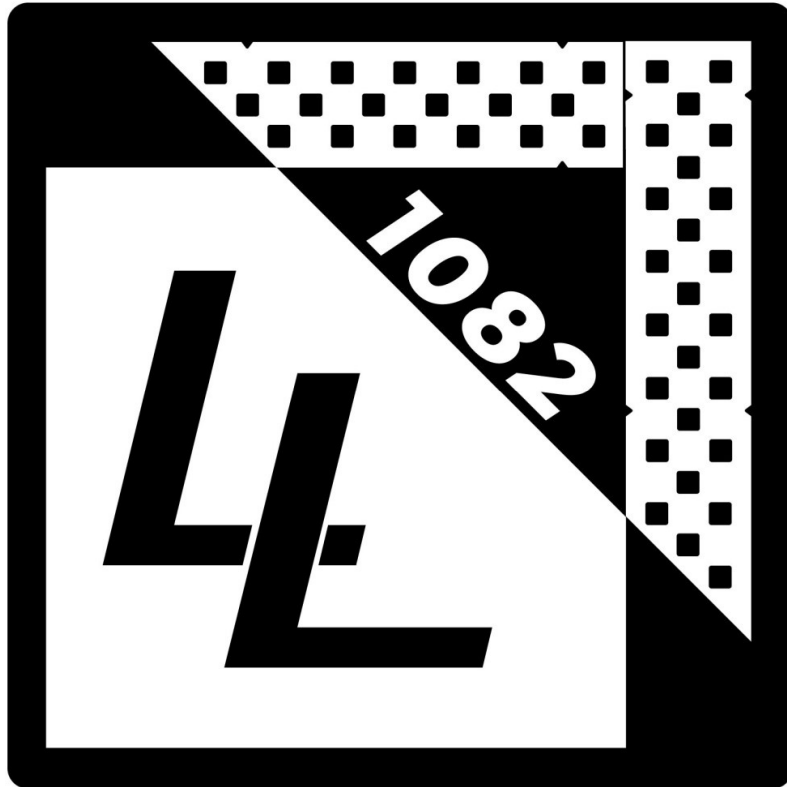


LOVEJOY



ROBOTICS

**Introduction to
VEX Robotics
Competitions
(VRC)**

**Spectator
Primer**

by Eric Schnurr

Sept 20th, 2022

Agenda

Part I – Introduction to Robotics

- Organizations
- What a Season looks like
- What a Tournament looks like

Objective

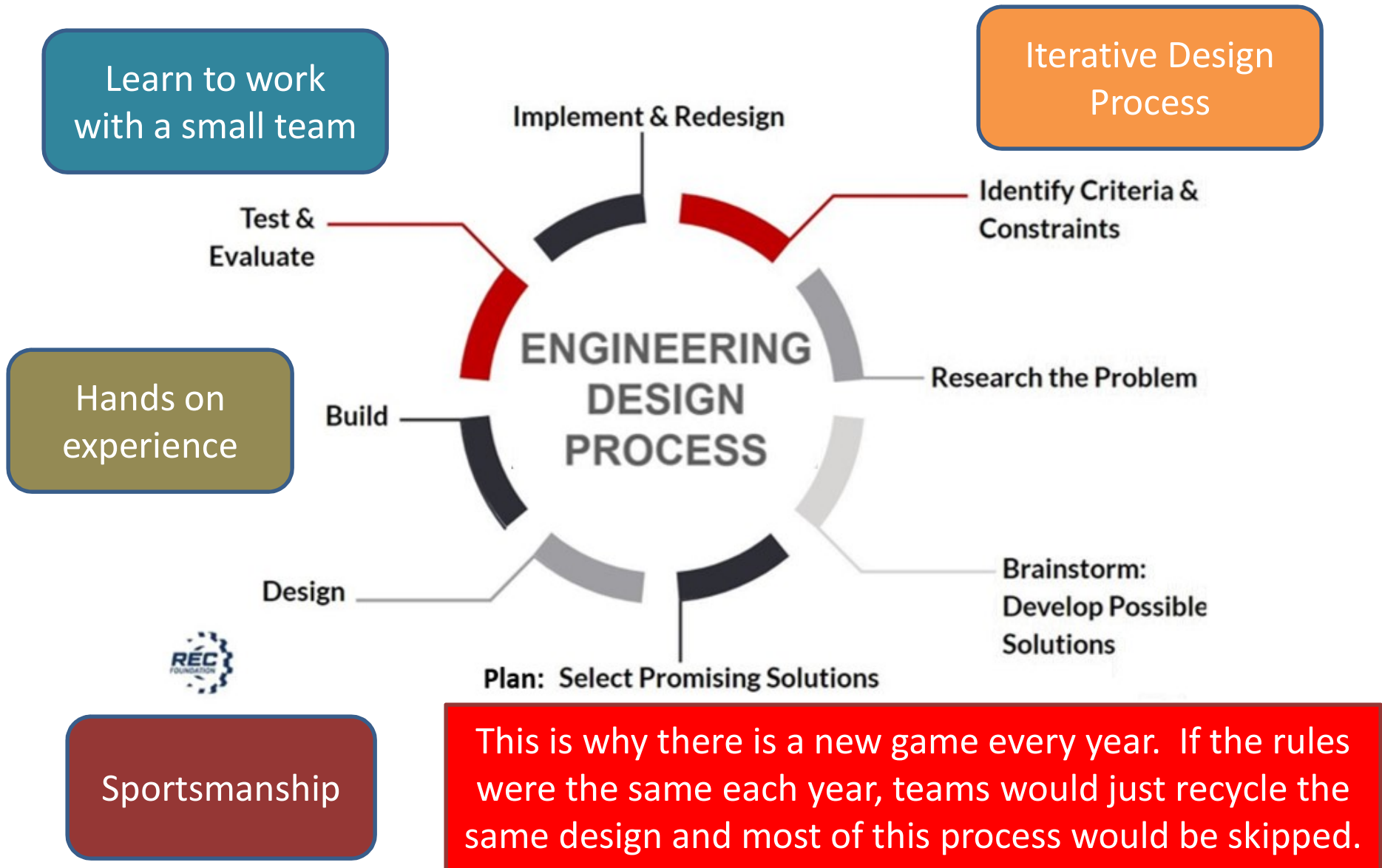
Give spectators an understanding about VEX Robotics Competitions so they can better appreciate watching their students at competitions

My Background

- Electrical Engineer working in Telecommunications
- Entering 3rd year as volunteer parent & head ref
- Refereed 14 tournaments during last season totaling 900 matches including Texas Region 2 MS & HS Championships and Scorekeeping at World's

I am very passionate about the real world experience that VRC gives students

Benefits of VRC

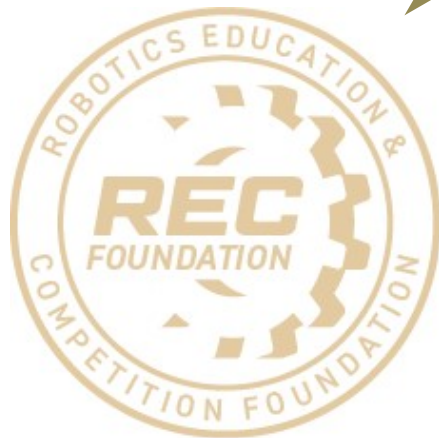


Organizations



- **VEX Robotics** – Company that builds the robotics parts we use, based out of Greenville, Texas

- **V5**: This is the specific model/group of parts our teams use



- **REC** (Robotics Education & Competition Foundation)

- Organization that creates the rules and manages the season's events

VEX / RECF Philosophy

- Code of Conduct
 - [linked here](#)
- Rule G1 – Treat Everyone With Respect
- Rule G2 – VRC is a Student-centered program
 - Adults may not directly work on a robot
 - Coaches or Adults are not allowed at the field during matches

Most tournaments have the
Code of Conduct posted

Levels of Competition

➤ **VEX IQ (Grades 4-8):** This is a 2 team co-operative game using plastic snap together parts (IQ).

➤ **VRC - VEX Robotics Competition (Grades 6-12):**
This is our 8th Grade & HS teams. Matches are a 2 v 2 head to head competition using V5 parts (metal).

➤ **VEX AI Competition (HS & Univ):** Each team builds 2 robots, 100% programmed for 2 minutes matches.

➤ **VEX U (University):** Each team builds 2 different sized robots, uses V5 parts but allows for 3D printing.

VRC Robotics Teams

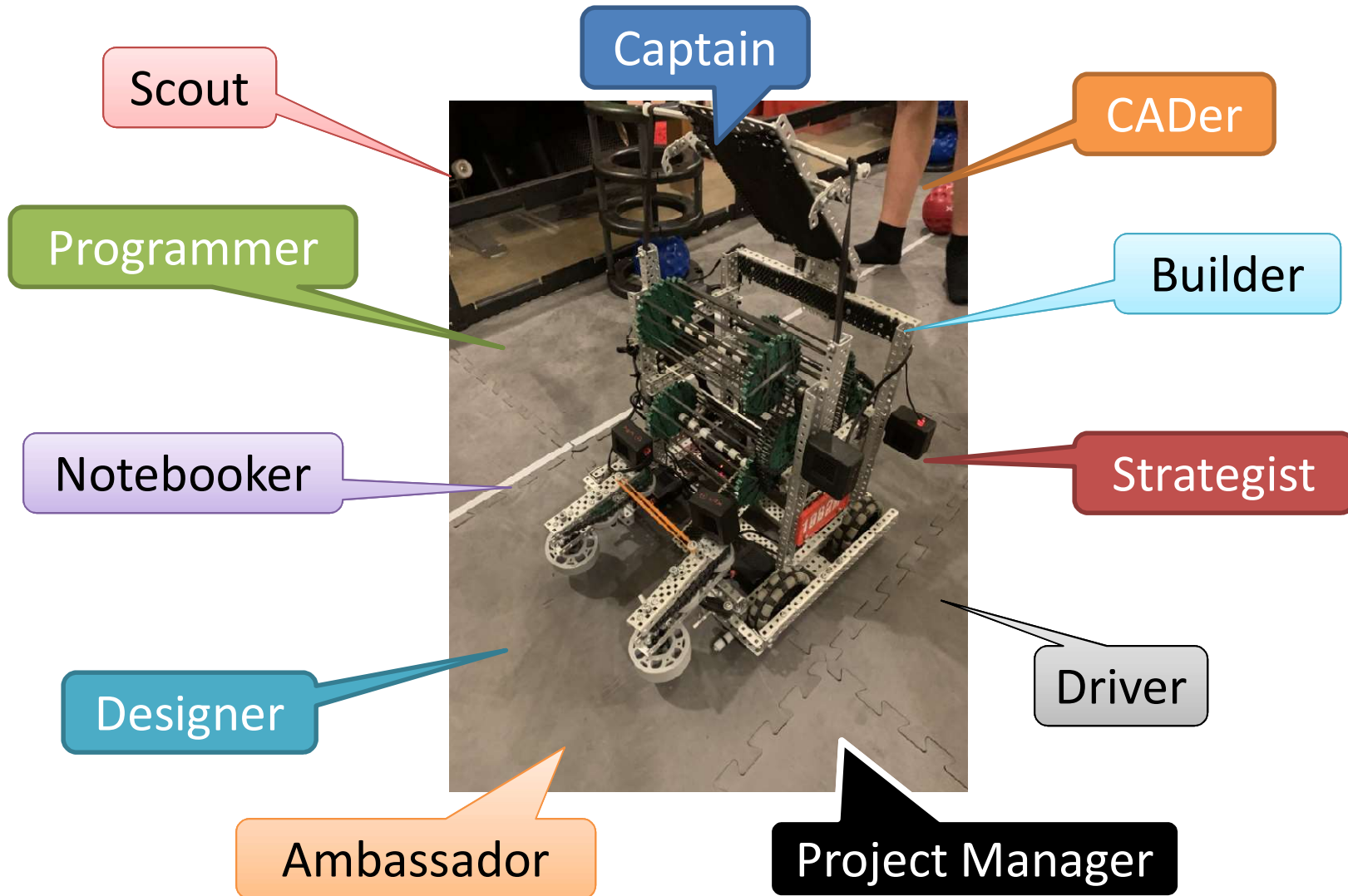
- Organizations have up to a 5 digit number registered with RECF
- Each team then adds a single letter to designate the specific team within that org
- Teams are usually 4-8 members

LHS is “1082” - IE 1082A or “A”
WSMS is “10820” - IE 10820A or “0A” or
“Zero A”



Anatomy of a Robotics Team

Many students will wear multiple hats





VRC Season Timeline



May'22

Aug

Oct

Feb

March

Apr'23

Spin Up Kickoff

- At end of previous World's (<https://youtu.be/wlZgvVDZc2Y>)
- Teams formed
- Brainstorming and Designs start

School Starts

- Start of classes
- Builds start
- New students added to teams

State 5A 'UIL'

(TBA)
Accepted as a trial
this year

State / Regionals
(Texas Region 2)
(Mar 4 & 5)

WORLD's!!!
(Dallas)

Tournaments / Leagues

- Continue Building, Programming, and Notebooking
- Participate in tournaments
- Earn State Slots by winning top Awards
- Signature Events
- Rebuilds – team may decide to rebuild part or all of their robot

Part I – Introduction to VRC

The Road to World's



The Road to World's

- **Tournaments – Oct through Feb**
 - Generally an all day Saturday event
 - Award **Regional Championship Slots** (3-6)
- **Signature Events – Oct through Feb**
 - 1 ½ or 2 day events
 - requires 50% of teams to be from outside region
 - Award **World Slots** (3-4)

Most regions are a state or country
TX & CA each have 4 regions

The Road to World's

- **Texas UIL 5A Championship (mid Feb)**
 - “Pilot” year with UIL
 - Location and format TBA
- **Regional Championships (Mar 4th [HS] & 5th [MS])**
 - 1+ day for MS & HS (Fri evening & Sat all day)
 - HS was 70 teams last year in 2 divisions
 - Award **World Slots** (35 for HS last year)

Lovejoy resides in Texas Region 2
“North Texas”
Abilene to Texarkana to Wichita Falls

The Road to World's

- Dallas @ Kay Bailey Hutchinson Convention Center in April 25-29th 2023
- 3 days for HS (Tue-Thu) & MS (Thu-Sat)
- Judges awards given out for each division
- 1 Alliance (2 teams) from each division advance to finals in the arena

Last Year HS World's had 820 teams
split into 10 divisions
25 countries represented

World's – Pit Areas



Part I – Introduction to VRC

World's Divisional Fields



World's Finals Arena



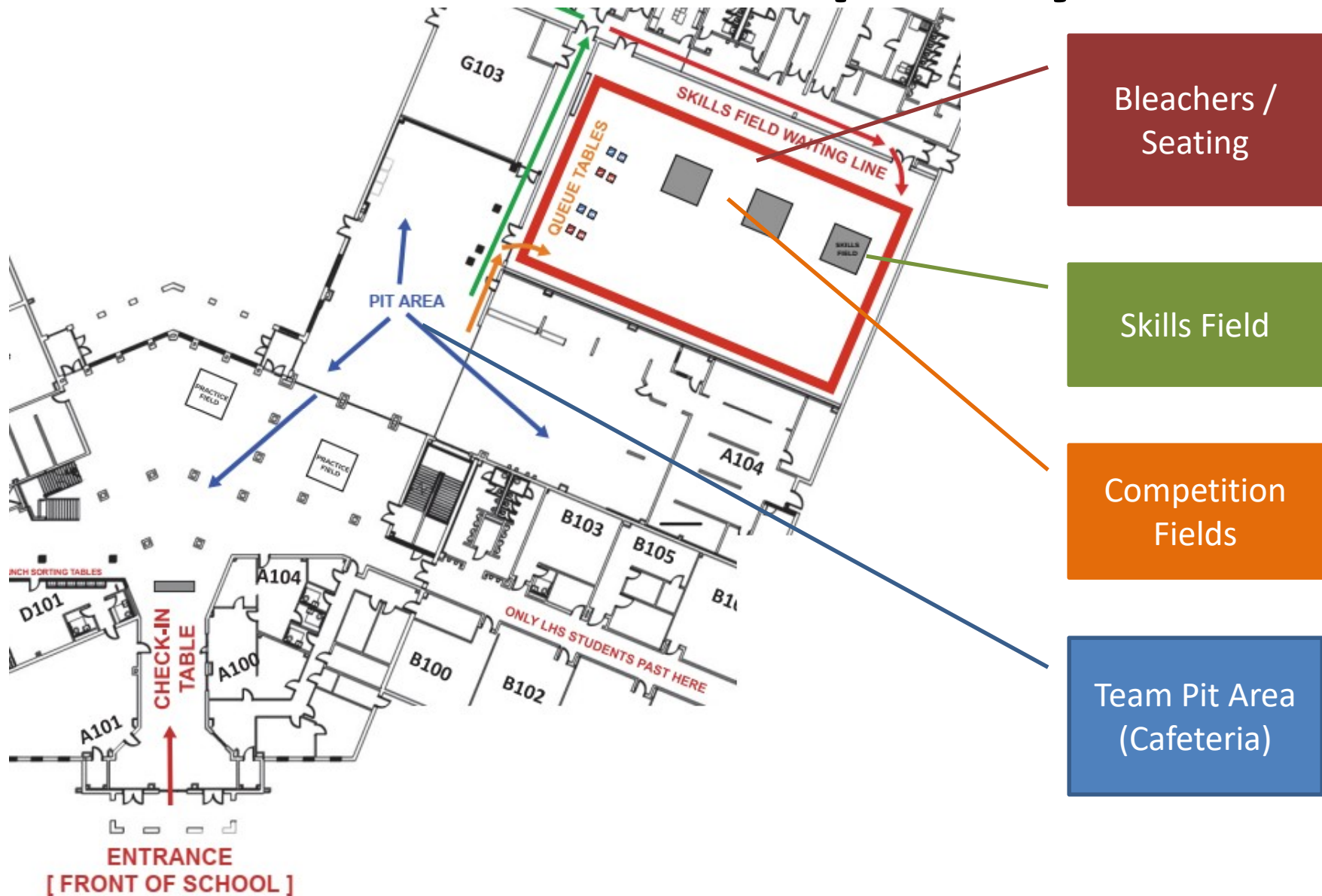
World's Finals
Tipping Point – 2021-22 Season
Match 3 – Tied 1-1

https://youtu.be/5jCEpxN_bt8

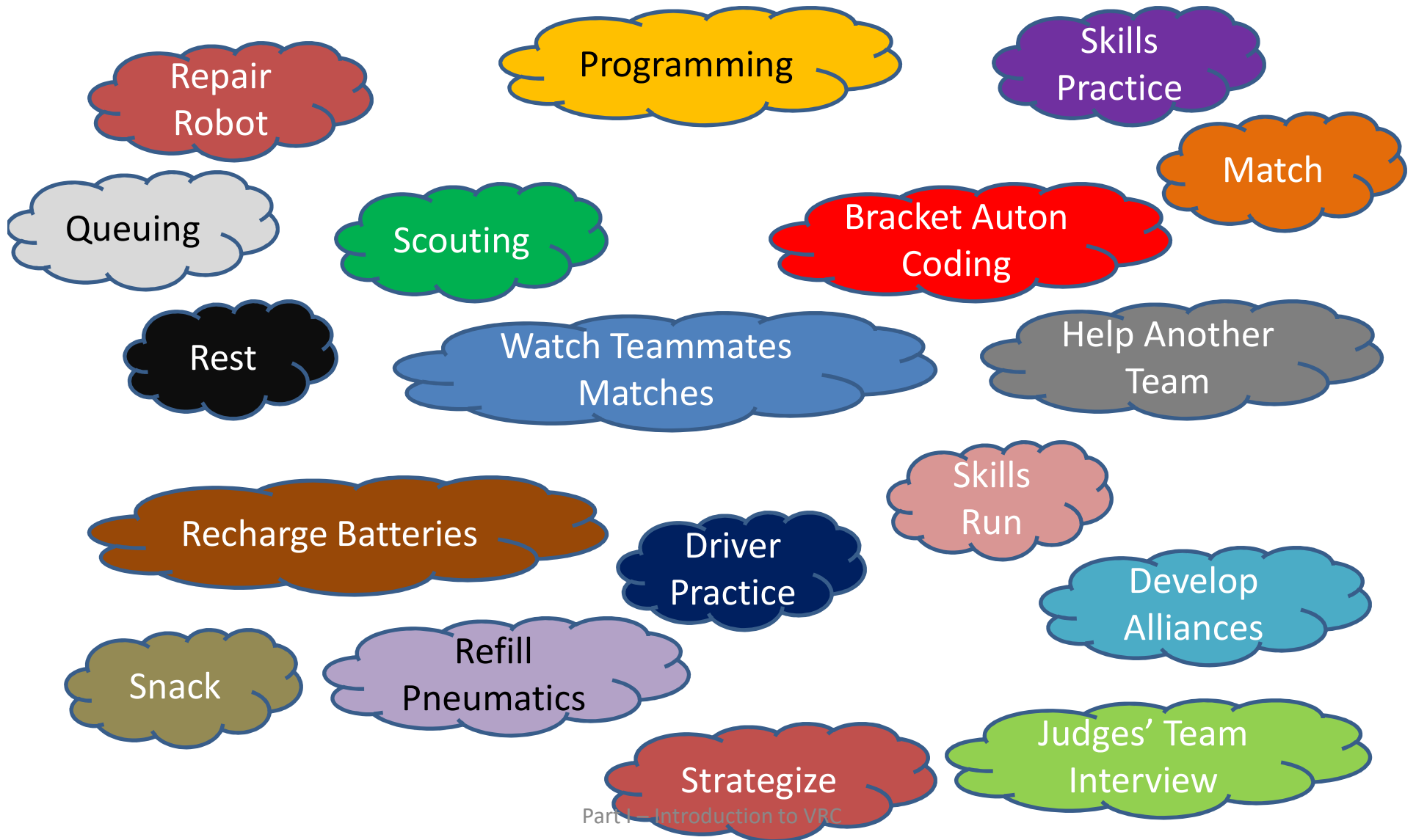
Tournament: Sample Schedule

8:00 am	Check-in, Notebook Turn-in, & Robot Inspection		
9:00 am	Opening Ceremony & Driver Meeting		
9:15 am	Qualifying Matches (typically 4-6)	Skills Field	Judging
12:00 pm	Lunch		
1:00 pm	Qualifying Matches	Skills Field	Judging
3:00 pm	Alliance Selection		
3:30 pm	16 Alliance Single Elimination Bracket (32 teams)		
5:00 pm	Tournament Finals		
5:30 pm	Awards		

Tournament: Sample Layout



Tournament: Typical Team Activities



Tournament: Skills

- Skills competition is for the highest combined driver & programming score
- Teams may complete up to 3 driver & 3 programming runs
- Runs are fit in on a first come basis as teams can fit it in
- There are a few specific Skills rules because there's only 1 robot on the field trying to score as many points as possible
 - usually the team counts as both Red & Blue for scoring purposes
- Skills field will shut down around when alliance selection starts

A team's best Skills result of the season is used for the World Skills Ranking

Tournament: Skills Sample Results

(From Southlake Jan 8th, 2022)

Rank	Team	Driver Attempts	Driver Highscore	Prog Attempts	Prog High score	Total Highscore
1	22204C	2	240	1	139	379
2	7110D	2	240	3	80	320
3	99966X	2	250	2	70	320
4	1082C	3	242	1	69	311
5	22204V	2	203	2	70	273
6	7110A	2	140	3	124	264
7	1082X	3	240	1	20	260
8	7110W	3	260	0	0	260
9	7110H	2	240	0	0	240
10	7110Y	2	160	1	60	220
11	1082U	3	160	1	41	201

Tournament: Quals

- Normally have between 4-6 qualification matches
- Each qual match randomly selects 4 teams, 2 red and 2 blue in a 2 v 2 match
- Each Qual match has 3 Win Points available
 - 2 WP for a Win / 1 WP for a Tie
 - 1 WP for completing the Autonomous Win Point

- Matches are 2 minutes
 - Starting 15 seconds is Autonomous
 - Remaining 1 min 45 seconds is Driver Controlled
 - Endgame: Often rules have additional impacts in final 10 to 30 seconds of match.

Teams must make any challenges to the Head Ref before accepting the score

Tournament: Quals Sample Results

(From Southlake Jan 8th, 2022)

Match Results

Match	Red Teams		Score	Blue Teams		Score
Qualifier #1 Jan 8th at 9:16 AM	29560X	7110W	170	1082C	7110Y	68
Qualifier #2 Jan 8th at 9:21 AM	39099B	39099A	84	1082Y	7110A	71
Qualifier #3 Jan 8th at 9:26 AM	8188N	7110E	43	99966X	7110X	123
Qualifier #4 Jan 8th at 9:30 AM	10820G	54065C	60	22204F	7110Z	196
Qualifier #5 Jan 8th at 9:34 AM	39099E	7110T	60	10820A	1082U	66
Qualifier #6 Jan 8th at 9:39 AM	7110G	8188P	40	7110B	1082X	137

Tournament: Qualls Ranking Results

(From Southlake Jan 8th, 2022)

Ranking

Rank	Team	Name	W-L-T	WPs / APs / SPs
1	29560X	Cerulean Blue	5-1-0	12 / 110 / 387
2	99966X	Aquatic Lawn Chairs	6-0-0	12 / 110 / 368
3	1082C	Le Fishe	5-1-0	12 / 100 / 249
4	7110B	Fired Up!	5-1-0	11 / 80 / 384
5	1082X	Murphys Law	5-0-1	11 / 70 / 330
6	7110D	Fired Up!	5-1-0	11 / 60 / 344
7	10820B	Goal Diggers	5-1-0	10 / 100 / 475

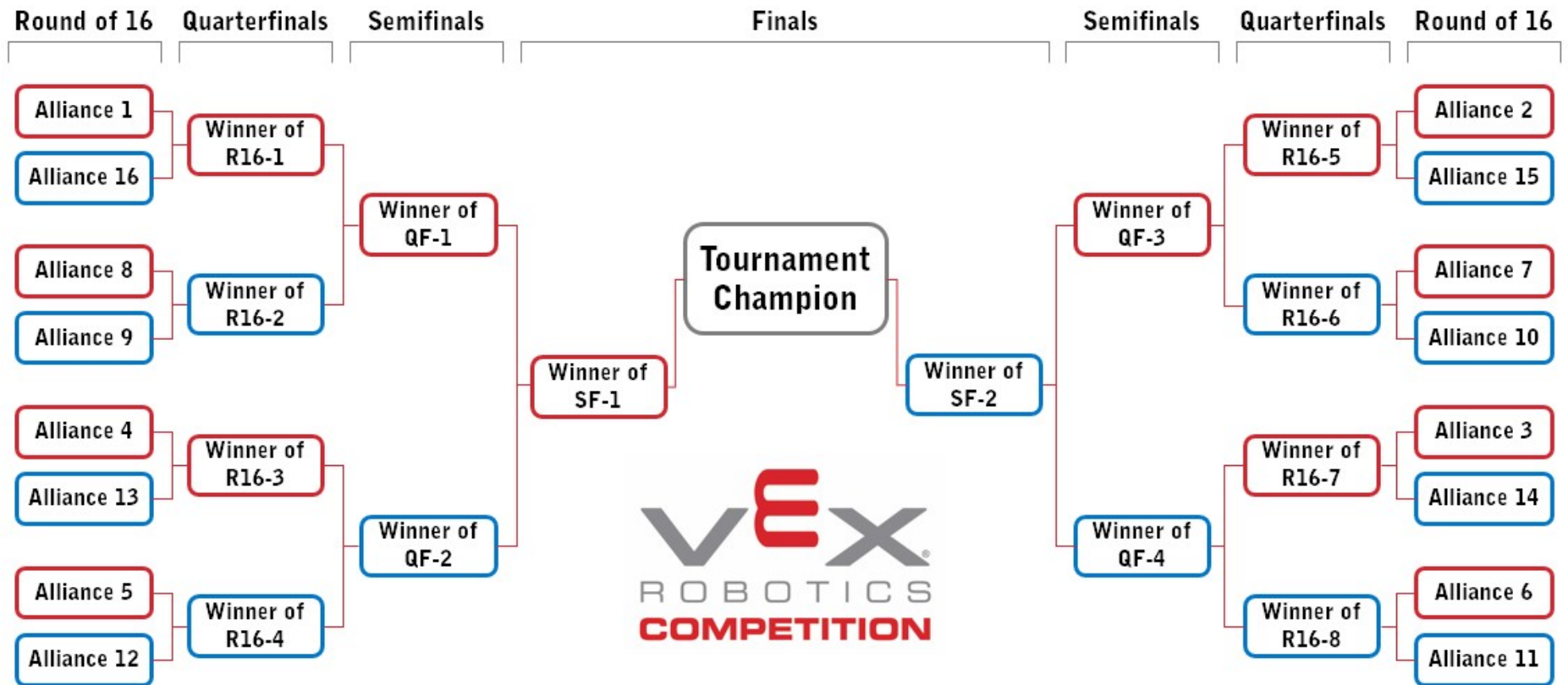
Ranking is determined by Win Points (WPs) first, then Autonomous Bonus Points (APs), then Strength of Schedule Points (SPs)

Tournament: Alliance Selection

- This is how teams are paired up for the 16 alliance single elimination bracket (32 teams total)
- 1st Seeded team gets to pick their alliance partner, and so on down the list
- If a team declines, then they cannot be selected by any other team. If it comes to them they can pick another team to be their partner
- Selections will not be solely based on teams seeding, but based on scouting and discussions with other teams

Use VEX via to see Qual Rankings
going into Alliance Selection

Tournament: Single Eliminate Bracket



Tournament: Bracket Sample Results

(From Southlake Jan 8th, 2022)

R16 #8-1 Jan 8th at 4:28 PM	10820B	15979K	182	54065D	8188K	61
QF #1-1 Jan 8th at 4:34 PM	29560X	1082C	210	10820A	7110W	100
QF #2-1 Jan 8th at 4:39 PM	10820J	22204G	40	7110D	7110Y	66
QF #3-1 Jan 8th at 4:49 PM	99966X	7110H	110	22204F	22204C	160
QF #4-1 Jan 8th at 4:55 PM	7110X	7110Z	80	10820B	15979K	165
SF #1-1 Jan 8th at 5:00 PM	29560X	1082C	161	7110D	7110Y	110
SF #2-1 Jan 8th at 5:08 PM	22204F	22204C	219	10820B	15979K	116
Final #1-1 Jan 8th at 5:23 PM	29560X	1082C	197	22204F	22204C	60

Tournament: Judging

- Judges spend the morning evaluating submitted notebooks via rupric
- Then Judges will go in groups of 2-3 and conduct team interviews, usually in the pit areas
- Judges can also spend some time observing team's behavior in the pits and field areas
- Around Alliance Selection, Judges will retire and deliberate to determine various winners of various judged awards

No feedback is received from Judging outside of the judged awards

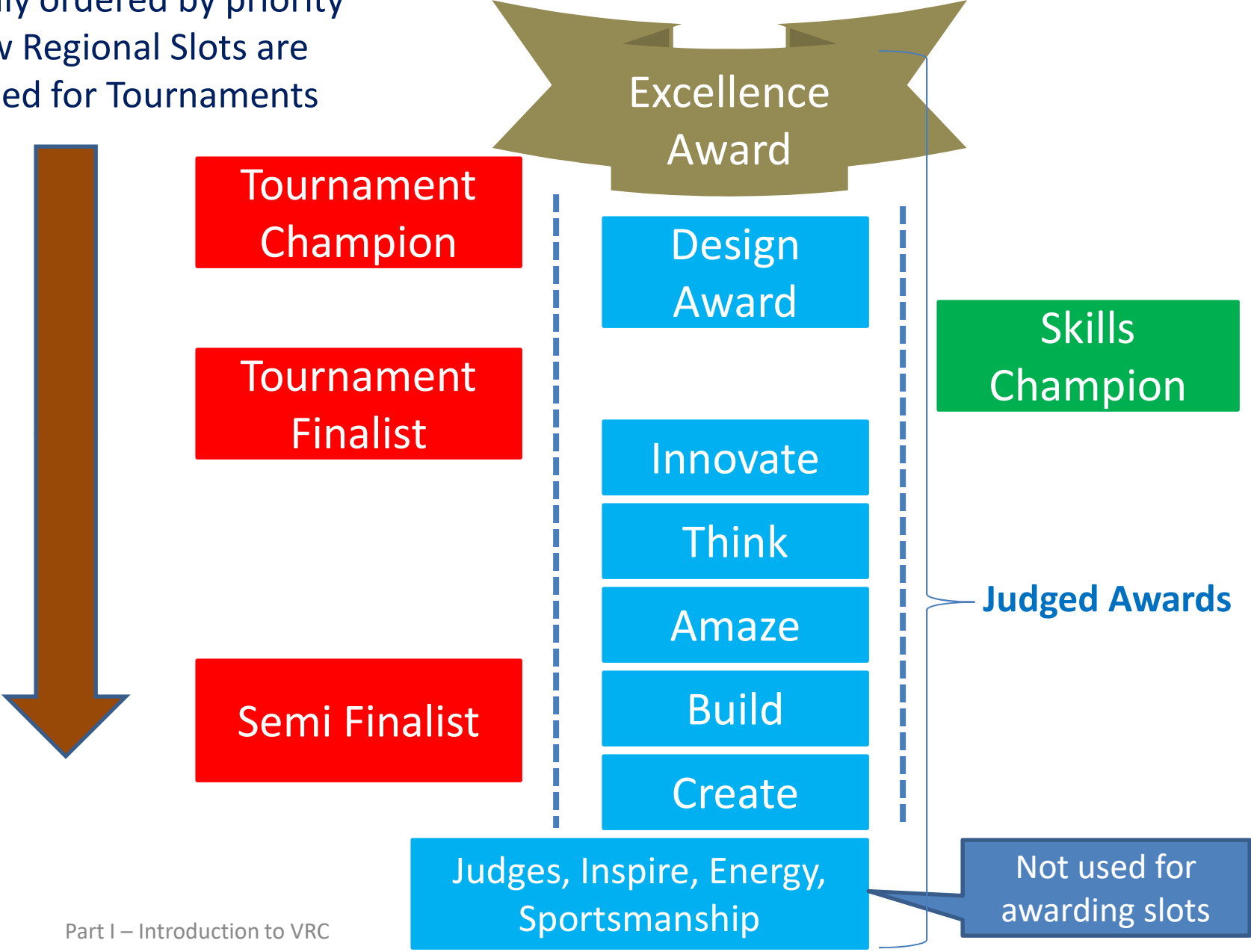
Tournament: Hierarchy of Awards

- Typical Tournaments



Tournament: Awards

Roughly ordered by priority of how Regional Slots are awarded for Tournaments



Tournament: Awards Sample Results

(From Southlake Jan 8th, 2022)

VEX Robotics Competition - Division 1

Award	Team #	Team Name	Affiliation	Location
Excellence Award (VRC/VEXU/VAIC)	1082C	Le Fishe	LOVEJOY HIGH SCHOOL	Lucas, Texas, United States
Tournament Champions (VRC/VEXU/VAIC)	29560X	Cerulean Blue	Insomnia Robotics	Boerne, Texas, United States
Tournament Champions (VRC/VEXU/VAIC)	1082C	Le Fishe	LOVEJOY HIGH SCHOOL	Lucas, Texas, United States
Design Award (VRC/VEXU/VAIC)	1082X	Murphys Law	LOVEJOY HIGH SCHOOL	Lucas, Texas, United States
Design Award (VRC/VEXU/VAIC)	1082X	Murphys Law	LOVEJOY HIGH SCHOOL	Lucas, Texas, United States
Robot Skills Champion (VRC/VEXU)	22204C	Pirates	WYLIE HIGH SCHOOL	Wylie, Texas, United States
Judges Award (VRC/VEXU/VAIC/ADC)	7110A	Fired Up!	CARROLL HIGH SCHOOL	Southlake, Texas, United States
Judges Award (VRC/VEXU/VAIC/ADC)	7110A	Fired Up!	CARROLL HIGH SCHOOL	Southlake, Texas, United States
Innovate Award (VRC/VEXU/VAIC)	22204V	Wylie Pirates	WYLIE HIGH SCHOOL	Wylie, Texas, United States
Think Award (VRC/VEXU/VAIC)	22204C	Pirates	WYLIE HIGH SCHOOL	Wylie, Texas, United States
Amaze Award (VRC/VEXU/VAIC)	7110W	Fired Up!	CARROLL HIGH SCHOOL	Southlake, Texas, United States
Build Award (VRC/VEXU/VAIC)	15979K	Annihilation Unit		Celina, Texas, United States
Build Award (VRC/VEXU/VAIC)	15979K	Annihilation Unit		Celina, Texas, United States

Awards

Award	Qualifies for
Excellence Award (VRC/VEXU/VAIC)	Event Region Championship
Tournament Champions (VRC/VEXU/VAIC)	Event Region Championship
Design Award (VRC/VEXU/VAIC)	Event Region Championship
Robot Skills Champion (VRC/VEXU)	Event Region Championship
Judges Award (VRC/VEXU/VAIC/ADC)	Does not qualify for any events.
Innovate Award (VRC/VEXU/VAIC)	Does not qualify for any events.
Think Award (VRC/VEXU/VAIC)	Does not qualify for any events.
Amaze Award (VRC/VEXU/VAIC)	Does not qualify for any events.
Build Award (VRC/VEXU/VAIC)	Does not qualify for any events.

Tournament: Staffing

- Tournaments are all volunteer driven
- RECF requires 3 key positions have certifications
 - Event Partner (EP) - responsible entire tournament
 - Head Ref – makes rule calls during matches
 - Judge Advisor – oversees judging
- Most volunteer roles require minimal training
- Lovejoy's tournament in Oct'22 had about 80 volunteers
- Hosting is a fundraiser for the organization

Look for information soon about how you can volunteer at our home tournaments

Robotevents.com

RobotEvents.com



Home | Robot Competitions | Resources | Program Products

en | Admin | My Account | Logout

VEX Robotics Competition

The VEX Robotics Competition is a worldwide robotics competition organized by the Robotics Education & Competition Foundation. More than 20,000 teams from 50 countries playing in over 1,700 competitions worldwide. Each year, an exciting engineering challenge is presented in the form of a game. Students, with guidance from their teachers and mentors, build innovative robots and compete year-round. [More information...](#)

Select VRC in pull down

World Skills Rankings

+ Register a Team	Map of Local Events	World Skills Standings
Q&A	Available Team Numbers	Virtual Skills Standings

For information on hosting a VRC competition, please e-mail event@robotevents.com

Country / Region

Season

Event Type

VRC, 2022 Crusader VEX Tournament #1, MS&HS, In-Person, with Standard Judging In-Person Status: Closed Spots Open: 9 Date: 9-Sep-2022 - 10-Sep-2022 Event Region: Hawaii	Event Code: RE-VRC-22-8369 Type: Tournament Location: 3142 Waialae Avenue, Honolulu, Hawaii, 96816, United States
Palmerston North - Central Robotics VRC Scrimmage 4 In-Person Status: Closed Spots Open: 2 Date: 10-Sep-2022 Event Region: New Zealand	Event Code: RE-VRC-22-7831 Type: Tournament Location: 238 Fitzherbert Avenue, Palmerston North, 4410, New Zealand

Lots of options for filtering on the left

- Listing of all tournaments, past and future
- Detailed tournament results
- World Skills Ranking List
- Q&A for Rules

Robotevents.com

Regional Skills Ranking

RobotEvents.com

Robotics Education & Competition Foundation
Inspiring students, one robot at a time.



[Home](#) | [Robot Competitions](#) | [Resources](#) | [Program Products](#)

[en](#) | [Admin](#) | [My Account](#) | [Logout](#)

World Skill Standings

VEX Robotics Competition / World Skill Standings

Deadlines

2023-02-28: Qualification for Regional/State Championship

2023-03-20: Season Standings Finalized

Global Standings

Standings for the 2022-2023 VEX Robotics Competition ranked season only includes results from official VEX Robotics Competition events.

The column labeled "Score" represents the highest Robot Skills score posted to date, and is used to rank teams.

The columns labeled "Programming Skills" and "Driver Skills" represent the individual scores that comprise the teams highest Robot Skills score.

The columns labeled "Highest Programming Skills" and "Highest Driver Skills" represent the highest individual scores in each category, these are used as tie-breakers per the official game manual.

Enter "Texas – Region 2" here
Teams will show up once
Tournaments have started

Search

Event Region
Texas - Region 2

Country / Region: All | State / Province: -- Not Available -- | Grade Level: High School | Team Affiliation: [Dropdown]

Include Post Season Results

[Download as CSV](#)

No results found.

Prev

Next

References & Links

- Websites
 - VEX V5: <https://www.vexrobotics.com/v5>
 - REC Foundation: <https://www.roboticseducation.org/>
 - Robot Events: <https://www.robotevents.com/>
 - Lovejoy Robotics: <https://www.lovejoyrobotics.com/>
- Apps
 - VEX via (real time tournament information)
 - Mark your students team as a favorite so you can see any tournament they are in.
 - Use “Schedule” to see when team matches are coming up
 - Use “Rankings” to see where your team sits in the standings during Quals
 - VRC Hub
 - Rules – can download and view rules if you want to read more details
 - Scoring app – can score matches or just play around with the scoring yourself