



# UIL Robotics

Capital Conference 2024



David Trussell, Director of STEM Activities



# BEFORE WE GET STARTED

Register your attendance.

*Complete this form for each session you attend.*

Session numbers  
are in the program.

**SESSION 153**



**Rosters**

**CAP  
CON  
2024**



# Robotics Alphabet Soup

**BEST**

**FIRST**

**RECF-VEX**

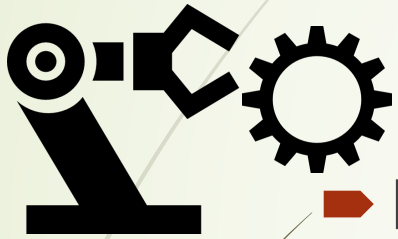
**UIL**

**FRC**

**FTC**



# UIL Robotics



- Program structure and participation
- Contest and Eligibility Rules
- Costs
- Qualifiers and Championships
- Getting Started
- Resources

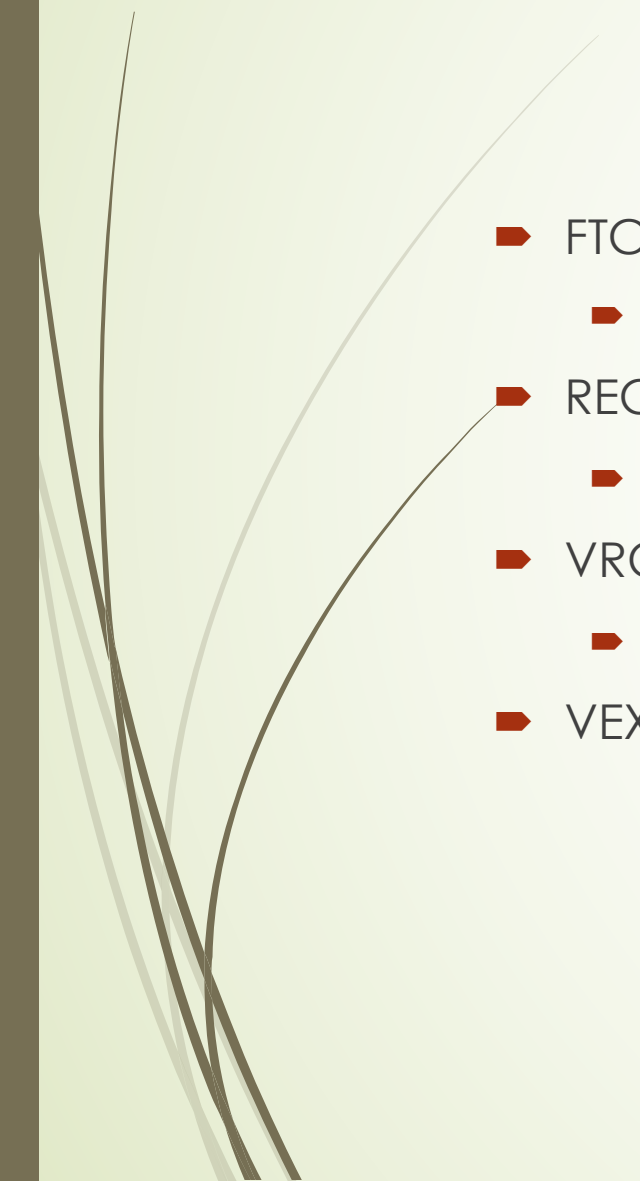


# Decoding the Alphabet Soup

- BEST – Boosting Engineering Science & Technology
  - Nationwide robotics organization with Texas roots
  - Texas has the most participation in BEST of any state
- FIRST – For Inspiration and Recognition of Science & Technology
  - Worldwide robotics organization with strong participation in Texas
  - Founded by Dean Kamen and Woodie Flowers
- FRC – FIRST Robotics Competition
  - The inaugural competition for FIRST, and still the “main event”
  - Features the largest robots and largest playing fields



# Decoding the Alphabet Soup

- ▶ FTC – FIRST Tech Challenge
    - ▶ Another FIRST program also included in UIL Robotics
  - ▶ RECF – Robotics Education & Competition Foundation
    - ▶ The organization that administers VEX competition programs
  - ▶ VRC – VEX Robotics Competition
    - ▶ The VEX competition program included in UIL Robotics
  - ▶ VEX is a Texas-based company that produces educational robotics products
- 

# Program Structure

- ▶ UIL Robotics is a collaboration
  - ▶ Two partner organizations since 2016



## BEST Division

- One competition platform
- Fall season



## FIRST Division

- Two competition platforms
- FIRST Tech Challenge (FTC)
  - Fall/spring season
- FIRST Robotics Competition (FRC)
  - Winter/spring season



# And Now a Third...



## RECF-VEX Division

- Official contest in 2024-2025, following two successful pilot years
- One competition platform – VRC (VEX Robotics Competition)
- Fall/spring season
- VEX competition programs are administered by the Robotics Education & Competition Foundation (RECF)





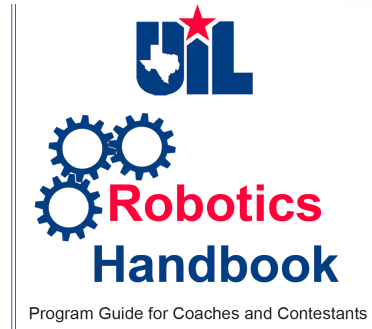
# Participation in Robotics

- ▶ Which competition is the right fit for my school community?
- ▶ Your school can compete in any or all UIL Robotics divisions
- ▶ More schools are including multiple competition platforms in their robotics programs
  - ▶ Your school can participate in any combination of robotics competition platforms
- ▶ Participation can change over time

# Contest Rules

- UIL rules determine team eligibility to compete for UIL Championships and specify championship criteria

- UIL Robotics Handbook



- BEST, FIRST and RECF-VEX rules determine how the contests are run - contest specifications, qualifier structure, judging, scoring, etc.



# Student Eligibility and Team Composition

- ▶ Robotics participants must meet standard eligibility rules required by state law, UIL and local school district policy
  - ▶ e.g. No Pass No Play
- ▶ To be eligible for UIL honors, teams must be:
  - ▶ High school-based
  - ▶ Have a majority of team members in grades 9-12
- ▶ High school-based teams that include some middle school students (composite teams) are eligible for UIL state championships
- ▶ Teams that include students from multiple high schools (combined teams) are NOT eligible for UIL state championships
  - ▶ STEM center campuses and full-time student requirements



# Costs



- No fees paid to UIL for robotics participation
- Robotics organization fees
  - Independent organizations that are self-funded
  - Yearly registration
  - Meet entry fees
  - Equipment costs – startup and recurring



# Qualifier Meets

- ▶ Participation in the regular season for the robotics organization is required
- ▶ No UIL district or regional contests
- ▶ Qualification to the UIL Robotics State Championships is based on your team's scores in BEST, *FIRST* or RECF-VEX qualifier meets
  - ▶ BEST – Hub Competitions
  - ▶ FTC – League play, regional\* contests
  - ▶ FRC – District\* model
  - ▶ RECF-VEX – League play, regional\* contests
- ▶ Qualifier meets are organized and administered by the robotics organizations, not by UIL
  - ▶ Collaboration --> Championships

\* - *FIRST* and VEX districts and regions are not linked in any way to UIL districts and regions



# State Championships

- ▶ UIL Robotics State Championships are invitational
- ▶ Invitations are based on performance in BEST, *FIRST* or RECF-VEX qualifier meets plus consideration of the number of competing teams in a given location
- ▶ Points/rankings systems from Robotics organizations
  - ▶ UIL collaboration on specifications and priorities for advancement
- ▶ The number of slots available is based on the number of qualifier meets and participating teams, plus what the venue and schedule will allow
- ▶ Waiting lists are maintained



# Concurrent Scheduling

- ▶ A UIL Championship and a BEST/*FIRST*/RECF-VEX Championship in a single event
- ▶ Two scoring tracks
  - ▶ UIL Awards track – only UIL eligible teams, awards presented by UIL
  - ▶ Robotics Awards track – UIL and non-UIL teams, awards are presented by the robotics organization
- ▶ Why concurrent versus standalone UIL championship?
  - ▶ Large-scale Robotics events are complex (and expensive) to organize and to host
  - ▶ Reduce travel and loss of school time





# Robotics and UIL Classifications

- ▶ Robotics is not split into UIL Conferences 1A-6A
- ▶ BEST Division:
  - ▶ Two competition groups and two state champions: small school (1A-4A) and large school (5A-6A)
  - ▶ Planned move to three groups for 2024
- ▶ FIRST Division:
  - ▶ FTC – Conferences 6A, 5A, 4A and below; three state champions
  - ▶ FRC – single competition group; one state champion
- ▶ RECF-VEX Division
  - ▶ Conferences 6A, 5A, 4A, 3A and below; four state champions

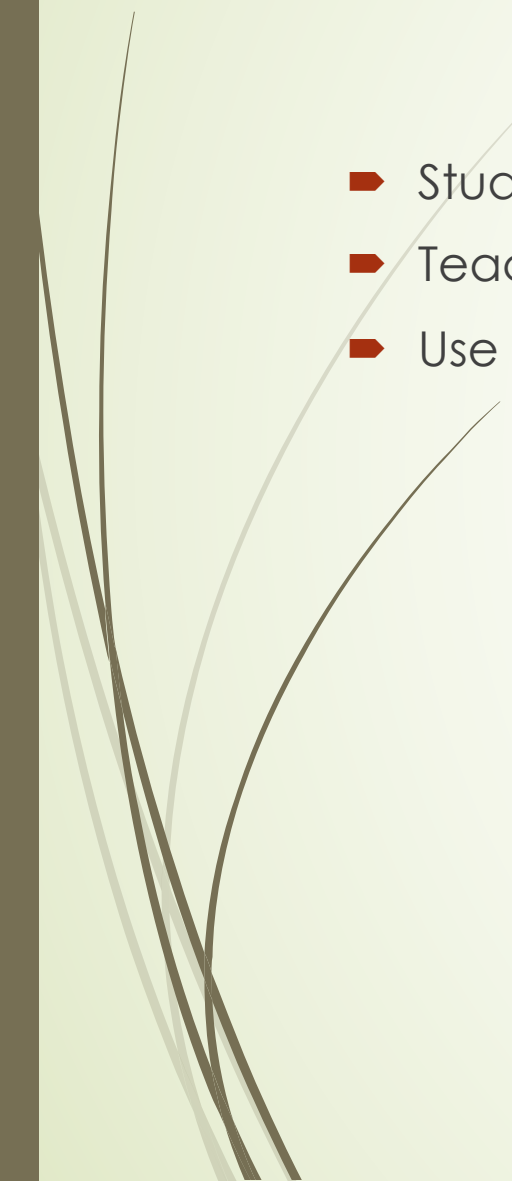


# UIL Points and TILF Scholarships

- ▶ Robotics receives points toward overall Academics State Championships
  - ▶ 1st place = 20 points; 2nd = 16 pts.; 3rd = 12 pts.; 4th = 10 pts.  
*(When placement is determined by elimination bracket, non-advancing semifinalists split 3rd and 4th place points)*
  - ▶ No district or regional points
- ▶ Lone Star Cup points
  - ▶ State 1<sup>st</sup> place – 6 points; 2<sup>nd</sup> place – 4 points; 3<sup>rd</sup> place – 2 points; State championship berth – 1 point
- ▶ TILF eligibility
  - ▶ Students on teams that finish in the top 10 for their competition group at the state championships



# Local Policies

- ▶ Student letters or letter jackets
  - ▶ Teacher compensation (stipends paid to coaches, etc.)
  - ▶ Use of school facilities, transportation, etc.
- 




# Participation in Robotics – First Steps

- ▶ Register a team with the organization you have chosen
- ▶ Team registration happens through the national offices of BEST, FIRST or RECF
  - ▶ [www.bestrobotics.org](http://www.bestrobotics.org)
  - ▶ [www.firstinspires.org](http://www.firstinspires.org)
  - ▶ [www.robotevents.com](http://www.robotevents.com)
- ▶ Texas affiliates will help you
  - ▶ [www.bestoftexasrobotics.org](http://www.bestoftexasrobotics.org)
  - ▶ [www.firstintexas.org](http://www.firstintexas.org)
  - ▶ [www.robotevents.com/support](http://www.robotevents.com/support) (RECF-VEX, click Texas on the map for contacts)



# Robotics In Your School


- ▶ Potential to be a program, not just a contest
- ▶ What makes a program?
  - ▶ Ties to curriculum
  - ▶ Dedicated funding, facilities, personnel
  - ▶ Year-round student engagement
  - ▶ Multiple platforms for competition
  - ▶ Engagement of the larger school community
- ▶ Reach new groups of students
- ▶ Build a culture
- ▶ Think of other programs at your school – band, theatre, speech/debate, athletics



# Which Program to Choose?

## Some Factors to Consider...

- ▶ Scheduling
  - ▶ BEST – compact fall season
  - ▶ FRC – compact spring season
  - ▶ FTC – spread out season (UIL championship in March/April)
  - ▶ VEX – spread out season (UIL championship in February)
- ▶ Cost and available resources
  - ▶ BEST, FTC and VEX are comparable, FRC costs more
  - ▶ Lots of variables – available facilities/equipment, travel considerations, etc.
- ▶ Personnel
  - ▶ What is the best fit for the educator(s) who will be working with the robotics program at my school?



# Which Program to Choose?

## Some Factors to Consider...

- ▶ Educational focus
  - ▶ In general, BEST and FRC will include a heavier engineering component, while FTC and VEX incorporate more programming
  - ▶ BEST – build from raw materials
  - ▶ FRC – build with higher-end machining
  - ▶ FTC and VEX – build from prefabricated parts
- ▶ Additional competition elements
  - ▶ Presentations, engineering notebooks, etc.



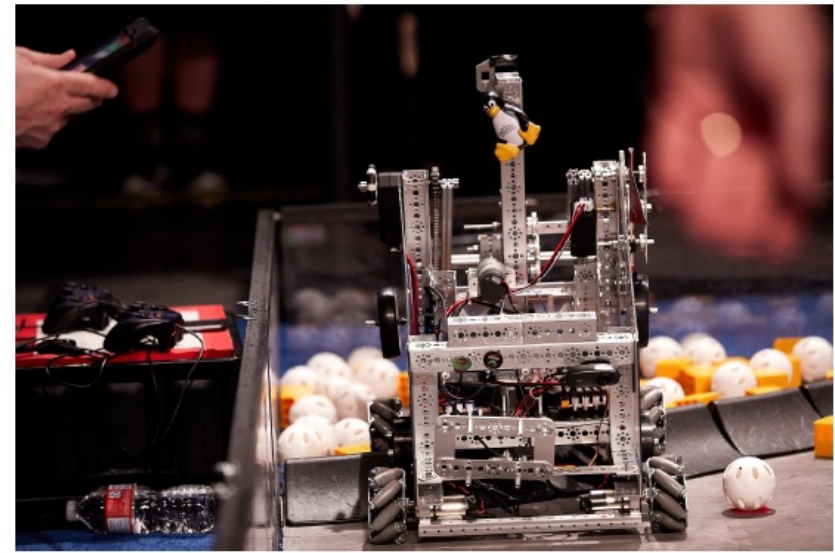
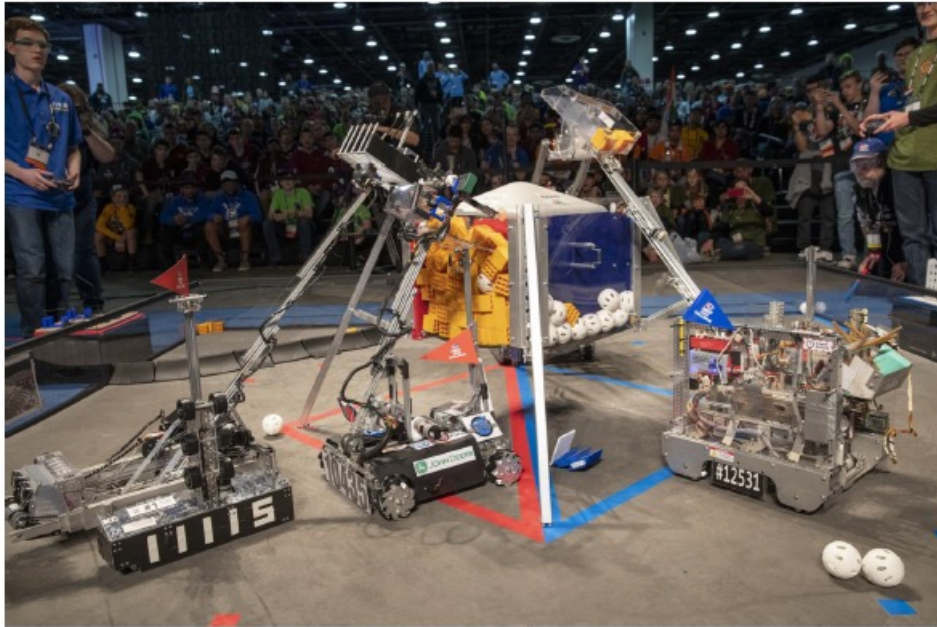
# Example Robots - BEST



Some robots  
from 2017 BEST  
competition:  
"Crossfire"



# Example Robots - FTC

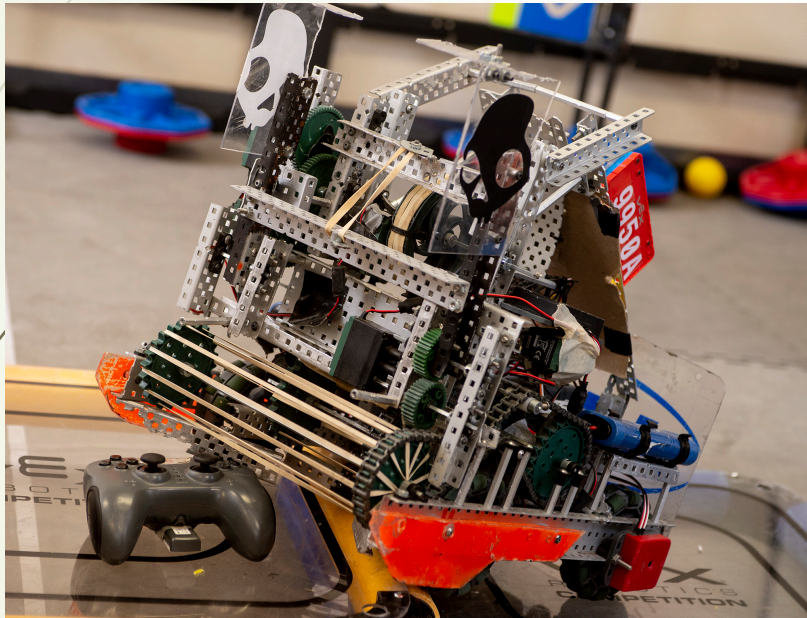




# Example Robots - FRC



# Example Robots – RECF-VEX





# Resources

- ▶ BEST
  - ▶ [National Headquarters website](#)
  - ▶ [National Registry](#)
  - ▶ [BEST of Texas](#)
- ▶ FIRST
  - ▶ [FIRST HQ website](#)
  - ▶ [FIRST in Texas](#)
- ▶ RECF-VEX
  - ▶ [RECF website](#)
  - ▶ [Team engagement manager](#)





# Resources



- ▶ Robot parts and kits, game fields, etc.
  - ▶ BEST – kit of parts included with registration
    - ▶ Limited use of customized parts
  - ▶ FTC – purchase through AndyMark or REV Robotics
    - ▶ Many parts are reusable year to year
  - ▶ FRC – kit of parts included with registration
    - ▶ Lots of customization options
  - ▶ RECF-VEX – purchase through VEX Robotics
    - ▶ Many parts are reusable year to year
- ▶ Grant funding available – check with Texas contacts for each organization
- ▶ Community sponsorships



# THANK YOU FOR ATTENDING

Registration link,  
presentations and handouts  
are available on the website.

*Remember to register your  
attendance for each session.*

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Handouts & More