Energy Car Lab

Problem: How much does the height of the track affect the speed of the car?

Independent variable:
Dependent variable:

Hypothesis: *If the height is doubled, then the speed will be _____*

Procedure:

1. Set the track on hole number **2** from the base. Measure the height. Write the height in the table for **a.**
2. Place the photogates in the middle **40 cm apart**.
3. Connect the timer so that the B cord is connected to the bottom photogate. The timer should be lit at A,B and Interval.
4. Check that the end pieces are all the way at the ends with the screws all the way back.
5. Place the car with no marbles pointy side forward at the top of the track with the back of the car touching the wood.
6. Release the car and record the time for trial one.
7. Repeat steps 5-7 for trials 2-4.
8. Move the track up to hole **4** from the base. Measure the height. Height b. _____ cm
9. Repeat steps 5-7. Repeat again for trials 2-4.
10. Move the tack up to hole **8** from the base. Measure the height. Height c _____cm.
11. Repeat steps 5-7. Repeat again for trials 2-4.

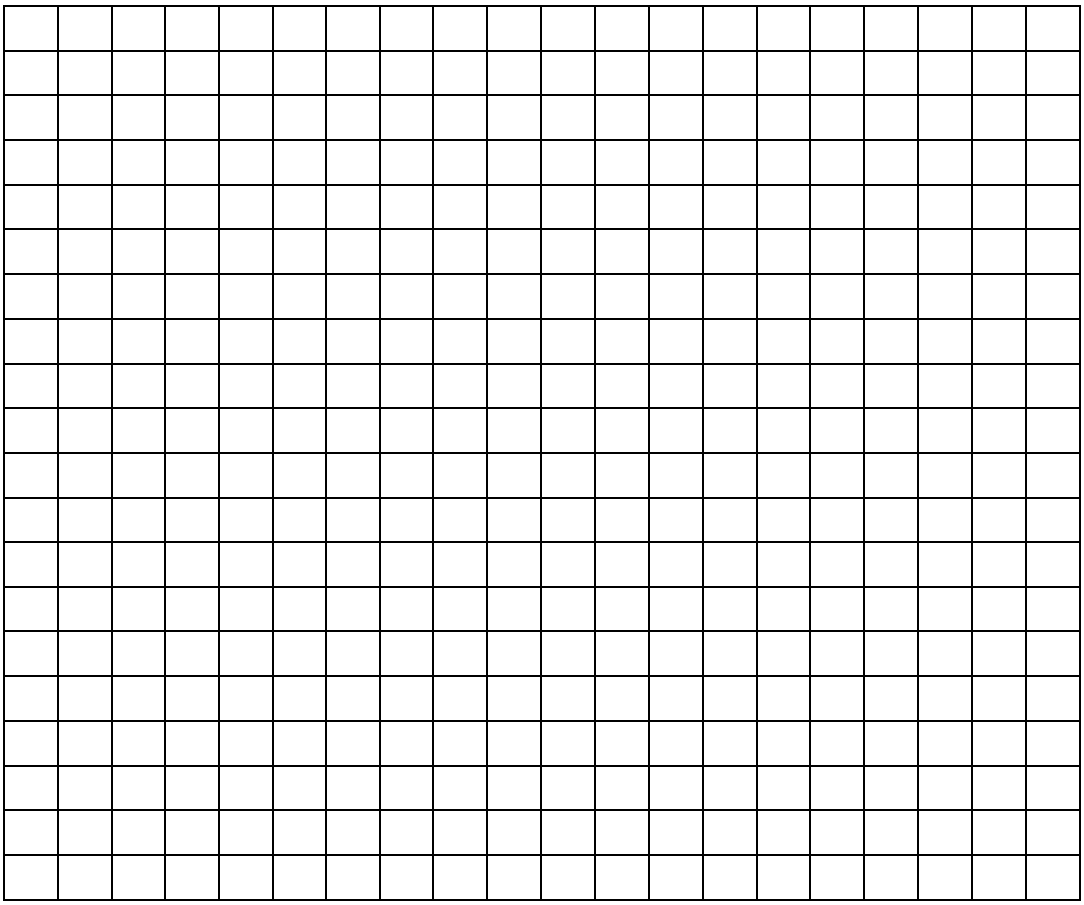
Data

Height Centimeters	Trial 1 seconds	Trial 2 seconds	Trial 3 seconds	Trial 4 seconds	Average Time seconds
a. **cm**					
b.					
c.					

Height tested	**Distance** in cm	Average **time** in seconds	**Speed** in cm/s
a.	**40**		
b.	**40**		
C.	**40**		

Reminder:
Independent variable:
Dependent variable:

Graph



Analysis:

1. According to the graph, how does the height effect the speed?

   _____

   _____

2. If you were to try a higher height what might the speed be? (estimate a number) _____

3. Explain whether or not we needed to calculate the speed in order to know if the car was moving faster at each height, since all the distances were the same? *Could we just use the time?*

Conclusion

The purpose of this lab was to discover _____

_____.

My hypothesis was if _____, *then* _____

_____. *According to the data my hypothesis was* _____. *For example, when the height was* ____*cm the speed was* _____ *cm/s but when the height was* ____ *cm the speed was* _____*cm/s. In this lab I learned that* _____

_____.

If I could continue experimenting I would like to know what would happen if _____

_____.