Exemplar Informational Texts: Science, Mathematics, and Technical Subjects – Innumeracy: Mathematical Illiteracy and Its Consequences

Paulos, John Allen. *Innumeracy: Mathematical Illiteracy and Its Consequences*. New York: Vintage, 1988. (1988)
From Chapter 1, "Examples and Principles" Archimedes and Practically Infinite Numbers

There is a fundamental property of numbers named after the Greek mathematician Archimedes which states that any number, no matter how huge, can be exceeded by adding together sufficiently many of any smaller number, no matter how tiny. Though obvious in principle, the consequences are sometimes resisted, as they were by the student of mine who maintained that human hair just didn't grow in miles per hour. Unfortunately, the nanoseconds used up in a simple computer operation do add up to lengthy bottlenecks on intractable problems, many of which would require millennia to solve in general. It takes some getting accustomed to the fact that the minuscule times and distances of microphysics as well as the vastness of astronomical phenomena share the dimensions of our human world.

It's clear how the above property of numbers led to Archimedes' famous pronouncement that given a fulcrum, a long enough lever, and a place to stand, he alone could physically lift the earth. An awareness of the additivity of small quantities is lacking in innumerates, who don't seem to believe that their little aerosol cans of hairspray could play any role in the depletion of the ozone layer of the atmosphere, or that their individual automobile contributes anything to the problem of acid rain.