

1023-J1-1805

**Clyde L. Greeno\*** ([greeno@malei.org](mailto:greeno@malei.org)), C.L Greeno, The MALEI Mathematics Institute, PO Box 54845, Tulsa, OK 74154. *Linear Algebra For Everyone: The Arithmetic Portal Into Vector-Spaces.*

From the foundations of mathematics comes a mathematically motivating entry into the algebra of vector spaces — ”innovative” because it traditionally has been ignored by educators; but interesting and enlightening even for liberal arts students. Its ”elementary” context makes it easy for adults to understand from their knowledge of school mathematics — which also makes it an essential literacy for in-service and pre-service parents and teachers. For, its clinically proven instructional effectiveness scientifically projects that this aspect of linear algebra soon will become the basis for re-forming the school curriculum in arithmetic. Mathematicians are invited to participate in MALEI’s writing project.

An alphabetic construction of the Arabic numerals extends into a construction of the whole numbers — making those accessible for use as scalars. Combinations of whole-scaler quantities (”3A” is for ”3 apples”) constitute a ”primary school” vector space — as do all ”base-number” systems of numerals — and the decimal-point (and all other n-al point numerals). Even the ”mixed-form” numerals for fractions constitute a whole-scaler vector space. In each such context, the familiar arithmetic comes from partitioning the vector space into lines of equivalence classes. (Received September 26, 2006)