TechBrick, formed in early 2003, is an independent robotics and STEM education club for home-schooled, public, and private school students, K-12, in Harford, Baltimore, and Cecil counties.

- We have more than 110 active registrations with weekly meetings of children and parents (who are encouraged to stay and participate). Our teams have participated in numerous championships both regionally and at World’s.
There are no prerequisites.

- We are looking for students, ages 5 through HS Seniors,
  - eager to learn engineering at all levels,
  - willing to focus on a very complex task,
  - and engage in building a world-class robot and team.

- Our facility now features 3D printers, computer aided design machines, and range of related tools and technology. No previous skills or training are required.
Much to Gain

• The FIRST program and competitions provide one of the best platforms for young people to get excited about the challenges and rewards of engineering.

• They are pushed to the limit on every level:
  • project management,
  • design,
  • research,
  • testing,
  • strategic planning,
  • and more.

• In four or five years many of our early participants will be in the workplace providing the innovative solutions we need to maintain our competitive edge.
Why TechBrick Instead of Your School?

• Many High Schools and Elementary Schools Are Unable to Support These Programs: Due to…
  • the overall costs,
  • extended practice hours,
  • and limitations on the use of machine shop tools,

• many schools simply cannot start, and more importantly, sustain these programs.
Why Would You Be Interested in Teaching Young People Robotics?

Because we need bright, innovative, young engineers to create and maintain our future technologies.

- Good engineers and technologists are raised before they are taught. The penchant for mechanical and conceptual disciplines comes from a lifetime of involvement.

- For the past five years we have coached robotics teams under programs offered by FIRST.

FIRST programs grow engineers and technologists.
Why would you be interested in this?

Future Technologies Will Require Young, Smart, Capable Engineers

- We will show a program with more than 400,000 participants world-wide.
- We will show you a program that doubles or triples a student’s interest in science and technology.
- We will show you a program that will bring to our future projects the talent we need.

The programs are offered through US FIRST...

What is US FIRST?
What is US FIRST?

Founded by Dean Kamen and Woodie Flowers

- *FIRST* was founded in 1989.
- To inspire young people's interest and participation in science and technology.
- Provides accessible, innovative programs that motivate young people to pursue education and career opportunities in science, technology, engineering, and math, while building self-confidence, knowledge, and life skills.
For Inspiration and Recognition of Science and Technology

This is without a doubt one of the most engaging and challenging STEM education programs.
Who is Involved?

Global Participation 2014-15

- Four programs for ages 6-18
- 400,000+ students
- 38,700+ teams
- 34,000+ robots
- 90,000+ other Volunteer roles filled (e.g. event Volunteers, Affiliate Partners, VISTAs)
- From 60+ countries
- Over $20 million in college
- 900+ scholarship opportunities
- 180+ scholarship providers

**Billions of lessons learned...**
# What are the Programs?

## Four Programs Span Ages 6-17+

Grades Pre-K through 12

<table>
<thead>
<tr>
<th>For ages 5-8</th>
<th>Ages 7-15</th>
<th>Jr. High – HS</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uses the annual theme for project-based work.</td>
<td>Uses annual themes to engage young students in applied research.</td>
<td>Uses a mechanical challenge combined with real-world teamwork and cooperative efforts.</td>
<td></td>
</tr>
<tr>
<td>Based on standard science project materials</td>
<td>Based on LEGO Mindstorms NXT or Robotics Systems.</td>
<td>Based on an advanced robotics system.</td>
<td></td>
</tr>
<tr>
<td>Up to 6</td>
<td>Up to 10</td>
<td>No Limit</td>
<td>No Limit</td>
</tr>
<tr>
<td>$65 per student</td>
<td>$160 per student</td>
<td>$210 per student</td>
<td>$275 per student</td>
</tr>
</tbody>
</table>
What are the Programs?

JFLL: Junior FIRST LEGO League

- Based on LEGO Education Kits.
- 2-6 Students.
- Thematic Challenges.
What are the Programs?

**FLL: FIRST LEGO League**

- Based on LEGO Mindstorms NXT or RCX Robotics Systems.
- 4-10 Students.
- Thematic Challenges: 4 Parts.
What are the Programs?

**FTC: FIRST Tech Challenge**

- Based on advanced robotics systems.
- 2-10 Students.
- Uses a mechanical challenge combined with real-world teamwork and cooperative efforts.
What are the Programs?

FRC: FIRST Robotics Competition

- Based on advanced robotics systems.
- 10-60 Students.
- Uses a mechanical challenge combined with real-world teamwork and cooperative efforts with mentors and sponsors.
What are the Programs?

International Competition

- 26,000+ students
- 10000+ mentors
- 1000’s of volunteers
- 4 Programs
  ✓ JrFLL, FLL, FTC, FRC
What are the Results of This Work For Our Nation?

The Alumni

- **FIRST Students vs. Comparison Group:**
  - Seek Education in Science & Technology.
  - Twice as likely to major in science or engineering.
  - More than three times as likely to major specifically in engineering.
What are the Results of This Work For Our Nation?

The Alumni

- **Earn Career Opportunities:**
  - Almost ten times more likely to have an internship.

- **Expect to Pursue Science & Technology Careers:**
  - More than twice as likely to pursue S&T career.
  - Nearly four times as likely to pursue career specifically in engineering.
Competitive Experience

State Competitions

- UMBC (University of Maryland, Baltimore County)
- TCNJ (The College of New Jersey)
- UD (University of DE)
- CSM (College of Southern Maryland)
Real-World Results: TechBrick Robotics

Award Winning Results

Team Spirit

Innovate Awards

Amaze Award
Real-World Results: TechBrick Robotics

A Robust Website with Useful Resources: TechBrick.com

- Team Tips
- Worksheets
- Projects for group work
- Photos and guidelines
- Global traffic
Real-World Results: TechBrick Robotics

Community Service

Local Presentations to Sponsors

Library Programs

SURVICE Engineering Corporation
Real-World Results: TechBrick Robotics

Media and Fun

Adopted Team Members
Real World Results: Around The World

Our Experiences Have Been Repeated Around the World

- Thousands of schools and organizations have done exactly the same work.
- Young engineers are now in the workplace or on their way to productive, effective careers.
Consider the Benefits

- Strengthens communications skills.
- Builds technological literacy.
- Creates an incubator for interns and future employees.
- Appreciation for highly skilled professionals.
- Part of a great community of families.
- Coopetition and Gracious Professionalism.
Other Important Items

• Commitment to Attend
• Youth Protection / Background Checks
• Additional Event Fees
What’s Next?

• Talk to our students.
• Look at the bots.
• Take a look at the facility.
• Go to form.techbrick.com
  • Review the documents.
  • Fill out the online application.
• Ask questions.
• Consider mentoring.