"Melts In Your Mouth."

LAB CRAWL 2008 HALF-LIFE ACTIVITY #1

Summer 2008

"Melts In Your Mouth." Half-Life Activity #1

Solid water...in cube form.

The concept of a radioactive half-life can be difficult for students to grasp, especially if it is the first time they will have encountered radioactivity.

This activity is designed to serve as a launching point on the concept of things changing at a known or measurable rate into something else.

By having students make some basic observations about the melting ice and completing some simple calculations, they will come to an understanding about half-life in the non-threatening context of the familiar ice cube.

Half-life, as a concept, is only daunting to newcomers because of the amount of new vocabulary that is attached to a new concept.

By starting with the familiar and concrete and working up to the difficult and abstract, half-life becomes an easily understood concept.

Activity Directions

In this activity, which can be accomplished while something else is going on in the classroom (they don't need to *watch* the ice melt), students will be timing how long it takes for an ice cube to melt, and then using that data to complete some basic calculations.

The concept is simple: get students to see that if they know something about the rate ice changes, they can make predictions about how long it would take different amounts of ice to melt away.

It is important at this point to remind the teacher that the term HALF-LIFE should not even be used just yet. The focus should be on observing how long it takes the ice to change completely, then inferring and calculating how long it would take different amounts of ice to change.

MATERIALS

- ICE CUBES
- TIMERS
- ALUMINUM BLOCKS

S.S.S. Science Addressed:

SC.A.1.3

SC.D.1.3
2.3

SC.G.1.3
2.3

SC.H.1.3
2.3
3.3

STUDENT ACTIVITY

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Ice Cube Melting Data :

TRIAL #	TIME TO MELT COMPLETELY (S)
1	
2	
3	
AVERAGE TIME (S)	

MELTING CALCULATIONS

Conclusion Questions:

1. Using your average time, how long would you predict 1/2 of the ice cube to turn into liquid water?

2. Using your average time, how long would a 10 gram ice cube have been sitting around changing into liquid water if you find a partial ice cube with a mass of 2 grams?

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