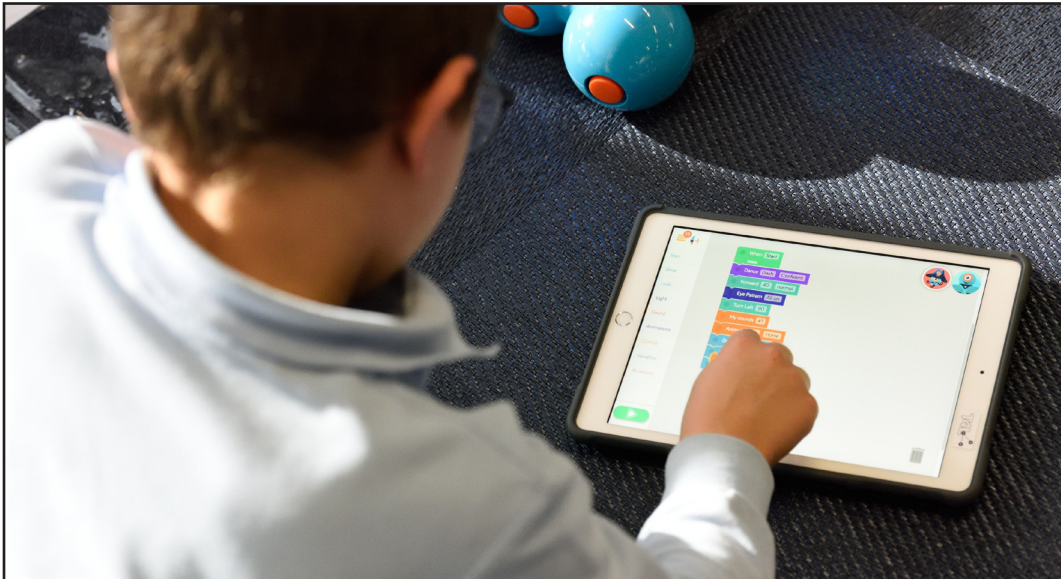


STEM-Centered Learning Newsletter



STEM-centered learning focuses student thinking and discussion around real-world phenomena, problems, issues, or events across all content areas with the purpose of students collaborating in order to make sense of the world and persevere in solving problems.

Creative Problem-Solvers in Schools

Revised From: Adobe Systems Incorporated (2018, January). *Creative Problem Solving in Schools*. Retrieved from <http://cps.adobeeducate.com/GlobalStudy>

Creative problem-solving is the process of redefining problems and opportunities, coming up with new, innovative responses and solutions, and then taking action. Creative problem solving is critical to students' future career success in an age of automation. Creative problem solving should be integrated across all content areas to best prepare students for successful futures.

Problem solving is a collaborative process of discovering solutions to difficult or complex issues. When students work together on a problem they must think critically and creatively while also building their self-awareness, self-management, and personal responsibility to the group. The problem-solving process requires students to utilize prior knowledge, analyze facts and gather data. By engaging students in creative problem solving we will equip students with vital skills for future success.

The most important creative problem-solving skills for students to learn in school today are:

1. Independent learning
2. Learning through success and failure
3. Working with diverse teams
4. Self-expression and dialogue
5. Persistence, grit and entrepreneurial spirit
6. Accepting challenges and taking risks
7. Conflict management and argumentation
8. Innovative thinking

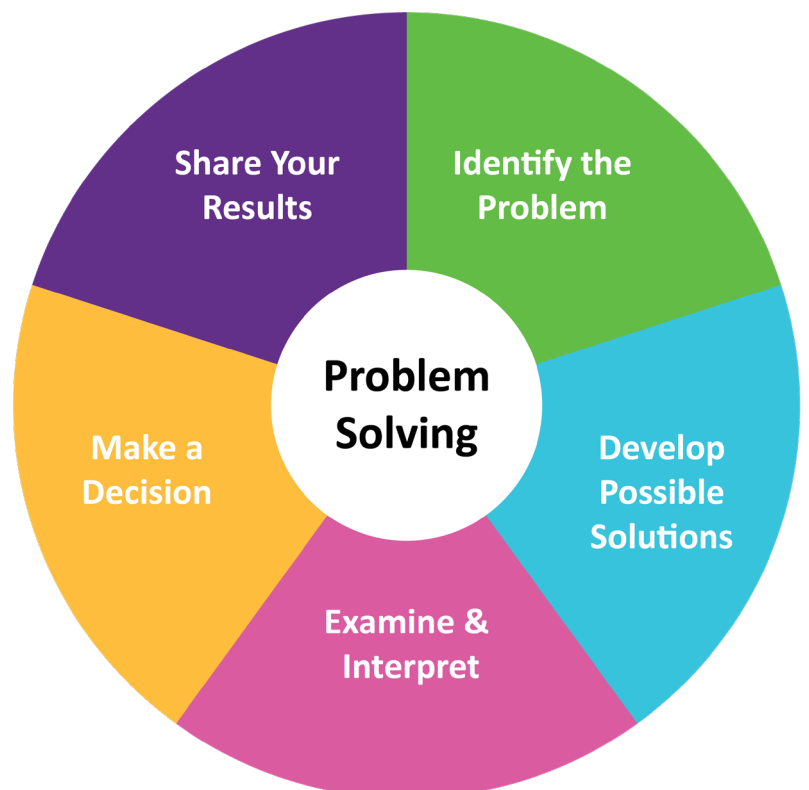
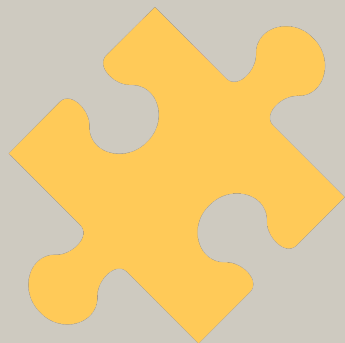


Figure 1. Students can use these five strategies to solve problems across all content areas.

STEM-Centered Learning Newsletter

STEM Indicator of the Month



Problem-Solving

Problem solving is defined as the process of finding solutions to difficult or complex issues. Problem solving is one of the most important skills students can develop. Learning to solve problems is a process in which students take what they know to better understand and make sense of what they don't know. Additionally, learning to problem solve can prepare students for increasingly complex academic per personal issues, resolve conflict, and overcome challenges. Problem solving takes practice and should include both grit and creativity.

Teaching Students to Evaluate a Problem

From: Amy Morin, L. (2020, October 12). *Teaching Kids How to Solve Their Own Problems and Make Good Decisions*. Retrieved January 25, 2021, from <https://www.verywellfamily.com/teach-kids-problem-solving-skills-1095015>

Students who feel overwhelmed may not be comfortable attempting to address a problem. But when given a clear formula for solving problems, students will feel more confident in their ability to try. Here are five strategies for successful problem-solving.

- **Identify the problem.** Just stating the problem out loud can make a big difference for kids who are feeling stuck. Help your child state the problem, such as, "You don't have anyone to play with at recess," or "You aren't sure if you should take the advanced math class."
- **Develop at least five possible solutions.** Brainstorm possible ways to solve the problem. Emphasize that all the solutions don't necessarily need to be good ideas (at least not at this point). Help your child develop solutions if they are struggling to come up with ideas. Even a silly answer or far-fetched idea is a possible solution. The key is to help them see that with a little creativity, they can find many different potential solutions.
- **Identify the pros and cons of each solution.** Help your child identify potential positive and negative consequences for each potential solution they identified.
- **Pick a solution.** Once your child has evaluated the possible positive and negative outcomes, encourage them to pick a solution.
- **Test it out.** Tell them to try a solution and see what happens. If it doesn't work out, they can always try another solution from the list that they developed in step two.

When problems arise, don't rush to solve your student's problems. Instead, help them walk through the problem-solving process. Offer guidance when they need assistance, but encourage them to solve problems on their own. If they are unable to come up with a solution, step in and help them think of some.

STEM Professional Learning Opportunities

- Science Forums: 3/2 (6th), 3/3(5th), 3/9 (4th), 3/11) 3rd, 3/16 (2nd), 3/17 (1st), 3/18 (Kindergarten)
- First Tuesday of Each month: STEM Prep Specialist Share-a-Thon
- Second Thursday of Each Month: Computer Science Prep Specialist Share-a-Thon
- Ongoing- Utah Science with Engineering Education (SEEd) Standards K-12 Online Course tinyurl.com/OnlineSEEdPD