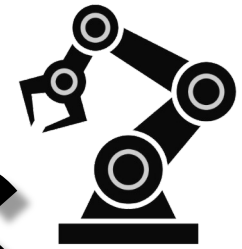




**BITS &
BOTS**



ROBOTICS

Student Activities Conferences 2023

David Trussell, Director of STEM Activities

ROBOTICS ALPHABET SOUP

BEST

FIRST

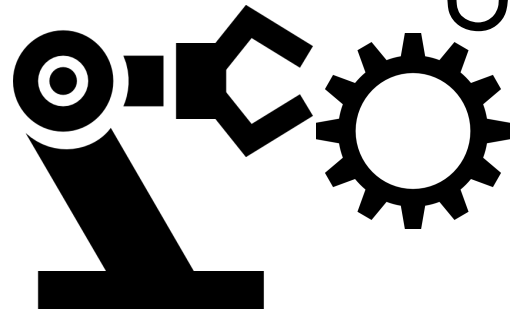
RECF

UIL

VEX

FRC

FTC



UIL ROBOTICS BITS & BOTS

- Program structure and participation
- News and Updates
- Rules
- Robotics in your school community
- Options for participation

DECODING THE ALPHABET SOUP

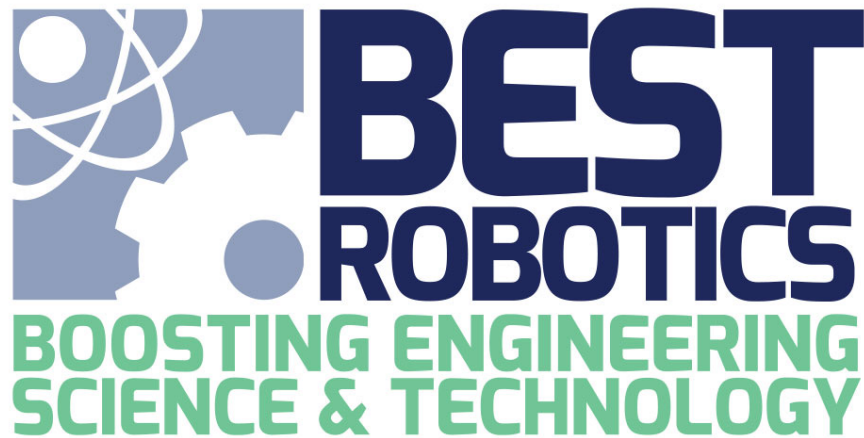
- BEST – Boosting Engineering Science & Technology
 - Nationwide robotics organization with Texas roots
 - Texas has the most BEST participation of any state
- FIRST – For Inspiration and Recognition of Science & Technology
 - Worldwide robotics organization with strong participation in Texas
 - Founded 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
 - New to UIL Robotics beginning last year
 - VEX is not an acronym – a Texas-based company that produces educational robotics products

PROGRAM STRUCTURE

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

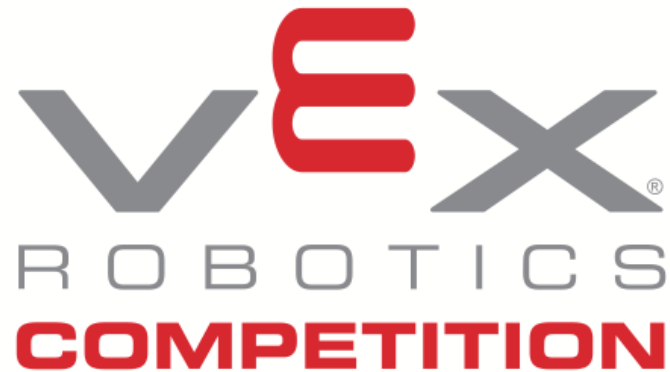


PROGRAM STRUCTURE

- BEST Division
 - One competition platform
- *FIRST* Division
 - Two competition platforms
 - *FIRST* Tech Challenge (FTC) and *FIRST* Robotics Competition (FRC)
 - A school can do both
 - *FIRST* restrictions on students doing both

AND NOW A THIRD...

- RECF-VEX Division
 - Pilot Program continues for 2023-2024
 - Official adoption in 2024-2025 if approved by UIL Legislative Council
 - One competition platform – VRC (VEX Robotics Competition)
 - 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 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

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
 - www.firstinspires.org
 - www.roboticseducation.org
- Texas affiliates will help you
 - www.bestoftexasrobotics.org
 - www.firstintexas.org
 - RECF Texas contacts

PARTICIPATION IN ROBOTICS – FIRST STEPS

- Attend workshops and other events
- Network – other coaches are happy to help you!
- Connect with your local competition group
 - BEST – hubs
 - FIRST – areas or regions
 - VEX – regions
 - Texas affiliates will help you make those connections

PROGRAM STRUCTURE - QUALIFIERS

- Robotics does not fit the traditional “Spring Meet” structure
 - Other newer contests - Congress, Theatrical Design, Film
- No UIL district or regional contests
- Qualification to the UIL Robotics State Championships is based on your team’s scores in *FIRST* or BEST qualifier meets
 - BEST – Hub Competitions
 - FTC – League play, regional* contests
 - FRC – District* model
 - VRC – 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 – just similar terminology

PROGRAM STRUCTURE – STATE CHAMPIONSHIPS

- The UIL State Championships are invitational
- Invitations are based on performance in BEST, *FIRST* or 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



COMPETITION SEASON - BEST

- Runs entirely in the fall
- Kickoff events in early September
- Six-week build season
- Practice days and qualifier meets in October through early November
- UIL State Championships (and Texas BEST Regional) in early December

COMPETITION SEASON - *FIRST*

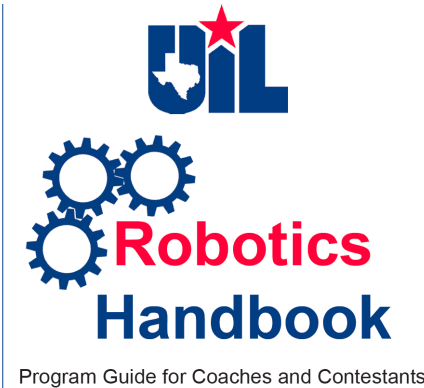
- FTC (*FIRST* Tech Challenge) kickoff in early September
 - Open build season
 - Qualifier meets December-February
 - UIL State Championships in the spring
- FRC (*FIRST* Robotics Competition) kickoff in early January
 - Six week build season (then bag and tag)
 - Qualifier meets late February-March
 - UIL State Championships in early April

COMPETITION SEASON – RECF-VEX

- Game announcement during summer
- Open build season
- Qualifier meets November-February
- UIL State Championships in February

WHO MAKES THE RULES?

- UIL rules determine team eligibility to compete for UIL Championships and specify championship criteria
- UIL Robotics Handbook
- BEST, FIRST and VEX rules determine how the contests are run - contest specifications, qualifier structure, judging, scoring, etc.





LOCAL POLICIES - FAQs

- The following are school district decisions:
 - Policies for which students receive letters or letter jackets
 - Policies concerning teacher compensation (stipends paid to coaches, etc.)
 - Policies on use of school facilities, transportation, etc.

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)
- FIRST Division:
 - FTC – Conferences 6A, 5A, 4A and below; three state champions
 - FRC – single competition group; one state champion
- RECF-VEX pilot structure to be determined
 - Conferences 6A, 5A, 4A, 3A and below; four state champions

UIL POINTS AND TILF SCHOLARSHIPS

- *Does not apply for RECF-VEX as a pilot program*
- 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 1st place – 6 points; 2nd place – 4 points; 3rd 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

TEAM COMPOSITION AND STUDENT ELIGIBILITY

- To be eligible for UIL honors, teams must be:
 - High school-based
 - Have a majority of students 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

TEAM COMPOSITION

- Robotics groups are independent organizations with participation rules that include teams that do not fit UIL eligibility requirements
- Teams that do not meet the criteria for UIL eligibility can continue to participate with BEST, FIRST or VEX
- Non-UIL teams (home school teams, club-based teams, etc.) are not eligible to receive UIL awards or championships, but can receive awards from the Robotics groups and advance in those organizational structures
- Also applies for middle school based teams

CONCURRENT SCHEDULING

- A UIL Championship and a BEST/*FIRST*/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 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.

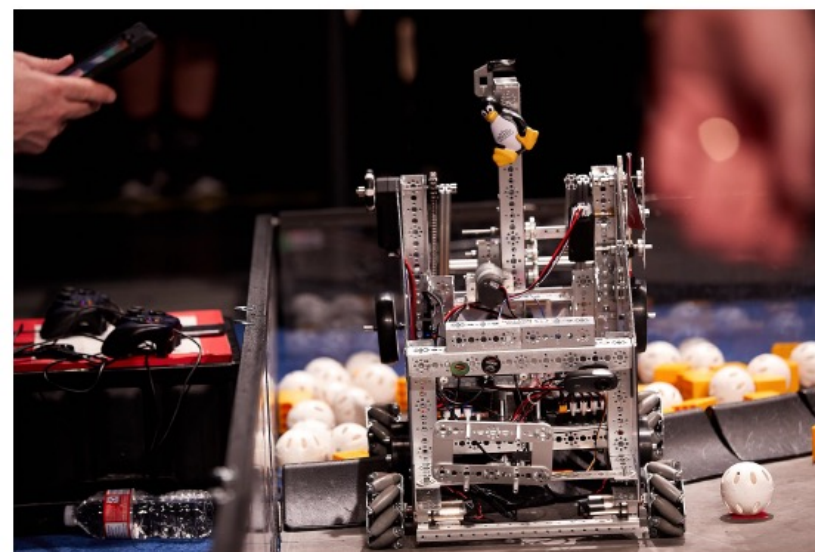
EXAMPLE ROBOTS - BEST



Some robots
from 2017 BEST
competition:
"Crossfire"



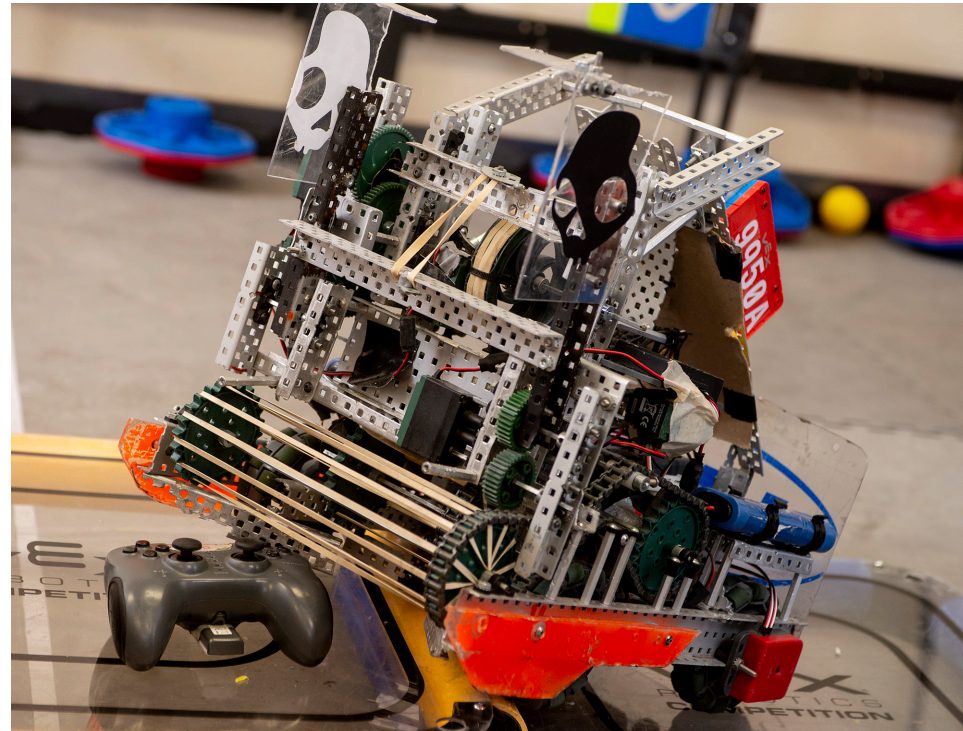
EXAMPLE ROBOTS - FTC



EXAMPLE ROBOTS - FRC



EXAMPLE ROBOT – 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](#)
- [UIL Website](#)
 - (updates in progress)
 - [Email: robotics@uiltexas.org](mailto:robotics@uiltexas.org)

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



VIDEOS AND WEB HIGHLIGHTS