*[Radioactive Dating Game](http://phet.colorado.edu/en/simulation/radioactive-dating-game)* Sim Description: Learn about different types of radiometric dating, such as carbon dating. Understand how decay and half-life work to enable radiometric dating to work. Play a game that tests your ability to match the percentage of the dating element that remains to the age of the object.

**Learning Goals:** Students will be able to:

* Identify isotopes that are commonly used to determine how old matter might be.
* Explain how radiometric dating works and why different elements are used for dating different objects.
* Use the percent of an isotope measured in an object to estimate its age.
* Identify types of nuclear reaction used for dating; include how elements change and balanced reaction.

**Background:** This sim does not show the underlying model for decay (use [Alpha Decay](https://phet.colorado.edu/en/contributions/view/3558) or [Beta Decay](https://phet.colorado.edu/en/contributions/view/3559) for learning goals about decay processes). My students are in chemistry and will have done [Alpha Decay Activity](http://phet.colorado.edu/en/contributions/view/3558) and [Beta Decay Activity](http://phet.colorado.edu/en/contributions/view/3559).

[*Radioactive Dating Game*](http://phet.colorado.edu/en/simulation/radioactive-dating-game) **Introduction:**

Students should be able to explore the sim and use it without guidance provided they understand how to make sense of graphs. [Tips for Teachers](http://phet.colorado.edu/files/teachers-guide/radioactive-dating-game-guide.pdf) may be helpful for instructors in case some students are not as used to finding tools in interactive simulations.

**Pre-Lesson:** My students are in chemistry and will have done [Alpha Decay Activity](http://phet.colorado.edu/en/contributions/view/3558) and [Beta Decay Activity](http://phet.colorado.edu/en/contributions/view/3559) and clicker questions

**Lesson:** I will point to the section in the text that uses similar learning goals and includes a couple of pages about Radiometric Dating before they start to help them recognize why we are studying this in chemistry class; I have found that some students think this is a sim for Biology or Earth Science.

**Post-Lesson:** Since there is a game tab, I do not plan to write clicker questions.

**Follow-up sims: I will use a** [**Nuclear Fission Activity**](http://phet.colorado.edu/en/contributions/view/3335) **by Stephanie Chasteen**