Putting knowledge to work with the people of Maine

Stepping Through Paper

Purpose of activity: The purpose of this challenge is to help youth visualize the relationship between shapes and surface.

Materials
- Paper
- Pencil
- Scissors
- Challenge Solution

Instructions

1. Using a piece of paper or card stock, visualize how to cut the card to pass your head through the opening. You can write on your paper or card if that helps you to visualize the challenge.
2. Cut the paper or card into a shape that allows you to fit your head through. Will your head pass through the opening? How about your whole body?
3. If you do not solve the challenge on the the first try, try a few more times. If you cannot solve the challenge refer to the challenge solution.
5. Challenge your friends and family to try this challenge!

Solution:
- Determine the surface area you have to work with. Surface area is the total area exposed in a given boundary. If you do not know how to calculate the surface area, check out these online instructions.
- Surface area does not change when you cut the paper, so you will need to maximize the surface area of your paper while expanding the perimeter.
- To solve this challenge, you will need to cut your paper to expand the perimeter of your paper. After you have tried this a few times, check out the challenge solution for instructions on how to complete the challenge.

Reflection Questions
1. What strategies did you try when attempting to solve this challenge?
2. What strategies worked well? What strategies did not work well?
3. What strategy did you use to solve this challenge?
4. How did you use patterns and shapes in solving this problem?
5. How did understanding surface area help you solve this puzzle?
6. Is there another strategy that could help you solve this challenge?

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