Bowling ball out and back challenge   Name:

			Date:		Period:
Color & mass of ball (kg)			Date:		Period:
Length (tiles)					
	Start/stop area	*Pushing area*	*Coasting area*	*Pushing area*	*Turn around area*
Length (m)					

1) ***Out***: Push the ball with the broom in the first _____ m, then you can't touch it for the next _____ m. In the final _____ m, push it to slow it down so you can turn it around once you enter the **turn zone**.
   - You have about one meter of **turn zone** in which you can turn the ball around. The ball cannot cross the line at the back of the turn zone.
2) ***Back***: You then push to turn the ball around, and repeat these steps for the path back to the start.
   - You have another meter of **start/finish** zone in which the ball must stop.
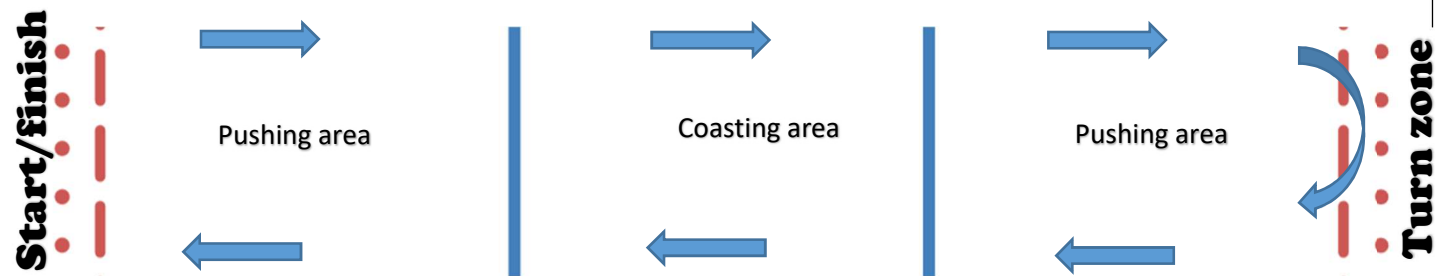
	Departed *(should be zero)*	Crossed first line	Crossed second line	Arrived
Outbound trip time (s)				

	Arrived	Crossed first line	Crossed second line	Departed
Return trip time (s)				

		Acceleration (m/s/s) (assume $v_i = 0$)	Velocity (m/s) *Hint: Solve this before accelerations*	Acceleration (m/s/s) (assume $v_f = 0$)	
Out	Calculations → and result				← Calculations and result
	Calculations → and result	Force (N)	Force (N)	Force (N)	← Calculations and result

		Acceleration (m/s/s) (assume $v_i = 0$)	Velocity (m/s) *Hint: Solve this before accelerations*	Acceleration (m/s/s) (assume $v_f = 0$)	
Back	Calculations → and result				← Calculations and result
	Calculations → and result	Force (N)	Force (N)	Force (N)	← Calculations and result

Bowling ball circle challenge

Name: Period:

Sketch of your circle and pit stop area. Label the radius.		Color and mass of ball (kg)	
		Circle radius (m)	
		Time (s)	
Circumference (m) show calculation		Velocity (m/s) show calculations	
Centripetal acceleration (m/s/s) show calculation			
Centripetal force (N) show calculation			