

# UNFOLD THE SURFACE AREA

Ideal for middle and high school students.

## Instructions

1. Have students unfold the box while explaining the differences between volume and surface area.
2. Pack as many blocks as will fit inside the box to fill its volume. Measure each side of the box to figure out the surface area. (To determine the box's surface area, first calculate the area of each face of the box. Then, add the areas of all six box faces.)
3. Cut off any flaps that don't make up the essential parts of the box. Then, cut off the remaining six sections and tape them back together to make up the box.

## Supplies

- Small packaging box (such as a smartphone or electronics box)
- Blocks
- Ruler
- Tape
- Scissors\*

\*Adult supervision required for all activities involving scissors.

"This is geared more to complex formulas in geometry and algebra,"

Chris Woods  
a high school math teacher,  
education presenter  
and founder of the dailySTEM website

# BUILD THE STRONGEST COLUMNS

Ideal for groups of elementary and middle school students.

## Instructions

1. Make a column using the full length of the paper by folding and taping the ends together.
2. Build a few more columns, using round, triangular and rectangular shapes (and any others you see fit).
3. Pile books on top of each column type until the paper cannot support any more.

## Supplies

- Copy paper
- Tape
- 10 to 12 books

“Teachers everywhere are seeing the benefits of using cardboard in their classrooms...”

Chris Woods  
a high school math teacher,  
education presenter  
and founder of the dailySTEM website

# STEP THROUGH AN INDEX CARD

Ideal for elementary students to do on their own.

## Instructions

1. Fold the index card in half lengthwise.
2. About  $\frac{1}{4}$  inch from the top, make a cut from the crease about three-quarters of the way to the card's open edge. Do not cut all the way through.
3. Repeat about  $\frac{1}{4}$  inch from the bottom of the card.
4. Unfold the card and cut along the crease between the existing cuts. Then refold the card.
5. Make another cut about  $\frac{1}{4}$  inch from the top cut, but this time start from the open edge and cut about three-quarters of the way to the crease.
6. Continue making these cuts every  $\frac{1}{4}$  inch, alternating which side you start each cut, until you reach the end.
7. Open up the ring-shaped paper—and step through!

## Supplies

- Index card or paper cut into the size of an index card
- Scissors\*

\*Adult supervision required for all activities involving scissors.