**What is STEM?**

**STEM** is an [acronym](http://en.wikipedia.org/wiki/Acronym) for the [fields of study](http://en.wikipedia.org/wiki/Academic_discipline) and careers in the categories of [science](http://en.wikipedia.org/wiki/Science), [technology](http://en.wikipedia.org/wiki/Technology), [engineering](http://en.wikipedia.org/wiki/Engineering), and [mathematics](http://en.wikipedia.org/wiki/Mathematics).

**What is STEM Literacy?**

A common definition of STEM literacy is: *“STEM literacy is the ability to identify, apply, and integrate concepts from science, technology, engineering, and mathematics to understand complex problems and to innovate to solve them”* ([Balka, 2011](http://onlinelibrary.wiley.com/doi/10.1111/j.1949-8594.2012.00101.x/full%22%20%5Cl%20%22b3%22%20%5Co%20%22Link%20to%20bibliographic%20citation), p. 7). This definition is limited to societal and economic needs, but is lacking in personal needs.

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| **Table 1. *Literacy Definitions of Professional Organizations*** |
| Scientific Literacy | National Science Education Standards (1996) | Knowledge and understanding of scientific concepts and processes required for personal decision making, participation in civic and cultural affairs, and economic productivity |
| [Organization for Economic Cooperation and Development (2003](http://onlinelibrary.wiley.com/doi/10.1111/j.1949-8594.2012.00101.x/full#b27)) | Ability to use scientific knowledge (in physics, chemistry, biological sciences, and earth/space sciences) and processes to understand, and additionally, to participate in decisions that affect science in life and health, earth and environment, and technology |
| Technological Literacy | [National Assessment Governing Board (2010](http://onlinelibrary.wiley.com/doi/10.1111/j.1949-8594.2012.00101.x/full#b23)) | Capacity to use, understand, and evaluate technology, as well as to understand technological principles and strategies needed to develop solutions and achieve goals |
| [International Society for Technology in Education (2000](http://onlinelibrary.wiley.com/doi/10.1111/j.1949-8594.2012.00101.x/full#b14)) | Ability to demonstrate creativity and innovation, communicate and collaborate, conduct research and use information, think critically, solve problems, make decisions, and use technology effectively and productively |
| [International Technology Education Association (2007](http://onlinelibrary.wiley.com/doi/10.1111/j.1949-8594.2012.00101.x/full#b15)) | Ability to understand, in increasing sophistication over time, how technology is created and how it shapes society, and further, is shaped by society |
| Engineering Literacy | [Organization for Economic Cooperation and Development (2003](http://onlinelibrary.wiley.com/doi/10.1111/j.1949-8594.2012.00101.x/full#b27)) | Ability to systematically and creatively apply scientific and mathematical principles to practical ends such as the design, manufacture, and operation of efficient and economical structures, machines, processes, and systems |
| [Accreditation Board for Engineering and Technology (2010](http://onlinelibrary.wiley.com/doi/10.1111/j.1949-8594.2012.00101.x/full#b1)) | Knowledge of the mathematical and natural sciences gained by study, experience, and practices that is applied to develop ways to utilize economically the materials and forces of nature for the benefit of mankind |
| Mathematical Literacy (Numeracy) | Program for International Student Assessment (2006) | Capacity to identify, understand, and engage in mathematics, and to make well-founded judgments about the role that mathematics plays in an individual's current and future private life, occupational life, social life with peers and relatives, and life as a constructive, concerned, and reflective citizen |
| [National Council of Teachers of Mathematics (2000](http://onlinelibrary.wiley.com/doi/10.1111/j.1949-8594.2012.00101.x/full#b25)) | Ability to read, listen, think creatively, and communicate about problem situations, mathematical representations, and solutions to develop and deepen their understanding of mathematics |

From Zollman, A. (2012), Learning for STEM Literacy: STEM Literacy for Learning. School Science and Mathematics, 112: 12-19. Doi: 10.1111/j.1949-8594.2012.00101.x

<http://onlinelibrary.wiley.com/doi/10.1111/j.1949-8594.2012.00101.x/full>