Sierpinski's Triangle - is a classic example of a fractal. A **fractal** is a geometric figure with a repeating pattern which is the exactly the same when your view zooms in or out on the figure.

The fractal pattern created in Sierpinski's triangle is created by splitting every triangle into four identical **equilateral triangles**, with three upward pointed triangles in the corners and one pointing down in the center. The **vertices** (corners) of the center downward pointed triangle always touch the **midpoints** of the original triangle's edges. Then the process is repeated, splitting every upward pointed triangle into four smaller triangles, while leaving the downward pointed triangles empty.

Each time you repeat the process to draw smaller triangles it is called an **iteration**.

1. Complete the first four iterations of the fractal on the triangle below. One triangle from each iteration is already drawn for you to help you get started.

2. After each iteration count the number of upward pointed triangles you have drawn and update the table to the right.

3. Try to figure out the pattern and write the equation for the number of upward pointed triangles after **x** iterations. Then predict how many you will have after 5 and 6 iterations.

4. After your Sierpinski's Triangle is complete, decorate it by filling the triangles with interesting colors and patterns.

Iterations	Number of upward pointed triangles
0	1
1	
2	
3	
4	
x	
5	
6