

Force Notes

Inertia	
Newton's 1st Law of Motion	
Force	
Newton's 2nd Law of Motion	
Friction	
Static Friction	
Sliding Friction	
Rolling Friction	
Air Resistance (Drag)	
Gravity	
Weight	
Newton's 3rd Law of Motion	
Net Force	

Frame of Reference

Scenario 1: Stationary Thrower

While seated, observe a person (thrower) tossing a ball up and down

- A. Describe the motion of the ball as observed by the thrower. (Which direction was it moving in, was it moving fast or slow, etc).
- B. Describe the motion of the ball as seen by the observer?
- C. Describe the difference between the motion of the ball as seen by the observers and the motion of the ball seen by the thrower.

Scenario 2: Moving Thrower

While seated, observe a person (thrower) tossing a ball up and down, while the thrower walks across the room

- A. Describe the motion of the ball as observed by the thrower:
- B. Describe the motion of the ball as seen by the observers:
- C. Describe the difference between the motion of the ball as seen by the observers and the motion of the ball seen by the thrower.

Scenario 3: Moving Observers

Students will form a line and walk by a stationary thrower, observing the ball motion

- A. What did the thrower observe about the motion of the ball?
- B. Describe the motion of the ball as seen by the moving observers:
- C. Describe the difference between the motion of the ball as seen by the observers and the motion of the ball seen by the thrower.
- D. Explain why thrower and observer see the same or different motion in each of the scenarios