Name:

Investigation 3.1 Force, Mass, and Acceleration

Part 1:

Before you begin the investigation, answer the following questions.

1. What are ways you can change the amount of force acting to pull the car down the ramp?

2. How will you vary the force on the car for this experiment?

Part 3:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | # of Weights | Force  (N) | Mass  (g) | Time A  (sec) | Time B  (sec) | Time AB  Sec | Speed A  (m/sec) | Speed B  (m/sec) | Accel  (m/sec2) |
| 5 holes | 1 |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |
| 7 holes | 1 |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |
| 9 holes | 1 |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |

Part 4:

a. List three observations you can make about the data from looking at table 1.

b. The relationship between force and motion is simple but not obvious. Can you see it from the data table? Write a sentence to describe your ideas about the relationship between force and motion.

Part 5:

a. State the mathematical equation assigned to your group.

b.

|  |  |  |  |
| --- | --- | --- | --- |
| a (Acceleration)  m/sec2 | F (Force)  N | m ( mass of car)  g | Force and mass calculation |
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Create your graph on separate paper.

Part 7: