MakeDo

Mid-Valley
STEM-CTE HUB

www.midvalleystem.org
midvalleystemctehub@linnbenton.edu
Linn-Benton Community College
Albany Campus - CC-212

Mid-Valley
STEM-CTE HUB

MakeDo

The MakeDo kit enables hands-on STEM learning through creativity, construction, and upcycling. Students use reusable tools and materials to design and construct models, developing skills in engineering, problem-solving, and sustainability. The kit supports projects that foster creativity, critical thinking, and collaboration.

Grade Level

3rd - 8th grades

Group Size

Up to 4 students per group

Time Duration

60 minutes - multiple sessions

Content of Kits

Components

- MakeDo cardboard saws
- MakeDo screwdrivers
- MakeDo cardboard screws
- Electric cardboard cutters (upon request)

Consumables

- Cardboard (not provided)

Mid-Valley
STEM-CTE HUB

Usage

Getting Started

1. **Gather Cardboard:** Source cardboard from recycling bins, grocery stores, or hardware stores.
2. **Design Your Project:** Plan out what you want to build, whether it's a costume, a robot, or a fort.
3. **Use Makedo Tools**: Employ the Makedo screws and tools to cut, fold, and connect cardboard pieces.
4. **Iterative Design:** Encourage children to experiment with their designs and use problem-solving skills to refine their projects.

Storage

Keep MakeDo tools and screws organized in their original packaging or a designated toolkit to ensure they are easily accessible for future projects.

Troubleshooting

- If cardboard is too tough to manipulate, try softening it by gently bending or pre-folding.
- Ensure screws are securely fastened to maintain the integrity of the structure.

Mid-Valley
STEM-CTE HUB

Activity Guide

Beginner

Simple Structures
Students will start by constructing basic shapes and small structures using MakeDo tools and cardboard. This activity helps them become familiar with cutting, folding, and connecting materials while exploring stability and balance.

Intermediate

Functional Projects
Students will design and build functional models such as wearable costumes, movable robots, or simple machines. This introduces more complex assembly techniques, encouraging creativity and problem-solving as they refine their designs for usability.

Advanced

Architectural Constructions
Students will take on large-scale projects such as playhouses, bridges, or mazes. They will engage in extensive planning, prototyping, and iteration to ensure structural integrity, applying engineering and architectural concepts to bring their ideas to life.

Extension Activities:

STEAM Shelter Challenge
Students will tackle STEAM-based challenges that integrate science, technology, engineering, arts, and math. They may be tasked with designing eco-friendly shelters, creating simple machines with moving parts, or engineering structures to withstand weight or impact tests.

Collaborative City Build
Students will work together to design and construct a large-scale model of a city using MakeDo tools and cardboard. Each group will be responsible for different elements, such as buildings, transportation systems, or green spaces. This activity encourages teamwork, urban planning discussions, and problem-solving as students consider structure stability, functionality, and sustainability. At the end, students will present their city, explaining design choices and real-world applications.

Mid-Valley
STEM-CTE HUB

Learning Extensions

STEAM Connections: Engineering - Design - Environmental Concepts

Learning Objectives:

- Foster critical thinking skills through hands-on building challenges.
- Enhance fine motor skills and hand-eye coordination.
- Promote creative problem-solving through hands-on building activities.

Career Connections:

- **Engineering –** Develops hands-on problem-solving skills and structural understanding, essential for careers in mechanical, civil, and structural engineering.
- **Architecture –** Encourages spatial reasoning, planning, and model-building, foundational for careers in architectural design and urban planning.
- **Industrial Design –** Fosters creativity and practical design thinking, applicable to careers in product development, set design, and prototyping.
- **Art & Design –** Enhances artistic expression and visual storytelling, preparing students for careers in sculpture, exhibition design, and creative fabrication.

Essential Employability Skills:

- Critical thinking
- Creativity
- Design-thinking
- Problem-solving
- Innovation
- Collaboration
- Sustainability

Mid-Valley
STEM-CTE HUB

Resources and Accessibility

Safety Guidelines

- Supervise younger children to ensure safe use of cutting tools and screws.
- Maintain a clean workspace to prevent slips or trips on loose cardboard or tools.

Accessibility

- Provide adapted tools for students with limited hand strength or motor skills.
- Ensure that workspaces are accessible and comfortably arranged for all participants.

Library Catalog

Library Resources

Feedback

QR to feedback survey