Get Started with Tinkering

Impact

Tinkering plays a transformative role in the development of children, fostering a range of skills essential for their future success. By engaging in hands-on exploration and problem-solving, kids not only enhance their creativity and critical thinking but also develop resilience and a positive attitude towards challenges. Tinkering instills a sense of curiosity, encouraging kids to ask questions, experiment, and learn from their mistakes. In addition, collaborative tinkering experiences promote teamwork and communication skills, essential for navigating the complexities of the real world. Ultimately, the impact of tinkering extends beyond the classroom, shaping young minds into adaptable, innovative thinkers ready to tackle the challenges of the future with confidence.

I have not failed. I've just found 10,000 ways that won't work. -Thomas Edison

Takeaways

1

Planning
Begin by familiarizing yourself with the concept of tinkering which will then support creating goals and connecting to your curriculum.

2

Facilitating the Experience
Encourage your students to think creatively, explore their thoughts/ideas, share ideas, celebrate mistakes, and iterate their designs.

3

Assessing & Reflecting
Reflection is a key aspect in allowing students to share their thoughts on the experience and provide information on how to improve the overall tinkering experience.

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This How-To Guide is a support on getting started with planning and facilitating tinkering opportunities for students. Tinkering centers on open-ended design and construction with an emphasis on creativity, improvisation, and problem solving. The end result is a fun, engaging, and enriching experience for both you and the students.

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DIFFICULTY LEVEL:
WHAT

AUDIENCE:
TEACHERS

GRADE LEVEL:
K - 12TH

Planning

Define Tinkering Goals:
- Clarify the educational objectives you want to achieve through tinkering.
- Identify skills and knowledge areas you want students to develop.

Understand Tinkering:
- Familiarize yourself with the concept of tinkering and its importance in fostering creativity and problem-solving.
- To learn more about Tinkering, check out the **Tinkering & Making Toolkit** in the *Resources* section.

Connect to Curriculum:
- Align tinkering projects with the curriculum to reinforce academic concepts.
- Show students how tinkering relates to real-world applications.

Create a Tinkering Space:
- Designate an area in the classroom for tinkering activities.

Select Appropriate Materials:
- Gather a variety of materials like cardboard, wood, plastic, nuts and bolts, circuits, etc.

Provide Tools:
- Make available tools such as scissors, glue, tape, screwdrivers, pliers, and other relevant equipment.

Introduce Safety Measures:
- Emphasize safety rules and procedures.
- Ensure students understand how to use tools responsibly.

Start with Simple Challenges:
- Begin with straightforward tinkering challenges to introduce the concept.
- Gradually increase complexity as students become more comfortable.

Provide Open-Ended Challenges:
- Offer open-ended challenges that encourage creativity and diverse solutions that allow students to explore their own ideas and solutions.

Facilitating the Experience

Encourage Collaboration:
- Foster a collaborative environment where students can work together and share ideas.

Celebrate Mistakes:
- Emphasize that mistakes are part of the learning process.
- Encourage students to learn from failures and iterate on their designs.

Assessing & Reflecting

Facilitate Reflection:
- Incorporate reflection sessions where students discuss what they learned and how they can improve.
- Use feedback to refine and improve the tinkering program.

Assess Tinkering Skills:
- Develop assessment criteria that focus on problem-solving, creativity, collaboration, and critical thinking.

Showcase Tinkering Projects:
- Create opportunities for students to showcase their tinkering projects.

Resources

- **Tinkering & Making Toolkit**: https://learningisopen.org/toolkit/tinkering-making/
- **Build Your Own Tinker Space**: https://www.steampoweredfamily.com/build-your-own-tinker-space/
- **Why Tinkering Matters: Unlocking Creativity and Breaking Routine**: https://www.chasejarvis.com/blog/why-tinkering-matters-unlocking-creativity-and-breaking-routine/
- **Getting Started with Reflection in Tinkering Workshops**: https://www.exploratorium.edu/tinkering/blog/getting-started-reflection-tinkering-workshops
- **Tinkering At Home**: https://www.exploratorium.edu/explore/tinkering-at-home

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