Name: _____

Group # : _____

Crash! Lab

Question: How does the height of a ramp affect the distance an object rolls after a car crash? What law of motion are we testing?

Hypothesis (prediction): _____

_____

_____

_____

Materials:

- Piece of modeling clay 10 grams
- 2 rulers
- Small toy car
- Masking tape
- Pencil
- 3 books of the same size

Procedure:

1. Set up equipment as shown by your instructor.
   Measure and record the ramp height on your data table.
2. Make a clay ball.
3. Put the clay ball gently on the hood of the car. (Flatten it a little bit, but do NOT press it against the car.)
4. Place the car at the top of the ramp and let the car go.
5. From the point where the car stops, measure and record how far the clay figure fell from the car.
6. Repeat steps 3-5 two more times at the same ramp height.
7. Increase the height of the ramp by adding a second book. Measure and record the new ramp height.
8. Repeat steps 3-5 three times at the new ramp height.
9. Increase the height of the ramp by adding a third book. Measure and record the new ramp height.
10. Repeat steps 3-5 three times at the new ramp height.

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DATA TABLE:

Height of Ramp (cm)	**Trial #**	**Distance of Fall (cm)**	**Average distance of fall (cm)**
	1		
	2		
	3		
	1		
	2		
	3		
	1		
	2		
	3		

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Questions*: *Answer these questions on a separate sheet of paper that you can turn in.

1. Explain, in terms of inertia, why the clay figure flies forward off the car.

2. Why does the height of the ramp affect the distance the clay figure falls?

3. What was the manipulated (changed) variable?
    a. height of the ramp
    b. mass of the clay
    c. distance the figure falls
    d. speed of the car

4. What was the responding (what happened because of the change) variable?
    a. height of the ramp
    b. mass of the clay
    c. distance the figure falls
    d. speed of the car

5. What was the controlled (never changes) variable?
    a. height of the ramp
    b. mass of the clay
    c. distance the figure falls
    d. speed of the car

Conclusion*:*Include this on a separate sheet of paper as well.
Write a conclusion to the investigative question.
In your conclusion, be sure to:

- State if your prediction was correct or incorrect
- Answer the investigative question
- Include data from the table that supports your answer

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