

Design Tool 3.2: Eight Criteria for STEM Programs

Directions: Use this tool when you are examining a STEM program or working with colleagues who are investigating or setting up* STEM programs.

1. An engineering design process is used to integrate science, mathematics, and technology.
2. Science and math content is standards-based, grade-appropriate, and applied.
3. Students focus on solving engaging real-world problems, or engineering challenges.
4. Students regularly work in teams to plan, design, and create prototypes and products; then test and evaluate these and plan how to improve.
5. Students use a variety of communication approaches to describe their challenge and justify their results.
6. Teachers facilitate inquiry-based, student-centered learning that features hands-on investigation.
7. Failure is regarded as a natural part of the design process, and an essential step toward creating an improved or successful solution.
8. Students are introduced to STEM careers and/or life applications.

* Note that ideally all students in a school experience STEM lessons. To accomplish that, all science (and/or math) teachers will likely need to teach STEM as part of their classroom curriculum. For example, teachers might facilitate a three- or four-day STEM lesson per quarter.