**Students’ Names \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

***Investigating Friction Data Form***

**Ramp Drawings:**

|  |  |
| --- | --- |
| Push #1: Distance and speed on **cardboard surface** | Distance:  Time:  Speed: |
| Push #2: Distance and speed on cardboard surface | Distance:  Time:  Speed: |
| Push #3: Distance and speed on cardboard surface | Distance:  Time:  Speed: |
| Average speed of car | Speed: |
|  |  |
| Hypothesis of movement on  **sand paper** | Faster or Slower |
| Push #1: Distance and speed on sand paper | Distance:  Time:  Speed: |
| Push #2: Distance and speed on sand paper | Distance:  Time:  Speed: |
| Push #3: Distance and speed on sand paper | Distance:  Time:  Speed: |
| Average speed of car | Speed: |
|  |  |
| Hypothesis of movement on  **wax paper** | Faster or Slower |
| Push #1: Distance and speed on wax paper | Distance:  Time:  Speed: |
| Push #2: Distance and speed on wax paper | Distance:  Time:  Speed: |
| Push #3: Distance and speed on wax paper | Distance:  Time:  Speed: |
| Average speed of car | Speed: |
|  |  |
| Hypothesis of movement on **bubble wrap** | Faster or Slower |
| Push #1: Distance and speed on bubble wrap | Distance:  Time:  Speed: |
| Push #2: Distance and speed on bubble wrap | Distance:  Time:  Speed: |
| Push #3: Distance and speed on bubble wrap | Distance:  Time:  Speed: |
| Average speed of car | Speed: |

**Analysis:**

1) Compare what happened when your car rolled down the cardboard ramp compared to when it rolled down the sandpaper ramp. On which ramp did it roll faster? Why?

2) Compare what happened when your car rolled down the cardboard ramp compared to when it rolled down the wax paper ramp. On which ramp did it roll faster? Why?

3) Compare what happened when your car rolled down the cardboard ramp compared to when it rolled down the bubble wrap ramp. On which ramp did it roll faster? Why?

4) Overall, which ramp created the fastest trip for the car? Why do you think the car traveled the fastest on that ramp?

5) How did friction affect your car on each of the ramps?

Cardboard:

Sandpaper:

Wax paper:

Bubble wrap:

6) How does friction affect the speed of an object? Explain.