

# 01: Newton's Laws & Motion

Content Area: **Special Education**

Course(s):

Time Period: **Full Year**

Length: **4 weeks**

Status: **Published**

## **General Overview, Course Description or Course Philosophy**

---

Physical Science establishes a basic approach to the fundamentals of chemistry and physics. The following concepts will be explored: atomic structure, chemical bonding, chemical reactions, the periodic table, kinetic theory, and kinematics. The use of technology to gather and analyze data will be incorporated. This course is concept-oriented with a focus on Chemistry and Physics in the real world. Laboratory work and special projects will facilitate active learning and accommodate different learning styles.

## **OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS**

---

Students will understand that:

- every object resists change to its state of motion mass is a measure of an object's inertia
- weight is a measure of the force of gravity acting on an object
- force causes acceleration, and an object cannot accelerate unless it is acted on by a net force
- acceleration is directly proportional to net force and inversely proportional to mass

## **CONTENT AREA STANDARDS**

---

SCI.HS-PS2-1	Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.
SCI.HS-PS2-3	Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

## **RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)**

---

MA.K-12.2	Reason abstractly and quantitatively.
MA.K-12.4	Model with mathematics.
LA.RST.9-10.1	Accurately cite strong and thorough evidence from the text to support analysis of science and technical texts, attending to precise details for explanations or descriptions.
LA.WHST.9-10.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of

the subject under investigation.

LA.WHST.9-10.8

Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation.

LA.WHST.9-10.9

Draw evidence from informational texts to support analysis, reflection, and research.

## **Student Learning Targets**

---

Refer to Declarative and Procedural Knowledge sections

## **Declarative Knowledge**

---

Students will understand:

## **Procedural Knowledge**

---

Students will be able to

## **EVIDENCE OF LEARNING**

---

Refer to the 'Formative Assessments' and 'Summative Assessments' sections.

## **Formative Assessments**

---

Observation, do now, homework

## **Summative Assessments**

---

- Benchmarks – departmental benchmark given at the end of MP1, MP2, and MP3
- Alternative Assessments

- Lab inquiries and investigations
- Lab Practicals
- Exploratory activities based on phenomenon
- Gallery walks of student work
- Creative Extension Projects
- Build a model of a proposed solution
- Let students design their own flashcards to test each other
- Keynote presentations made by students on a topic
- Portfolio

### **RESOURCES (Instructional, Supplemental, Intervention Materials)**

---

[physicsclassroom.com](http://physicsclassroom.com)

[Vernier.com/experiments](http://Vernier.com/experiments)

Khan Academy, Crash Course Physics, and Bozeman Science

### **INTERDISCIPLINARY CONNECTIONS**

---

Algebra, English, Geometry

### **ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS**

---

See link to Accommodations & Modifications document in course folder.