IEEE Robot Challenge

http://ewh.ieee.org/r2/baltimore/robot/
Neville Jacobs: Nevilleed@aol.com / 410-653-4176

Designed for teachers, there is a Robot model suitable for whatever level students are capable of, for grades 9 to 12.

- Basic 2-leg robot, $49
- Basic 4-leg robot $88
- Automated 2-leg robot $69
- Automated 4-leg Robot. $98

A school's first 2-leg robot kit is FREE. Teacher Workshops and kickoff occur in November. Papers are due in March. Competitions are held in April at the Baltimore Museum of Industry.

****

JHU's ERC | CISST K-12 Programs

www.cisst.org/K-12-programs
Cyndi Ramey - cramey@jhu.edu / 410.516.6841

The **Robotic System Challenges** a series of robotic competitions held each April at the **Johns Hopkins University** Homewood campus. Challenges include:

1) PETITE SLALOM
2) MYSTERY COURSE
3) UNLEASHING THE MAD SCIENTIST
4) SEARCH & DESTROY:
   ROBOTIC BRAIN TUMOR SURGERY

****

The **CISSRS Surgical LEGO® Robot Competition** is a weekend long event that gives high school students hands on education and experience in engineering problem solving. The students, working in teams, will use LEGO® Mindstorms kits and other provided components to solve a realistic engineering problem: build a robot that can manipulate a needle to target and hit a simulated tumor.

****

The JHU **Robotics Summer Camp** (June) is conducted for middle and elementary school-aged children at nearby Dulaney High School. The children are exposed to robotics construction and theory through a problem-solving application that teaches them basic programming, electronic theory, soldering, and mechatronics. Cost: $100

VEX

http://www.vexrobotics.com

There are many different Challenges for the VEX Robotics Design System. VEX Challenges exist for middle school, high school, and university levels. Some Challenges, like Bridge Battle, are worldwide. Others, like Savage Soccer, are regional competitions.

Beginning VEX builders can design, assemble and quickly refine their robots through trial and error. Advanced builders can utilize sophisticated programming to create highly intelligent bots.

Check the VEX website for competitions near you. Team guidelines vary depending on the local partner hosting the VEX competition. A basic VEX Kit, the Bridge Battle Competition Field, the Challenge Kit, and team supplies will cost ~$2500 per team.

In Maryland, There will be several regional VEX events in MD that will feed into the VEX Championship of the Americas and the VEX World Championship. Most of these events will be held between December and April.

For more information about VEX in Maryland, please contact: Jeff Tjiputra, Professor - College of Southern Maryland: JTjiputra@csmd.edu .

****

Many other groups hold Challenges, Workshops, and Summer Camps for Robotics. Just search the internet to find them! A great online resource is **Robot Events**: http://www.robotevents.com or the calendar page on www.firstnemo.org

****

Why we do this: Robotics is a great way to get the next generation interested in Robotics and related career paths! Without a shift in the interests of American youth, the Congressional Report "Rising Above the Gathering Storm" predicts there will be a critical shortage of skilled Scientists and Engineers within the US over the next twenty years.

Printed 7/10/2008 11:14:03 AM

A guide to youth

ROBOTICS

competitions & activities in

Maryland

****

FIRST®

VEX

Botball®

JOHNS HOPKINS UNIVERSITY

IEEE Robotics and Automation Society

Carnegie Mellon Robotics Academy

**Most Programs are Non-Profit, and Volunteer run. Please consider sponsoring or volunteering to support a program of your choice.

FIRST:

For Inspiration and Recognition of Science and Technology - http://www.usfirst.org/

"*FIRST* is an INTERNATIONAL non-profit organization whose Vision is: "To create a world where science and technology are celebrated... where young people dream of becoming science and technology heroes".

FIRST sponsors 4 Levels of competitions:

- **JrFLL** - Junior *FIRST* LEGO® League (ages 6-9)
- **FLL** -*FIRST* LEGO® League (ages 9-14)
- **FTC -**Tech Challenge (ages 15-18)
- **FRC -** Robotics Competition (ages 15-18)

The top *FIRST* teams from around the world compete at the *FIRST* World Championships held each April in Atlanta. Over $9 million in scholarships was awarded to participants in 2008.

Joining an existing *FIRST* team is usually difficult. The easiest way to participate is to form a new team with peers. Start by reviewing the sample budgets, and season schedules to determine if you can commit to being part of a FIRST robotics team.

Please note: the *FIRST* organization and their local representatives do not set up teams, or coordinate new member enrollment.

Anyone can form, and register a *FIRST* team. Recruit parents, teachers and community members as Head Coaches and Supporting mentors.

Just like sports teams, *FIRST* Teams seek local sponsors, and hold fund raisers to help pay for their supplies and fees.

Fundraising info along with hints & tips for parents can be found at *FIRST* NEMO (Non-Engineering Mentor Organization) http://www.firstnemo.org/

Jr. *FIRST* LEGO® League (JrFLL)

http://www.jfllmaryland.com

JrFLL is a non-competitive introduction to building concepts, research, and teams for ages 6-9. Registration begins in August.

FIRST LEGO® League (FLL)

http://www.firstlegoleague.org

FLL Robotics is for ages 9-14. FLL uses LEGO® Mindstorms™ RCX or NXT™ robots. FLL Teams consist of 3-10 members. Estimated cost per FLL Team is $1000. This covers national and state registrations, a Field Set up Kit, a challenge table, optional parts, T-shirts, and a reusable LEGO® MindStorms NXT robot kit.

At http://www.register4fll.com, registration opens in May and usually closes by early September. Supplies are available for order through summer. The missions are revealed in early September. FLL Teams meet 3-8 hrs per week during the fifteen week robot build cycle (Sept. thru Dec.). Completion of a research presentation is also required. Teams compete in regional events at year's end. In Maryland, the State Championship is held in January at UMBC. Please refer to http://www.umbc.edu/fll/ for rules on how teams become eligible to attend the MD State FLL Championship.

FIRST Tech Challenge (FTC)

(formerly *FIRST* VEX Challenges)
http://ftc.csmd.edu/

FTC is for high school ages. Teams of 10 or fewer members must register in early summer. Teams spend about $1,200 for the kit, additional parts, and competition registration fees. Students spend 5-15 hours per week building and programming custom robots from packaged kits that arrive in mid-September. Tournaments take place during the winter and spring. The kits include more than 500 parts, such as variable-speed motors, multiple gears, wheels, remote controls and a programmable micro-controller.

****

Carnegie Mellon University's Robotics Academy

http://www.education.rec.ri.cmu.edu

The CMU Robotics Academy has great resources for students, teachers, and parents. The Academy holds student summer camps and educator workshops. Some FIRST teams use the CMU materials to work on their robotics skills year round. Check out their May Madness Challenges!

FIRST Robotics Competition (FRC)

http://www.chesapeakefirst.org / www.usfirst.org

FIRST Robotics Competition is for high school ages. FRC competition season is Jan. thru April, although many FRC teams are active all year round. In January, new industrial grade robot kits arrive. Teams then endure six weeks of intensive building (20+ hrs per week) during which they design, build, calculate, program, test, and re-test their creation.

Registration is $6000. It takes *$10,000+* to run a competitive FRC team. Registration and payments are due by early December.

The Chesapeake Regional *FIRST* Robotics Competition in March in Maryland, and is one of more than 40 competitions held around the country.

****

BOTBALL

http://www.botball.org

Any team of middle or high school aged students is eligible to participate as long as they have an adult team leader. There is no minimum or maximum number of students per team. Typically, teams are made up of 10-15 students. Botball is a natural progression for teams with experience using LEGO® Mindstorms™ robots.

The Botball Challenge kickoff happens in September. Registration fees are due by early January. Educators' Workshops are held in January and February. Cost to register a Botball team is ~$2,500 and includes: hands-on coaches' workshop and robotics equipment that can be used year round. Each kit contains material to build two robots including Controllers; Sensors (light, touch, sonar, encoders, range finders); Motors; Vision System; software; tournament enrollment; 10 Botball T-shirts, and access to an online curriculum that provides experiments, explanations, and ideas to use with the Botball kit after the contest. Scholarships and grants are available - please see the website for details.

Botball Regionals take place in select US States, and various Middle Eastern countries including Egypt, Kuwait, and UAE. In Maryland, the closest Botball organization is the Greater DC Regional Botball Program. Their regional tournament is typically held in May, at the University of Maryland, College Park.