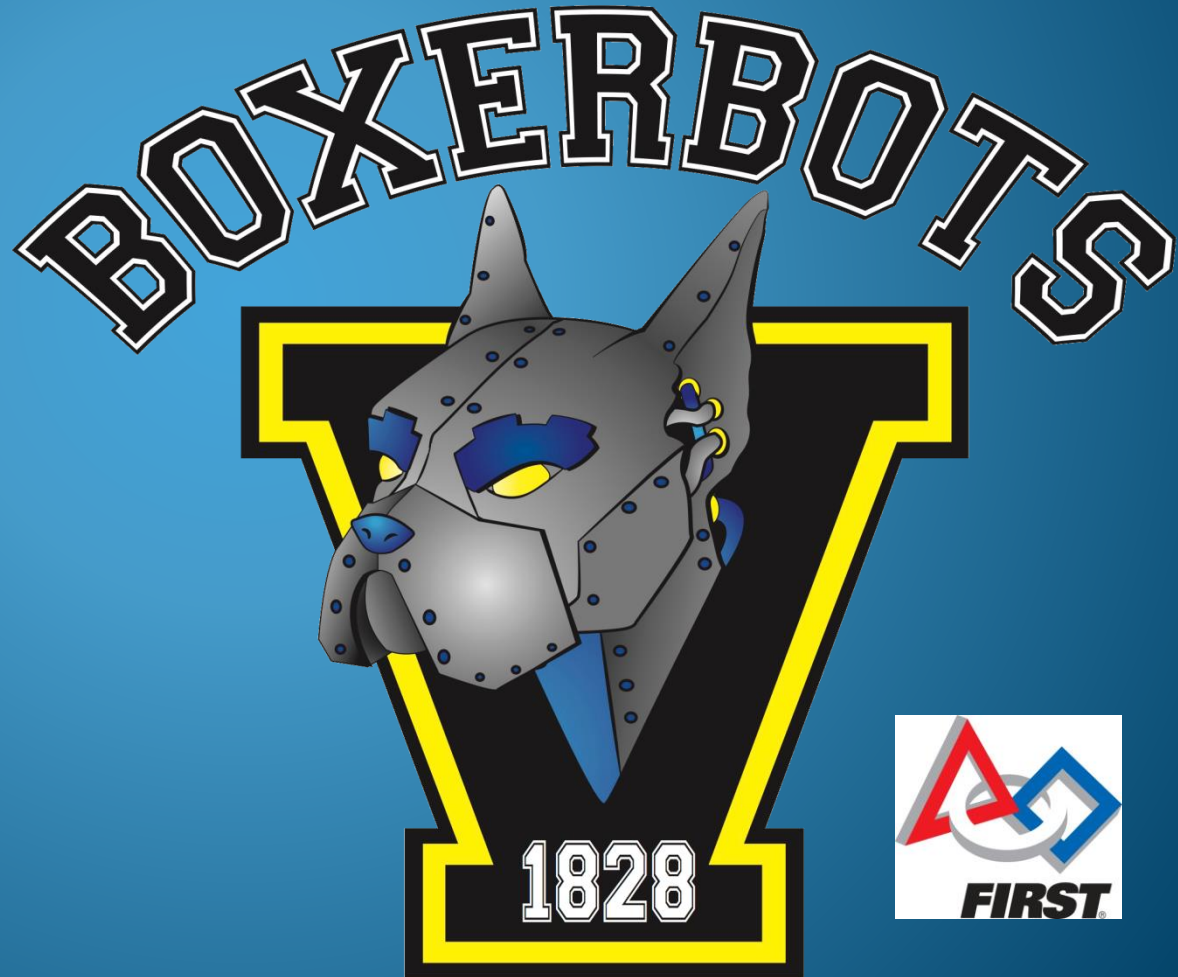
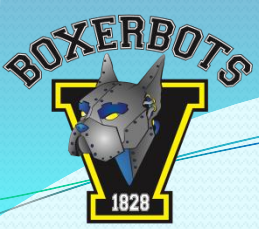


# FIRST®

Stands for:

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S  
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T  
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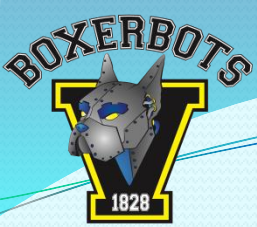
# Agenda

- About BoxerBots
  - Benefits
  - Commitment
  - Schedule
- 2024 FRC Season
- About *FIRST*



# About 1828 BoxerBots





# *FIRST* Robotics Competition Team 1828 – The BoxerBots

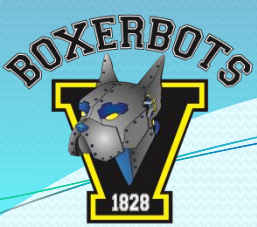
**Founded in:** 2005 by Don Adams

**Leadership:** 2 volunteer mentors, 1 alumni mentor and 2 support volunteers

**Sponsor:** CATERPILLAR INC.

**Supporters:** AZ tax credits, VAHS, Vail Coffee Stop, VUSD, and Parents & Friends of Team 1828

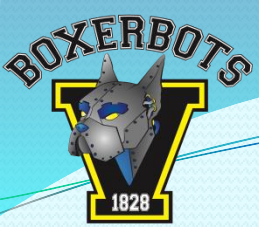




# What we do

- We are a STEM (Science, Technology, Engineering, and Math) activity, except we perform this in a very accelerated, hands-on way.
- Pre-season is a time for training, where the students learn the skills they are going to need during the build season. This includes hand tools, power tools, and all associated safety.
- Once kick-off rolls around, robots are built from a common kit of parts purchased through **FIRST**, and typically weigh up to 120 lbs.

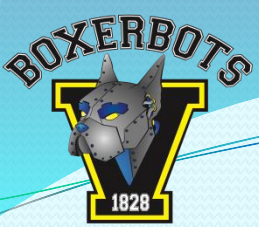




# Sub-teams

- New Build
  - Combines build, fabrication and electrical
- Advanced Fabrication (Machining)
- Software Engineering (Programming)
- Mechanical Engineering (CAD – design)
- Business
- Media



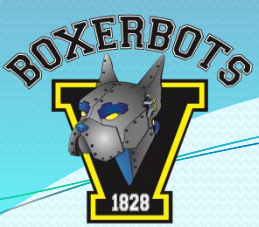


# Safety

- In everything we do
- This is a hazardous work environment.
- Some of the tools we use are the mill, drill press, horizontal band saw, TIG welder, just to name a few.
- The robot may weigh up to 130 lbs, and may move at 20+ feet per second. That's a lot of momentum in a welded aluminum frame. We've had enough torque to push mentors across a carpeted floor.
- We teach the safety, it's the team member's responsibility to follow it, for everyone's sake.





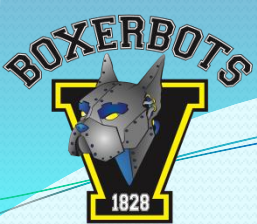


# What do the mentors do?

- We are here to
  - make sure the students are safe.
  - guide and advise the students.
  - train the students.
  - keep the students motivated.
  - handle travel arrangements.
  - watch the students succeed.







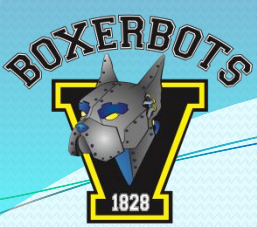
# Do the adults get to play?

- No. The mentors do not touch the robot except in the rare cases that
  - we need to put more umph into it
  - Demonstrate a process for safety purposes
- We do not touch the awards submissions.
- We do not touch the business plans.
- We do not touch the programming.
  
- This is a 100% student designed, built, wired and programmed robot.



# Benefits

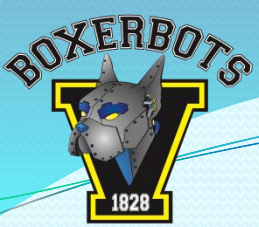




# What your student gets from this

- Your student has the potential to learn:
  - The value of teamwork and what it takes to interact with a team to develop a functional product.
  - What “Gracious Professionalism<sup>®</sup>” and “Coopertition<sup>®</sup>” is really all about.
  - To perform in a high-paced, technical environment.
  - Personal accomplishment and confidence.
  - Hands-on involvement in building a functional, competitive robot.
  - And, of course, technical skills





# Scholarships

More than \$80 million in college scholarships

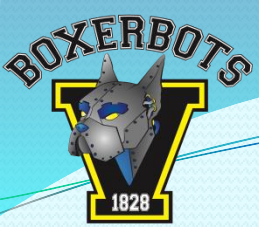
Over 750 scholarship opportunities

Over 150 scholarship providers



# Commitment

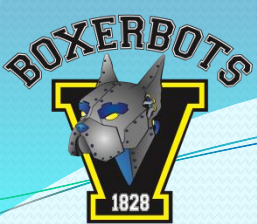




# Commitment

- This is a high-commitment team.
  - Training – Will receive training in selected area during pre-season, but they must participate.
  - Communication – Stay up-to-date on team information and happenings through the many methods of communication. Primary is email. Calendar is shared through our website.
  - Time – To learn the skills, and to employ those skills.
  - Investment – There is a \$200 fee (cash, check, or tax credit) participation fee (due by 1 November)
    - Check memo line MUST state “1828 BoxerBots”
    - “Worlds” will be another \$500 a head (including mentors)





# What we need from you

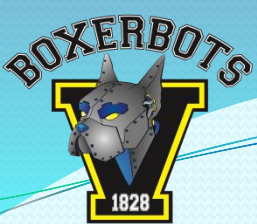
- We need you to support your team member in keeping up grades, making meetings, training, and build season.
- Communication – this is a two-way process and we appreciate questions, concerns, notices, etc.
- We need you to support the team by providing meals according to the schedule. This meal is usually for about 20 people.
- Make sure the forms are signed and turned in.
- Make sure FRC Registration is complete.





# Schedule



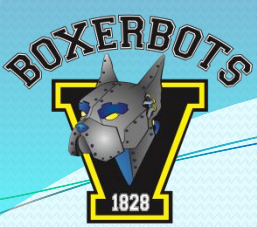


# Pre-season schedule

During the pre-season we meet:

- Wednesdays from 4pm to 6pm
- Saturdays we meet from 8am to 12pm (or later depending on needs).
- It is possible some subteams will meet more often, independent of the rest of the team. Likewise, some may meet less often.
- We operate out of the VAHS campus, Room 218.
- This is the training time, in electronics, programming, build, advanced fabrication, design, etc. so it is important for everyone to make it as often as possible.





# Build season schedule

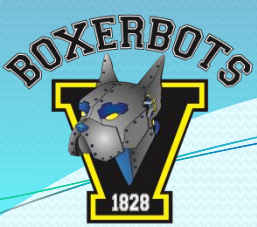
During the build season we meet:

- Mon, Tue, Wed, Fri, 3:30pm to 8pm. Dinner is served between 5:30 and 6pm.
- Saturdays we meet from 8am to 2pm, sometimes later depending on the need of the build. Lunch should be served between 11am and 11:30am.
- Students are required a minimum of 72 quality hours to participate in the home regional, 122 quality hours to be eligible to participate in the away regional.
- During build season there are 176+ hours of opportunity.



# 2024 Season

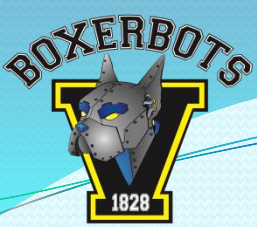




# 2024 *FIRST* Robotics Competition

- Kick-off is January 6<sup>th</sup>, 2024, when the objective for this season's competition is announced.
  - Kit pick-up group will leave around 6 am from here.
  - The rest of us will meet here. We will be open at 8am
  - Objective for the day will be making sure we fully understand the game rules, play, and strategies.
  - Snacks and lunch will be provided.
- Jan & Feb make up build season
- Mar & Apr make up competition season

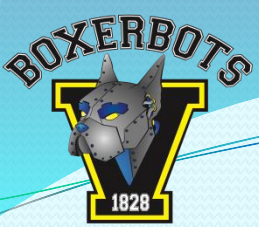




# Build Season Timeline (draft)

- Jan 6<sup>th</sup> – Kick-off. Understanding of game.
- Jan 11<sup>th</sup> – Design finalized.
- Jan 8<sup>th</sup> – Build begins. Mechanical, electrical, software.
- Jan 14<sup>th</sup> – Electrical Board complete.
- Jan 14<sup>th</sup> – Mechanical Primaries built.
- Jan 23<sup>rd</sup> – Specialty sensors programmed.
- Jan 23<sup>rd</sup> – Specialty sensors mounted.
- Feb 4<sup>th</sup> – Mechanical specials built.
- Feb 18<sup>th</sup> – 27<sup>th</sup> - Troubleshooting design, drive team game practice.



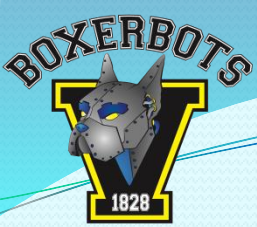


# Travel

- We try to travel to two regionals every year
- We are hoping to attend:
  - The Arizona North Regional in Flagstaff, AZ (NAU)
  - One out-of-state regional (to be selected next week)







# Operating Budget (ROM)

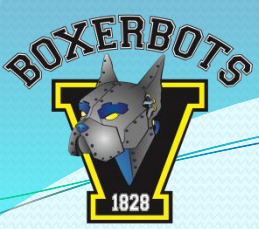
- \$6,000 Registration fee (1<sup>st</sup> regional)
- \$3,000 Registration fee (2<sup>nd</sup> and 3<sup>rd</sup> regional, each)
- ~ \$4,500 for hotel fees (x2)
- ~ \$2,000 food (meals) (x2)
- ~ \$1,000 food (snacks & water)
- ~ \$1,200 travel fees
- ~ \$3,000 in pre-season material
- ~ \$4,000 in build-season material
- ~ \$3,000 Outreach Material
- World's ~ \$22,000 alone (not incl above)

~\$37,000



# Back-up





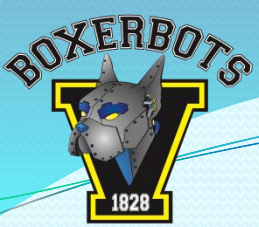
# *FIRST* History

Founded in: 1989

Headquartered in: Manchester, NH

Founder: Dean Kamen who invented the Segway and founded the DEKA Research & Development Corporation. Most notably working on a prosthetic arm in development for DARPA that should advance the quality of life for returning injured soldiers.



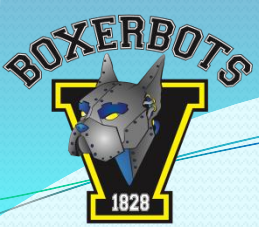


# Supporters

More than 200,000 Volunteers make *FIRST* happen.

*FIRST* is supported by a network of more than 3,500 Sponsors, including corporations, educational and professional institutions, and individuals.






# Programs

**FIRST** Robotics Competition (FRC) for Grades 9-12  
The BoxerBots are 8-12

**FIRST** Tech Challenge (FTC) for Grades 7-12

**FIRST**  
LEGO  
LEAGUE  
DISCOVER

GRADES  
PreK-1



For children ages 4-6, this playful introductory STEM program ignites their natural curiosity and builds their habits of learning with hands-on activities in the classroom and at home using LEGO® DUPLO® bricks.

**FIRST**  
LEGO  
LEAGUE  
EXPLORE


GRADES  
2-4



In Explore, teams of students ages 6-10 focus on the fundamentals of engineering as they explore real-world problems, learn to design, and code and create unique solutions made with LEGO bricks and powered by LEGO® Education SPIKE™ Essential or WeDo 2.0.

**FIRST**  
LEGO  
LEAGUE  
CHALLENGE

GRADES  
4-8



Friendly competition is at the heart of Challenge, as teams of students ages 9-16\* engage in research, problem-solving, coding, and engineering - building and programming a LEGO robot that navigates the missions of a robot game.

\*ages and grades vary by country

