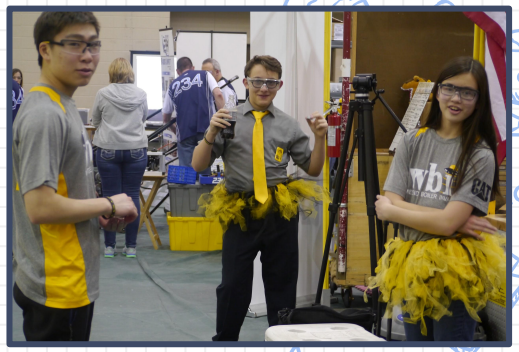
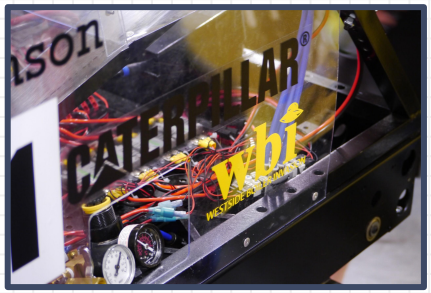
Robotics and Engineering

FIRST Team 461 Westside Boiler Invasion

About Us

- FIRST Team 461: Westside Boiler Invasion
- What We Do
  - FIRST Robotics Competition
  - FIRST Tech Challenge
  - FIRST Lego League Mentoring
  - Spreading STEM in our community



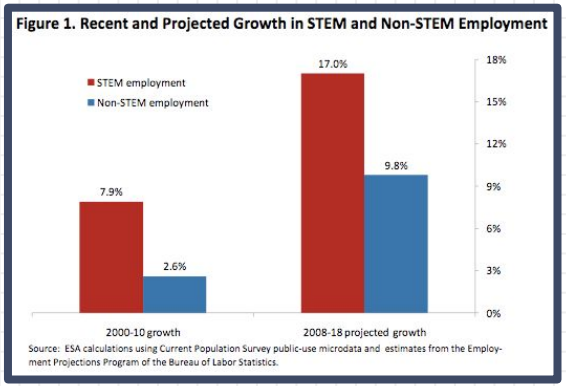


FIRST

For
Inspiration and
Recognition of
Science and
Technology

What is STEM?

- ✘ 7.6 million people in America
- ✘ Job market growing 3x faster
- ✘ Get paid 26% more



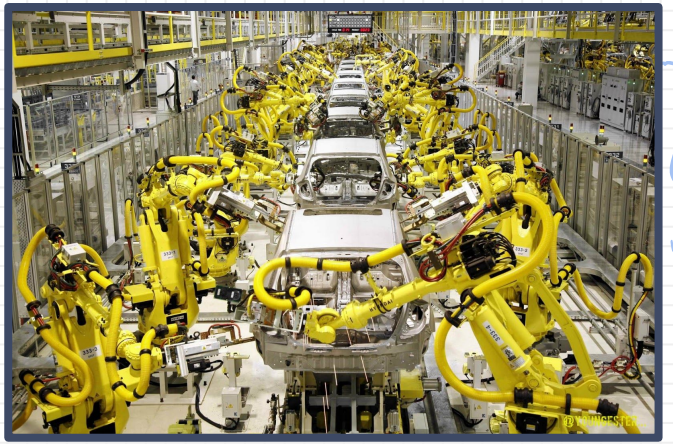
STEM

Science
Technology
Engineering
Mathematics

Youth Robotics Competitions

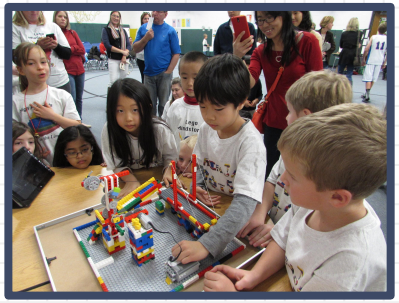
What is Robotics?

- ✘ Robotics- The branch of technology that deals with the design, construction, operation, and application of robots.
- ✘ Robots make tasks easier, safer, faster, cheaper, or possible.



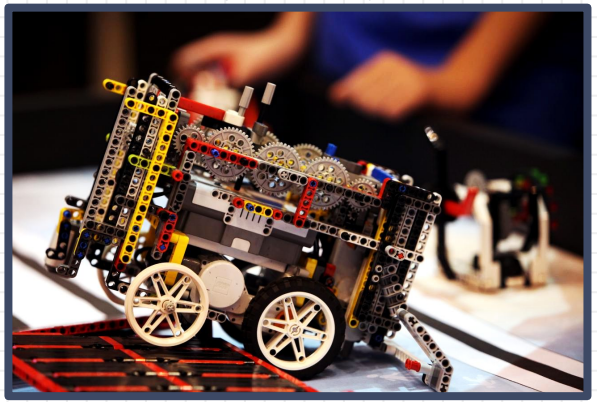
Jr. FLL

- Junior FIRST Lego League
- Ages 6-9
- 4,500 Teams
- 27,000+ Kids
- Full day Competitions



FLL

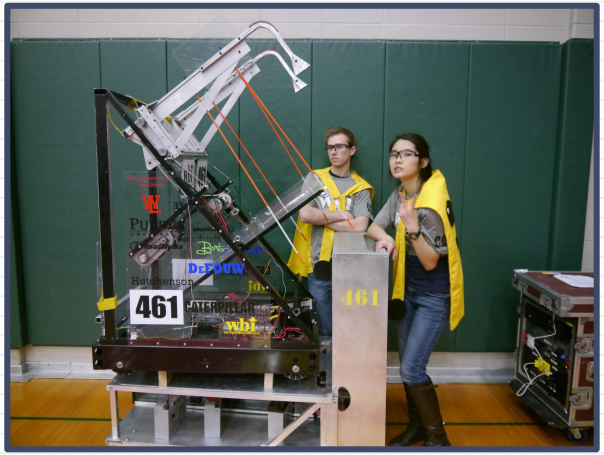
- FIRST Lego League
- Ages 9-14
- 26,000+ Teams
- 267,000+ Kids
- Full Day Competitions



FIRST Tech Challenge (FTC)

- ✘ A FIRST Competition
- ✘ Ages 14-18 (High School)
- ✘ Over 4,500 teams with more than 44,500 students
- ✘ Full-day Competitions

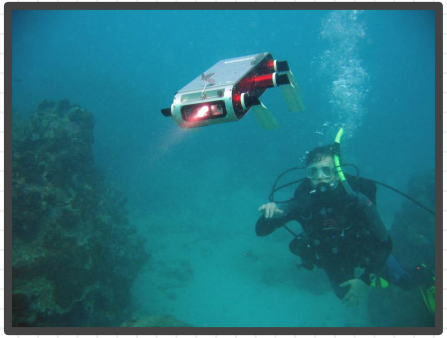
FIRST Robotics Competition (FRC)



- Part of the FIRST Program
- Ages 14-18 (High School)
- 3,000 Teams
- 75,000 Students
- Two Day Competitions
  - Day 1- Practice and Qualification Matches
  - Day 2- Qualification Matches, Alliance Selection, Elimination Matches

Career Opportunities In Robotics

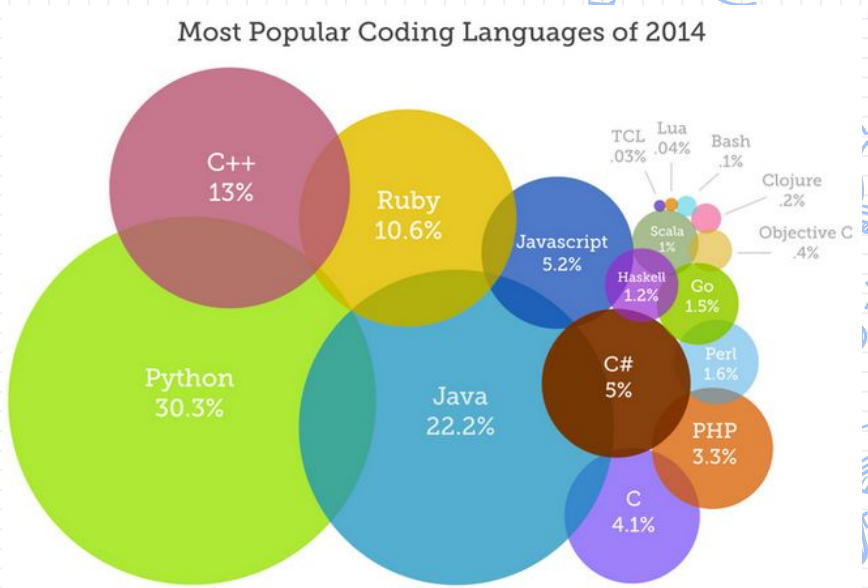
- Exploration
  - Deep Sea
  - Space
- Military
- Fields of Robotics
  - Mechanical
  - Electrical
  - Structural
  - Biomedical
  - Industrial



Programming

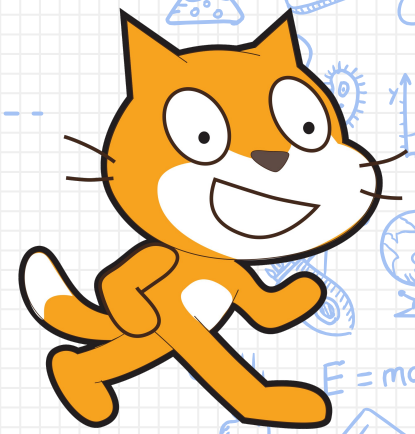
Programming

- ✘ Basic instructions that tell a computer to do something
- ✘ Many different languages
  - ✗ Scripted Languages: C, Java, Ruby, Python
  - ✗ Block programming: Scratch, Hour of Code
- ✘ All similar concepts
- ✘ Fun and rewarding!



Scratch

- Online free programming site created by MIT to help people learn programming basics
- Available in 40+ languages
- Used in 150+ countries
- https://scratch.mit.edu/



Website traffic last month

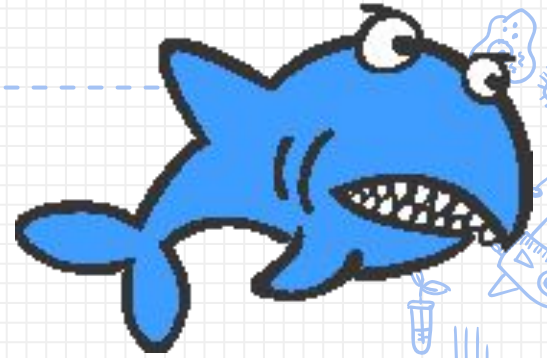
- 176,723,960 pageviews
- 33,097,120 visits
- 17,079,980 unique visitors

Community statistics at a glance

- 23,009,871 projects shared,
- 19,137,471 users registered,
- 116,259,031 comments posted,
- 3,501,969 studios created

...and growing!

Challenges



- ✘ Make a sprite move;
  - ✗ By itself (autonomous)
  - ✗ With keyboard input (teleoperated)
  - ✗ When it touches another Sprite
    - Think about adding a costume change
- ✘ Change Stages (backgrounds)
  - ✗ When sprite reaches end of screen
  - ✗ Put a unique sprite on each background
- ✘ Use a sensing block to ask a question
  - ✗ Try and incorporate the answer into your program

https://scratch.mit.edu/projects/236783354/