

Additional Examples of Fractal Stories
from
A Fractal Story Assignment
for Math 409
a course on fractals and chaos
developed by Virginia R. Jones
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Math 409, Mathematics through Computers, is a course taught at Central Connecticut State University by Virginia Jones. It is a capstone course on fractals and chaos for pre-service teachers (K-8).

The Fractal Story Assignment:

The assignment is to create a 3 – 5 page story for children in grades 2 – 6. The story must convey the essence of a specific fractal selected by the writer. The story should use and explain the fractal properties of:

- 1) self-similarity
- 2) a repeating process that does not stop
- 3) the reduction in scale which occurs as the process repeats

The students are encouraged to think of creating a fairy tale or fable, as a possible starting point. Several of the stories created by the students have been read to classes at the DiLoreto Elementary School in New Britain, CT.

Here are brief summaries of six stories, each based on a different fractal:

based on The Cantor Fractal:

This is one of the earliest stories submitted. Unfortunately, I no longer have a copy of it or the name of its creator.

The Witch, the Princess and her Prince:

An evil witch has captured a beautiful princess and when the prince comes to rescue her, the evil witch sets him the following task. A piece of licorice has been strung along a board and he must nibble away the middle thirds of the segments, including the new segments created by his nibbling. The witch promises to release the princess when he has nibbled away all the licorice – which she tells the reader will never happen.

based on the Hat Fractal:

Emma and the Evil Math-matician by Amy Dalfino, Spring 2002

Emma and the handsome Prince Jeffrey fall in love. Unfortunately, his evil twin, Prince Jarrett, also falls in love with Emma. He kidnaps his brother and puts him in a math-magical tower that can only be reached by a path which forms the hat fractal. When Emma tries to follow the path to the tower, it changes each time she reaches the middle third of the section she is on. She returns home, grabs her lawnmower, and creates her own path to the tower to rescue her Prince.

based on the Koch Fractal:

The Snowflake Tale by Patti Dion, Summer 2001

Fred is a typical snowflake, an equilateral triangle, who wants to look different. Queen Crystal replaces the middle third of each of his sides by two sides of an equilateral triangle that exactly fits his middle third. He is very happy until all the other snowflakes suddenly have the same appearance. He returns to Queen Crystal who repeats the process. The next time the other snowflakes change to look like him, he realizes that he can continue to apply the process over and over again until he is satisfied with his appearance.

based on the Minkowski Fractal:

The Tortoise and the Hare Meet Again by Sara Slowkowski, Spring 2002

The tortoise and his friends, Harriet the cow and Gary the gopher, are creating the fourth level of the Minkowski fractal in a field for a math project. The tortoise determines the lengths of the segments, Gary measures them out, and Harriet grazes to make the path. As they are working the Hare comes along and wants a rematch of the famous race. The tortoise agrees, if he can move straight from the starting point to the finish point while the hare runs on the Minkowski path. The hare agrees and once again, the tortoise is the winner.

based on the Sierpinski Fractal:

A Fairy Tale by Laurie Lynn Nelson, Summer 2001

A kingdom with a diamond mine that produces equilateral triangular diamonds has an explosion in the diamond mine and only one huge diamond is left. The Princess Isabelle tells her parents that they should hold a contest to find a man who can make this diamond last forever and she will marry him as a reward. Her childhood friend, Jason, solves the problem by explaining how to cut the diamond using the Sierpinski fractal, so that ever smaller diamonds can be created in a never-ending process.

based on the Binary Tree Fractal:

Recursionskin by Andrea Van Noordennen, Summer 2001

In a clever remake of Rumpelstiltskin, Andrea wrote the story of a tailor who bragged that his beautiful daughter could turn a pair of postage stamps into a room full of gold. The king took him up on the idea and locked her in a room with two postage stamps. The little man that appeared to her that night gave her a chain letter to send to the two highest-ranking people in the kingdom ("other than the king"). It told them to send a piece of gold to the palace and send two copies of the letter to people "of the rank immediately below you". When the gold poured in through the mail, the King married the tailor's daughter. When the little man appeared to claim her baby boy, she bargained that if she guessed his name he would let her keep the baby. The song he sang that night was: I am happy and I don't need gin.

I am smart and I always win.

Soon I'll have diapers to pin,

Because my name is Recursionskin!