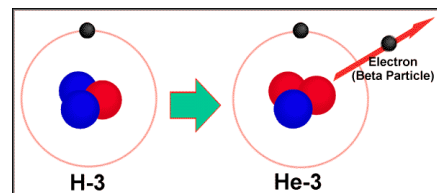
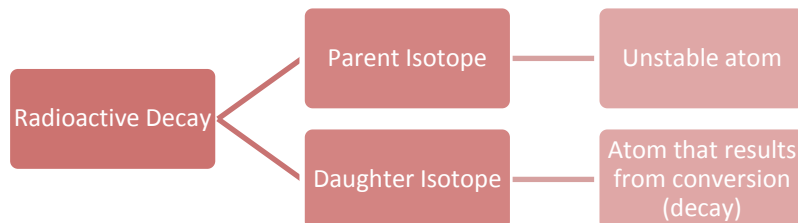


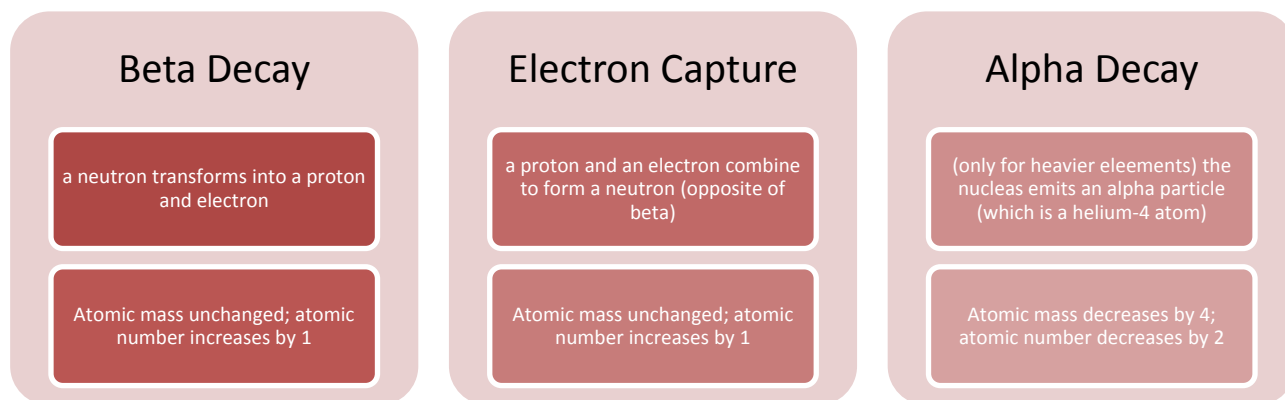
Absolute Ages (continued)



http://lhs2.lps.org/staff/sputnam/chem_notes/tritium_decay.gif

Rate of Decay is different for every isotope!

The **three ways** for a radioactive isotope to decay:

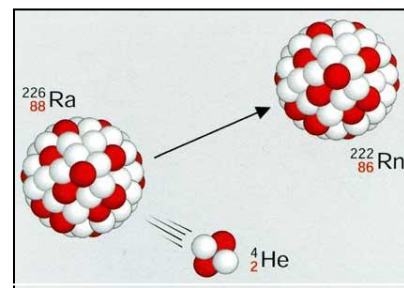


↳ Heavy elements can form into several different, mid-way isotopes before reaching their stable state (photo on 2nd page) *

Half-life: the length of time it takes for ½ of the parent isotope to decay to form a daughter isotope.



<http://earthsci.org/education/teacher/basicgeol/geotim/decay.gif>



http://www.relativity.li/uploads/images/F/F3_4.jpg

- └ Because decay is exponential, $\frac{1}{2}$ of the remaining parent atoms decay each half life
- └ The total # of atoms in a transformation is constant -- only chemical identity changes

The **assumptions** in Radiometric Dating

- The system has remained closed since the material closed (no addition/removal of daughter/parent)
- Since daughter-parent ratios are used: either
 1. There's no daughter initially
 2. There's a robust way of correcting for the initial daughter
- The decay constants are known accurately
- The concentrations and isotope compositions in the sample are determined accurately
- Chemical behavior of parent and daughter is different

- └ We normalize the parent and daughter to a 3rd stable isotope that is not involved in the decay reaction (so neither is created nor destroyed with time)

