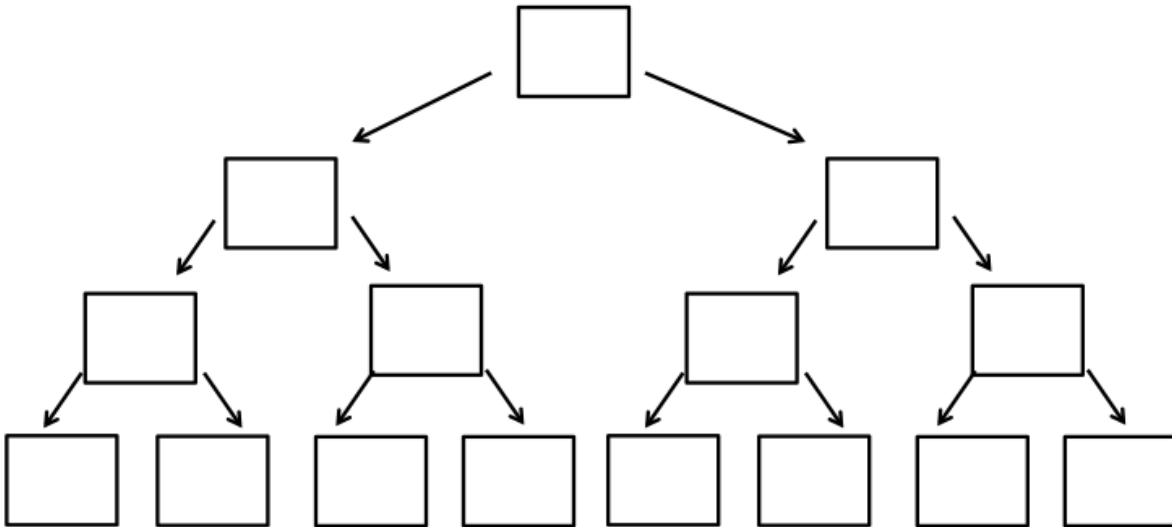


Name: _____

Fractal Cutout Cards

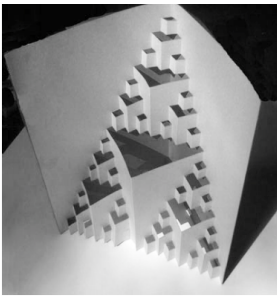
1. What is a fractal?
2. What are four types of fractal patterns?
 - a)
 - b)
 - c)
 - d)
3. Draw an example of each fractal pattern that you don't need a computer to draw.
 - a)
 - b)
 - c)
4. Now let's make your cutout card and look at the mathematical pattern behind it. Complete your first set of "cut, fold and invert." In the top box, write the number of inverts you did.



Now, do your second set of "cut, fold and invert." In the second set of boxes, fill in how many sets of inverts you did, with the larger number on the left and smaller number on the right.

Do your third set of "cut, fold and invert." In the third set of boxes, fill in how many sets of inverts you did, with the largest number on the left and smallest number on the right.

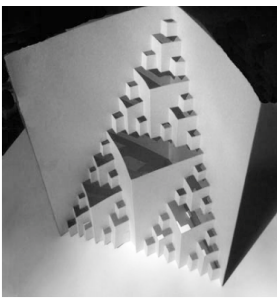
Continue until you are done. What mathematical pattern do you see in the numbers?



Name: _____

Fractal Cutout Cards

5. What other cutout cards can you create? Describe the cutting procedure here and draw out the mathematical patterns that you see.



Name: _____

Fractal Cutout Cards

Adaptations to different grades

- 2nd and up: measure lengths, estimate length of subsequent cuts
- 3rd and up: determine area, use division, determine attributes of shape cutting out
- 4th and up: measure angles, discuss types of triangles, fractions – bigger, smaller and addition, determine trends and predict subsequent steps
- 5th and up: graph number of patterns and numbers of triangles for each iteration – what type of line do data create?; measure surface area, area and volume
- 6th and up: ratios and proportional relationships, do statistics on measurements – discuss samples and spread; graph distribution and standard deviation

Measure, count, bigger smaller, fractions – how much bigger, measure angles, types of triangles or shapes, count the steps

Instruction video online!

Where have you seen fractal patterns in your environment?

Fractals are SMART: Science, Math & Art!

www.FractalFoundation.org

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