The Fast and the Furious Lab

Objective: Students investigate the effect variables have on a car's speed: time on the ramp, height of the ramp, and the surface on which the car travels.

Materials:
• One toy car per team
• One ramp per team. The ramp should be at least one meter long
• One stopwatch per team
• One meter stick per team
• Sandpaper and towels to cover the ramps
• Waxed paper for the ramp (one full roll of waxed paper)
• Masking tape (one roll)

Procedure 1 Height of ramp
1. With the ramp flat on a table or floor, place the back of the car's wheels at one end of the ramp and measure the distance from the front of the car to the end of the ramp. Record this distance on the data sheet.
2. Raise the ramp up on the blocks according to the data table. Measure the height in meters and record on the data sheet.
3. Place the back of the car's wheels at the top end of the ramp.
4. Release the car as you start the stopwatch.
5. Stop timing when the front of the car gets to the bottom of the ramp. Record this time on the data sheet. Calculate Speed using formula speed= distance/time
6. Repeat steps 3-5 two more times.
7. Calculate the average speed of your car by using the formula:
   (speed 1+ speed 2+speed 3)/3= average speed
8. Raise one end of the ramp on two blocks and repeat steps 2-7.
9. Raise one end of the ramp on three blocks and repeat steps 2-7.

	Height of Ramp	Time	Speed	Average Speed
Trial 1 1 Block		1. 2. 3.	1. 2. 3..	
Trial 2 2 Blocks		1. 2. 3.	1. 2. 3.	
Trial 3 3 Blocks		1. 2. 3.	1. 2. 3.	

Name: _____ Class: _____ Date: _____

Graph your results

Ramp Height
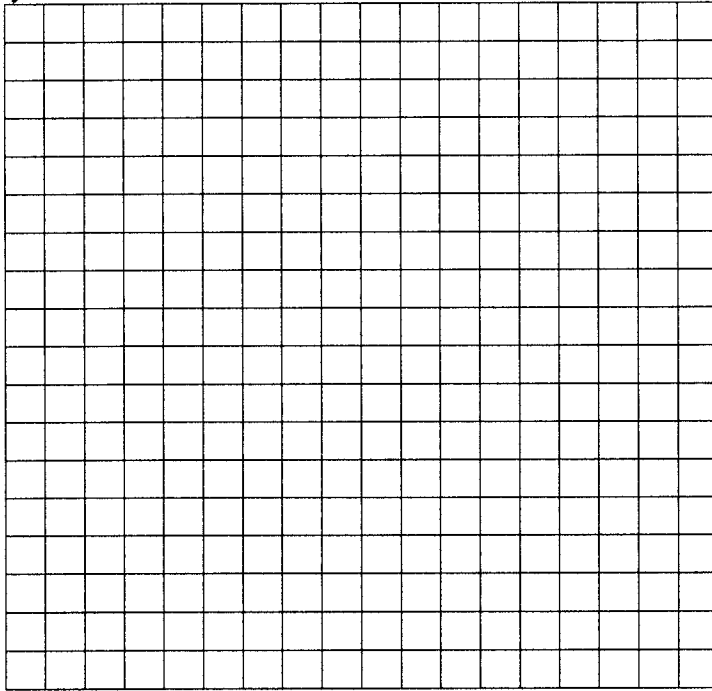
Average Speed (m/s)

Procedure 2
Hypothesize how different materials affect speed.

_____
_____
_____
_____

1. Add a paper towel to the incline plane. Release car and calculate speed.

2. Add sandpaper to the incline plane. Release car and calculate speed.

3. Add wax paper to the incline plane. Release car and calculate speed.

Which surface allowed the car to move the fastest and why?

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_____
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