**Newton’s Laws of Motion Chapter 12.2**



**See** [**https://www.learningctronline.com/courses**](https://www.learningctronline.com/courses) **for Materials and Resources.**

**Topics:**

1. Newton’s Laws of Motion

**Objectives:**

* Distinguish philosophy from scientific process based on Aristotle’s claims, Galileo’s experimentation, to Newton’s Laws of Motion.
* Recognize and explain Newton’s First Law of Motion, Inertia, as the tendency of matter to resist change in motion.
* Identify and explain friction [defining four kinds of friction] as a force that opposes motion, producing negative acceleration or “deceleration”.
* Explain & calculate variables of Newton’s Second Law of Motion, f = ma, describing how force, acceleration, and mass are related. Force equals mass times acceleration.

TAKE NOTE

1. Reading (Hewitt Text)

1. Worksheet: Newton’s 2nd Law of Motion
2. Problem Set Newton’s Laws of Motion (2 weeks)
3. Lab: Newton’s 1st Law of Motion

1. Lab: Friction
2. Lab: Newton’s 2nd Law of Motion
3. HONORS Newton’s 1st Law and Friction activities
4. Quizzes Newton’s 1st Law & Newton’s 2nd Law
5. Week 9 Devotional (<https://www.learningctronline.com/devotional>)

**Text**: Chapter 4 – 5 Newton’s Laws of Motion (Hewitt)

**Class Notes: Use the Document provided**

**Homework**:

* Worksheet: Newton’s 2nd Law of Motion
* Problem Set Newton’s Laws of Motion

**Lab**: Newton’s First Law Activity

* Perform the lab as directed using the worksheet provided.
* Complete all calculations and data, showing work whenever appropriate.
* Conclusions should be answered in complete sentences that convey a complete thought.
* Save the documents into your LAB folder in the Physics folder on your desktop.

**Lab**: Friction

* Perform the lab as directed using the worksheet provided.
* Complete all calculations and data, showing work whenever appropriate.
* Conclusions should be answered in complete sentences that convey a complete thought.
* Save the documents into your LAB folder in the Physics folder on your desktop.

**Lab**: Newton’s 2nd Law

* Perform the lab as directed using the worksheet provided.
* Complete all calculations and data, showing work whenever appropriate.
* Conclusions should be answered in complete sentences that convey a complete thought.
* Save the documents into your LAB folder in the Physics folder on your desktop.

**TEST:** Quiz Newton’s 1st Law

Quiz Newton’s 2nd Law

1) the academic integrity policy

* Tests must be completed **WITHOUT** referring to books, notes, the internet, people, or any outside resources.
* Students **MAY** use the approved Periodic Tables, approved Reference Tables, or approved equation (formula) sheet (provided by the teacher) along with calculators and scratch paper.
* A guardian should be proctoring the test. Proctoring means to monitor the following:

2) Take the **"in one sitting"**, meaning that once you start the test, you must complete it without interruption.

3) There is a **20-minute time limit** on the quizzes. Please have the proctor write the time taken at the top of your answer sheet with their signature or initials.

4) Proctors should NOT be reading the test or engaging students during the test.

5) Do NOT use RED font. Black font is best.

Supplemental Resources (Optional)

1. Newton’s 1st Law & Friction Activities

<http://somup.com/cFXh0Un1k7> Newton's Laws of Motion Overview Sports (3:12)

<http://somup.com/cFXh04n1kN> Newton's Laws of Motion Overview Hockey (5:22)

[**http://somup.com/cFXh00n1kH**](http://somup.com/cFXh00n1kH) **Projectile Motion (0:15)**

* **Showing the cart and ball BOTH moving with constant velocity**
* **Showing the ball moving in a curved path (projectile motion: trajectory)**
* **Newton's 1st Law (inertia)**

[**http://somup.com/cFXh0bn1kE**](http://somup.com/cFXh0bn1kE) **Projectile Motion 2 (0:27) similar experiment to above.**

<http://somup.com/cFXh0gn1kP> Newton's 1st Law of Motion: Inertia (3:37) Football

<http://somup.com/cFXh05n1kR> Newton's 2nd Law of Motion (3:37) Football Place Kicker

<http://somup.com/cYVZDwfWoH> Newton's 2nd Law of Motion (1:16) Car Racing

<http://somup.com/crhT28qX2y> Friction Lab (2:35)

<http://somup.com/cYhFoTjyjP> Knowledge Puffs Up Love Builds Up 1 Corinthians 8:1-2; Basin and the Towel (3:41)