In the 1970's Benoit Mandelbrot discovered the shapes in nature such as clouds, coastlines, and mountain ranges do have a pattern in their irregularity. He found these shapes are made up of smaller parts that are scaled down versions of the shape itself. These parts are made up of yet smaller parts that again resemble the shape and so on through numerous reductions. Mandelbrot coined the term FRACTAL for these shapes and for the geometry used to describe them.

I. Research the works of Mandelbrot and write a 5 paragraph essay describing his works.

II. Find and photocopy or print out 3 fractals and write a brief description of each. Be sure to cite where each fractal was found.

III. Create a fractal from YOUR NAME. Place a starting point in the center of your paper. Using the Movement Letter KEY given below, move the number of units given as you alternate the directions of NORTH, EAST, SOUTH, and WEST respectively on each move. Continue the movement until the pattern is off the page or for FIVE repetitions of your name. Make a chart to record letter and direction for your fractal. BE sure to use color to make your fractal stand out! Mount your finished product on a piece of construction paper, and place your full name on this work of art as well. Projects will be displayed on the bulletin board in the back of the room.

1 A J S
2 B K T
3 C L U
4 D M V
5 E N W
6 F O X
7 G P Y
8 H Q Z
9 I R

**GRADING...FORMATIVE ASSESSMENT...TOTAL 100 POINTS.**

- PART 1 (35 POINTS)
- PART 2 (30 POINTS)
- PART 3 (30 POINTS)
- COVER NEATNESS: 5 POINTS