

Name: _____

LAB: FRICTION

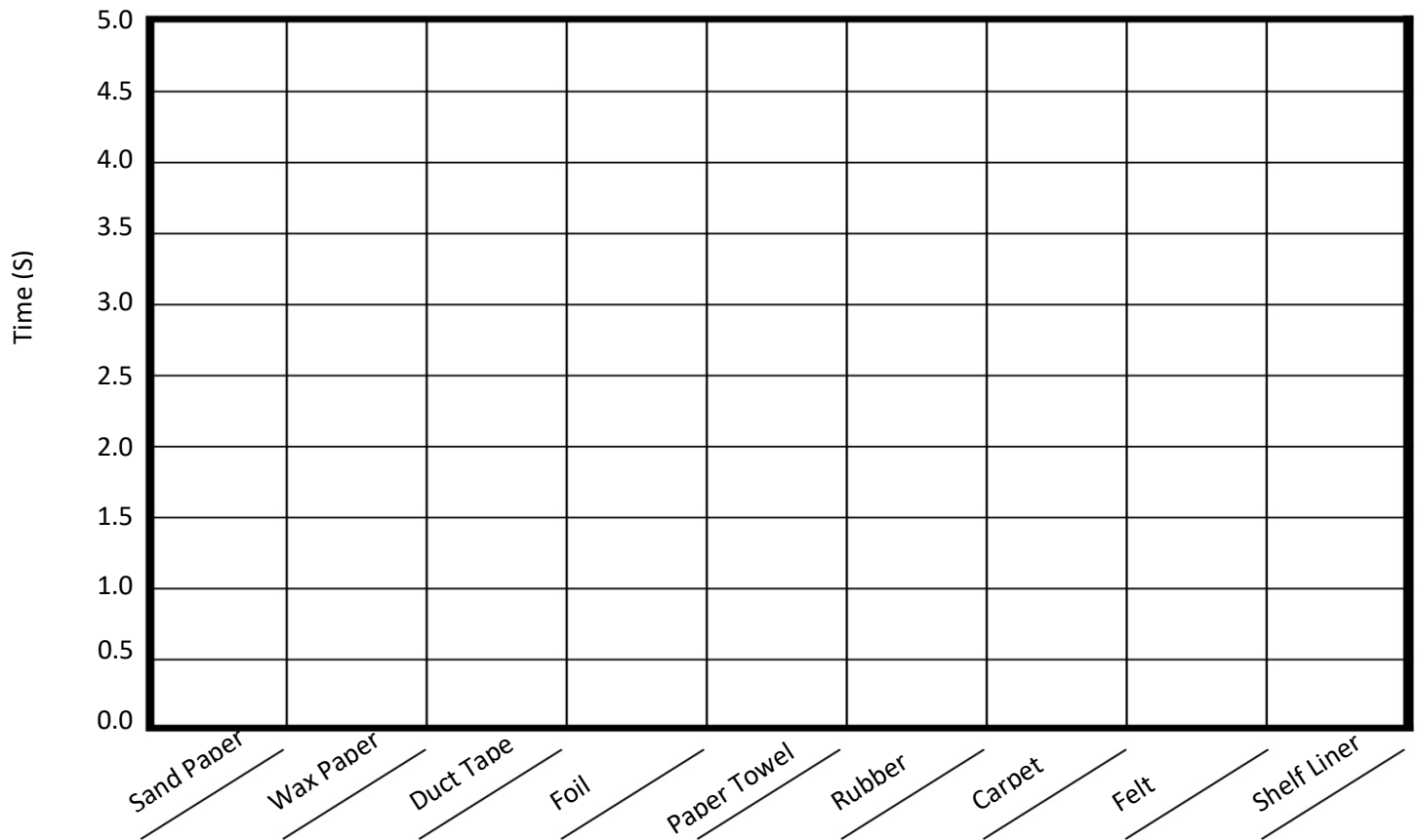
Objective: To determine which surfaces have the least/most friction.

Materials: Ring stand with clamp, ramp, stopwatch, calculator, hot wheels car, ruler.

Procedures: Each table in the lab is set up with a track with a different surface. You will set the ramp on the ring stand at varying heights and time how long it takes for a car to roll down the ramp. You will do this 3 times at each height and take the average of each of the three times.

Station	Time on ramp at 25 cm	Time on ramp at 35 cm	Time on ramp at 45 cm
1. Sand paper	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:
2. Wax paper	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:
3. Duct Tape	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:
4. Foil	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:
5. Paper Towel	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:
6. Rubber	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:
7. Carpet	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:
8. Felt	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:
9. Shelf Liner	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:	Trial 1: Trial 2: Trial 3: Average:

Graph: Create a **Bar Graph** of the data comparing the time it takes the car to go down the track on the different surfaces. You will graph the **AVERAGE** time when the ramp is at 35 cm height.



Questions:

- Which surface created the least friction? _____
a. How could you tell? _____
- What about this surface made it resist motion the least? _____

- Which surface created the most friction? _____
a. How could you tell? _____
- What about this surface made it resist motion the most? _____

- How did having different heights affect the time it took for the car to go down the ramp? _____

- Imagine you must move a large sofa (that is too heavy to lift) in your house. You can either push it over the carpet in the living room, or over the tile in the hallway. Which route do you think will have the least friction?
_____ Why? _____ Which route would you choose? _____