**Absolute Dating**

Some rocks can be dated **absolutely** (i.e. given an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_) by examining their \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Thus, absolute dating is also called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
Here’s how radioactivity works…

Rate of Decay and Half-Life

Different radioisotopes decay at different rates.

 e.g. Uranium-238 (from last slide) decays relatively *slowly*.

 Carbon-14 decays relatively *quickly*.

The decay rate of a radioisotope is described in terms of a **half-life**.

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e.g. C-14 decays to N-14 with a half-life of 5730 years.
 K-40 decays to A-40 with a half-life of 1.3 Billion years.
 U-238 decays to Pb-206 with a half life of 4.5 Billion years.

When an igneous rock sample from a mystery planet hardened, it contained 192 units (atoms, grams, moles, whatever…) of U-238.

Make a decay curve for the first few half lives of this sample.

When an igneous rock sample from a mystery planet hardened, it contained 192 units (atoms, grams, moles, whatever…) of U-238.

If the sample now contains 3 units of U-238, how old is it?