

Path 3: Build the Activity Bot and learn to navigate.

IF your activity bot is just a pile of parts, then go to Step 1 below. If your chassis is already assembled, then skip to STEP 2 below.

STEP 1:

Go to <http://learn.parallax.com/activitybot/mechanical-assembly> where You will find this menu:



- Follow Mechanical Assembly and Electrical Connections sections.
- Skip Software and Programming as well as Circuit Practice (you've already covered that material)

## STEP 2:

At this point your activity bot chassis is complete. You need to add the activity board, complete electrical connections, and test and calibrate the encoders.

Electrical-connections

<https://learn.parallax.com/tutorials/robot/activitybot/blocklyprop-robotics-activitybot/electrical-connections>

Navigation

<https://learn.parallax.com/tutorials/robot/activitybot/blocklyprop-robotics-activitybot/navigation-basics>

From this point on the teacher will determine which sections will be covered and at what speed.

Below are challenges which will serve as the basis of performance tests.

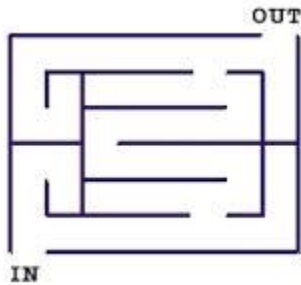


Navigation Challenges:

1. Start on a known spot. Move at least 1 meter away and return to the same spot. Your grade will depend upon how close your actual ending point is to the starting point.

2. Start at a known spot. Move 50 cm. away. Make a 90 degree turn to the right. Pause for 3 seconds and then move another 50 cm. Your grade will depend upon how closely your path approximates the perfect course.

3. Start at a known spot. Move 50 cm. Turn 90 degrees to the right. Move 50 cm. Turn right again. Move 50 cm. Turn 90 degrees to the right again. Return to your starting point. Your grade will depend upon how close your actual ending point is from the starting point.



4. Navigating a maze by touch::

- Go to <http://learn.parallax.com/tutorials/robot/activitybot/blocklyprop-robotics-activitybot/navigate-touch>
- View the video
- Follow the various links while adding the whiskers to your robot and programming it to avoid obstacles by touching them and turning away.
- Attempt to navigate the maze provided in the lab (not the one pictured above).

Your grade will be determined by how long it takes you to reach the end.



5. Navigating a maze by sight:

- Remove the whiskers.
- Go to <http://learn.parallax.com/tutorials/robot/activitybot/blocklyprop-robotics-activitybot/navigate-infrared-flashlights>
- View the video
- Follow the various links while adding the headlights to your robot and programming it to avoid obstacles.

- Attempt to navigate the maze provided in the lab.

Your grade will be determined by how long it takes you to reach the end.

