

Gear Down for Speed Worksheet

1. Measure the diameter and calculate the circumference of the wheels of your robot. The formula for the circumference of a circle is:

$$\text{Circumference} = \pi \times \text{diameter}$$

Wheel Type	Wheel Diameter	Circumference
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2. Using a 1/1 gear ratio, measure the distance traveled by the robot and compute its speed. Using the following formula, calculate the speed for different gear ratios:

$$\text{Gear Ratio 1} \times \text{Speed 1} = \text{Gear Ratio 2} \times \text{Speed 2}$$

Gear Ratio 1		1/1
Speed 1		
Gear Ratio 2		Speed 2

8/24

8/40

24/40

3. Calculate the speed of the robot by attaching gears in different configurations:

Gear Ratio	Distance Traveled	Time	Speed
8/24			
8/40			
24/40			

4. Compare the values for Speed in step 3 with Speed2 in step 2.
5. Now using your own configuration of gears, and wheels how fast can you make your robot?!!