</i> The hardware can be controlled with Windows, Mac OSX, or Chromebook machines with additional free software installed.</p> <p><i>Data collection:</i> Grade 6 or 7 LEAP test scores will be used as a baseline and compared to grade 7 or 8 for each cohort. This data will be collected at the school level and reported to LDOE without PII.</p>	<p>This course is ideally suited for all students in grades 7 or 8 who may have interest in robotics and who may benefit from additional exposure to grade level mathematics content. Classes should be limited to no more than 20 students and could consist of multiple grade levels.</p> <p>Computer science teachers, IBCA, keyboarding or business teachers are best positioned to teach the course having a background in coding/software. Prerequisite knowledge is not necessary, but could be helpful. Schools should also identify a mathematics teacher to be trained alongside the C-STEM teacher. Through ongoing support and collaboration between the two teachers, the team can support students through modeling mathematics concepts.</p>	<p>Teachers and students will be asked to complete pre and post surveys related to attitudes about STEM and mathematics.</p> <p>Participating teachers will be supported through professional learning consisting of a two day in-person "getting started" session to examine the materials and navigate best practices for implementation. During implementation, teachers will have access to a statewide community of practice network which consists of monthly online sessions throughout the school year.</p> <p>Additional support will be provided through coaching and support through the LDOE STEM Specialists.</p>