

HOW ACCURATE ARE DATING METHODS?

How can we tell how old the earth is? Don't scientific dating methods prove that the earth is billions of years old? You might believe this if you read magazine articles, books or the newspaper. Most dates for fossils, rocks and other geological formations are stated as if they are proven facts. However, this is not the case. Let's examine how these dating methods work and we will see that science has not proven the earth to be more than a few thousand years old.

There are three main ways that scientists try to date different objects. Various radiometric dating methods are used for igneous and metamorphic rock. Carbon-14 dating is used for organic materials. And index fossils are used to date sedimentary rock. All of these methods have significant problems that are often overlooked. Most of these problems lie in the assumptions that are made in order to use the dating method. Radiometric and Carbon-14 dating rely on three assumptions:

1. The rate of decay of the element being measured is constant.
2. The system is isolated—none of the material being measured has entered or left the sample by any other means than one being tested.
3. The initial conditions are known—the scientist assumes he/she knows how much of the material being measured was in the sample at the time it was “created.”

Let's look as how these assumptions work with each of these methods. First, one

common type of radiometric dating is Uranium-Lead dating. This method uses the fact that Uranium-238 is unstable and decays to become Lead-208 at a fixed rate. Half of the sample of U-238 will become Pb-208 in 4:51 billion years (this is called its half-life). Scientists have proven this rate of decay to be steady over the past twenty years or so since they have been able to make accurate measurements, so let's say that the rate of decay is constant.

The problems come in when we look at the second and third assumptions. Rock samples do not exist in an isolated system. Elements can leach in and out of rock areas, especially if water is flowing through them. Many samples are rejected for testing if they are suspected of contamination. And if results are unexpected, the sample is usually classified as contaminated.

And finally, it is assumed that igneous rocks have no lead in them when they are made. Therefore, any lead in the sample is assumed to be there because of the decay of the uranium. However, many tests on lava flows with recorded or known eruption dates have proven this to be inaccurate. For example, Indians living in Arizona about 900 years ago recorded volcanic eruptions in the area. Trees in the area indicate that the eruptions took place between 900-1000 years ago. When rock samples from this area were tested using radioisotope methods, they were dated at 210, 000-230, 000 years old. There was a much higher lead content than would be expected for rocks that are less than a thousand years old. But this is not an isolated incident. Rocks from a lava flow in Hawaii, from an eruption that occurred between 1800 and 1801 were dated with various methods and were given 12 different dates ranging from 140 million years to 2:96 billion years. None of the radiometric dating methods was even close to the actual date of only 200 years.

Carbon-14 dating has similar problems. C-14 is made when cosmic rays knock neutrons out of atomic nuclei in the upper atmosphere. These displaced neutrons, now moving fast, hit ordinary nitrogen (N-14) at lower altitudes, converting it into C-14. When C-14 has been formed, it behaves just like ordinary carbon (Carbon-12), combining with oxygen to give carbon dioxide, and also gets freely cycled through the cells of all plants and animals. Unlike common carbon, however, C-14 is unstable and slowly decays, changing it back to nitrogen and releasing energy. This instability makes it radioactive. Only organic, or living, materials contain C-14, and when an organism dies, the amount of C-14 decays slowly over time. By measuring the amount of C-14 left, a date of death is determined. Three assumptions are made in this dating technique:

1. the ratio of Carbon-14 to Carbon-12 has been constant;
2. any change in the amount of C-14 in a substance is due entirely to radioactive decay; and
3. the decay rate of C-14 has been constant.

We know that the production of C-14 can be affected by solar radiation, the earth's magnetic field, leaching, and volcanic activity. The Flood, also, would have greatly upset the carbon balance by burying much plant material containing carbon.

Examples abound of items of known date that have given obviously wrong results when using carbon dating. For example, a freshly killed seal was dated as having died 1300 years ago, and a living mollusk shell was dated as being 2300 years old. With many examples of incorrect results, other results must be suspect as well. Finally, the carbon in a sample is almost completely gone in about 50,000 years, so samples cannot be tested with C-14 to prove extremely old dates.

Because sedimentary rocks are made from bits of other rocks, radiometric dating does not work on them. Therefore, sedimentary rocks are dated by examining the fossils contained in them and then matching them to index fossils. An index fossil is always a particular fossil species that is found buried in rock layers over a very wide geographical area. On the other hand, the same fossil species must have a narrow vertical distribution, that is, only be buried in a few rock layers. The evolutionist interprets this as meaning that the species lived and died over a relatively short time (perhaps a few million years). Therefore, the rock layers containing these fossils supposedly only represent that relatively short period of time, and thus a “date”

can be assigned accordingly to the rock layers where these fossils are found. The “date” relative to other index fossils and rock layers is, of course, determined by the species’ position in the evolutionary “tree of life.” Using the fossil in the rock sample to date the rock and then using the rock layer to date the index fossil is called circular reasoning and is bad logic. This method cannot yield reliable results.

There are other radiometric methods as well, but all such methods used for dating rocks and organic samples have significant problems and results are often thrown out or labeled as contaminated or unreliable. Therefore, we must be careful when we read or hear that something has been determined to be millions or billions of years old. Old ages for the earth cannot be reliably confirmed. The Bible teaches that the earth is only about 6000 years old.

Taken from “Dating Methods,” a Special Feature from *God’s Design for Heaven and Earth*, Debbie and Richard Lawrence, *Answers in Genesis*, 2006, pp. 12–13. More information on this topic can be found at www.answersingenesis.org/go/dating.

LESSON 7 OPTIONAL ACTIVITY

HERE'S THE CHALLENGE

You will need notebook paper, a pen or pencil, and access to a local (or not so local) museum.

This activity works well if you can go to the museum with a group from your *Demolishing Strongholds* study. Work only in small groups of 2 or 3 so that there is more variety of information to share at the beginning of the next lesson.

1. While at the museum, break off into small groups and try to find displays where the specimens/artwork are dated. Jot down the common name, scientific name, and given age or time period the specimen supposedly walked on the earth or first appeared on earth according to the evolutionary time scale.
2. Look for discrepancies! Many times animals/fossils from supposedly the same time period are labeled with conflicting ages.
3. Fill in the chart below for 10 creatures to show the information you found.
4. Be prepared to share your information with the group at the beginning of the next lesson. Bring out the dating methods that would have been used and why those are unreliable and inconsistent.

Common Name	Scientific Name	Claimed Age or Time Period?