

What is STEM?

Notes taken from ULC Partners Meeting on 9/21/2018

- 1) STEM is the answer to “when will I ever use this?” It’s the connection that science, technology, engineering and math have to our daily lives. It isn’t about memorizing acts, but it is about utilizing science, technology, engineering, and math concepts in interesting/real world situations.
- 2) S. T. E. M. – It’s the space between the letters that become critical in a library setting – persistence, collaboration, creativity, critical thinking
- 3) S.T.E.A.M. = the processes and experiences that develop the habits of mind of a scientists or engineer using the tools (technology and art) to advance. Cross-cutting concepts and core disciplinary ideas for 21st century learning. Solve problems, ask questions, and think creatively.
- 4) STEM vs. STEAM – add history, humanities, reading, and art. Whatever the acronym, apply STEM/STEAM to real-world context. Creativity (this is what’s missing explicitly from “STEM”).
- 5) Exploring topics related to science, technology, engineering, and math through making, doing, and discussion. Broad topics like chemistry, biology, physics, robotics that include all aspects/components of the STEM acronym. STEAM focus at my library views “A” as welcoming personal interests and more genuine self-directed learning. “A” is a medium to connect STEM components.
- 6) STEM as content (disciplines of knowledge; STEM as an approach to learning/problem-solving; STEM does not equal science or technology.
- 7) Tactile, doing, making, creating, learning, sharing – includes science, technology, engineering, math, art, music. Access to technology – cutting edge and common; access to qualified instructors through kits, codes, or original creations (computer software to build imagined technologies). Practical skills such as tool/machine repair/wiring/electrical skills.
- 8) STEM may exist in silos (especially for developing conceptual understanding of critical foundational concepts) but the goal is to look at connections and underpinnings that pervade the disciplines. How does engineering “come alive” with the explicit connection of science, technology, and mathematics? So STEM allows for interconnections among the four disciplines.
- 9) Science, technology, engineering, math separate/apart from (and yet as part of a holistic approach). Also includes humanities and social sciences. Unapologetically focused on these specific areas, recognizing the need to know in order to be job-ready for the future AND to actively participate in life (just look at grandparents and great grandparents on Facebook now!) Connections/underpinning among four areas.

- 10) Engagement that involves active, hands-on learning utilizing technical and creative resources.
- 11) STEM for libraries. The practice of developing curiosity, skills, desire, practice, process toward meaningful science, technology, engineering, and math. STEM is in everything. Libraries have been teaching STEM since the beginning – it's called research.
- 12) All learning from cradle to career. STEM is import for engagement with a all learning levels and life stages. Creating common languages around fostering curiosity and cooperative questioning learning styles.