

This document outlines the academic goals, the activities and materials used in the High School Integrated Physics and Chemistry class in order to achieve high academic success. There is a great deal of overlap in the standards within the activities and within the core areas, thus, standards addressed repeatedly

Time period	Standard	Resources (unit in textbook, learning center, recurring activity, other)	Internet/Media/ other resource
Weeks 1 to 37	(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	Wyession, "Physical Science: Concepts in Action", 2009 Parasailing Edition Science Fair Project	
Weeks 1 to 37	(A) demonstrate safe practices during laboratory and field investigations; and	Lecture Wyession Ch 1 Science Fair Project	
Weeks 1	(B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials.	Lecture Wyession Ch 1	
Weeks 1 to 37	(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	Wyession Ch 1 Models Science Fair Project	
Week 1	(A) know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section;	Wyession Ch 1 Lecture	
1 to 37	(B) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting equipment and technology;	Wyession Ch 1 Science Fair Project Monthly Extra Credit	http://www.sciencefriday.com/ www.world-science.net
1 to 37	(C) collect data and make measurements with precision;	Wyession Ch 1 Conversion Worksheets Science Fair Project	http://www.brinkmanonline.com/humor/church/wc.html
1 to 37	(D) organize, analyze, evaluate, make inferences, and predict trends from data; and	Wyession Ch 1 Science Fair Project Monthly Extra Credit	http://www.sciencefriday.com/ www.world-science.net
1 to 37	(E) communicate valid conclusions.	Wyession Ch 1 Science Fair Project	
Weeks 1 to 37	(3) Scientific processes. The student uses logical thinking, scientific reasoning, and problem solving to make informed decisions. The student is expected to:	Wyession Ch 1 Science Fair Project	
1 to 37	(A) in all fields of science, understand scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage scientific thinking by the student;	Science Fair Project	
1 to 37	(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;	Monthly Extra Credit Weekly Extra Credit	http://www.sciencefriday.com/ www.world-science.net
1 to 37	(C) draw inferences based on data related to promotional materials for products and services;		
1 to 37	(D) evaluate the impact of research on scientific thought, society, and the environment;	Overhead Science Timeline	
20 to	careers; and		

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1 to 37	(F) research and describe the history of physics and chemistry and contributions of scientists.	Overhead Science Timeline	
Weeks 23 to 27	(4) Science concepts. The student knows concepts of force and motion evident in everyday life. The student is expected to:	Wysession Ch 11, 12	
23, 25	(A) describe and calculate an object's motion in terms of position, displacement, speed, and acceleration;	Wysession Ch 11 Labs	
23, 24	(B) measure and graph distance and speed as a function of time using moving toys;	Wysession Ch 11 Labs	
25, 26	(C) investigate how an object's motion changes only when a net force is applied, including activities and equipment such as toy cars, vehicle restraints, sports activities, and classroom objects;	Wysession Ch 12 Balances Models	
27	(D) assess the relationship between force, mass, and acceleration, noting the relationship is independent of the nature of the force, using equipment such as dynamic carts, moving toys, vehicles, and falling objects;	Wysession Ch 12 Models	http://nssdc.gsfc.nasa.gov/planetary/lunar/apollo_15_feather_drop.html
27	(E) apply the concept of conservation of momentum using action and reaction forces such as students on skateboards;	Wysession Ch 12 Theatrical Modeling Models	
26	(F) describe the gravitational attraction between objects of different masses at different distances, including satellites; and	Wysession Ch 11, 12	
27	(G) examine electrical force as a universal force between any two charged objects and compare the relative strength of the electrical force and gravitational force.	Wysession Ch 12 Models	
Weeks 28 to 37	(5) Science concepts. The student recognizes multiple forms of energy and knows the impact of energy transfer and energy conservation in everyday life. The student is expected to:	Wysession Ch 14-21 Student Presentations Models Labs Machines	http://www.youtube.com/watch?v=qybUFnY7Y8w http://www.youtube.com/watch?v=Wzyn-JHAtfI http://www.youtube.com/watch?v=ewrohkr7iFE&feature=related http://www.youtube.com/watch?v=GXrRC3pfLnE http://www.albinoblacksheep.com/flash/honda
30	(A) recognize and demonstrate that objects and substances in motion have kinetic energy such as vibration of atoms, water flowing down a stream moving pebbles, and bowling balls knocking down pins;	Wysession Ch 15 Models	
30	(B) demonstrate common forms of potential energy, including gravitational, elastic, and chemical, such as a ball on an inclined plane, springs, and batteries;	Wysession Ch 15 Models	
33, 36	(C) demonstrate that moving electric charges produce magnetic forces and moving magnets produce electric forces;	Wysession Ch 18, 21	
30	(D) investigate the law of conservation of energy;	Wysession Ch 15	
30, 31	(E) investigate and demonstrate the movement of thermal energy through solids, liquids, and gases by convection, conduction, and radiation such as in weather, living, and mechanical systems;	Wysession Ch 16 Models	

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36	(F) evaluate the transfer of electrical energy in series and parallel circuits and conductive materials;	Wysession Ch 20 Models	
32-34	(G) explore the characteristics and behaviors of energy transferred by waves, including acoustic, seismic, light, and waves on water as they superpose on one another, bend around corners, reflect off surfaces, are absorbed by materials, and change direction when entering new materials;	Wysession Ch 17,18 Models Instruments Mirrors Lenses Theatrical Modeling	http://www.youtube.com/watch?v=deX7R9RbmX0&feature=related http://www.youtube.com/watch?v=AlPqL7IUT6M http://www.youtube.com/watch?v=w3AdFjklR50 https://www.facebook.com/media/set/?set=a.13583518705.20108.513198705&type=3 http://www.youtube.com/watch?v=nvtwo2ugwU8 http://www.youtube.com/watch?v=yN6EgMMrhdl&feature=fvst http://www.ultrasonic-ringtones.com/ http://www.youtube.com/watch?v=Gf33ueRXMzQ https://www.facebook.com/photo.php?fbid=390304978705&set=a.389820928705.1695.92.513198705&type=3&theater http://wikieducator.org/images/b/b3/Firstphoto1.jpeg
30	(H) analyze energy conversions such as those from radiant, nuclear, and geothermal sources; fossil fuels such as coal, gas, oil; and the movement of water or wind; and	Wysession Ch 15	
30, 34, 35, 36	(I) critique the advantages and disadvantages of various energy sources and their impact on society and the environment.	Wysession Ch 15, 18, 20	
Weeks 4 to 8, 15, 16	(6) Science concepts. The student knows that relationships exist between the structure and properties of matter. The student is expected to:	Wysession Ch 2-5, 8	
5, 6	(A) examine differences in physical properties of solids, liquids, and gases as explained by the arrangement and motion of atoms, ions, or molecules of the substances and the strength of the forces of attraction between those particles;	Wysession Ch 3 Models Lab	
4, 7	(B) relate chemical properties of substances to the arrangement of their atoms or molecules;	Wysession Ch 2, 4 Models Encarta Encyclopedia Lab	
4, 25	(C) analyze physical and chemical properties of elements and compounds such as color, density, viscosity, buoyancy, boiling point, freezing point, conductivity, and reactivity;	Wysession Ch 2 & 13 Models Archimedes	
7, 8	(D) relate the physical and chemical behavior of an element, including bonding and classification, to its placement on the Periodic Table; and	Wysession Ch 5 Samples Periodic Table	http://www.ptable.com/
	(E) relate the structure of water to its function as a solvent and investigate the properties of solutions and factors affecting gas and solid solubility, including nature of solute, temperature, pressure, pH, and concentration.	Wysession Ch 8 & 13 Models	
Weeks 9 to 19	(7) Science concepts. The student knows that changes in matter affect everyday life. The student is expected to:	Wysession Ch 6-9 Chem Kits Chemical Samples	http://faculty.washington.edu/crowther/Misc/Songs/music.shtml
5, 14, 30	(A) investigate changes of state as it relates to the arrangement of particles of matter and energy transfer;	Wysession Ch 3, 7, 15 Fe Filings	
9 to 14	(B) recognize that chemical changes can occur when substances react to form different substances and that these interactions are largely	Wysession Ch 6, 7 Chemical Samples	

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	determined by the valence electrons;	Chem Kit Demonstrations	
14	(C) demonstrate that mass is conserved when substances undergo chemical change and that the number and kind of atoms are the same in the reactants and products;	Wyession Ch 7 Demonstrations Chem Kit Models Worksheets	
14	(D) analyze energy changes that accompany chemical reactions such as those occurring in heat packs, cold packs, and glow sticks and classify them as exothermic or endothermic reactions;	Wyession Ch 7 Fe Filings	
20-23	(E) describe types of nuclear reactions such as fission and fusion and their roles in applications such as medicine and energy production; and	Wyession Ch 10 Models	http://www.youtube.com/watch?v=nbCcutzXzYg http://www.youtube.com/watch?v=NF4LQaWJRDg http://www.youtube.com/watch?v=x9lwvlmJqT0
8, 15-19	(F) research and describe the environmental and economic impact of the end-products of chemical reactions such as those that may result in acid rain, degradation of water and air quality, and ozone depletion.	Wyession Ch 5, 8, 9 Models Chem Samples	