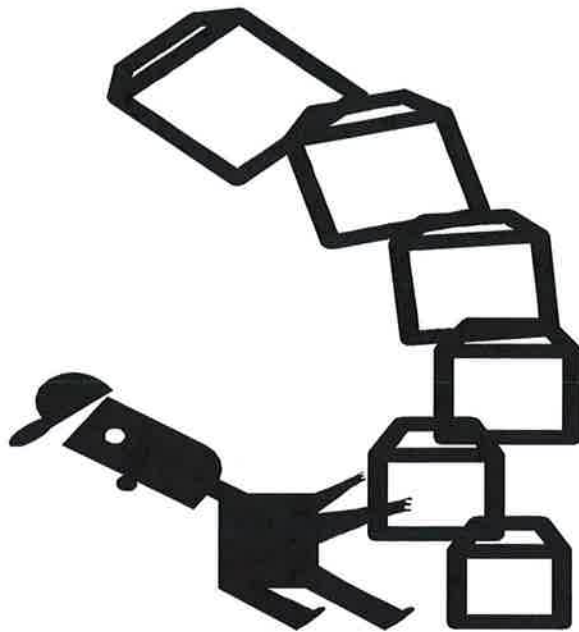


Tumbling Tower



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

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

Curriculum Specialist, Lincoln Community Learning Centers

TUMBLING TOWER

Engineering Fields

- *civil engineering*

Engineering Concepts & Skills

- *role of failure*
- *modeling*

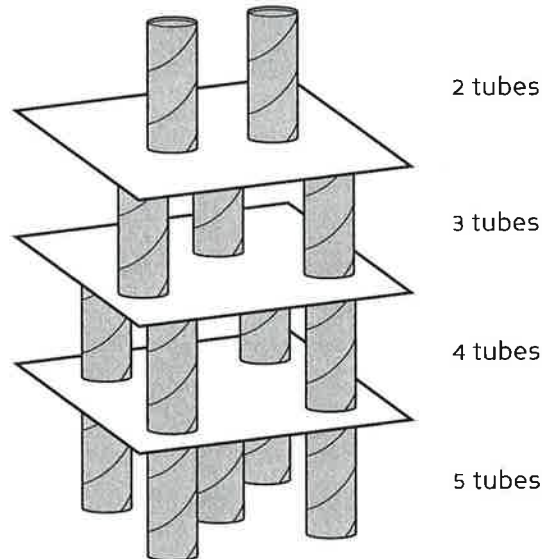
Supplies

- 14 empty toilet paper tubes **of the same length**
- 3 squares of 12" x 12" corrugated cardboard
- *Tumbling Tower activity sign (Appendix A)*

How do engineers keep tall structures from tumbling?

Activity Steps

1. Use 14 tubes and 3 cardboard squares to build this tower.



2. Following the rules below, take turns removing one tube at a time from the tower without letting the 3 cardboard platforms fall.
 - You may use both hands.
 - You may touch the cardboard platforms only when removing or moving a tube.
 - You may change the position of the remaining tubes.
3. What steps did you take to keep the tower from tumbling? Why did the tower eventually fall?



ENGINEERING CONNECTION

Engineers often test a structure's strength until it fails and then try to figure out why the failure happened. The weight that a structure supports is called its **load**. In order for a structure to be stable, the load must be balanced. If a structure is changed in some way, the load may need to be rebalanced to maintain stability.

TUMBLING TOWER

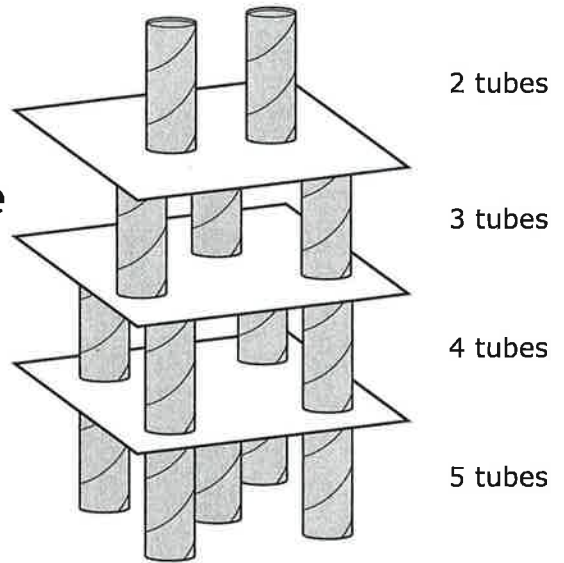
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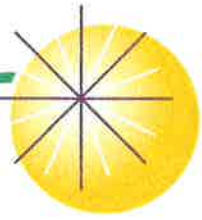
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Want to know more? See back of sign.



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