

## Chapter 112. Texas Essential Knowledge and Skills for Science Subchapter C. High School

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**Statutory Authority:** The provisions of this Subchapter C issued under the Texas Education Code, §§7.102(c)(4), 28.002, and 28.025, unless otherwise noted.

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### **§112.31. Implementation of Texas Essential Knowledge and Skills for Science, High School, Beginning with School Year 2010-2011.**

The provisions of §§112.32-112.39 of this subchapter shall be implemented by school districts beginning with the 2010-2011 school year.

*Source: The provisions of this §112.31 adopted to be effective August 4, 2009, 34 TexReg 5063; amended to be effective August 24, 2010, 35 TexReg 7230.*

§112.35. Chemistry, Beginning with School Year 2010-2011 (One Credit).

(c) Knowledge and skills

(6) Science concepts. The student knows and understands the historical development of atomic theory. The student is expected to:

(A) understand the experimental design and conclusions used in the development of modern atomic theory, including Dalton's Postulates, **6.1 & 6.2 Thomson's discovery of electron properties, Rutherford's nuclear atom, and Bohr's nuclear atom;**

(B) **5.1 understand the electromagnetic spectrum and the mathematical relationships between energy, frequency, and wavelength of light;**

(C) **calculate the wavelength, frequency, and energy of light using Planck's constant and the speed of light;**

(D) use isotopic composition to calculate average atomic mass of an element; and

(E) **6.2** express the arrangement of electrons in atoms through electron configurations and Lewis valence electron dot structures.

(11) Science concepts. The student understands the energy changes that occur in chemical reactions. The student is expected to:

(A) understand energy and its forms, including kinetic, potential, chemical, and thermal energies;

(B) understand the law of conservation of energy and the processes of heat transfer;

(C) use thermochemical equations to calculate energy changes that occur in chemical reactions and classify reactions as exothermic or endothermic;

(D) perform calculations involving heat, mass, temperature change, and specific heat; and

(E) use calorimetry to calculate the heat of a chemical process.

(12) Science concepts. The student understands the basic processes of nuclear chemistry. The student is expected to:

(A) **6.3** describe the characteristics of alpha, beta, and gamma radiation;

(B) describe radioactive decay process in terms of balanced nuclear equations; and

(C) compare fission and fusion reactions.