FIRST LEGO LEAGUE CHALLENGE

Engineering Notebook Worksheets

TEAM NAME:
TEAM NUMBER:

Updated: August 2020

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)

Mission	Location from Launch Near/Far	Navigation Easy/Hard	Activation Method	Other Factors	Points
M01 Innovation Project					
M02 Step Counter					
M03 Slide					
M04 Bench					
M05 Basketball					

Mission Evaluation	Name:

Mission	Location from Launch Near/Far	Navigation Easy/Hard	Activation Method	Other Factors	Points
M06 Pull-Up Bar					
M07 Robot Dance					
M08 Boccia					
M09 Tire Flip					
M10 Cell Phone					

Mission Evaluation	Name:

Mission	Location from Launch Near/Far	Navigation Easy/Hard	Activation Method	Other Factors	Points
M11 Treadmill					
M12 Row Machine					
M13 Weight Machine					
M14 Health Units					
M15 Precision					

Instructions:

1. Trace the path that the robot will take each time it leaves launch (use a new color for each path)
2. Compare your strategy with others on your team and reach a consensus

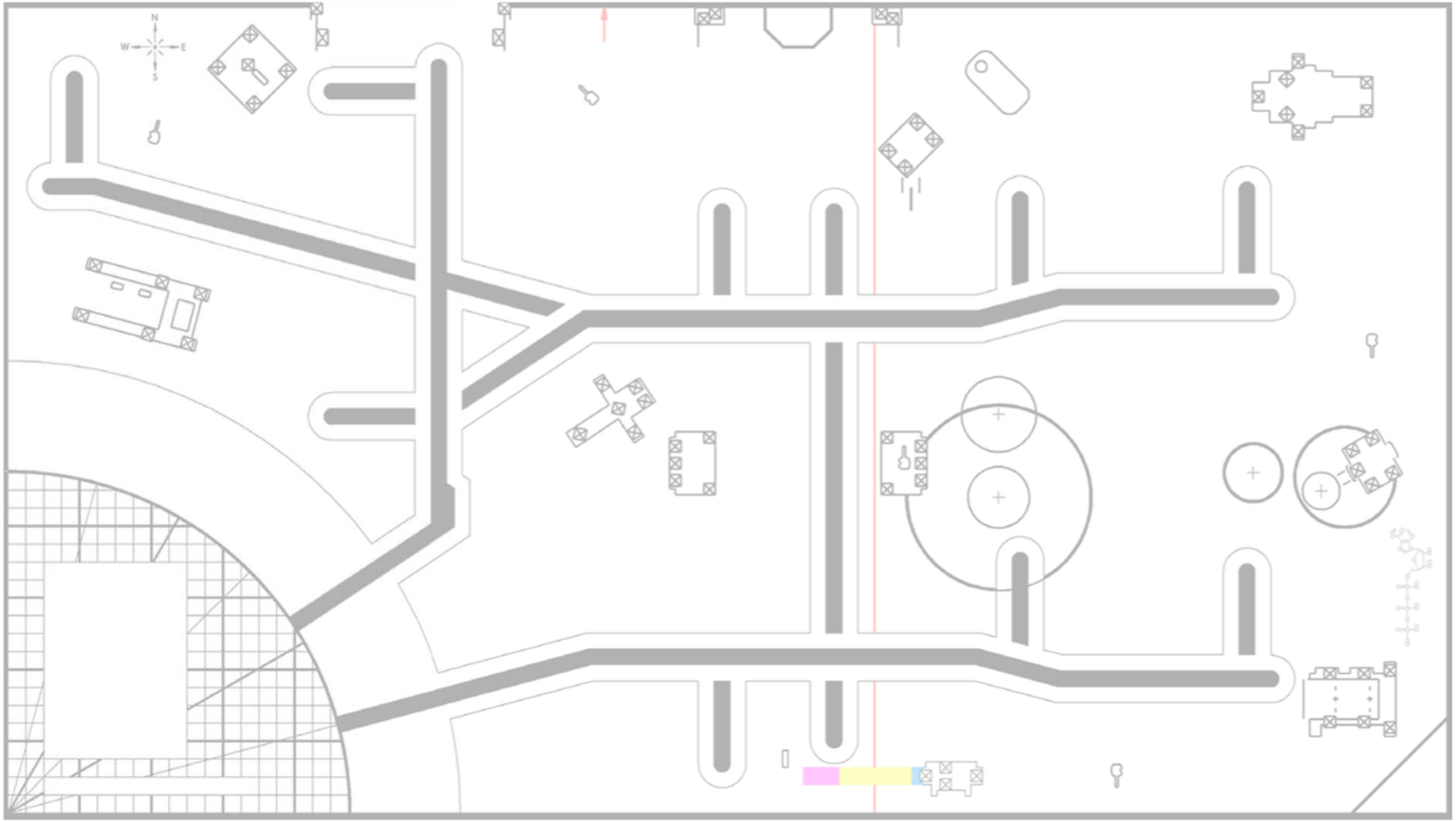

Image Credit: FIRST LEGO League Challenge

Strategy Planning

Name:

Robot Design	Name:

Instructions:

1. Review the rules for the robot game. Are these any rules that will restrict your design? Is there a size limit?
2. Think about all the missions your team decided to do. Will it need to go over something or reach high up?
3. Think about the paths your team decided to go on. Will it need to line follow? Where will it align?
4. Discuss with the rest of your team and then build a base robot to match the features you want and need.

What features should the robot have?

What sensors do we need?

What are some mechanisms that can solve the mission?

Robot Testing	Name:

Instructions:

1. If you design more than one robot, use this chart to compare them. At the top of each column, describe your robot
2. Come up with some basic tests to compare the robot designs. Can this robot move straight accurately? Can it turn consistently? Can it line follow? Can it detect a line? Did the robot move as intended?
3. Discuss which robot performed the best to help you pick the best design for your team.

	Robot 1: Wheels: Size: Sensors: Motors:	**Robot 2:** Wheels: Size: Sensors: Motors:	**Robot 3:** Wheels: Size: Sensors: Motors:
Move Straight 50cm			
Overall: Speed Balance			

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	

Pseudocode	Name:

Step	Instruction

Reliability	Name:

Instructions:

1. Run each mission 10 times and see how reliable it was
2. Work on your solution until it becomes more reliable
3. Use FLLTutorial's Scorer to score your runs

	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7	Test 8	Test 9	Test 10	Total
Ex. M00	Yes	No	No	Yes	No	No	Yes	No	No	Yes	4/10
Points											

Attachment Evolution	Name:

Date:
Mission Name:

Describe Attachment Features	Image

What changes were made and why?

Attachment Testing	Name:

Date:
Mission Name:

Attachment Tested

	Test 1	Test 2	Test 3
What worked well?			
What did not work?			
Next steps			

Judging Preparation	Name:

1. Look at the rubrics
2. What do you want to highlight in judging? Here are some things to think about? What else should you add?

IDENTIFY: Explain how you came up with your team's strategy?

DESIGN: What are the key features of your robot and code?

ITERATE: How did you test and modify your code and robot?