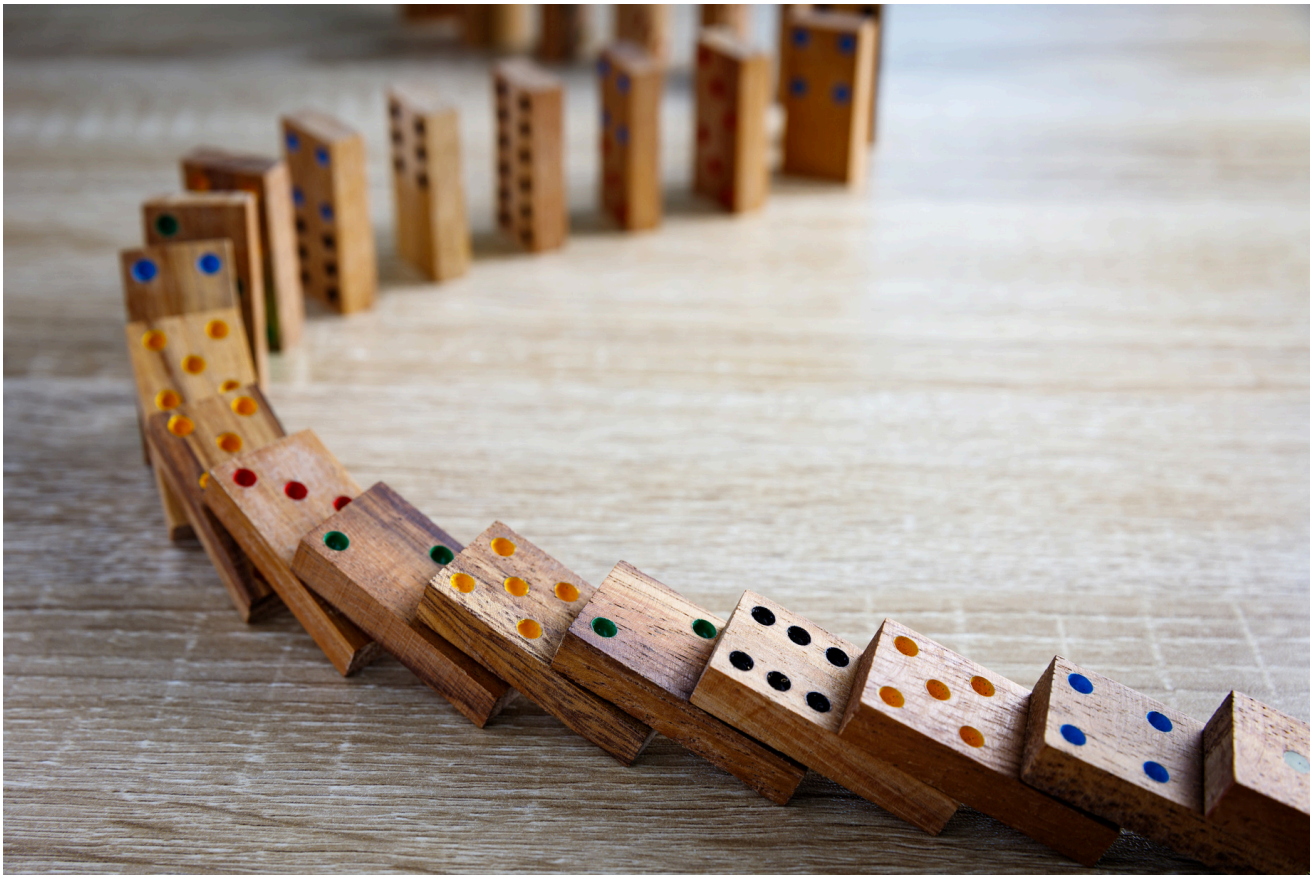
Mini Dominoes Challenge



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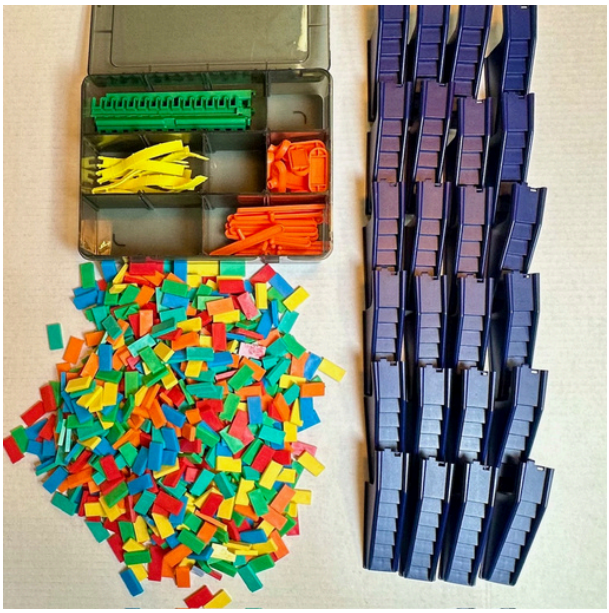
Mini Dominoes Challenge

The Mini Dominoes kit enables hands-on STEM learning through design and engineering challenges. Students create and build intricate domino setups to explore concepts in physics, engineering, and problem-solving. The kit supports projects that foster creativity, critical thinking, and spatial reasoning.



Grade Level

K - 12th

Group Size

Up to 10 students per kit

Time Duration

15 - 90 minutes

Content of Kits

Components

- Assorted mini dominoes
- 36x stairs
- 8x set-up tools
- 15x turn styles
- 6x plastic tweezers

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Usage

Getting Started

1. **Introduce Chain Reactions –** Begin by explaining the concept of chain reactions and cause-and-effect through a short video or live demo using a few dominoes.
2. **Practice Basic Setups –** Have students set up short, straight domino lines to practice spacing, alignment, and patience before adding curves or tricks.
3. **Assign Collaborative Roles –** In group builds, assign tasks like placer, tester, and resetter to promote teamwork and smooth setup.
4. **Plan Before Building** – Encourage students to sketch or verbally map out their domino design before building to support intentional sequencing and design thinking.

Storage

- Return dominoes and accessories to their storage containers. Organize accessories into their designated slots for easy access.

Troubleshooting

- **Dominoes Keep Falling Too Soon –** Encourage wider spacing during setup and create “pause points” with gaps that can be bridged last to avoid accidental triggers.
- **Alignment Issues** – Use a straight edge or ruler to help line up dominoes evenly for more reliable reactions.
- **Dominoes Not Tipping Properly** – Adjust spacing or surface, as dominoes may not fall consistently if placed too close, too far, or on uneven flooring.
- **Chain Reaction Stops Midway** – Identify and test the weak point in the sequence; reinforce or redesign the transition to ensure smooth motion.

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Activity Guide

Beginner

Straight Line Success
Students will build a simple, straight domino line of 15–25 dominoes and focus on even spacing and accurate placement. Once completed, they'll trigger the chain reaction and reflect on what worked and what didn't. This activity builds foundational motor skills, focus, and an understanding of cause-and-effect.

Intermediate

Turns, Curves, and Gaps
Students will design a domino course with at least one curve, one gap to be bridged manually, and a directional change. They'll learn how to control momentum and reinforce the importance of planning for smooth transitions between sections. This develops spatial awareness, sequencing, and teamwork.

Advanced

Multi-Zone Chain Reaction
Working in teams, students will build a multi-zone domino layout (e.g., 3–4 connected areas) with ramps, split paths, or varying domino types (if available). They'll map out their design on paper first, assign setup roles, and troubleshoot weak points in real-time. This activity promotes iteration, precision, and collaboration under time or material constraints.

Extension Activity:

Domino Speed Trials
Students will build multiple domino lines with controlled variations, such as different spacing between dominoes, surface types (e.g., tabletop, carpet, cardboard), or domino materials (if available). They'll time each trial using stopwatches and record their results to compare which setup leads to the fastest reaction. This activity introduces experimentation, data collection, and analysis while encouraging precision and prediction.

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Learning Extensions

STEAM Connections: Engineering - Math - Art

Learning Objectives:

- Understand and apply cause-and-effect relationships through hands-on chain reaction design.
- Develop spatial awareness and sequencing skills by constructing domino layouts with intentional direction and timing.
- Strengthen fine motor coordination and focus by performing precise, repetitive setup tasks.
- Practice experimentation and data collection by modifying variables and analyzing outcomes.

Career Connections:

- **Mechanical Engineer –** Designs systems involving motion, timing, and interconnected parts.
- **Industrial Designer –** Plans and tests how physical components interact in products and processes.
- **Architect –** Applies spatial reasoning and structure planning in real-world environments.
- **STEM Educator –** Teaches hands-on activities that link physics and design to learning outcomes.
- **Event Designer/Set Builder –** Uses sequencing and timing to create physical installations that move and perform predictably.

Essential Employability Skills:

- Problem-Solving
- Critical Thinking
- Collaboration
- Attention to Detail
- Perseverance

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Resources and Accessibility

Safety Guidelines

- **Set Up in a Clear Area –** Use smooth, flat surfaces free of clutter to prevent tripping or accidental collisions with domino setups.
- **Use Caution Around Others' Builds –** Remind students to move carefully and respectfully around other groups' domino lines to avoid unintentionally triggering a reaction.
- **Avoid Running or Rushing –** Encourage a calm, focused environment where students handle dominoes with care and control.

Accessibility

- **Modify Setup Height** – Build on tables or raised platforms for students who use wheelchairs or have difficulty working on the floor.
- **Offer Role Flexibility** – Let students choose supportive roles like timing, observation, recording, or planning if physical setup is challenging.
- **Use Visual Supports** – Provide example builds, diagrams, or sequencing cards to help students with cognitive or language processing needs.
- **Break Builds into Steps** – Offer structured, step-by-step guidance or checklists to scaffold the setup process for students who benefit from additional organization.

Library Catalog

Library Resources

Feedback

QR to feedback survey