

Newton's Laws Exposition

Station #2 – Ping Pong Ball Activity

Equipment

Golf ball

Ping-Pong ball

Wooden ruler

Directions

Constant Force	Constant Acceleration
<ol style="list-style-type: none">1) Place a ping-pong ball in front of the wooden ruler.2) Carefully bend the ruler back and release it.3) Record your observations4) Place a golf ball in front of the wooden ruler.5) Carefully bend the ruler back and release it. Be sure to bend the ruler back to the same spot (force needs to be constant).6) Record your observations.	<ol style="list-style-type: none">1) Place a ping-pong ball in front of the wooden ruler.2) Carefully bend the ruler back and release it.3) Record your observations4) Place a golf ball in front of the wooden ruler.5) Carefully bend the ruler back and release it. Be sure to bend the ruler back to achieve the same acceleration as the ping-pong ball (acceleration needs to be constant).6) Record your observations.

Observations (constant force)

Ping-pong ball	
Golf ball	

Observations (constant acceleration)

Ping-pong ball	
Golf ball	

Questions

- 1) Which of Newton's Laws does this station demonstrate?
- 2) When the ruler was bent to the same spot (constant force) which ball accelerated faster? WHY?
- 3) When the ruler was bent to achieve similar acceleration (constant acceleration) which ball went faster? WHY? (TRICK QUESTION – BEWARE)
- 4) Explain the relationship between mass and acceleration.
- 5) How does Newton's Third Law apply to this experiment?
- 6) Which ball has more inertia? Explain.