Hohokam Mystery

One of the villages established by the Hohokam in the Tucson Basin is known as the Hardy Site. Dating the finds at the Hohokam site helps archaeologists to discover the history of the ancient Hohokam people, who disappeared suddenly from the area for reasons unknown.

Carbon 14 is a radioactive element that decays with a half life of 5730 years into nitrogen-14. It can be used to find the age of ancient artifacts. All living things absorb carbon from their environment and when the organisms die they no longer take in new carbon. At death, the carbon-14 in the organism begins to decay, and by the amount of decay, we can determine how long the organism has been dead according to the following formula:

$$t = T\left(\frac{\log(A/A_0)}{\log(1/2)}\right)$$

where T = half life in years

  A/A_0 = ratio of carbon left to original amount of carbon (percent as a decimal)

  t = years since the death of the organism

The table below shows some Hohokam features and artifacts that were dated in the year 2000 by examining the carbon in the remains of organisms found in the same area. Use the percent of C-14 left to determine the age and date of the findings.

Finding	% C-14 Left	Age (yrs)	Date
Most Recent House	91.3		
Sacaton Red-on Buff Pottery	88.6		
Flowered Bowl Pottery	84.4		
Earliest House	82.4		

For more information about the Hardy Site go to
http://www.uapress.arizona.edu/online.bks/hohokam/chap3.htm

Hohokam Mystery
Answers

Finding	% C-14 Left	Age (yrs)	Date
Most Recent House	91.3	750	1250
Sacaton Red-on Buff Pottery	88.6	1000	1000
Flowered Bowl Pottery	84.4	1400	600
Earliest House	82.4	1600	400