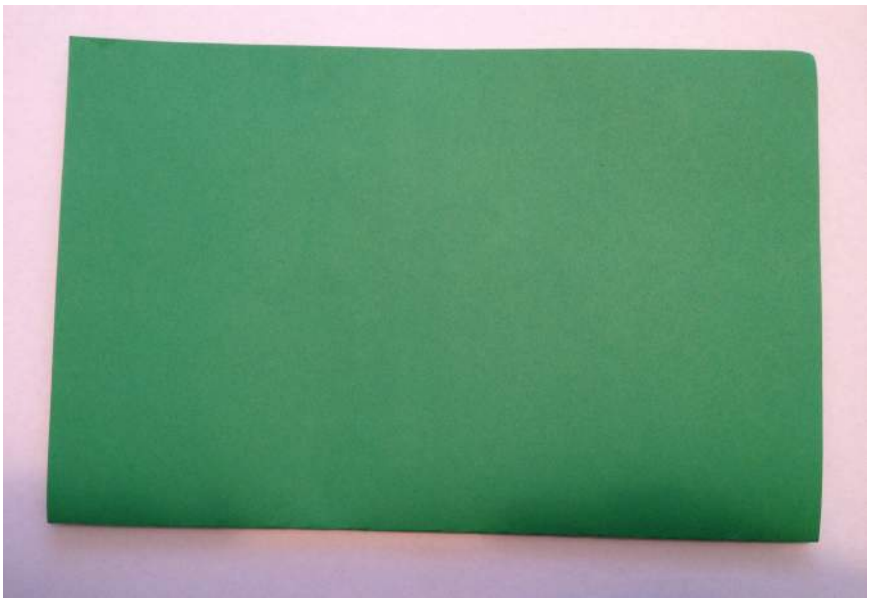
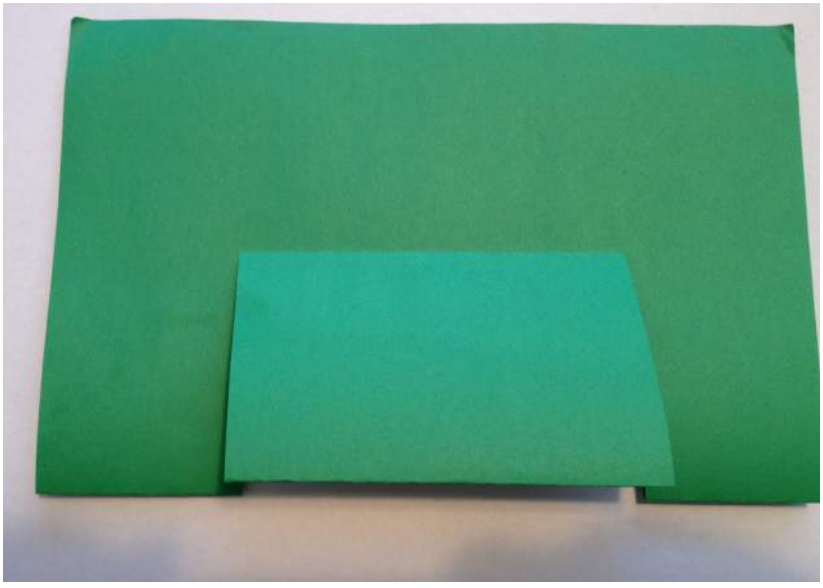
Fractal Greeting Card

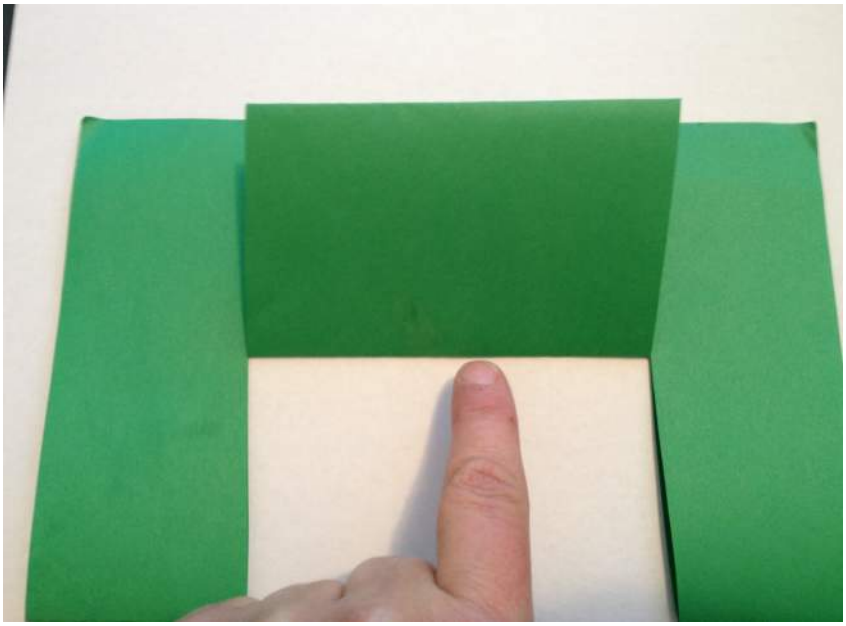
Start with any piece of paper. Bright colors are fun! Fold it in half (hamburger fold), and orient it so that the fold is closest to you.



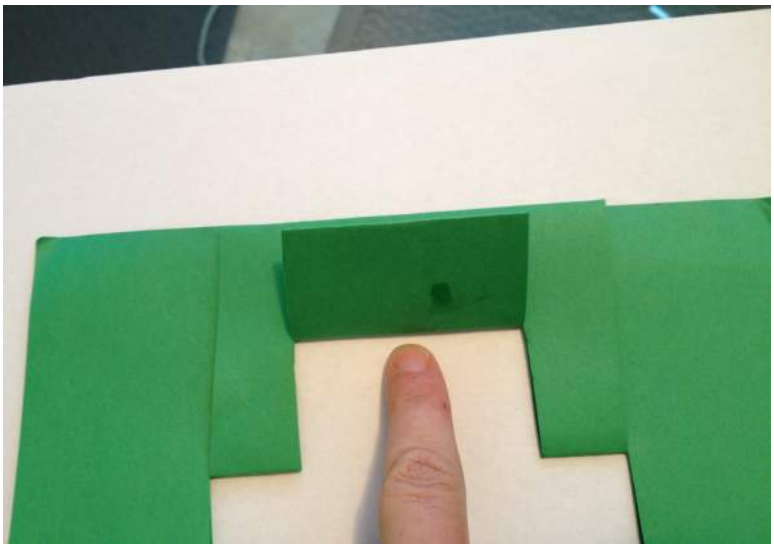
Now, along the creased edge, you will make 2 cuts that are perpendicular to the fold. One will be ¼ the distance across the paper, and half way to the other side. The other cut will be at ¾ of the across the paper, and half way to the other side.



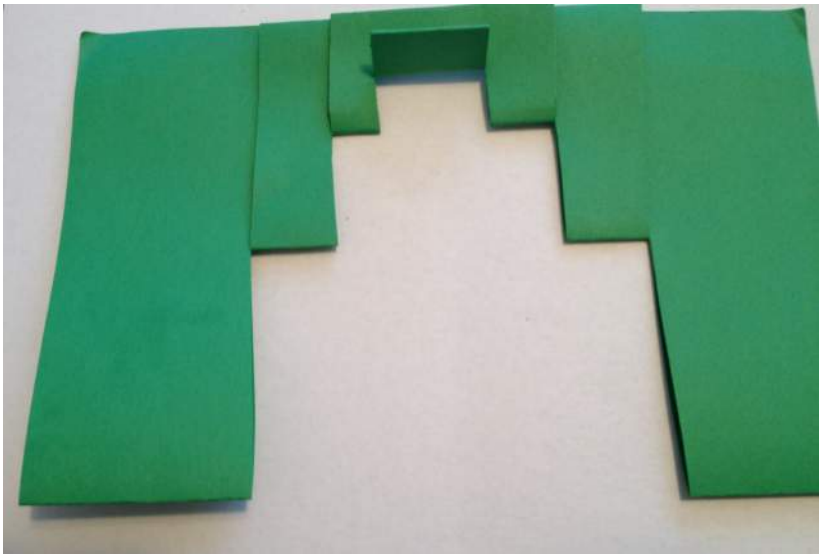
The, fold up the middle section so that it is flush with the other side, and when you know it is exact, make a crease.



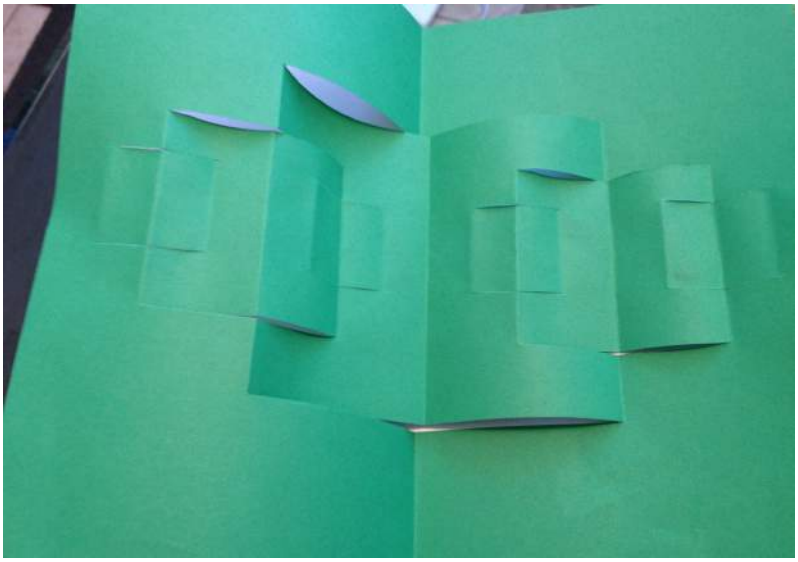
Now you will repeat this iteration on the new line segment created with you creased the paper. Cut at a perpendicular, ¼ of the distance, half way across, and ¾ of the distance, halfway across. Then fold the middle section so it is flush with the other edge.



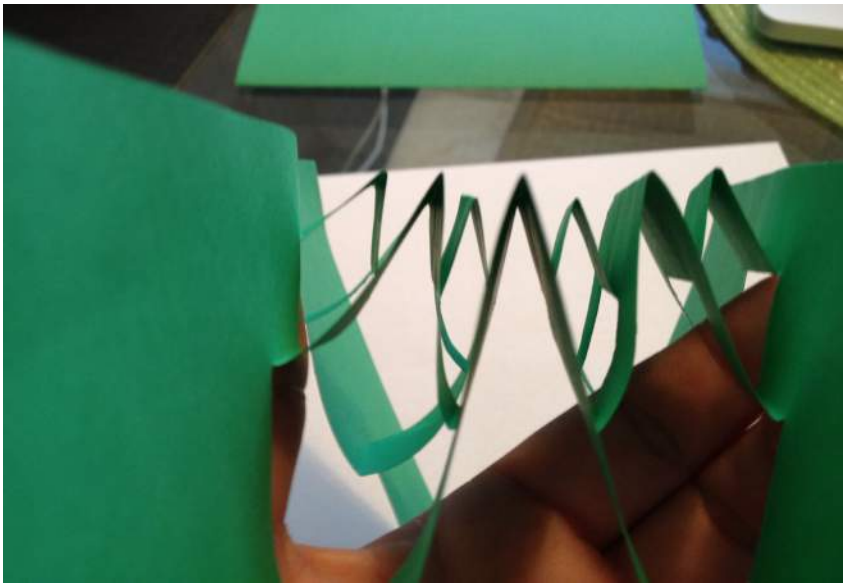
And do it again.



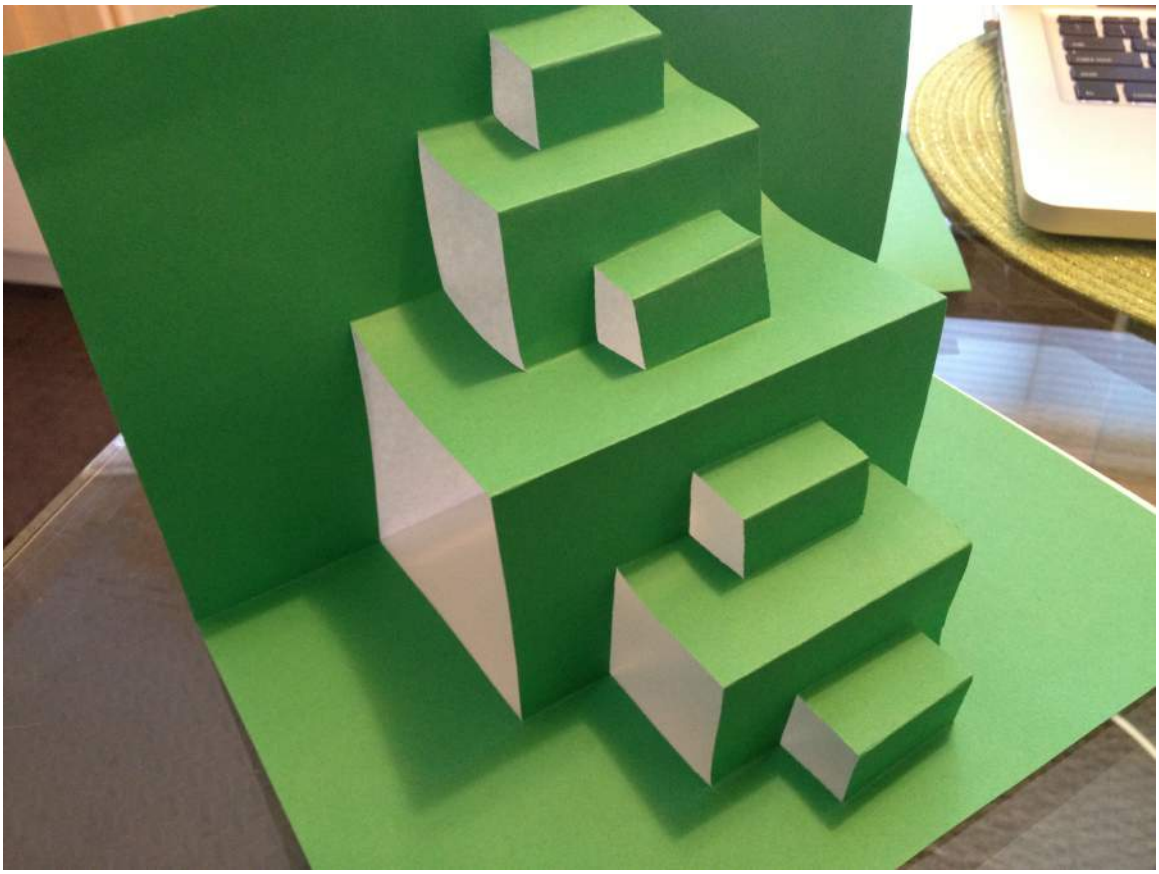
Now open it up.



It's already cool, but we aren't done! Now, you will "pop out" all the middle sections of the cuts. All of the center sections from the cuts needs to be inverted to that it pops outward. If you have done it correctly, the center vertical path of the paper will be a perfect accordion pattern when you look at it from the side.



And your final product looks like this. You can put a second piece of paper behind it for nice contrast.



Ask students what do they notice? What do they wonder?

Further discussion and questions:

•This is a fractal because a) it was made be repeated iterations, and b) because it has self-similarity.

•Look at the different sizes of boxes in the shape. There are small, medium and larger. (Others, larger, or smaller are possible for the driven student!) How do they relate to eachother in size?

•How many of the little ones would fit into the middle sized box?

•How many of the little ones would fit into the larger box?

•If you could imagine the next smaller size box, how many of THOSE would fit into the large box?

For further support, watch this video:

https://www.youtube.com/watch?v=_sJ1U1F2K4I