

PAPER COLUMN STRENGTH TEST

MATERIALS

- 3 pieces of regular copy paper
- Tape

DIRECTIONS

1. Fold each piece of paper into a specific-shaped column; a square, a triangle, and a cylinder (circle).
2. Tape the loose end so that it is secure and makes a sturdy column.
3. Place the tower standing vertically and slowly begin stacking books
4. Observe how many books it takes for each column to collapse. Which one is the winner?

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ACTIVITY FOUND AT:
<http://creeksidelearning.com/stem-activities-for-kids-how-strong-is-a-piece-of-paper/>

WHY?

The cylinder can support the most books because its walls don't have any edges. The force of the books cannot become concentrated in a particular area. The load is distributed evenly. In other words, all parts of the cylinder are sharing the load of the books. All parts of the cylinder, therefore, contribute to its overall strength until it collapses.

The square and triangle deform more easily. They shift the weight of the books to their edges and corners, which deforms their walls and leads to a quick collapse. They are unable to carry weight only at their edges.

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SCIENCE TERMS FOR FURTHER DISCUSSION:

- **Weight distribution**
- **Load**
- **Surface area**
- **Base**