120 Things I Wish I'd Known Before My First VEX Tournament

A. Before Building

1. *The mentor and all team members should read and understand the Game Manual before beginning to build. Not knowing the rules will lead to frustration by both the team and those running events.*
2. *The team mentor should also be aware of the Q&A as any rulings there regarding the rules automatically become official.*
3. *Read and understand the Code of Conduct and the Student Centered Policy.*

B. Building Robots

4. *The robot should be no more complicated than necessary. "Keep it simple, make it fun, keep it safe."*
5. *You can never finish your robot too early.*
6. *Plan out everything before you start.*
7. *Reliability is the best robot feature of all. You can't win if your robot doesn't work.*
8. *A day of testing is more important than a day spent cramming one last feature into your robot.*
9. *Always give your programmers a lot of time to test if you want a reliable robot that works.*
10. *Test your autonomous code, often.*
11. *Get the whole team involved in the planning and building process. Everyone's opinion matters.*
12. *Engineering decisions should not involve feelings. Don't worry when your teammates don't like your idea.*

13. *Adults should keep their hands in their pockets when work needs to be done.*
14. *Remember that the measuring box is an absolute, not a guideline. It's better to have a small robot than to fail inspection.*
15. *Crazy ideas sometimes work, try them out, but remember that most crazy ideas are crazy for a reason.*
16. *Zip ties are the duct tape of robotics. Make sure you have lots of them in all legal sizes.*
17. *If the code doesn't work, check the robot's wiring, sensors and mechanicals first.*
18. *Tighten your screws tightly. You don't want stuff falling off during matches.*
19. *Make notes and take pictures.*

C. Batteries

20. *Make sure that your batteries are charged, plugged in, and most of all, that your robot is turned on.*
21. *Make sure your battery is secure on your robot. Batteries don't help you if they're lying on the field or dragging behind your robot.*
22. *Make sure all your batteries are labeled and numbered and that you swap them after each match.*
23. *Don't use your oldest, scruffiest battery in the finals.*
24. *Make sure there are always batteries on the chargers.*
25. *Build a battery charging station, and have someone in charge of your batteries for the entire competition. Your team's Battery Boss can win matches for you.*

D. At the Tournament

26. *Don't panic.*
27. *Always expect the unexpected.*
28. *Safety first! Follow safe procedures and don't forget your safety glasses.*

29. *Expect everything on the robot to break at least once. Have replacement parts for everything, particularly things that are likely to fail.*
30. *If something goes wrong with your robot, don't stress out too much. There will always be someone willing to help, and chances are that one of them will know what's wrong.*
31. *If you want to do well at the tournament, pick your drivers ahead of time. The qualification rounds are no time to test new drivers.*
32. *Give your drivers a lot of practice before and during tournaments.*
33. *Have a neatly organized pit area. It is easier to get repairs done on a tight schedule if you don't have to spend time looking for tools, and judges and your guests will appreciate your tidy work area.*
34. *Never be afraid to ask for a spare part even if you're sure no one will have it.*
35. *Have a clock in the pits.*
36. *Sometimes a team that you were barely paying attention to can end up being a really great alliance partner.*
37. *Remember as friendly as robotics competitions are, the other side wants to be a winner just as much as you do, and they will do every legal thing to win.*
38. *Don't ever lose hope. Even if you're dead last after qualifying, there is still a chance to make it to the finals. Keep working to make your team the best it can be.*
39. *Label your personal possessions, especially when you leave things in the stands.*
40. *The best, most powerful teams are frequently the ones who are most likely to help those in need.*

41. *Designate team members to be team spokespeople in the pit and then be sure they are always there to be spoken to.*
42. *Your opinions and statements reflect on your team and its reputation.*
43. *Bring your own extension cords and power strips.*
44. *Shoot video and take pictures.*

E. *Tournament Matches*

45. *Something will happen beyond your control. Don't worry about it – that's robotics.*
46. *You are allowed three team members at the field during a match. Several structures are possible. One driver, one timer/scorer, one coach. Or Two drivers and one coach. Keep the same drive team and coach for every match.*
47. *Develop excellent communication between the pit crew and drive team.*
48. *If you're the coach, don't be afraid to do whatever you have to in order to get the drivers' attention. It is the student coach on the field that makes the tactical decisions. Drivers need to be reminded who is in charge.*
49. *Drivers, you shall listen to your coach and do what he says; coaches, you will give clear, concise, and calm instructions to your drivers. Arguing and yelling is for after the match – not during it.*
50. *Make sure you turn the robot on before the match.*
51. *Learn what every fault on the controller means. Check those before each match.*
52. *Check all systems before every match. Use checklists. If it's good enough for NASA, it's good enough for robotics.*
53. *Make sure your robot has the correct code loaded.*
54. *Make sure your smart cables are plugged in securely and are in the right ports.*

55. Make sure your communications are working before every match.

56. A minute on the field waiting can last an hour or more. A minute during a match lasts about 10 seconds.

57.Really – make sure you turn the robot on before the match. Important enough to state twice!

F. Strategy and Judging

58. Always coordinate strategy with your partners.

59. Have a scouting plan. Losers build robots, winners scout.

60. Scouting is about finding great robots for your alliance which may not be the ones with great records.

61. It's hard for a VEX team to do a thorough job of scouting. Work with some other teams to gather information. Analyze it on your own, but share the collection work.

62. When you go into alliance selection have a ranked list of at least your 25 favorite robots in the tournament. If you are picking, you will find that someone else gets your top five choices so you need a good depth chart. If you are not picking, don't be afraid to market your robot to picking teams and explain why your robot would be a good match.

63. Sometimes a great team with a good robot will outperform a weak team with a great robot. Evaluate the entire package – not just the hardware.

64. Sometimes a lesser-known team will be a better choice than a "famous" one. Famous teams weren't always well-known.

65. Make sure your scouts are your team representatives for alliance picking. They will know who to pick; drivers usually only see their own matches.

66. Bring white boards and markers. Use them to go over strategy with other teams and for posting match information in the pits.

67. *Judges aren't scary people, and you'll be surprised at how much you can tell them about your robot. They'll love it.*
68. *Practice for judging just like you practice with your robot. Have a mentor run a mock judging session for you. Each person should know the whole story of your team and your robot.*
69. *When talking to judges be enthusiastic and coherent.*

G. Life at Events (Especially Multi-day Tournaments)

70. *Wear comfortable shoes.*
71. *Wear jeans, but bring shorts.*
72. *Have fun! These competitions are supposed to be a blast, not a chore. Don't be afraid to look like you are having fun, either. At least 20% of the people there are less cool than you.*
73. *Drink lots of water even if you aren't thirsty, and don't forget to eat.*
74. *Bring lots of water, if allowed. No one wants to pay $4 for 16 ounces of water.*
75. *Bring earplugs of some sort. Tournaments can get very loud.*
76. *You will lose your voice.*
77. *Jedi robes or pirate costumes make any team instantly cool.*
78. *Get cell phone numbers of as many people on your team as possible. Put these on a list and distribute to your team BEFORE the event.*
79. *Network. You never know how friends you make in robotics will influence your life later.*
80. *Meet other people from other teams - they have a lot to teach and a lot to learn.*
81. *Caffeine is essential.*
82. *Caffeine is no substitute for sleep.*
83. *Wash or sterilize your hands with alcohol. Don't get sick!*
84. *Yes, kids really do cry when their robot loses. Adults sometimes do, too.*

H. Marketing and enthusiasm

85. Be aggressive in your onsite marketing. If no one knows who you are you might not get picked for eliminations.

86. It's impossible to bring too many buttons.

87. Be enthusiastic. Yell, cheer, chant, and dance. Act foolish.

88. Your team's banner can never be too big.

89. Bring a lightweight color printer to the tournament. Being able to print marketing flyers on the spot can be a big help.

90. Get out of your pits and meet other teams. Otherwise, you might as well watch a webcast.

91. Wear distinctive shirts.

92. You are NOT too cool for a giant conga line around an arena.

I. Working Together

93. Don't be afraid to look around and learn from other teams.

94. Have a lot of fun, remembering that sometimes fun and pain go hand in hand.

95. Don't burn bridges. You'll find that standing alone on scorched earth isn't much fun.

96. Get everyone involved. Even the newest team member can have the one great idea.

97. You don't have to be a genius to be good at robotics, but hard work and enthusiasm is always a winning combination.

98. Help others as much as you would like to receive help from them.

99. Specialize. Despite what Robert Heinlein said about insects, you can't run a team where everyone is responsible for everything.

100. If you are good at only one thing, learn another.

101. Your second year in robotics is your first year as a mentor. Always be willing to teach any skills or knowledge you have, even to people on other teams.

102. Speak up when it comes to a major decision about the robot.

103. Never let a problem with another team member get in the way of both of you having a good time.

J. Things to do before the event:

104. Review the most Current Game Manual and Q&A; make sure your drivers and coach know the match rules!

105. Go over the inspection guidelines; Review the Inspection Checklist and Guide before showing up for the event. Make sure to give your robot a mock-inspection to catch any issues early, before an inspector finds them the morning of the event!

106. Make sure you are using the latest version of your programming software with the latest version of controller firmware; using outdated firmware and programming software may lead to operation issues with the VEX field controllers at the event.

107. Make sure your programming code is on a competition template; not using a competition template will almost guarantee your robot will not work with the field controller!

K. Bring with you to the event:

108.The Robot! and controller(s)

109. Safety glasses for team members

110. Tools and spare parts you need to work on your robot

111. Batteries and chargers for your robot

112. Power strip for your pit area

113. Your computer loaded with your programming software

L. During the event or a match

114. Know your match schedule and manage your time to ensure you don't miss any matches. Judge by Match Number, NOT by the scheduled time. The event might be running behind or ahead.

115. *Make sure to follow the direction of the field managers and the start up sequence for your robot when you arrive at the field*
116. *Make sure your robot is on before the match starts – do NOT touch your robot or reach into the field once the match has started*

M. General Recommendations

117. *Make sure to label all your equipment and materials with your team number or school name*
118. *Make sure your team reads and understands all the scoring and current rules for the game before showing up at the event*
119. *Open toed shoes are not recommended and heavily discouraged*
120. *HAVE FUN!!!!!!!!!!!!!!!!*