

# Design Weekend - 2019

1/5/19 - 1/6/19

DESTINATION:  
**DEEP  
SPACE**



Presented By



# Introduction

Design Weekend (formerly known as “Design Night”) is the meeting among build leaders and select members to come to consensus on the team’s strategy for the coming season. This year, the meetings held on Saturday (1/5/18) and Sunday (1/6/18) will be held at the shop. Discussion and consensus will be had through a variety of methods, including Human Robots (new this year!), a list of priorities (new this year!), and a Strategy Review (new this year!). This document contains a schedule and outline of each of the activities, and is meant to serve as a guide to keep the meeting on track and on topic. Additionally, resources will be posted to videos by other teams, detailing strategies and designs from previous years, as well as other words of wisdom.

# General Timeline

1/5/18

- 10:30-11:00 - Game Reveal
- 11:00-1:00 - Lunch and Meeting Prep
- 1:00-3:00 - Brainstorming Meeting
- 3:00-3:30 - Overflow and Regroup
- 3:30-4:00 - Significant Rule Discussion
- 4:00-5:30 - Major Strategy Developments
- 5:30-6:00 - Human Robots!
- 6:00-6:30 - Discussion of Strategies/Requirements
- 6:30-7:15 - Dinner
- 7:15-8:00 - Pros/Cons of Strategies/Requirements
- 8:00-9:30 - Consensus of Strategy/Requirements
- 9:30-9:40 - Break
- 9:40-10:15 - Drivetrain Consensus
- 10:15-11:00 - Prototype Discussion

1/6/18

- 10:00-12:00 - Prototype Discussion/Fabrication
- 12:00-12:45 - Lunch
- 12:45-1:00 - Prep for Strategy Review
- 1:00-2:30 - Strategy Review
- 2:30-6:00 - Prototype Fabrication/Testing

# Detailed Timeline

1/5/18

10:30-11:00 - Game Reveal

Reveal at Novi High School - whole team in attendance

11:00-1:00 - Lunch and Meeting Prep

Lunch somewhere, set-up for the brainstorming meeting, including printing game manuals, distributing presentation supplies

1:00-3:00 - Brainstorming Meeting

All-Team meeting, small groups led by a build student, focus on strategy rather than design, presentation by all groups to conclude the meeting

3:00-3:30 - Overflow and Regroup

Just in case we run over for the brainstorming meeting, set up in the shop and a quick review of the game

3:30-4:00 - Significant Rule Discussion

Talking about important restrictions and allowances in the rules (i.e. holding one power cube), maximum scoring possibilities (i.e. having the scale/switch for the entire match)

4:00-5:30 - Major Strategy Developments

Autonomous routines/"Instant Wins" (i.e. crossing the baseline), cycle identification (i.e. Portal to Switch, low-bar to secret passage), field bottlenecks (i.e. Null zones, Airships), other general strategies (i.e. Power-Ups, Double-Climbs, Triple balance)

5:30-6:00 - Human Robots!

Teams of 2 develop a strategy to demonstrate on the field, general zones/regions/structures on the field are marked out, teams of 2 are put back to back and move together to act out a 2:30 match. Teams have to stick with the same strategy throughout the match, but can change strategies between matches, document scores and potential issues.

6:00-6:30 - Discussion of Strategies/Requirements

Discuss human robots, what strategies worked, what strategies didn't, start making a list of requirements

6:30-7:15 - Dinner

Jimmy Johns!

7:15-8:00 - Pros/Cons of Strategies/Requirements

Create a spreadsheet of pros/cons and rankings for certain requirements, further discussion of strategy, other analysis

#### 8:00-9:30 - Consensus of Strategy/Requirements

Create a solid list of robot requirements for the season, \*NOT\* mechanism design, have a solid strategy set out to present on Sunday

#### 9:30-9:40 - Break

Chill for a few

#### 9:40-10:15 - Drivetrain Consensus

Analyze requirements for drivetrain (i.e. 2009), discuss pros/cons of different drivetrain styles, decide which style/configuration to go with

#### 10:15-11:00 - Prototype Discussion

Create a list of prototypes to experiment with (i.e. different intakes, shooter styles, climbing, etc.), start CADing prototypes to be manufactured on Sunday

## 1/6/18

#### 10:00-12:00 - Prototype Discussion/Fabrication

Keep designing and manufacturing prototypes

#### 12:00-12:45 - Lunch

TBD

#### 12:45-1:00 - Prep for Strategy Review

Get any presentation materials we need ready to go over the strategy we agreed on Saturday

#### 1:00-2:30 - Strategy Review

A discussion with Build mentors to discuss our strategy for the season. This will allow us to gain both outside perspective for our decisions and possibly have new ideas presented that we haven't considered. This is more meant to be a discussion and less of a presentation, hopefully gaining support for the strategy from students and mentors.

#### 2:30-6:00 - Prototype Fabrication/Testing

Continue manufacturing prototypes and begin testing, re-designing as needed.

# Priority List

- Very similar to what Mike mentions in his workshop
- Includes strategic game elements we must complete
  - 3 cube autonomous
  - Must score in the switch
  - Must intake gears from the floor
  - Must go under the low bar
- This is **NOT** a list of “how” we are doing things
- List of elements we will not complete
  - At least one element on that list

# Rules

Don't be rude

Use common sense

Don't interrupt

Be respectful

# Resources

Please watch all of these prior to kickoff. These are all great resources from high-level teams.

- [Fall Workshops 2018 - Strategic Design](#)
  - Great video from 1678's lead technical mentor, Mike Corsetto, explaining how to "work smarter" and go through a little bit of game strategy
- [Fall Workshops 2018 - Case Studies in 2056](#)
  - Another 1678 video, Adam Heard from 973 discusses why 2056 is the best elite team to try to emulate
- [Fall Workshops 2018 - Simple Robots that Win](#)
  - Yet another 1678 video, Adam Heard presents case studies of simple, competitive robots and the trade-offs they had to make
- [254's Robot Library](#)
  - Not a video resource, but look through their Technical Binders and skim through their Build Blogs, they do a great job documenting their development each year
- [The Blue Alliance](#)
  - Watch some of the previous year's Einstein matches on TBA. The strategies on Einstein are always well developed, giving us a lot to learn from.

