

Organizational Expectations

for the program to be successful

Pre-requisites	During the Program	Intermediate Outcomes
<p>The host organization must...</p> <ol style="list-style-type: none"> 1) Have an adequate IT/computing environment (hardware, robots, software, network, internet) 2) Maintain these IT resources adequately and provide trained support staff when needed 3) Have administrative support for a program that focuses on mathematics and technology 4) Be willing to commit a total of 15 hours of programming in 45+ minute instructional blocks 5) Have organizational routines and practices that encourage students to show up consistently 6) Have the ability and will to recruit and select students with appropriate skills 7) Provide an appropriate amount of time for the level of students in the program <p>Students must...</p> <ol style="list-style-type: none"> 1) Be willing to work hard on mathematics 2) Be able to add, subtract, multiply and divide 3) Have an openness to robots 4) Not already be "at ceiling" with LEGO robots and proportional reasoning <p>Teachers must...</p> <ol style="list-style-type: none"> 1) Believe that mathematics is a gatekeeper to STEM careers 2) Have basic computer fluency 3) Be willing to work with students to help them to solve problems 4) Be willing to attend Professional Development sessions 	<p>Expect the Curriculum to focus on...</p> <ol style="list-style-type: none"> 1) STEM tasks with connections to mathematics that lead to student math understanding 2) STEM tasks with high levels of cognitive demand 3) Tasks that build toward a generalized understanding of proportionality <p>The host organization should expect...</p> <ol style="list-style-type: none"> 1) To continue providing active support involving both administrators and educators 2) To adapt to meet students' needs to ensure the maximum benefit from the curriculum 3) To develop a contingency plan (e.g., Plan B to deal with the unexpected, the instructor is sick, the Internet isn't working, the robot's batteries aren't charged, the robots are missing) <p>In Professional Development, educators should expect to learn...</p> <ol style="list-style-type: none"> 1) Strategies to generate cross-contextual examples that lead to learning transfer 2) How the curriculum supports the development of student understanding of proportional reasoning 3) How to recognize common student misunderstandings and how to correct them 4) How to present the curriculum in a way that scaffolds each lesson's instructional goals 5) How to run a robotics classroom 	<p>Students in the program should begin to...</p> <ol style="list-style-type: none"> 1) See math as important to achieve the goals and activities in the curriculum 2) Develop improved communication skills, especially in technical writing 3) Feel an increased sense of competence in mathematics, robotics, and/or STEM careers 4) Develop a belief that math is not a "subject" but a tool for other ends <p>Teachers in the program should be...</p> <ol style="list-style-type: none"> 1) Presenting lessons the same way that they are modeled in the PD sessions 2) Using questioning strategies the same way that they were modeled in the PD 3) Feeling comfortable with the curriculum and confident that when it is implemented properly that students are learning <p>The host organization should expect to...</p> <ol style="list-style-type: none"> 1) See the benefit of the program 2) Continue organizing its resources to enhance individual student's success