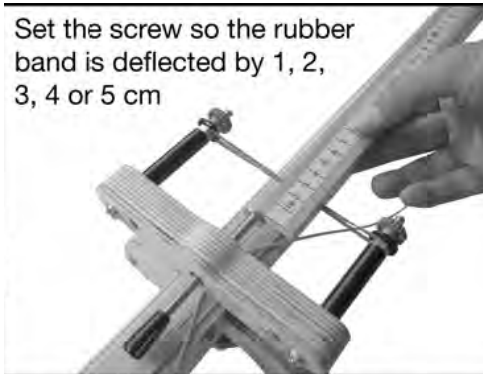
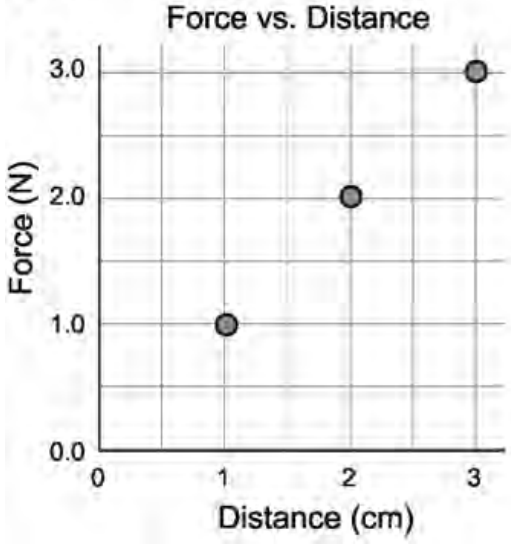
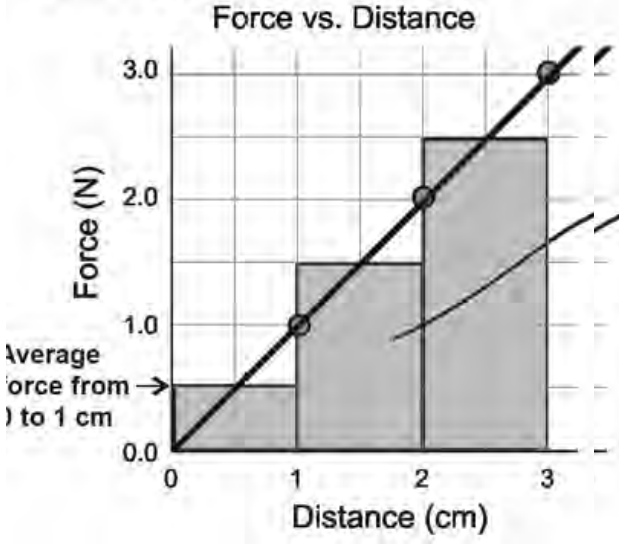


Use a force scale to measure the force it takes to pull the car so it just touches the screw

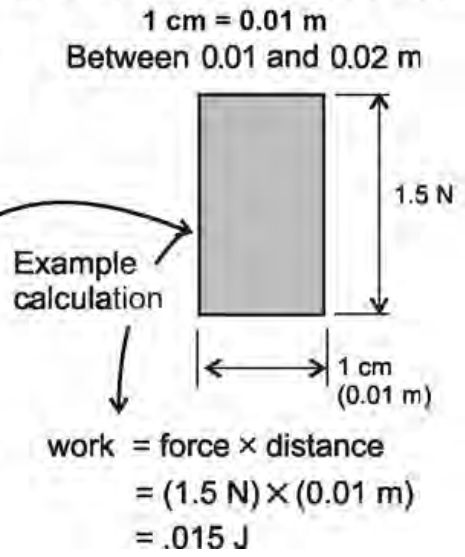
Step 1:
Graph force vs. distance



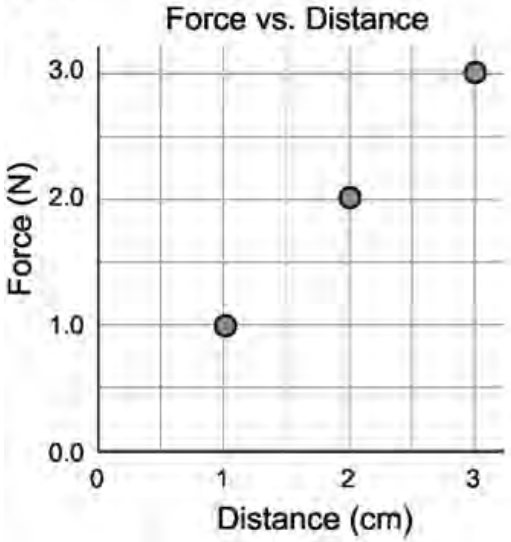
Step 2:
Divide graph into 1 cm bars



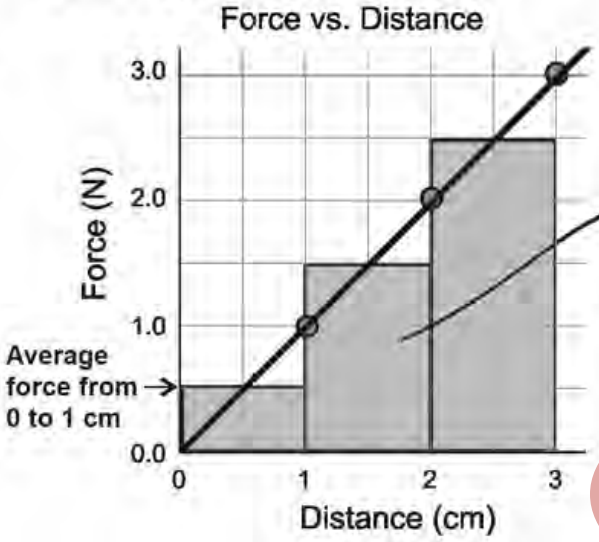
Step 3:
Calculate work for each bar



Step 1:
Graph force vs. distance



Step 2:
Divide graph into 1 cm bars



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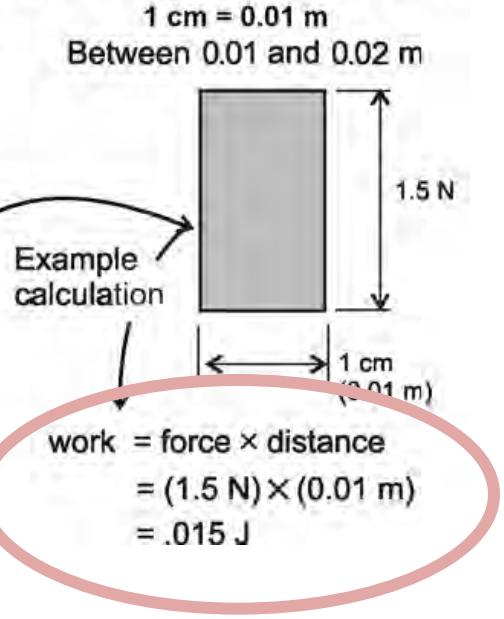

Rubber band deflection	0 - 1 cm	1 - 2 cm	2 - 3 cm	3 - 4 cm	4 - 5 cm	Total work done
1 cm						
2 cm						
3 cm						
4 cm						
5 cm						

Set the photogate just ahead of the flag when the rubber band is straight.

Launch the car at the same measured deflections for which you measured the force.

Deflection of Rubber Band (cm)	Photogate Time (s)	Measured Speed (m/s) *	Predicted Speed (m/s)
1			
2			
3			
4			
5			

** The speed is the width of the flag on the car (0.01 m) divided by the time it took the flag to pass through the beam of the photogate.*

Force vs. Distance the Rubber Band is Stretched

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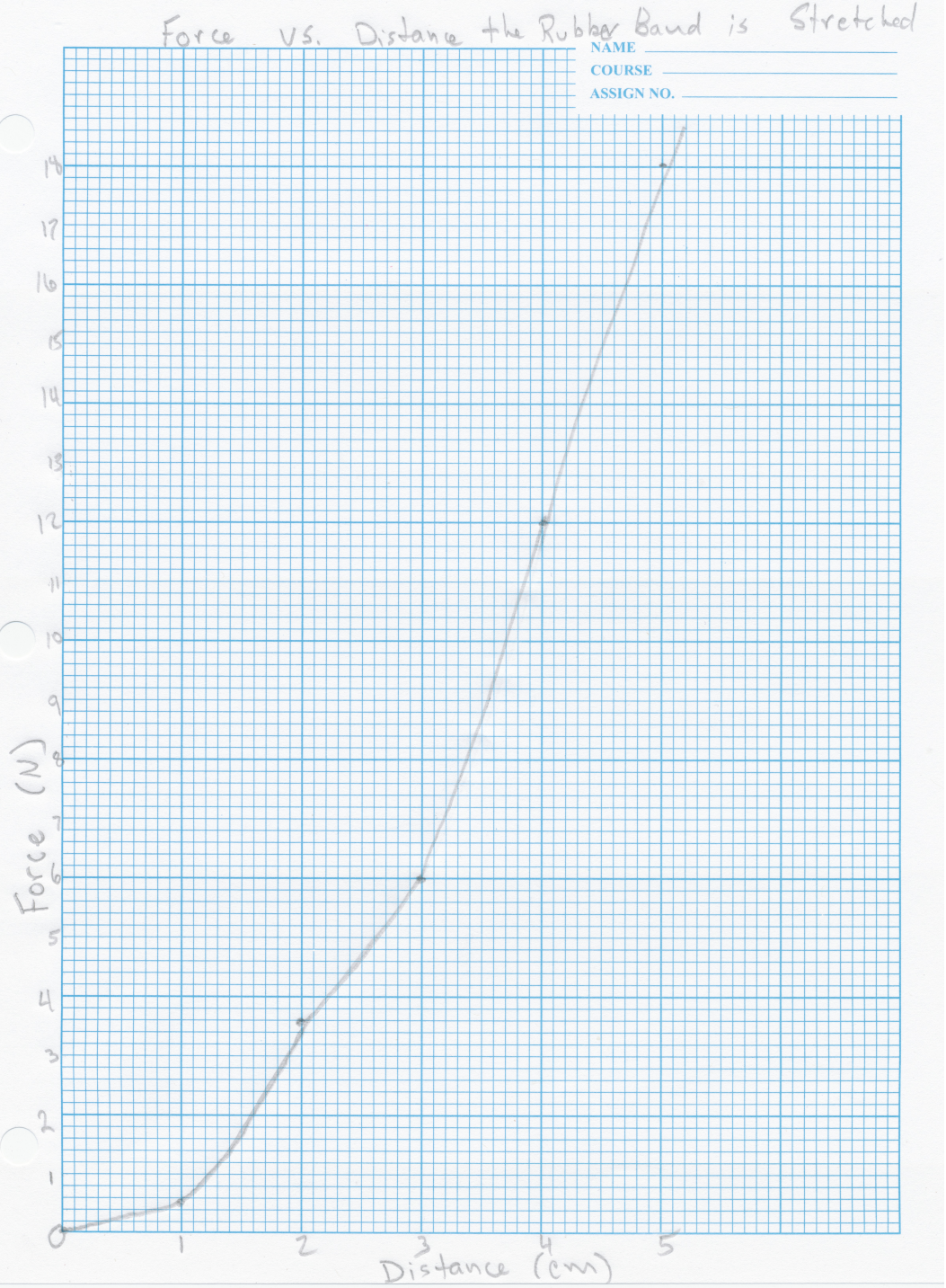

Work = force x distance

You get the force from the graph.

The distance is always 0.01m

Rubber band deflection	4 - 5 cm	3 - 4 cm	2 - 3 cm	1 - 2 cm	0 - 1 cm	Total work done
1 cm						=
2 cm					+	=
3 cm				+	+	=
4 cm			+	+	+	=
5 cm		+	+	+	+	=