Turning Exercise – Instructions

Task Description

This task provides guidance in exploring how the robot "pivots", and which coding is required to do so.

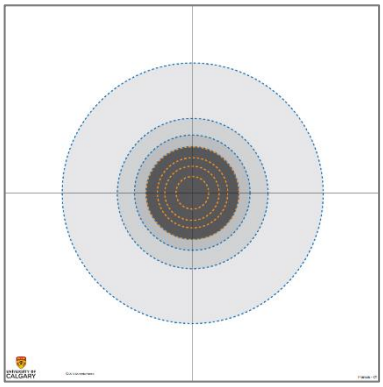
Two additional worksheets are part of this task:

- Turning Exercise Part 1, and
- Turning Exercise Part 2.

Materials Needed

- Students can place the robot by a line to track the turns, or
- Add a long rod to the **center** of the robot. This will make it easier for students to see how far the robot turns.
- Tabloid printout of the Circular Template: https://www.ucalgary.ca/IOSTEM/files/IOSTEM/steering-mat.pdf
- Or alternatively, place two perpendicular intersecting lines of tape on the floor.

Key Understandings



- Students will gain experiences with turning the robot “on the spot”, or “pivoting”.
- They will learn which wheel rotations are required to make the robot turn half a turn, or a full turn, and so on.
- Students will gain a spatial sense of the proportion of wheel rotations and robot turn.

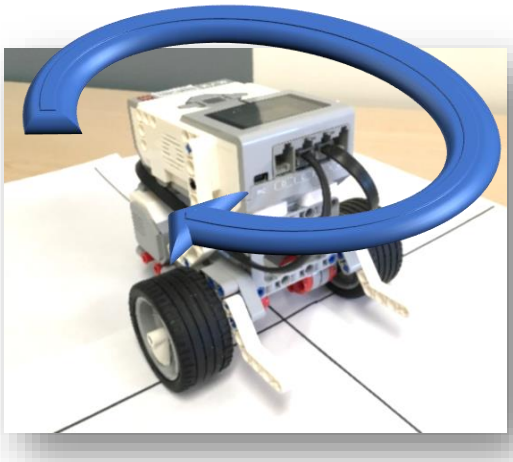
Note for Teachers

It can be very confusing to distinguish between robot motions and wheel motions, and once can easily mix up the two. For ease of understanding, we chose **turns** to describe the **robot**'s movements and **rotations** to describe the **wheels**' motions.

It is also very easy to use confusing representations of number – language is important. **Wheel rotations** are a count – asking **how many** wheel rotations is the most appropriate. **Robot turns** refer to a **distance** traveled – asking **how far** the robot turns is the most appropriate. Awareness of your language can help with your students' understanding of the concepts.

The wheels ***rotate***

The robot ***turns***



Additional Worksheets

- Turning Exercise Part 1
- Turning Exercise Part 2