

Unit 2: Forces and Newton's Laws

Standards:	
<p>SP1. Students will analyze the relationships between force, mass, gravity, and the motion of objects.</p> <p>d. Measure and calculate the magnitude of frictional forces and Newton's three Laws of Motion.</p> <p>e. Measure and calculate the magnitude of gravitational forces.</p> <p>h. Determine the conditions required to maintain a body in a state of static equilibrium.</p>	
Enduring Understandings:	Essential Questions:
<ol style="list-style-type: none"> 1. Newton's laws are the expression of the relationships of forces, mass and motion. 2. Acceleration has a direct relationship to force and an inverse relationship to mass. 3. Mass is a measure of the inertia of an object. 4. Weight is defined as of the force of gravity on an object. 5. Net force is the vector sum of the applied forces on an object. 6. An object is in equilibrium when the vector sum of forces acting on it is zero. 7. A gravitational force exists between any two masses. 	<ol style="list-style-type: none"> 1. Why do objects start or stop moving? 2. How is it that we stay on the surface of the Earth instead of being crushed against it by the force of gravity or fly into space? 3. Why is friction a good thing and bad thing for motion when motion occurs? 4. Why don't structures like buildings and towers collapse? 5. What causes objects to change speed or direction? 6. What is the difference between mass and weight? 7. What is the mathematical relationship between force, mass and acceleration? 8. How do Newton's Laws explain the phenomena of everyday life?

Check off the study skills you PLAN to use this unit below and use the blank spaces to create your own study skills.

✓		✓	
	Review labs, notes, packet and activities. Use the calendar to make sure you review everything.		Re-read or review all assigned readings (textbook, handouts, online).
	Have a family member or friend quiz me orally.		Find a study buddy from Physics who understands the material and I can work well with.
	Meet with my teacher in the morning for extra help.		Use the Objective checklist as a Study Guide for end of unit test/quiz.
	Complete and review (by reworking problems) all problem sets, check-ups, practice tests, and quizzes.		Start studying early! (Not just the night before the test.)
	Use the Objective Checklist throughout unit to assess understanding.		
	Ask and answer questions during class.		

- ✓ Use the learning target checklist as your personal guide to assess your level of readiness for quizzes and the unit test.
- ✓ Circle the descriptor that best describes how you feel about your mastery of each objective.
- ✓ NOTE: IF IT IS NOT A ☺, YOU PROBABLY ARE NOT READY FOR THE QUIZ / TEST!!!!

Vocabulary I can define and explain the following terms:

After Lesson(s)	☺ = I get it	? = I need more practice/review	! = I need to get help	While Studying
☺ ? !	Force			☺ ? !
☺ ? !	Net Force			☺ ? !
☺ ? !	Inertia			☺ ? !
☺ ? !	Gravity			☺ ? !
☺ ? !	Friction			☺ ? !
☺ ? !	Normal Force			☺ ? !
☺ ? !	Tension			☺ ? !
☺ ? !	Weight			☺ ? !
☺ ? !	Mass			☺ ? !
☺ ? !	Free Body Diagram			☺ ? !
☺ ? !	Balanced Force			☺ ? !
☺ ? !	Unbalanced Force			☺ ? !
☺ ? !	Equilibrium			☺ ? !

Skills / Knowledge / Understandings

After Lesson(s)			While Studying			
☺	?	!	1. I am able to describe and calculate forces using graphical, written, and mathematical representations when given a description of its motion. This means I can: <ol style="list-style-type: none"> Construct a free body diagram of the forces acting. Calculate the net force acting on the object. Determine if the forces are balanced or unbalanced and connect that to any changes in the object's motion. Describe the effect of gravity on an object's mass and know why weight changes depending on location. 	☺	?	!
☺	?	!		☺	?	!
☺	?	!		☺	?	!
☺	?	!		☺	?	!
☺	?	!	2. I am able to express Newton's Laws of Motion, understanding how they are able to predict and describe the motion of objects. This means I can: <ol style="list-style-type: none"> State each law of motion and give examples of each. Determine which of a set of objects has the greatest/least inertia. Determine acceleration; net force; and/or mass. Select/sketch graphs of force vs. mass and identify slope. Identify situations in which Newton's 3rd Law is needed to determine the reaction to some action. 	☺	?	!
☺	?	!		☺	?	!
☺	?	!		☺	?	!
☺	?	!		☺	?	!
☺	?	!		☺	?	!

Assignment Checklist

Use this checklist to make sure you are keeping up with your assignments. Add additional assignments in the blank spaces and mark through any that may get cancelled throughout the unit. If the assignment was participation, put P in the Grade column.

Assignment	Turned in?	Grade	Assignment	Turned in?	Grade
Force Types Foldable					
Free Body Diagram Worksheet					
Forces Comics					
Bridge Lab					
Newton's Law Worksheet					
Newton's Laws Stations					
Chapter 6 Reading Notes					
Unit 2 Test					