



How to Do It: Tips for Implementing a STEM for All Program

1. Define Your Overall Objective

- How can a systematic expansion of Science, Technology, Engineering, and Math (STEM) programming help engage your district's K-12 students in postsecondary and career planning?
- How can your district forge strong partnerships with local businesses and industries to ensure that students have relevant, real life STEM experiences?
- How might you use design thinking to inform not only the building of your STEM program but student STEM-related design experiences as well?
- How can you find funding to make STEM for all a reality?

2. Preparation

- Identify resources, tools and materials that will inform and support your work.

I. St. Vrain Valley Schools offers a number of online resources:

1. [Skyline STEM Academy](#)
2. [St. Vrain Innovation Center](#)
3. [St. Vrain STEM website](#)
4. [St. Vrain P-TECH school](#)

II. Other relevant links:

1. [Stanford Design School Design Thinking Process](#)
2. [CU College of Engineering and Applied Science](#)
3. [Eight Ways to Land K-12 STEM Funding](#)

“Start with research around design thinking. We went to the Stanford D school site where there is a great deal of information to get you going with learning about design thinking. There are projects available on that site that can provide opportunities for relevant design challenges as a starting point all at no cost.”

*Regina Renaldi, Assistant Superintendent
St. Vrain Valley Schools*



- “Begin thinking about local relevant and authentic challenges available in your own local community and approach business and community leadership about the possibility of partnering to develop a solution to the challenge by using design thinking to solve that local and authentic problem. Resources and expertise from the community will likely follow and enhance efforts,” says Renaldi.
- Share what you have learned often with others in your district to open dialogue and gather more ideas and feedback.
- Enlist the help of local media to highlight and share student work and challenge solutions with student voice at the center.
- Think about a STEM exhibition once you have some prototypes and invite the community to talk to your students about their solutions and ideas.
- Put together a plan on how to present the STEM concept to students:
 - I. Real-world relevance, experience.
 - II. Hands-on opportunities.
- Student voice is critical in creating a feedback loop and sparking ideas to create classes, academies, and projects:
 - I. St. Vrain elementary schools have student STEM advisory groups.
 - II. Innovation Center student designers give feedback on client-based work, creating new workshops, job quality, and equipment needs.
- **Implementation**
 - Join [Resource Area For Teaching](#) (RAFT). Membership costs \$25. This is a great start with building a STEM resources space and building prototypes at a minimal cost.
 - Start small. Is there a school in your district interested in piloting STEM?
 - Begin setting the expectation with your school staff to integrate design thinking and project-based learning into their classrooms. Be specific in what you would like to see in a lesson (design challenges, tied to standards, different assessments, teamwork, etc.).
 - If your district has an Individual Career and Academic Plan (ICAP) program, link the STEM offerings and the ICAP team.
 - Hold a design thinking workshop. “Without this, STEM is just stuff,” says Patty Quiñones.
- **Assessment/reflection**
 - What worked?
 - What did not work?
 - How can it be adjusted?