

### Mandatory 3: Lab Practicum

#### Aaron Minard

Lab Topic:	<a href="#">Newton's 1st and 2nd Laws</a>
PhET Lab: (Original)	<a href="#">PhET: Forces &amp; Motion Basics</a> (Original Document)
Lab Overview:	This structured inquiry lab gives students an opportunity to explore the forces at work when pulling against a cart, and pushing a crate, person, or refrigerator with applied forces to see how they make objects move.
PhET Lab: (Student Work)	<a href="#">PhET: Forces &amp; Motion Basics</a> (Student Work Document)  → Located in Dropbox
Reflection:	<p>This activity connects to physics learning outcomes by using a forces and motions basics simulation to investigate the relationships between net force, motion, and acceleration. The students learn that the motion of objects depends on the sum of the forces on the object and the mass of the object. They also identify when forces are balanced and unbalanced. They determine the sum of forces (net force) on an object with more than one force on it, and they predict the direction of motion given a combination of forces.</p> <p>What I like most about this lab activity is that it not only mirrors the middle school age appropriate physical science standards taught by our science teachers but it also provides my students a way to discover Newton's 1st and 2nd laws of motion in a fun and interactive way. The only downside that I see is that this activity is heavily dependent upon teacher-presented questions through a prescribed procedure rather than student designed or student selected procedures reminiscent of a guided or open inquiry activity.</p>