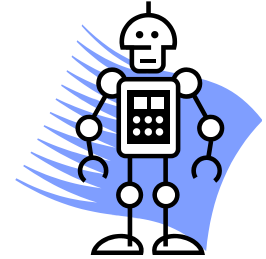


Putting Robots to Work with Force & Friction Activity – Making Robots Work Worksheet – Example Answers



Pre-Experiment Questions

1. How can machines help us to move objects?

Machines can help us move objects by pushing, pulling, lifting, or squeezing objects.

2. What factors can make it easier or harder to push an object forward?

Friction and extra weight can make it harder to push an object forward.

Data Collection

Bottle Number	Predicted Weight of Sand (g)	Actual Weight of Sand (g)	Predicted Pushing of Sand (cm)	Actual Pushing of Sand (cm)
1	2g	43g	100cm	82cm
2	75g	125g	90cm	80cm
3	90g	187g	153cm	79cm

Analysis

1. Why did the robot travel different distances for each *bottle of sand*? Hint: What remained the same? What was different?

The heavier containers didn't travel as far because they were harder to push.

Name: _____

Date: _____

2. In the space below, create a line graph of the actual pushing distance vs. the actual weight of the sand.

