

# CURRICULUM ALIGNMENT – It's All Greek to Me: Radioactive Decay

## Saskatchewan

Grade	Course Name and Number	Unit/Module	Specific Outcome
12	Physics 30	Core Unit IV: Nuclear Physics A: Natural Radioactivity	<b>Learning Outcome 1:</b> Define the following terms: radioactivity, isotopes, alpha particles, beta particles, gamma rays, dosimetry, absorbed dose, dose equivalent, quality factor.
12	Physics 30	Core Unit IV: Nuclear Physics A: Natural Radioactivity	<b>Learning Outcome 9:</b> Identify the composition of alpha particles, beta particles and gamma rays.
12	Physics 30	Core Unit IV: Nuclear Physics A: Natural Radioactivity	<b>Learning Outcome 10:</b> Compare the penetrating power, speed, potential danger, and other important characteristics of alpha particles, beta particles and gamma rays.
12	Physics 30	Core Unit IV: Nuclear Physics A: Natural Radioactivity	<b>Learning Outcome 11:</b> Identify common characteristics of all radioactive nuclides.
12	Physics 30	Core Unit IV: Nuclear Physics A: Natural Radioactivity	<b>Learning Outcome 12:</b> Recognize and interpret some commonly used symbols for subatomic particles.
12	Physics 30	Core Unit IV: Nuclear Physics A: Natural Radioactivity	<b>Common Essential Learning:</b> Use a wide range of possibilities for developing their knowledge of the major concepts within physics.
12	Physics 30	Optional Unit VIII: Atomic Physics B: Half Life and Radioactive Decay	<b>Learning Outcome 1:</b> Define the following terms: transmutation, alpha decay, beta decay, gamma decay, neutrino, disintegration (decay) series, nuclide charts, background radiation, decay constant, half-life.
12	Physics 30	Optional Unit VIII: Atomic Physics B: Half Life and Radioactive Decay	<b>Learning Outcome 2:</b> Demonstrate an understanding of a nuclear transmutation process.
12	Physics 30	Optional Unit VIII: Atomic Physics B: Half Life and Radioactive Decay	<b>Learning Outcome 3:</b> Recognize that in a nuclear decay series, nuclear transmutations take place until a stable nucleus results.
12	Physics 30	Optional Unit VIII: Atomic Physics B: Half Life and Radioactive Decay	<b>Learning Outcome 4:</b> Explain that in alpha particle decay an element with a lower mass is formed.
12	Physics 30	Optional Unit VIII: Atomic Physics B: Half Life and Radioactive Decay	<b>Learning Outcome 5:</b> Explain that atomic mass number is conserved in alpha and beta particle decay.
12	Physics 30	Optional Unit VIII: Atomic Physics B: Half Life and Radioactive Decay	<b>Learning Outcome 6:</b> Explain that mass is not conserved in alpha and beta particle decay.

12	Physics 30	Optional Unit VIII: Atomic Physics B: Half Life and Radioactive Decay	<b>Learning Outcome 7:</b> Recognize that in beta particle decay the beta particle released originated in the nucleus of the atom, not in the electron orbital. A neutron disappears, and in its place a proton and an electron appear.
12	Physics 30	Optional Unit VIII: Atomic Physics B: Half Life and Radioactive Decay	<b>Learning Outcome 8:</b> Develop general expressions for alpha and beta decay.
12	Physics 30	Optional Unit VIII: Atomic Physics B: Half Life and Radioactive Decay	<b>Learning Outcome 9:</b> Identify alpha, beta and gamma decay from generalized expressions or nuclear equations.
12	Physics 30	Optional Unit VIII: Atomic Physics B: Half Life and Radioactive Decay	<b>Learning Outcome 14:</b> Write equations representing nuclear decay.
12	Physics 30	Optional Unit VIII: Atomic Physics B: Half Life and Radioactive Decay	<b>Learning Outcome 15:</b> Balance nuclear equations correctly for atomic number and atomic mass number.
12	Physics 30	Optional Unit VIII: Atomic Physics B: Half Life and Radioactive Decay	<b>Learning Outcome 16:</b> Determine missing or incomplete information from a partially balanced equation for nuclear decay.