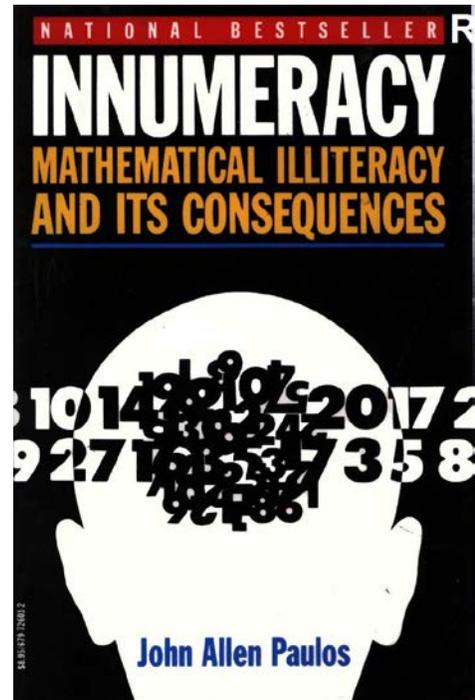


## UPA 1: Innumeracy

“For example, knowing that it takes only about eleven and a half days for a million seconds to tick away, whereas almost thirty-two years are required for a billion seconds to pass, gives one a better grasp of the relative magnitudes of these two common numbers.”

**John Allen Paulos**, *Innumeracy: Mathematical Illiteracy and Its Consequences*  
(American Mathematician, 1945 - )



In 1988 the book *Innumeracy: Mathematical Illiteracy and Its Consequences* by John Allen Paulos was released. The book was widely read and widely praised, spending more than 5 months on the *New York Times* Best Seller list and rising as high as #5 on this list. Translated into a dozen languages, the book continues to be influential.

As the title suggests, **innumeracy** is a quantitative analogue of illiteracy. In other words, it is the inability to make sense of and reason with numbers and numerical quantities. Many believe that this is a serious problem in modern society. As Paulos writes:

*At least part of the motivation for any book is anger, and this book is no exception. I'm distressed by a society which depends so completely on mathematics and science and yet seems so indifferent to the innumeracy and scientific illiteracy of so many of its citizens.*

This short book contains hundreds of ways in which innumeracy misleads us into poor decision making in regards to personal risk, financial decisions, assessment of statistics, and interpretation of data. It is a powerful book.

Having explored large numbers in several different contexts, it is appropriate for you to reflect on the potential implications of innumeracy. For your Unit Performance Assessment, select one of the following:

**Option 1: Examples from Innumeracy** - Find the book *Innumeracy* and read a few sections. Pick out an example that is particularly interesting to you. In a brief essay, describe this example and consider the implications of such innumeracy.

The book is available free online at:

<https://jirsresourcecentre.files.wordpress.com/2011/04/innumeracy.pdf>

**Option 2: Innumeracy Experiment** - Survey a collection of your friends, family, and peers to see how prevalent innumeracy is. Do this by describing your work with large numbers and then telling them about the figures you found in Investigations 18-21.

However, when you report your figures, interchange some of the terms millions, billions and trillions so the figures are not correct. See what proportion of your audience catches on. Describe your results and then discuss the societal impact of a populace who generally cannot distinguish the words million, billion, and trillion when used in context.

**Option 3: Original Example** - Create, develop, and/or find your own example that illustrates innumeracy. Describe the example, its relevance, and its potential impact on society.