



Can You Fit Through An Index Card?



WHAT ARE WE INVESTIGATING?

Can you cut an index card so that you can fit through it?

MATERIALS:

- Index Cards
- Scissors
- Strive Academy's Engineering Design Process Handout (found at www.striveacademy.org)
- Pencil or Pen

EXTENSION:

- * Try this again but make your cuts closer together - this will make a bigger loop!
Now how many people can fit through one index card?
- * Try this with different sized index cards and see how this affects your results.

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DIRECTIONS:

1. Gather all of your materials. Our materials are just suggestions - feel free to add other things too!
2. On your handout (found at www.striveacademy.org), fill in the title of your experiment (Can You Fit Through An Index Card?).
3. On your handout, fill in your hypothesis. You want to answer the question: How can I cut my index card so that I can fit my whole body through it? The index card has to stay in one piece at all times...you cannot cut parts of the index card completely off.
4. On your handout, sketch a design of how you think you will cut and fold the index card to be able to fit through it. Feel free to use color and label the materials that you will be using!
5. Fold your index card in half lengthwise (like a hotdog).
6. On one end of your card, start on the folded side and make a cut until almost the edge of the index card. You want to stop before you get to the edge so that you don't cut anything off. Repeat this at the other end of the index card.
7. Now make alternating cuts about a $\frac{1}{4}$ inch apart. For example, for your next cut, you would turn the index card around and make a cut on the non-folded edge. Again, don't cut all the way down the index card because you don't want to cut anything off. Continue making cuts down the index card, alternating from the folded edge and the non-folded edge.
8. Now, open up the index card. **DO NOT CUT EITHER OF THE ENDS.** Using your scissors, cut through the middle part that is still connected - do not cut either end.
9. Open up your loop! Under "Data Collection/Observations", draw a picture of what your finished loop looks like.
10. Have someone hold open the index card and carefully try to fit your body through the loop. Under "Results", record if you were able to fit through.
11. Answer the "Analysis" questions on your handout:
 - What was the most difficult part of this activity?
 - How do you think you could redo this activity and fit even more people through one index card?

**** Try the extension activities on the first page for more fun! ****