Massachusetts Creativity/Innovation Initiative (FC 189)
Woburn Public Schools
Project Lead: Gary Reese, Assistant Superintendent
Curriculum Titles

- Robotics and the 4 C’s: Critical Thinking, Communication, Collaboration and Creativity (High School Curriculum)

- Rethinking Legos: Building a Better Robot (Middle School Curriculum) *

* Adaptation of WeDo Robotics Curriculum posted on Contextual Learning Portal
Curriculum Goals

To foster creativity, critical thinking and capacity for innovation

To provide students with a greater understanding of STEAM, and to promote increased interest in students to pursue post secondary instruction and careers in the field of technology and engineering

To increase opportunities for hands-on learning for our students
Collaboration with outside resources

Potential Professional Development Providers

- Wicked Cool for Kids (Stoneham)
- Artisan’s Asylum (Somerville)
- Boston Tooling and Machining Association (Haverhill)
- Carnegie Mellon Robotics Academy (Online trainings)
- Lego Education

Potential Outside Partners

- National Robotics League
- Boston Tooling and Machining Association
- Local higher education institutions
- Local technology organizations
- Local school districts
General Grant Timeline

- **February 2015**: Initiate contact with outside partners and professional development providers

- **February – May 2015**: Teachers to attend local trainings in the implementation of robotics program
  - Development of proposed curriculum (including upload to Contextual Learning Portal)

- **May – June 2015**: Pilot program with students
  - Make adjustments to curriculum as deemed necessary
## Evaluation and Performance Measures

### Design Phase

<table>
<thead>
<tr>
<th>Anticipated Outcome(s) of Design Phase</th>
<th>How will it be measured?</th>
<th>By When?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional course offerings for students at both levels in the field of STEAM</td>
<td>Completion of course curriculum and course offering at middle high school level</td>
<td>February, May and June 2015</td>
</tr>
<tr>
<td>Implementation of proposed curriculum, adjusted according to student and community partner feedback</td>
<td>Students will complete surveys and respond to questions about ways to improve program.</td>
<td>May and June 2015</td>
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<td></td>
<td>Community partners that are participating in the implementation phase will provide feedback and support to adjust the program.</td>
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<td>Measured by updates to curriculum on Contextual Learning Portal</td>
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### Evaluation and Performance Measures

#### Implementation Phase

<table>
<thead>
<tr>
<th>Anticipated Outcome(s) of Implementation Phase</th>
<th>How will it be measured?</th>
<th>Baseline # and/or % (Students)</th>
<th>Target # and/or % (Students)</th>
<th>By When?</th>
</tr>
</thead>
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<tr>
<td>Increase in the number of students pursuing STEAM careers</td>
<td>Review of number of students that identify a STEAM career in their choice of colleges and intended area of study (Senior Exit survey)</td>
<td>To date, data has been anecdotal regarding # of students. This year’s exit survey will better reflect actual %.</td>
<td>Increase % of students by 3% from 2015 survey to 2016 survey data.</td>
<td>June 2015 June 2016</td>
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<tr>
<td>Increase in the number of students passing Science MCAS</td>
<td>Science MCAS results from DESE</td>
<td>2014 results 41% proficient or higher (grade 8) 66% proficient or higher (grade 10)</td>
<td>2015 results 3% improvement 2016 results 5% improvement</td>
<td>August 2015 August 2016</td>
</tr>
</tbody>
</table>
“It is better to have enough ideas for some of them to be wrong, than to be always right by having no ideas at all.”

Edward de Bono
Maltese Physician, author, inventor, and consultant