

FIRST[®] LEGO[®] League

TUTORIALS

teach

share

learn

DEVELOPING A MISSION STRATEGY

SESHAN BROTHERS

OBJECTIVES

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

STEP I: 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.



Photo Credits: Michael Graffin, Iona Primary

STEP 2: PLAN YOUR ROBOT GAME

- Which missions are near base 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.

A Planning Guide is available on the next page.

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

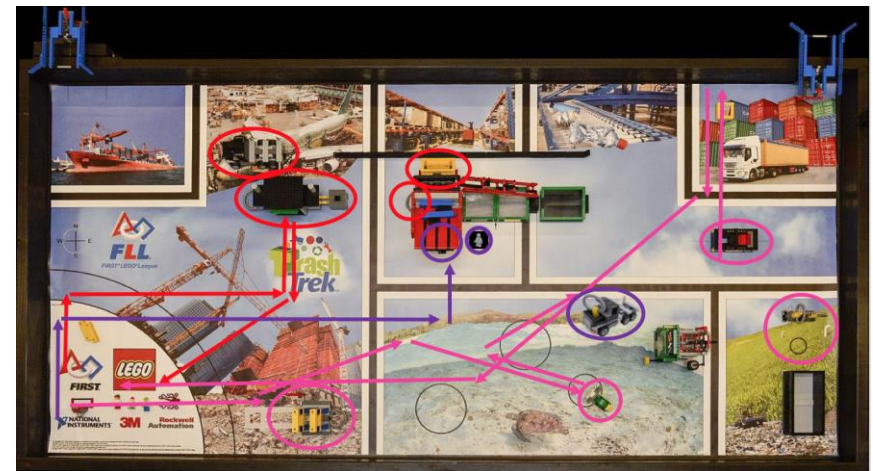
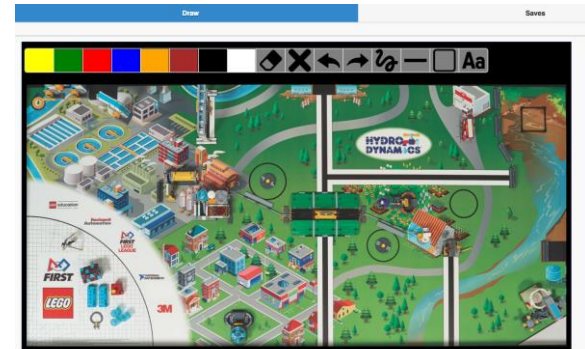
Robot Game Mission Planning Guide

Mission	Near Base	Hard/Easy to Activate	Hard/Easy to Navigate	Group With	Activation Mechanism	Points

Copyright 2017 EV3Lessons

STEP 3: TEAM ROBOT GAME STRATEGY

- Now, use an online tool such as our Interactive Strategy Planner to determine the path your robot will take
 - Each time you go out of base is called a “run”
 - Draw each run using a different color.
- Or print out an image of the challenge mat and hand-draw
- 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”.

Read the Pseudocode lesson available on EV3Lessons.com

SAMPLE:

Run Information: Mega-Awesome Run: Airplane and Tsunami				
	Setup/Action	Direction/Motion	Amount	Other Settings
1	Robot in base, Facing W, touching S wall, attachment STICK			
2	Move to Airplane	Move Forward	10 inches	50 power
3	Trigger Airplane	Use Motor A	30 degrees	50 power
4	Turn towards Tsunami	Turn Left	90 degrees	25 power
5	Straighten out	Back into S. Wall	1 second	50 power
6	Move to Tsunami	Move Forward	10 inches	80 power
7	Trigger Tsunami	Use Motor A	50 degrees	20 power
8	Turn towards Base	Turn Right	45 degrees	50 power
9	Return to Base	Move Backwards	15 inches	100 power
10	Remove stick, realign in base facing N, against E wall, add attachment (CAGE)			

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 base 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



**Attribution-NonCommercial-ShareAlike 4.0
International (CC BY-NC-SA 4.0)**