TTUISD - TEKS Tracker

Author _____Karie Murray_____ Submission Date _____/_____/_____

Evaluator_____ Evaluation Date _____/_____/_____

TTUISD: Integrated Physics and Chemistry 1B (IPC 1B) v.2.0

TEKS: §112.38. Integrated Physics and Chemistry, Beginning with School Year 2010-2011

Text: Glencoe *Physical Science* 2005, ISBN 0-07-860051-0

TEKS Requirement (Secondary)		Sem. B	Lesson & Assignment Number	Textbook Chapter/Page #	Bloom's Taxonomy
§112.38. Integrated Physics and Chemistry, Beginning with School Year 2010-2011 (One Credit).					
(a) General requirements. Students shall be awarded one credit for successful completion of this course. Prerequisites: none. This course is recommended for students in Grade 9 or 10.					
(b) Introduction.					
(1) Integrated Physics and Chemistry. In Integrated Physics and Chemistry, students conduct laboratory and field investigations, use scientific methods during investigation, and make informed decisions using critical thinking and scientific problem solving. This course integrates the disciplines of physics and chemistry in the following topics: force, motion, energy, and matter.					
(2) Nature of science. Science, as defined by the National Academy of Sciences, is the "use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process." This vast body of changing and increasing knowledge is described by physical, mathematical, and conceptual models. Students should know that some questions are outside the realm of science because they deal with phenomena that are not scientifically testable.					
(3) Scientific inquiry. Scientific inquiry is the planned and deliberate investigation of the natural world. Scientific methods of investigation are experimental, descriptive, or comparative. The method chosen should be appropriate to the question being asked.					
(4) Science and social ethics. Scientific decision making is a way of answering questions about the natural world. Students should be able to distinguish between scientific decision-making methods (scientific methods) and ethical and social decisions that involve science (the application of scientific information).					
(5) Science, systems, and models. A system is a collection of cycles, structures, and processes that interact. All systems have basic properties that can be described in space, time, energy, and matter. Change and constancy occur in systems as patterns and can be observed, measured, and modeled. These patterns help to make predictions that can be scientifically tested. Students should analyze a system in terms of its components and how these components relate to each other, to the whole, and to the external environment.					
(c) Knowledge and skills.					
(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:					
(A) demonstrate safe practices during laboratory and field investigations; and		**B**	Lessons 1-9		Apply
(B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials.		**B**	Lesson 2		Apply
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:					
(A) know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section;		**B**	Lessons 1-9		Create
(B) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting equipment and technology;		**B**	Lessons 1-9		Remember
(C) collect data and make measurements with precision;		**B**	Lessons 1-9		Create
(D) organize, analyze, evaluate, make inferences, and predict trends from data; and		**B**	Lessons 1-9		Understand
(E) communicate valid conclusions.			Lessons 1-9		Understand
(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions. The student is expected to:					

TEKS Requirement (Secondary)		Sem. B	Lesson & Assignment Number	Textbook Chapter/Page #	Bloom's Taxonomy
(A) in all fields of science, analyze, evaluate, and critique 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 critical thinking by the student;		**B**	Lessons 1-6, 8, 9		Analyze
(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;		**B**	Lessons 1-8		Evaluate
(C) draw inferences based on data related to promotional materials for products and services;		**B**	Lessons 1, 2		Understand
(D) evaluate the impact of research on scientific thought, society, and the environment;		**B**	Lessons 3, 4, 5, 6, 8, 9		Understand
(E) describe connections between physics and chemistry and future careers; and			Lessons 3, 5, 6, 9		
(F) research and describe the history of physics and chemistry and contributions of scientists.		**B**	Lessons 1, 3, 6, 7, 9		Apply
(4) Science concepts. The student knows concepts of force and motion evident in everyday life. The student is expected to:					
(A) describe and calculate an object's motion in terms of position, displacement, speed, and acceleration;		**B**	Lessons 1, 3		Analyze
(B) measure and graph distance and speed as a function of time using moving toys;		**B**	Lessons 1, 3		Apply
(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;		**B**	Lessons 1, 3		Apply
(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;		**B**	Lessons 1, 3		Analyze
(E) apply the concept of conservation of momentum using action and reaction forces such as students on skateboards;		**B**	Lessons 1, 3		Apply
(F) describe the gravitational attraction between objects of different masses at different distances, including satellites; and		**B**	Lessons 1, 3		Apply
(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.		**B**	Lessons 1, 3		Apply
(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:					
(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;		**B**	Lessons 2, 3, 4		Remember
(B) demonstrate common forms of potential energy, including gravitational, elastic, and chemical, such as a ball on an inclined plane, springs, and batteries;		**B**	Lessons 3, 4		Apply
(C) demonstrate that moving electric charges produce magnetic forces and moving magnets produce electric forces;		**B**	Lesson 6		Analyze
(D) investigate the law of conservation of energy;		**B**	Lessons 3, 4		Evaluate
(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;		**B**	Lessons 2, 3, 4, 5		Understand
(F) evaluate the transfer of electrical energy in series and parallel circuits and conductive materials;		**B**	Lessons 4, 5, 6		Understand
(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;		**B**	Lessons 6, 7, 8, 9		Analyze
(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		**B**	Lessons 4, 6		Analyze
(I) critique the advantages and disadvantages of various energy sources and their impact on society and the environment.			Lesson 4		Evaluate
(6) Science concepts. The student knows that relationships exist between the structure and properties of matter. The student is expected to:					

TEKS Requirement (Secondary)		Sem. B	Lesson & Assignment Number	Textbook Chapter/Page #	Bloom's Taxonomy
(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;		**B**			Remember
(B) relate chemical properties of substances to the arrangement of their atoms or molecules;		**B**			Apply
(C) analyze physical and chemical properties of elements and compounds such as color, density, viscosity, buoyancy, boiling point, freezing point, conductivity, and reactivity;		**B**	Lesson 2		Understand
(D) relate the physical and chemical behavior of an element, including bonding and classification, to its placement on the Periodic Table; and		**B**	Lesson 9		Understand
(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.		**B**			Apply
(7) Science concepts. The student knows that changes in matter affect everyday life. The student is expected to:					
(A) investigate changes of state as it relates to the arrangement of particles of matter and energy transfer;		**B**	Lesson 2		Analyze
(B) recognize that chemical changes can occur when substances react to form different substances and that these interactions are largely determined by the valence electrons;		**B**	Lesson 3		Remember
(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;		**B**			Understand
(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;		**B**			Analyze
(E) describe types of nuclear reactions such as fission and fusion and their roles in applications such as medicine and energy production; and			Lesson 3		Understand
(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.		**B**			Understand
Source: The provisions of this §112.38 adopted to be effective August 4, 2009, 34 TexReg 5063.					