

Project design and facilitation

Maker learning projects have unique characteristics in terms of both project design and facilitation. Use this tool to better understand a maker project that is currently in progress or to aid in designing a new project.

Project design guide

Maker learning is grounded in three core values: [agency](#), [authenticity](#), and [audience](#). Use these core values to identify areas of strength and opportunities for improving the design of a maker learning project.

	Beginning	Differentiating	Personalized
Agency Where do students have voice, choice, and decision-making power in this project?	Students have choices, but they do not impact the overall learning experience or project outcomes	Students are allowed meaningful control over how they approach or progress through a given challenge	Students are responsible for framing the problem and/or goals, not just the solution, of their project
Authenticity How does this project honor the diverse interests and lived experiences of the students?	Teacher can explain a connection between the project and the interests/experiences of the students in a way that the students understand	Students are invited to bring their own interests and talents to the project, in specific areas as determined by the teacher	The project is collaboratively designed in response to the students' interests and experiences, and engages students in tasks they find meaningful
Audience In what ways does this project connect with other people inside or outside of the class?	Students share their work with each other through class presentations or displays	Students use their work as a way to engage in dialogue with interested peers and adults in the school community	The project connects a real-world community to the students' work in a way that is meaningful to both the students and the community

Questions for students

What to ask	What to assess
Agency: "What are you making?"	How do students describe the way they have made the project their own? Does their narrative describe their own choices or the directions they were given?
Authenticity: "Why are you making it?"	Can students articulate the context and purpose for their project? Do they express how this context is important to them without simply repeating the goals of the teacher?
Audience: "Who is it for?"	Are the students working towards a public goal beyond the satisfaction of a teacher or a grade? Do they share discussions they have had about this project with peers and others in the community?

Project facilitation conversation starters

Agency

I see... _____

I appreciate... _____

I wonder... _____

Authenticity

I see... _____

I appreciate... _____

I wonder... _____

Audience

I see... _____

I appreciate... _____

I wonder... _____

Project facilitation guide

Teaching in a maker learning environment, which is typically materials-rich, collaborative, and student-centered, requires attention to a broad set of factors in addition to the teacher’s direct interactions with students.

Facilitation attends to multiple dimensions of student engagement:

- **Material:** the teacher curates information, tools, resources, and physical space to engage students in learning
- **Social:** the teacher connects students to others – both peers and adults, both locally and globally
- **Personal:** the teacher provides opportunities for metacognition, reflection, and positive identity development

In each dimension, facilitation is:

- **Safe:** facilitation prioritizes physical and psychological safety; students engage with an understanding of tolerable limits of risk and how to maintain safety
- **Responsive:** facilitation is grounded in an informed awareness of the students, adapting to their needs equitably and engaging each of the dimensions
- **Instructive:** facilitation aligns student engagement in each dimension with the learning goals
- **Empowering:** facilitation yields transparent, actionable feedback that supports students furthering their own learning

Examples of effective facilitation may include:

	Safe	Responsive	Instructive	Empowering
Material	Teacher only makes age- and skill-appropriate tools and resources independently accessible to students	Teacher changes what resources are available in order to adapt to students’ needs and misconceptions	Teacher selects and presents resources in a way that is accessible to students and does not distract from learning goals	Instead of answering every question, teacher redirects students to learning materials when appropriate
Social	Teacher attends to social dynamics, keeping students safe and promoting intellectual and personal growth	Teacher identifies diverse student-leaders and connects them with peers when appropriate	Teacher removes barriers that would needlessly interrupt sustained group engagement	Teacher helps adults (e.g., content experts, mentors) provide constructive feedback to students
Personal	Teacher celebrates opportunities to learn from mistakes	Teacher attends to students equitably according to their level of understanding and sense of self-efficacy	Teacher dedicates time and space for students to reflect on progress and iterate on challenges	Teacher allows students to make and correct some mistakes without adult intervention

Questions for students

What to ask

- “What have you done when feeling stuck with this project?”
- “What have you learned while working on this project? How did you learn that?”
- “If you had more time to work on this project, what would you improve next? Why?”

Listen for facilitation across dimensions

- **Material:** Do students navigate materials (both physical and virtual) as inspiration and tools for learning?
- **Social:** Do students value and seek out others as potential teachers and mentors to support their learning?
- **Personal:** Do students see themselves as capable learners, and they are responsive to constructive critique?

Listen for principles of facilitation

- **Safe:** Do students share in promoting a safe learning environment for all?
- **Responsive:** Do different students’ responses point to equitable learning and growth?
- **Instructive:** Do students’ responses align with the project’s learning goals?
- **Empowering:** Do students indicate that they feel in control of their own learning?

Project facilitation conversation starters

Material

I see... _____

I appreciate... _____

I wonder... _____

Social

I see... _____

I appreciate... _____

I wonder... _____

Personal

I see... _____

I appreciate... _____

I wonder... _____
