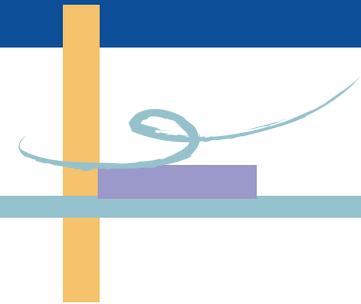




Department of Curriculum and Pedagogy

2010-2011 Seminar Series



Albert A. Bartlett , University of Colorado at Boulder

ARITHMETIC, POPULATION AND ENERGY; SUSTAINABILITY 101

ABSTRACT

The first time many students see the exponential function is in the examination of the charge remaining on a charged capacitor as a function of time when the capacitor is discharged through a resistor. The fractional change in the charge dQ/Q is negative and is a constant. The charge then decays exponentially. At this point it is educational to ask students what happens to a quantity P if the fractional change dP/P is positive because P is growing steadily at some rate such as 5% per year. We now have exponential growth. Students probably recognize that this kind of steady growth (exponential growth) is the centerpiece of our entire western society but they don't recognize the simple properties of exponential growth that are the root of so many of today's severe problems with food, water, mineral resources, fossil fuels and population. Most people recognize that perpetual steady growth is impossible on the finite Earth yet they don't appreciate the rapidity with which the consequences of growth can accumulate to the point of strangling a society. This talk is intended to help educate students, teachers and the public to a better understanding of the arithmetic and consequences of growth and how the consequences of growth affect the concept of sustainability.

BIO

Albert Allen Bartlett is an emeritus Professor of Physics at the University of Colorado at Boulder, USA. Bartlett joined the faculty of the University of Colorado in Boulder in 1950. His B.A. degree in physics is from Colgate University (1944) and his M.A. (1948) and Ph.D. (1951) degrees in physics are from Harvard University. In 1978 he was national president of the American Association of Physics Teachers. He is a Fellow of the American Physical Society and of the American Association for the Advancement of Science.



Thursday, May 19th, 12:30 – 2:00, SCARFE Rm. 310

(light refreshments provided)