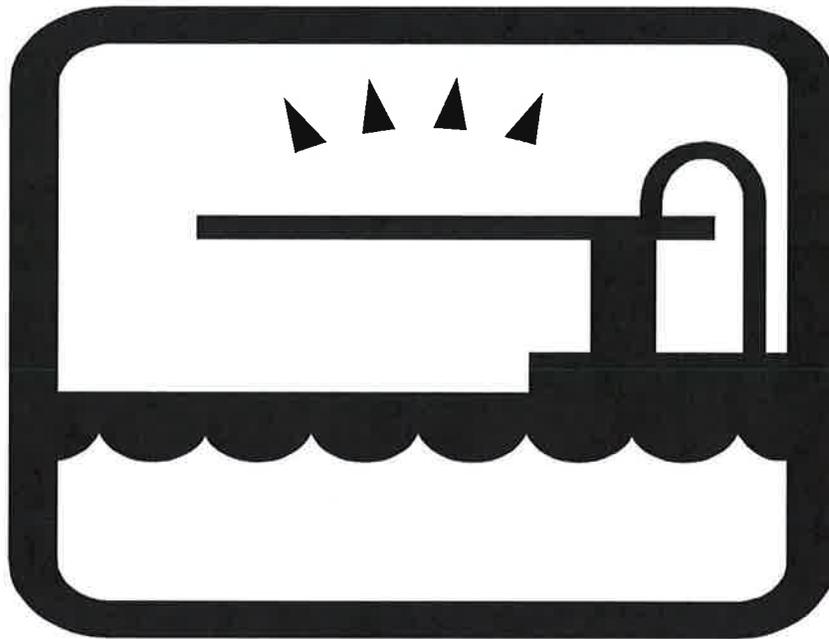


# Domino Diving Board



An activity adapted from the book, Family Engineering: An Activity Event Planning Guide, by Mia Jackson, David Heil, Joan Chadde, and Neil Hutzler

---

## The Power of **Afterschool** and the Future of **Learning**

A Nebraska Afterschool Conference

**September 28, 2012**

**Planning and Implementing Family Science Events : Presented by  
Kathryn Phillips**

**Curriculum Specialist, Lincoln Community Learning Centers**

# DOMINO DIVING BOARD

## Engineering Fields

- *civil engineering*
- *mechanical engineering*

## Engineering Concepts & Skills

- *role of failure*
- *modeling*

## Supplies

- *set of dominoes (28 or more)*
- *thick, hard cover book*
- *ruler*
- *Domino Diving Board activity sign (Appendix A)*

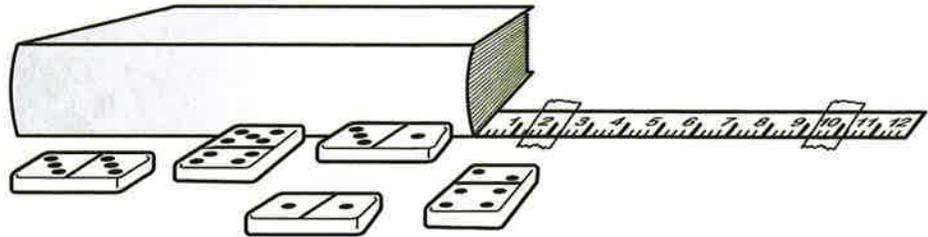
## Advance Preparation Supplies

- *tape*

How can engineers help us “hang out” safely?

## Advance Preparation

- Place the book and dominoes on a sturdy table that does not wobble or shake.
- Tape the ruler to the table with “zero” placed next to the book as shown below.



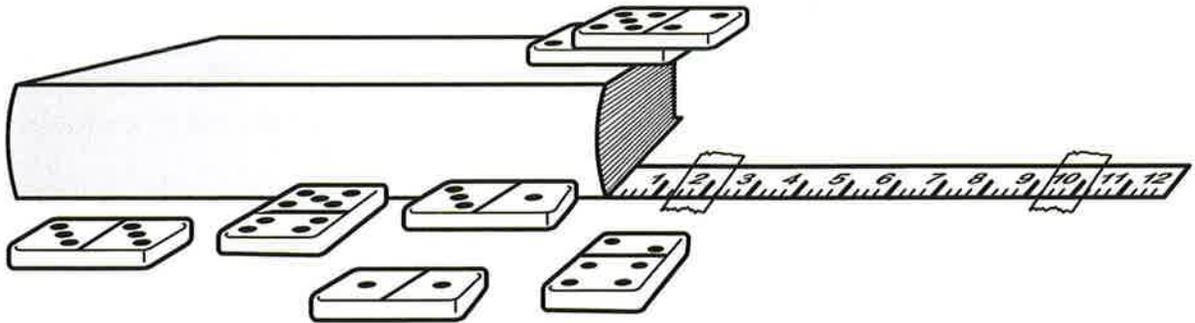
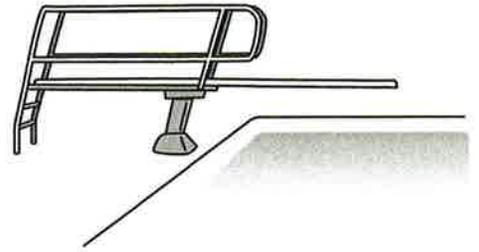
## ENGINEERING CONNECTION

A **cantilever** is a structure that is connected to a support at one end and extends out beyond support on the other end. Engineers must design cantilevers to be structurally safe. The fixed end must have enough support, or weight, to hold up the weight of the extended end. Some examples of cantilevers are diving boards, balconies, and airplane wings.



## Activity Steps

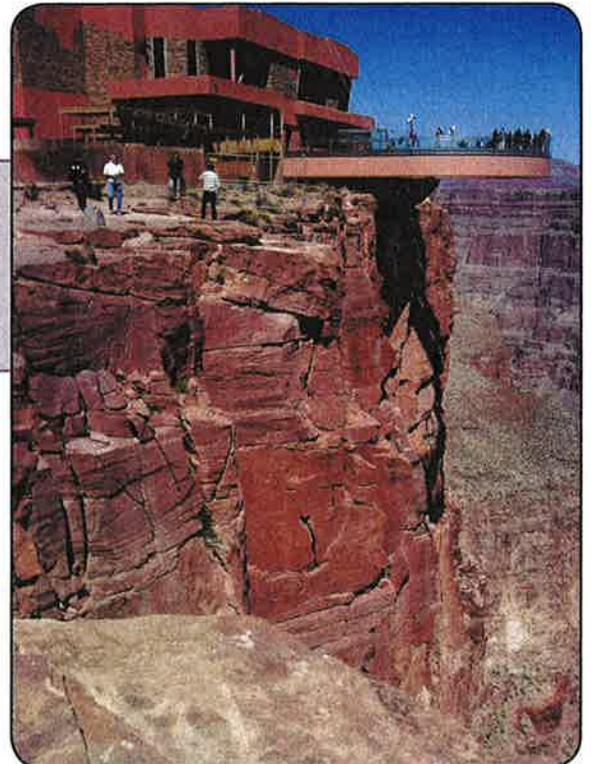
1. Build a ledge that “hangs out” over the edge of the book, like a diving board over a pool. **No dominoes can touch the table!**



2. Watch the ruler to see how far your ledge “hangs out” before it collapses.
3. Improve your design and try again!

### COLOSSAL CANTILEVER

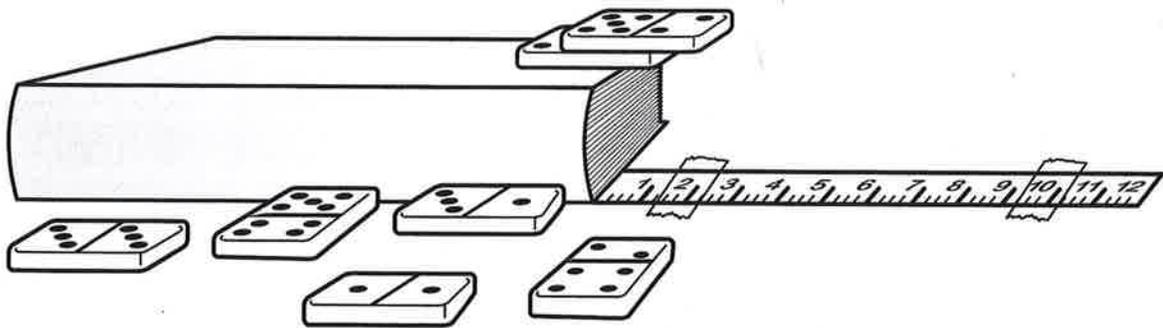
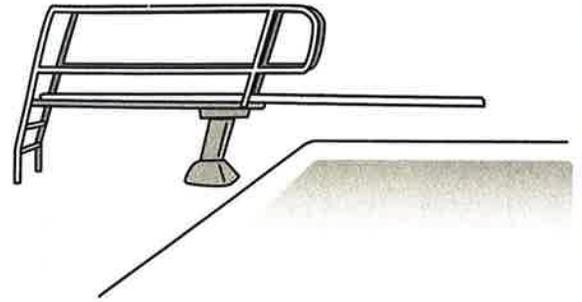
The Grand Canyon Skywalk is a glass-bottom, horseshoe-shaped cantilever platform projecting 70 feet out over the cliff edge. It allows visitors to look straight down, nearly 4,000 feet below, to the bottom of the Grand Canyon.



# DOMINO DIVING BOARD

How can engineers help us  
“hang out” safely?

1. Build a ledge that “hangs out” over the edge of the book, like a diving board over a pool. **No dominoes can touch the table!**
2. Watch the ruler to see how far your ledge “hangs out” before it collapses.
3. Improve your design and try again!

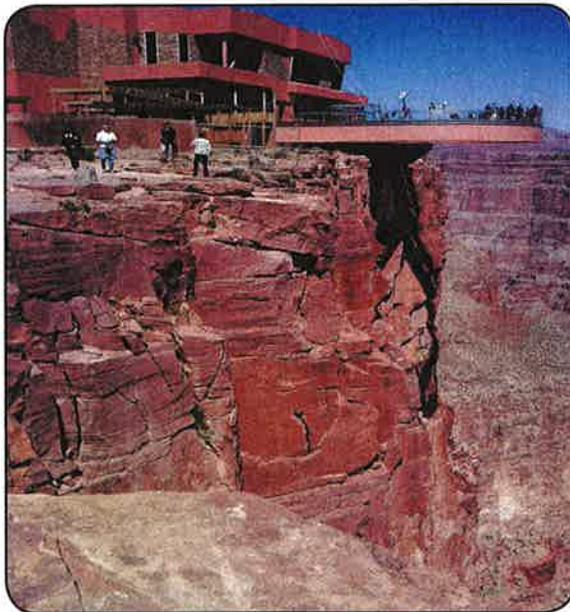


**Want to know more? See back of sign.**



# ENGINEERING CONNECTION

A **cantilever** is a structure that is connected to a support at one end and extends out beyond support on the other end. Engineers must design cantilevers to be structurally safe. The fixed end must have enough support, or weight, to hold up the weight of the other extended end. Some examples of cantilevers are diving boards, balconies, and airplane wings.



## COLOSSAL CANTILEVER!

The Grand Canyon Skywalk is a glass-bottom, horseshoe-shaped cantilever platform projecting 70 feet out over the cliff edge. It allows visitors to look straight down, nearly 4,000 feet below, to the bottom of the Grand Canyon.