

(50 pts) Approx. 4 days

When it comes to a successful robot for competition, nothing is more important than having a good plan and acting on it! The best robots have a simple, reliable, and sturdy design. They also have good wiring, and a program that works correctly and is easy to adjust as needed. Your job in the first part of this unit is to work with your team to make a plan for what you want your robot to be able to do! Then you'll get to work making it happen!

1. **Notes:** Start by watching the FTC Game & Scoring Animation again. I know we watched it a few times last semester, but we should refresh our memories.
2. Then, watch the three demonstration videos: *Driver Controlled Practice*, *Full Practice Match*, and *More Robot Ideas*. Take a full page of notes on cool things that those robots can do, or neat things that you see built into the robots.
3. **Brainstorm:** Work with your team to brainstorm at least 20 ideas for how you might be able to build/re-build your robot to accomplish tasks while being driven.
4. **Agree on a Design:** Possibly one of the biggest jobs early on is for you and your team to *agree* on what you want to build. You'll need to agree on how you want your robot to score points, and how you think that can be done most effectively. Think about the following with your team:
 - a. *How will you score points?*
 - b. *What will you need to add to your robot to do that?*
 - c. *Will it move with motors? With servos? Does it even need to move?*
 - d. *How will the video-game style controllers control the mechanisms?*
 - e. *Can you actually build what you want to build?*
5. **Draw Your Design:** Take some time to draw a careful diagram in your engineering notebook of what you want your robot to look like after you build/re-build it to score points during the driver-controlled part of the game. Everyone needs to draw their own picture into their own engineering notebook, but since you've agreed on what you're going to build, everyone's pictures will probably be very similar.
6. **Double Check:** Double-check that your picture has labels for important parts!

Part 1: Tasks	10-8 points	7-4 points	3-0 points
 Brainstorm & Plan	+ You recorded all of your brainstorming and planning in your engineering notebook	- You only recorded a few ideas	- You did not record your ideas
 Draw Your Robot Plan	+ You drew an image of your robot design + Your design includes details of changes you want to make	- Your drawing is lazy and sloppy - Your drawing does not include details	- Your drawing is missing completely
 Build/Rebuild Your Robot	+ Build/Re-Build your robot in time for competition!	- You made NO changes to your robot	- Your robot does not move
 Program Your Robot	+ You programmed your robot to move in the autonomous period + You programmed your robot to drive in the driver controlled period	- Your robot is only programmed for one part of the competition	- Your robot is not programmed to move at all
 Daily Log of Team Progress	+ You kept a daily record of what your team did. + Your record includes major changes you made to the robot + Your daily log is recorded in your engineering notebook	- Your record is missing a day - Your daily log does not discuss major changes	- Your daily log is missing large parts - Your daily log is missing completely

