Knock it off

1. Before the student start the teacher lays down 3 lines on a number of tables/counters that are random distance from the edge of the table. The table edge is zero.

((Notes: Use a max of one yard or meter depending on what your students have been taught))

1. Student teams of two are assigned to a line.

((Notes: A couple of teams can be assigned to each set of lines but it can cause problems))

1. The teams then measure each of their assigned lines from the edge of the table
2. They then calculate the circumference of their robot’s current wheels.
3. Each of the distances is then divided by the circumference of the robot’s wheels which then provides the number of rotations the bot needs to travel from each line to the edge of the table.
4. The team then programs their robot to travel from the first line to the edge of the table KNOCKING OFF a target placed there that the teacher gives the teams.

((Note: Practice robot safety with one team member catching the robot if needed. That team member also replaces the target for the next pass.))

1. The robot then returns but not to the starting line. It returns to the next line in the sequence and then tries to KNOCK OFF the target again.
2. The robot then returns to the last line and repeats the process.
3. You must hit/KNOCK OFF the target each time.
4. After the last target is KNOCKED OFF, the bot returns back to the original starting location.
5. The teacher then checks of the team.
6. If another size of wheel is available, the process is repeated only with new wheels

((Note: Make sure the work load has been shared by making sure that both team members do one set of lines each with help from the other.))

1. Upon completion of the task(s) above, **each** student is then assigned to a set of lines no one has used.
	1. Each student then is assigned only to one line in the set. (A,B,C,D, & E)
	2. He/She measures the distance as described above.
	3. Next, each team member writes the program necessary to KNOCK OFF their target from that line. ((Note: Team members are not assigned the same line. They cannot work together and are not allowed to test run the program.))
	4. The student then ask the teacher to come watch their attempt.
	5. Each attempt missed is a grade reduction.