

Sierpinski Xmas card

Create a postcard for your American mates.

The goal / the aim / the objective of this workshop is to repeat the three steps.

As it deals with fractals, we double the number of operations at each repetition of the 3 steps, this process is called autosimilarity.

Material / Tools

2 sheets of paper

Scissors

1 pencil

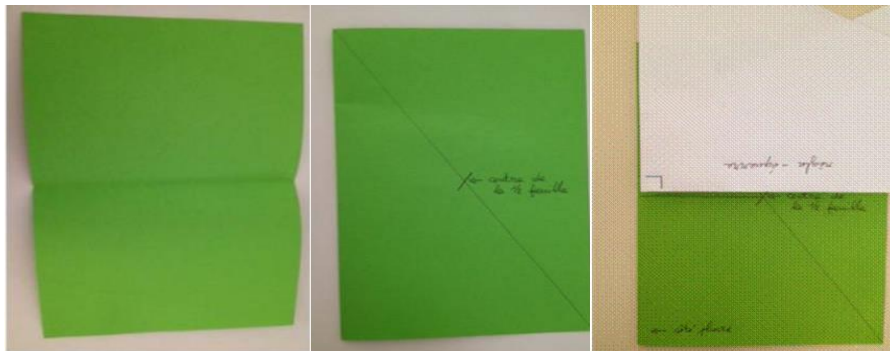
1 square + 1 ruler

1 stick of glue



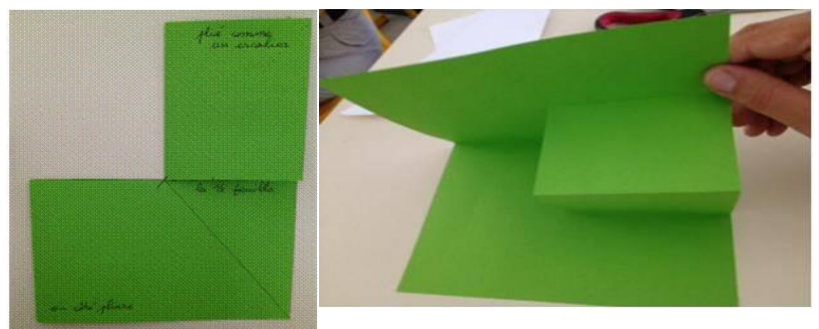
Step 1 :

Take the sheet of paper vertically. Find the middle of the length of the rectangle and fold the paper vertically. Mark the center of this sheet, you may use a diagonal.



Step 2 :

Cut half of the segment and fold the central part of the paper like shown in the picture below.



Step 3 :

Fold in stairs, then in accordion.

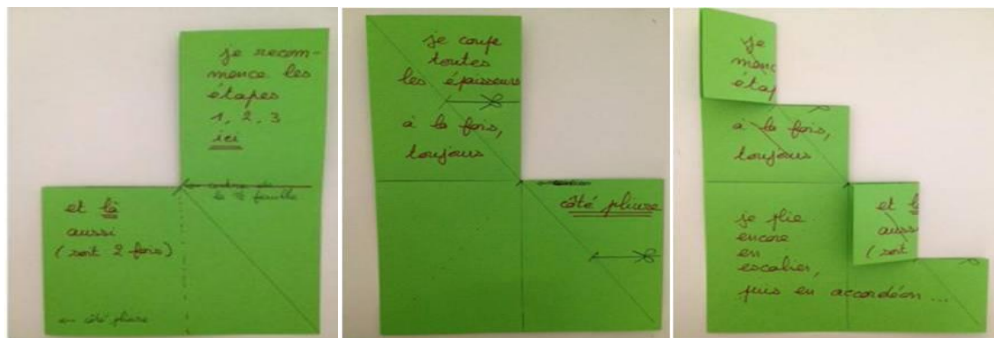
Fold back one of the cut parts. You get a stairs.

Open and fold changing the sense of the folds.



THEN :

Repeat the first step and pay attention, there will be two times more rectangle than at the previous step.



AT THE END :

Fold the other paper and stick the fractal inside. You get a wonderful postcard !!

If we stop at the step 3 :



Or at the step



4 :

The Golden Spiral Xmas card

Create a golden rectangle following the instructions below :

- Start with two vertical adjacent squares of 1 unit,
- Draw a 2 units square on the right of the first two squares,
- Draw a 3 units square under the other squares (figure).
- Repeat the process.

Once you think your car is big enough, you can stop drawing your rectangle and draw the golden spiral with a compass.

A video about the golden spiral:

<https://www.youtube.com/watch?v=2VtYyHx77cs>

