**Chapter 9 The History of Life on Earth &**
**Chapter 8 Studying Earth's Past**
**Life Science**

**Name:**
**Period:**
**Date:**

Use page 246, the bottowm left corner has this standard

7.4.d Students know that evidence from _____
_____
_____

~ If you want to know exactly how ____ a person is, you can ask the person. But how can you find out the ____ of a rock? Finding the age of an object by _____ the number of _____ the object has existed is called _____ dating. Read on to see how _____ atoms are used in one method of _____ dating.

**Radioactive Decay p.246**

Atoms of the _____ element that have the _____ number of _____ but have _____ numbers of _____ are called _____. Most isotopes are _____, meaning that they _____ in their _____ form. But some isotopes are _____. Scientists call _____ isotopes _____. The _____ of a radioactive _____ into a _____ isotope of the _____ element or _____ element is called radioactive _____. Figure 1 shows one example of how _____ decay can happen.

Each kind of _____ isotope _____ at a _____ rate. The _____ of radioactive _____ for a given _____ can be determined _____. For each _____ of isotope, the _____ of decay is _____. So, certain _____ occurring _____ isotopes can be used as a kind of "_____" to find the _____ of rocks that contain these _____.

**Figure 1 Radioactive Decay**

When some unstable isotopes _____, a _____ is converted into a _____. In the process, an _____ is released.

p.247 **Dating Rocks—Parent and Daughter Isotopes**

An _____ radioactive isotope is called a _____ isotope. The _____ isotope produced by radioactive _____ is called the _____ isotope. Radioactive decay can occur as a _____ step or a _____ of steps. In either case, the _____ of decay is _____.

To _____ rock, scientists compare the _____ of _____ isotope with the _____ of _____ isotope. The _____ daughter isotope there is, the _____ the rock is. For this reason, _____ dating works only on rocks that contained either ____ daughter isotope or a _____ amount of daughter isotope at the _____ the rock _____.

**Radiometric Dating**

If you know the _____ of decay for a radioactive _____ in a rock, you can figure out the _____ age of the rock. Determining the _____ age of a sample based on the _____ of _____ material to _____ material is called _____ dating. For example, let's say that a rock _____ contains an _____ with a ____-life of 10,000 years. A ____-life is the time needed for ____-half of a _____ sample to _____. In this rock sample, after 10,000 years, _____ of the _____ material will have _____ and become _____ material. You _____ the sample and find _____ amounts of _____ material and _____ material. _____ of the _____ radioactive isotope has _____, so the sample must be about _____ years old. Figure 2 shows how this steady _____ happens.

**The Most Useful Rock Samples**

_____ rocks are the _____ types of rock samples to use for _____ dating. When igneous rock _____, _____ are _____ into different _____ in the rock. Thus, when they _____, minerals in _____ rocks often contain only a _____ isotope and _____ of the _____ isotope.