

Elements to Incorporate Into Your STEAM Problem-Based Learning

Core Content and Practices

- ✓ Focus on student learning objectives.
- ✓ Incorporate standards-based content and practices from the STEAM disciplines.
- ✓ Embed measurable 21st century learning outcomes.
- ✓ Allow time for targeted instruction to develop key ideas.
- ✓ Connect to prior knowledge, and look for alternative conceptions.

Problem Statement

- ✓ It is at the appropriate level of challenge (students maintain engagement).
- ✓ It features a real-world context.
- ✓ It has an impact in school, community, or beyond.

Ongoing Inquiry

- ✓ Plan for instruction to last several days to several weeks depending on the problem-based learning.
- ✓ Students ask questions, find resources, and apply information.
- ✓ Carefully assign students to teams—giving each student a different role.
- ✓ Allow time for independent work, teamwork, and whole-class discourse.

Student Choice Possibilities

- ✓ Students select a problem-based learning inquiry question (within overarching topic).
- ✓ Students choose roles within their team.
- ✓ Students choose how to showcase their understanding.

Reflection

- ✓ Students and teachers assess learning.
- ✓ Students and teachers consider their areas for growth and plans for improvement.
- ✓ Students give, receive, and use feedback to improve their process and solutions.
- ✓ Give targeted praise on specific skills.

Communication

- ✓ Solutions are displayed and/or presented to stakeholders beyond the classroom.
- ✓ Opportunities are given for students to practice communicating and establishing criteria for effective communication.
- ✓ Require students to assume the roles of various stakeholders (such as those of government officials, local business owners, caregivers, etc.).