

FIRST® LEGO® League

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LESSON I: INTRODUCTION TO NAVIGATION

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WHAT IS NAVIGATION IN FIRST LEGO LEAGUE?

- Navigation is getting your robot from base to where it needs to be
- Navigation needs to be both reliable and repeatable
- To accomplish this, you need to learn several strategies



NAVIGATING RELIABLY IN FIRST LEGO LEAGUE

- Good navigation will use some or all of these techniques
 - Aligning in Base
 - Wall following
 - Aligning on lines
 - Aligning on walls
 - Aligning on mission models
 - Line following



DISCUSSION

- Let's say we want to go from base to the mission marked with the pink circle.
- What can you do to get there reliably?



SELECTING A ROUTE

- There may be more than one path to get to the destination
- What would it take to make the red or yellow path reliable?



POSSIBLE SOLUTION (YELLOW)

- Look for places that the robot can accurately position or orient itself
- You may need to add extra moves to make it possible to position the robot



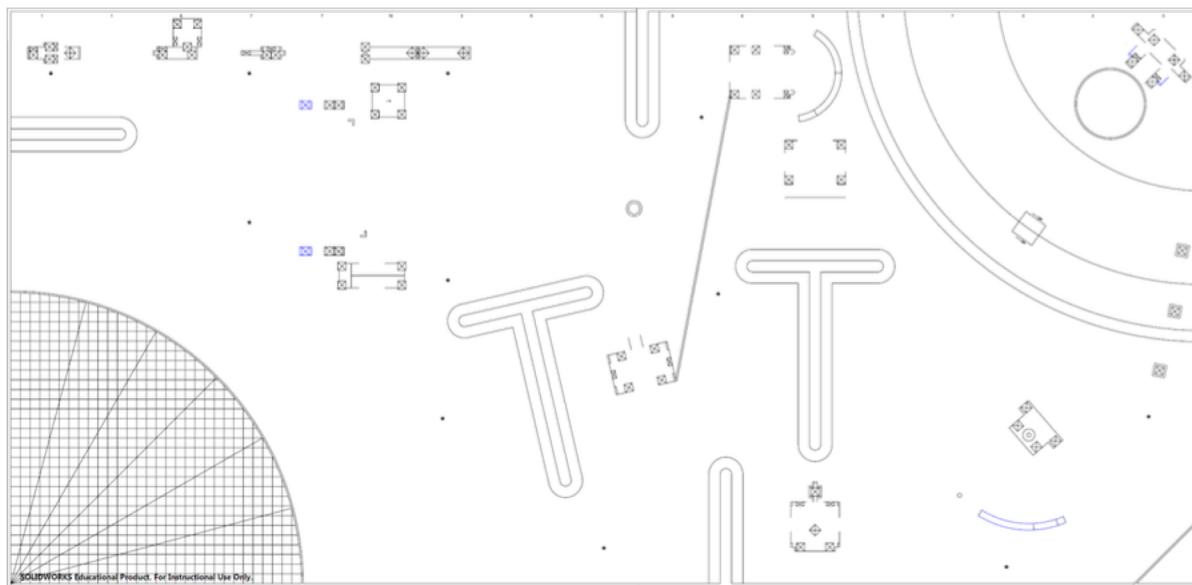
POSSIBLE SOLUTION (RED)

- Different paths may have more opportunities for alignment or introduce obstacles (e.g. a ramp) that make your position less predictable



WHAT'S NEXT

- Let's learn some building and programming techniques to achieve each of these strategies
- As you go through the lessons think about how your team can apply the technique to this year's Challenge.



CREDITS

- This tutorial was created by Sanjay Seshan and Arvind Seshan
- More lessons at www.ev3lessons.com and www.flltutorials.com



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