Programming Challenge

Power Levels Investigation

Distance Traveled vs. Power Level Investigation Description

In this investigation you are asked identify the relationship between motor power levels and distance traveled. Determine the relationship by programming your robot to run at ¼, ½, ¾ and full power levels for 1, 3, and 5 seconds. Complete the chart below as you run your tests.

Materials Needed

- Measuring Tool
- Pencil
- Graph paper

Chart

Power Level	Wait State (milliseconds)	Distance Traveled
31 (25%)	1000	
63 (50%)	1000	
94 (75%)	1000	
127 (100%)	1000	
31 (25%)	3000	
63 (50%)	3000	
94 (75%)	3000	
127 (100%)	3000	
31 (25%)	5000	
63 (50%)	5000	
94 (75%)	5000	
127 (100%)	5000	

Create three separate graphs (one for each wait state) plotting the Power Level vs. Distance Traveled.

Are there relationships between power level, distance traveled, and wait state? Explain the relationships that exist, or explain why there are no relationships.

Choose a Power Level and calculate the slope of it's line in each of the three graphs. Are the slopes the same? If not, speculate why differences exist.