PAPER BRIDGE

What You Need

- piece of 8 1/2" x 11" paper
- 6 books
- 100 pennies
- ruler

1 Make **two stacks** of books of equal height. Place them **6 inches** apart.

2 Make a **bridge** by putting a sheet of paper across the books.

3 **Put** some pennies on the bridge. How many pennies can the bridge support before it **falls down**? What happens if the pennies are in the **center** of the bridge or **spread across** the bridge?

4 How can you make the bridge **stronger**? Try **bending**, **folding**, or **tearing** the paper.

5 **Test** your bridge again by **adding** pennies one at a time. **How many pennies** can your bridge support?

6 **How** can you **change the design** of your bridge to support more pennies?

Science Scoop

How can you make a **weak** material like paper **strong** enough to support a load of pennies? One way is to **change its shape** by rolling it in a tube, crumpling it, or folding it. The ZOOM cast made a strong bridge by **folding** the paper like a fan. How did **you** make a strong bridge?

ZOOMon

What happens if you **remove parts** of the bridge that you think are NOT needed for strength? Make a **prediction**. Then use a hole puncher or scissors to **test** it. Which parts of the bridge are the **strongest**? How can you make those parts even stronger to support **more pennies**? **Send** your ideas and results to ZOOM at **pbskids.org/zoom/sci**

Sent in by Kimberly B. of Port Moody, British Columbia, Canada

ZOOM is produced by WGBH Boston. Funding for ZOOM is provided by the National Science Foundation, the Corporation for Public Broadcasting, the Arthur Vining Davis Foundations, and public television viewers. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.