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*Deducing the Age of an Ancient Natural Nuclear Reactor in a Pre-Calculus Class.*

In 1972, French nuclear scientists found that natural uranium in the ore from a mine in Gabon, Africa was slightly depleted in one of the isotopes of uranium, U-235. After careful measurements of the uranium isotopes and the discovery of chemical elements that were nuclear fission products that could have only resulted from uranium fission, it was deduced that a natural nuclear fission reactor was operational approximately 2 Billion years ago in the mine. At that time, the Uranium in this reactor was naturally enriched in Uranium-235 at a level where the reactor could be moderated by ground water flowing through the soil containing the Uranium. By looking at the radioactive decay of Uranium-235 (Half-Life of 0.7 billion years) and of Uranium-238 (Half-Life of 4.5 billion years) and of other radioactive elements created in the reactor, students in a pre-calculus class can calculate the age and operational characteristics of this ancient nuclear reactor. (Received September 16, 2014)