FIRST® LEGO® League

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DEVELOPING A MISSION STRATEGY

SESHAN BROTHERS

OBJECTIVES

- Learn how to come up with a strategy for the robot game

STEP 1: UNDERSTAND THE MISSIONS

- Rule #1 is to read the Challenge Guide thoroughly – everyone should do this
- Rule #2 is to read the Updates during the season
- Tip: Many teams like to take notes on each mission (the rules, the points, etc.) and place them next to the missions on the mat (You can get the tents pictured on: https://flltutorials.com/en/Worksheets.html

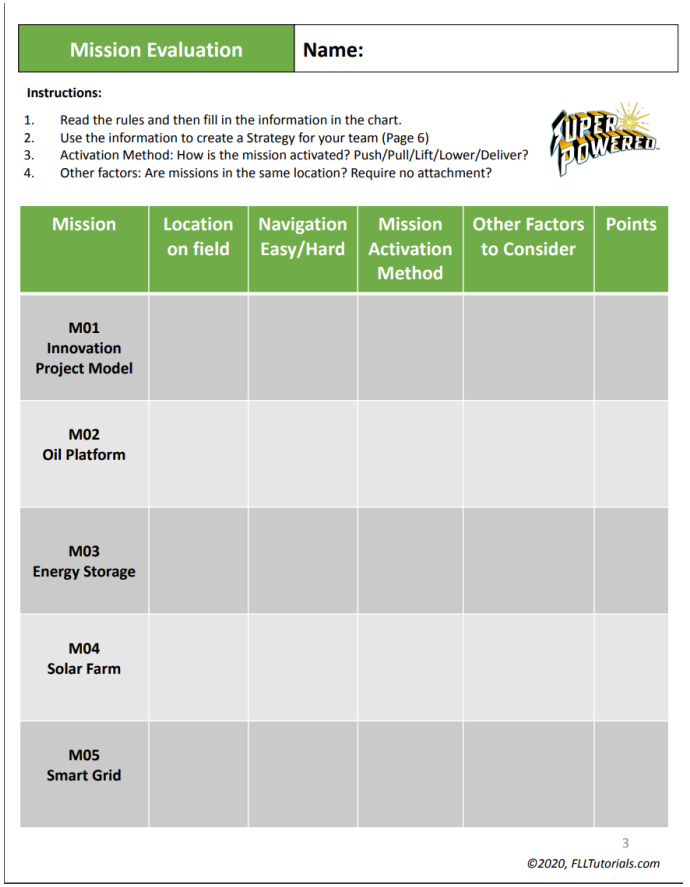
STEP 2: PLAN YOUR ROBOT GAME

- Which missions are near Launch and could be done quickly?
- Which missions might be grouped together because of their proximity?
- Which missions might use the same attachment/tool to complete?
- Are some missions harder than others?
- Are some missions harder to get to?
- What are the team's goals for the year when it comes to the robot game?
- How many points is the mission?

Use the answers to the questions to determine which missions to do and when.

STEP 2: MISSION PLANNING GUIDE

- Create a worksheet with all the missions
- Use it to evaluate all your options for a given year's robot game



Mission Evaluation	Name:

Instructions:

1. Read the rules and then fill in the information in the chart.
2. Use the information to create a Strategy for your team (Page 6)
3. Activation Method: How is the mission activated? Push/Pull/Lift/Lower/Deliver?
4. Other factors: Are missions in the same location? Require no attachment?

Mission	Location on field	Navigation Easy/Hard	Mission Activation Method	Other Factors to Consider	Points
M01 Innovation Project Model					
M02 Oil Platform					
M03 Energy Storage					
M04 Solar Farm					
M05 Smart Grid					

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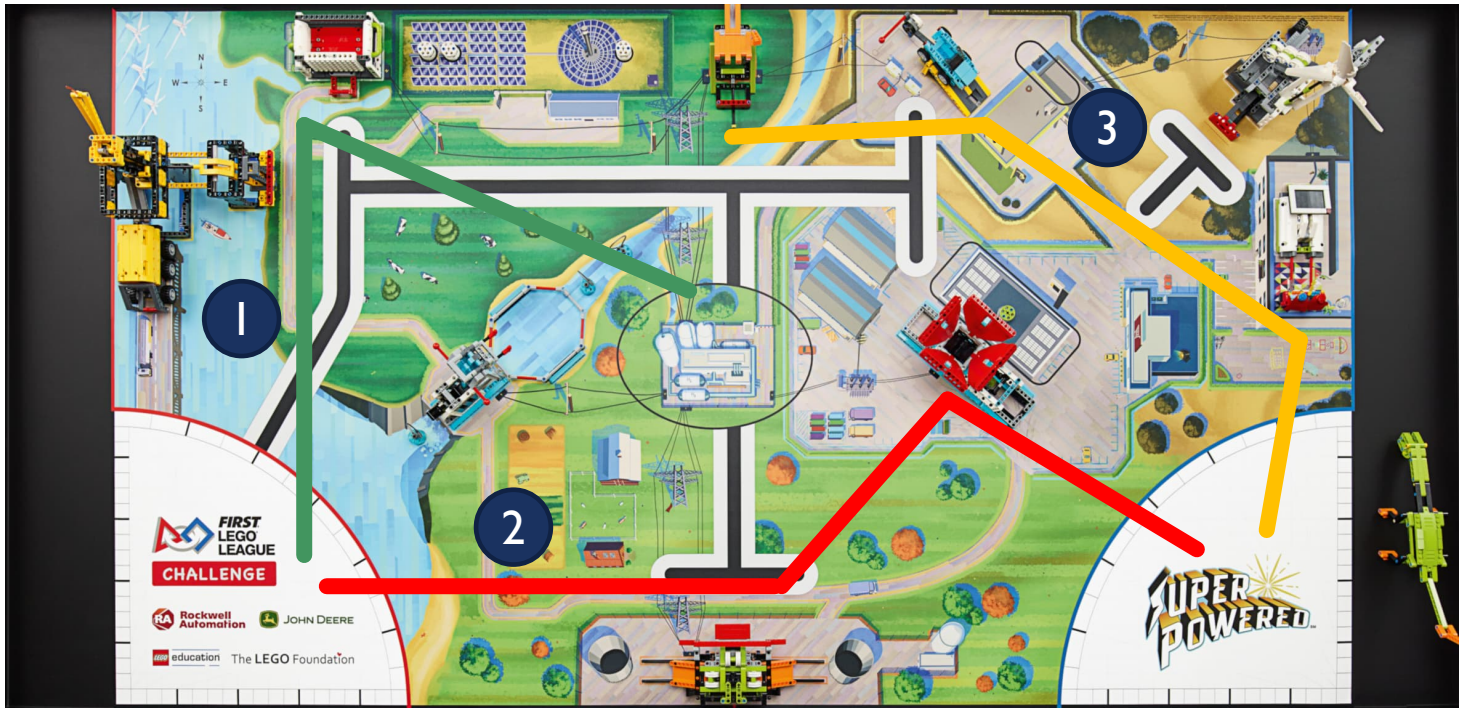
All worksheets mentioned in this document at available at https://flltutorials.com/en/Worksheets.html

STEP 3: TEAM ROBOT GAME STRATEGY

- Plan out a path for each run/launch
- We recommend that each team member comes up with a strategy and then the team listens to all the ideas and combines them.



STEP 4: BUILDING & PROGRAMMING

- Once you have a strategy, start to build your robot and write Pseudocode for each run/launch

Pseudocode	Name:

Instructions:

1. Time to plan. For each path your team picked to go on, write out the pseudocode for the robot. Once the robot launches, how will it travel to the mission model and activate it? E.g. Move forward 30cm, turn 90 degrees left, etc
2. Write down each step the robot would take in plain English. Later, programmers can convert this into code
3. Add as many rows as needed

Setup	Location of robot in launch:

Step	Instruction
1	
2	
3	
4	
5	
6	
7	
8	

10

SOME THOUGHTS

- Remember that a robot game strategy may change over time
  - You might get a new idea or find a way to combine missions
  - You might build a different attachment
- As a rookie team, complete missions closer to Launch first
  - Usually, they are easier to get to and easier to activate
  - When you finish those and can do them reliably, start to add more missions
- You don't need to do *all* the missions to "win".
  - Doing the missions you can well can often yield better results than completing all the mission unreliably.
  - Example: We have won the robot performance award and Champion's without completing all the missions

CREDITS

- This lesson was written by Sanjay and Arvind Seshan
- More lessons available at www.ev3lessons.com and www.flltutorials.com