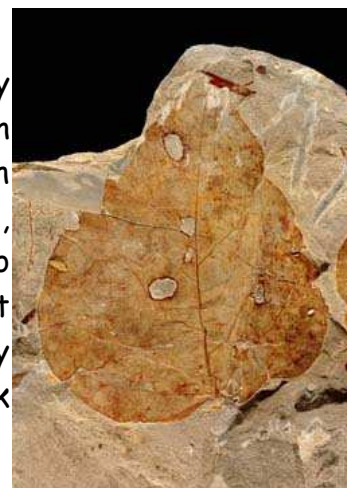


EXAMEN : BACCALAURÉAT GÉNÉRAL	SESSION 2011
ÉPREUVE : Évaluation spécifique de langue en section européenne	
PHYSIQUE-CHIMIE en langue ANGLAISE	SUJET N°13

## CARBON 14 DATING

« **Carbon-14 Dating**, or just Carbon Dating, is an extremely useful dating method that's been in use since 1947. Carbon Dating is part of a larger field called Radioisotope dating which is our primary method for assigning date to fossils, rocks, skeletons, and parchment. "Before the 1940s, scientists had no accurate way of determining the age of fossils or other ancient objects" notes Lemelson-MIT. Radioisotope dating is, to my knowledge, basically the only way that we date fossils, rock layers, and by extension the age of the Earth.



Carbon 14, a method for assigning date to fossils

Carbon-14 is a radioactive isotope of regular old carbon. From what we know, carbon-14 is created in the upper atmosphere by solar radiation colliding with nitrogen to produce carbon-14. It then drifts down through the atmosphere and is absorbed by plants, which are eaten by herbivores, then carnivores, and it enters the cycle of life. Living things sustain a present day level of about 1 carbon-14 atom in 1 trillion atoms. When something dies, it stops taking in carbon-14 by breathing and eating, so the clock begins. Carbon dating allows us to track the time of death with great accuracy because it has a very short half-life. Half the amount of carbon is depleted every 5,730 years. This means that for a finite 1 gram sample there will be absolutely no carbon-14 left in the sample after around 230,000 years. »

April 18, 2007

Source: <http://blindinglight.wordpress.com/2007/04/18/carbon-14-dating/>

### QUESTIONS

1. Present and comment on this document.
2. Do not forget to focus on the explanation of carbon-14 dating.
3. In the text, carbon-14 dating is presented as a method to date elements with « great accuracy ». What do you think about this: is there a limit to this accuracy ?
4. How can we date very old elements?