

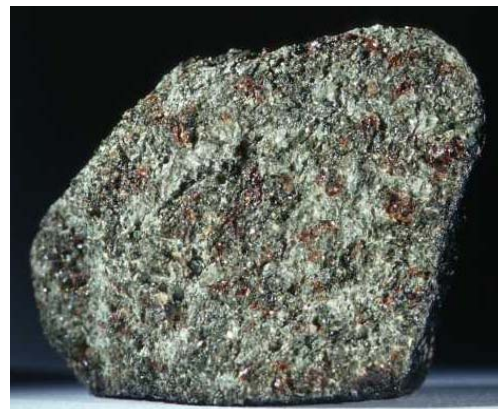
Your Name: _____

Ages of Meteorites?

Radioactive half-lives:

$\text{U}^{238} \rightarrow \text{Pb}^{206}$	4.5 Billion Years
$\text{U}^{235} \rightarrow \text{Pb}^{207}$	704 Million Years
$\text{Th}^{232} \rightarrow \text{Pb}^{208}$	14.0 Billion Years

The Image to the right is a meteorite believed to have come from the planet Mars.* This 9.6 gram meteorite fragment fell to the Earth on June 28th, 1911. Because of its chemical composition, it is believed to have been ejected from Mars, and eventually landed on Earth.



Imagine that you want to find the age of this meteorite. In order to do this, you take a sample and measure the amount of Uranium 235 and Uranium 238 in the rock. You then conclude that there is $\frac{1}{4}$ as much U^{235} in the rock now as there was when it was formed. How old is the rock?

* From the Meteorite Collection of the Mineralogical Museum of the University of Hamburg.
http://www1.uni-hamburg.de/mpi/museum/en/meteorite/meteorite_en.html