

Utah's Vision of STEM Education

Advancing a Statewide STEM Community

What is STEM Education?

STEM Education is a pathway to support a vibrant STEM community while empowering individual students to pursue and achieve their aspirations. It is “rigorous academic concepts...coupled with real-world...contexts to make connections between school, community, work” ([National Science and Technology Council, 2018, p. 1](#)), and the global enterprise enabling the development of STEM literacy. STEM education leverages effective and quality learning, integrated across disciplines in an effort to “impart skills such as critical thinking and problem solving along with soft skills such as cooperation and adaptability” (p. 7).

[STEM⁴: The Power of Collaboration for Change](#), a document written by leadership from the National Council of Teachers of Mathematics (NCTM), the National Science Teaching Association (NSTA), the International Technology and Engineering Education Association (ITEEA), and the International Society for Technology in Education (ISTE) provides the following guiding principles that promote a collaborative vision for STEM Education:

■ **Principle 1—STEM Content Knowledge and Skills:** STEM education should advance the learning of each individual STEM discipline.

■ **Principle 2—Integrated Content Knowledge and Skills:** STEM education should provide logical and authentic connections between and across the individual STEM disciplines.

■ **Principle 3—Community Connections and Partnerships:** STEM education should serve as a bridge to STEM careers.

Principle 1:
STEM CONTENT
KNOWLEDGE AND
SKILLS



1

STEM Content
Knowledge and Skills



Principle 2:
INTEGRATED
CONTENT
KNOWLEDGE
AND SKILLS

2

Community Connections
and Partnerships

Integrated Content
Knowledge and Skills



Principle 3:

COMMUNITY CONNECTIONS AND PARTNERSHIPS

By implementing these principles, STEM communities can extend learning beyond the memorization of facts, requiring students to form arguments based on evidence and communicate them to an authentic audience. Students are challenged to develop solutions to open-ended design challenges to collaborate with one another in order to solve problems in their communities. Ultimately, STEM education is about facilitating the creation of citizens who can make informed decisions for themselves and their communities in promoting a just and equitable society.

How does STEM Education support access for each student?

EQUITY is a critical component of STEM Education. It ensures that each student has access to systems that provide equitable access to funding, programs, policies, initiatives, and supports. It is through equitable systems that each student is empowered to express their own identity and personalize their own journey.

Utah is weaving equity into the fabric of each of its educational communities. The [Portrait of a Graduate](#) (POG) defines the ideal characteristics of a Utah graduate, and [Personalized Competency-Based Learning](#) (PCBL) provides a roadmap to achieve these targets. These initiatives move the focus of the classroom from teaching to learning based on fixed and well-defined targets for each student, who is entitled to the opportunity to demonstrate core knowledge and skills in personalized and differentiated ways. Instruction is moved beyond information dissemination to focus on the transferable skills necessary for success in the modern world.

Utah's STEM communities are well-positioned to provide the crucial learning experiences necessary for students to acquire the skills contained within our POG. The Utah State Board of Education (USBE) and the STEM Action Center work together in supporting Local Education Agencies (LEAs) in achieving these ends.

How are Utah agencies working together to support STEM Education?

The state of Utah has established entities that actively support STEM education, including the Utah State Board of Education and the Utah STEM Action Center. These two entities support critical partnerships for public education, non-profit, and private efforts.

What is the relationship between the Utah State Board of Education and the Utah STEM Action Center?

While each entity has unique roles and responsibilities, together they work to optimize educational impact and outcomes.

