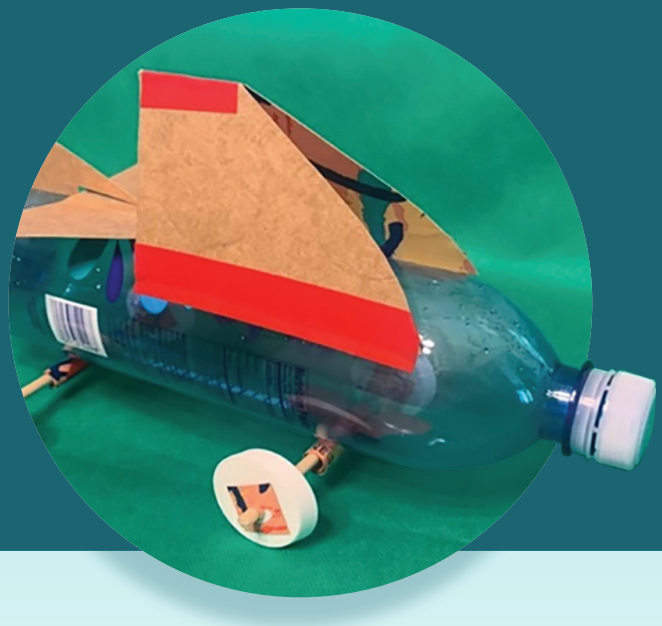
MPACT

Math and Computational Thinking Through 3D Making

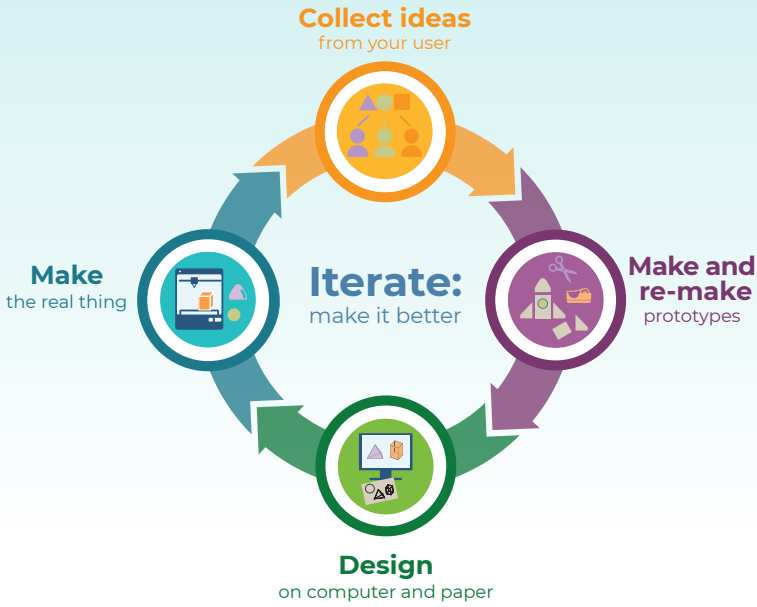
Are you a multiple-subjects teacher, a math or computer science teacher, a STEAM specialist, or a librarian with a makerspace? These free ready-to-download design-and-making units are for you!



About the Project

Project-based learning through making — helping students develop mathematical understanding, computational thinking, and spatial reasoning.

- Four projects for each grade, 4th–7th, with research-based activities
- Digital or paper booklets for students
- Detailed teacher guides
- Digital tools and traditional craft materials for most projects:
  - Free, kid-friendly 3D modeling tool — Tinkercad
  - Low-cost, high-quality 3D printers
  - Quick-dry clay, upcycled cardboard and plastic, etc.
- Low-tech units do not require digital tools.



EXAMPLE FROM GRADE 5

Students make a toy with wheels for a younger child. They

1. **Learn** about the needs of their user
2. **Prototype** designs with scrap paper and tape
3. **Design** wheels in Tinkercad and 3D print them
4. **Make** the rest of the toy with inexpensive or upcycled materials

PROVIDES OPPORTUNITES TO:

- **Learn** about volume (math), devising and debugging algorithms (CS), and mental rotation (spatial reasoning)
- Develop **empathy**, through making for another person
- Gain workplace-related practices in **design** and **making**

Learn More

Contact: MPACT_info@terc.edu

Visit: https://terc.edu/mpact3d

The contents of the MPACT curriculum were developed under a grant from the Department of Education. However, those contents do not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the Federal Government.