Delicate, fractal, dynamic

The dragon curve.

In the exhibition you folded a dragon curve following Heighway's method. Now the task is to find the blueprint behind the folding pattern.

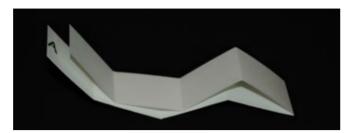


Step 3: valley folds T and mountain folds B

1. Supplement the following spreadsheet. (By the way: with the Tower of Hanoi, the disks and the number of movements of disks were the characteristic figures. Can you see an analogy?)

iteration step	1	2	3	4	5	n
number of folds	1	3				
number of valley folds T	1	2				
number of mountain folds B	0	1				

Law of reflection.



Take the strip that has been folded three times before and fold it together again in the middle, like in the picture above. Then fold back the upper half towards the right. On it, every valley fold T becomes a mountain fold B and vice versa (see below law of reproduction).

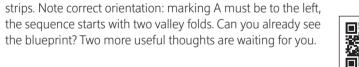
3. Now formulate the law of reflection! If you have done that, you have gained the blueprint of the folding sequence.

Law of reproduction.

On your unfolded strip, mark all folds with either T for valley or B for mountain. Now re-fold the strip and do another fold. Mark the resulting folds with T and B.

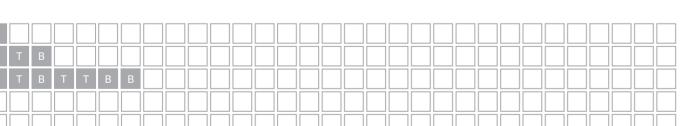


4. Formulate your observation as a law of reproduction, and



2. Supplement the spreadsheet below, using the prepared





5. Research recommendation

Look for the following expressions on the internet:

➔ Laplace's demon

step 1

step 2

step 3 step 4

step 5

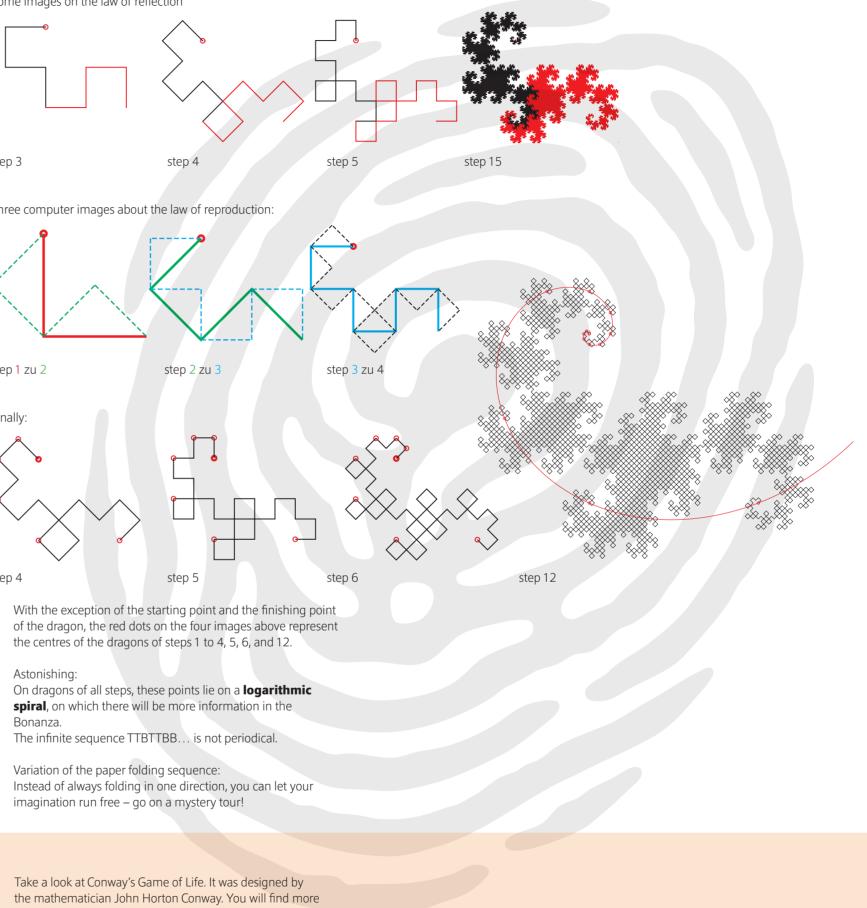
- butterfly effect
- Mandelbrot set and "Apfelmännchen"
- Julia set
- Strange attractor

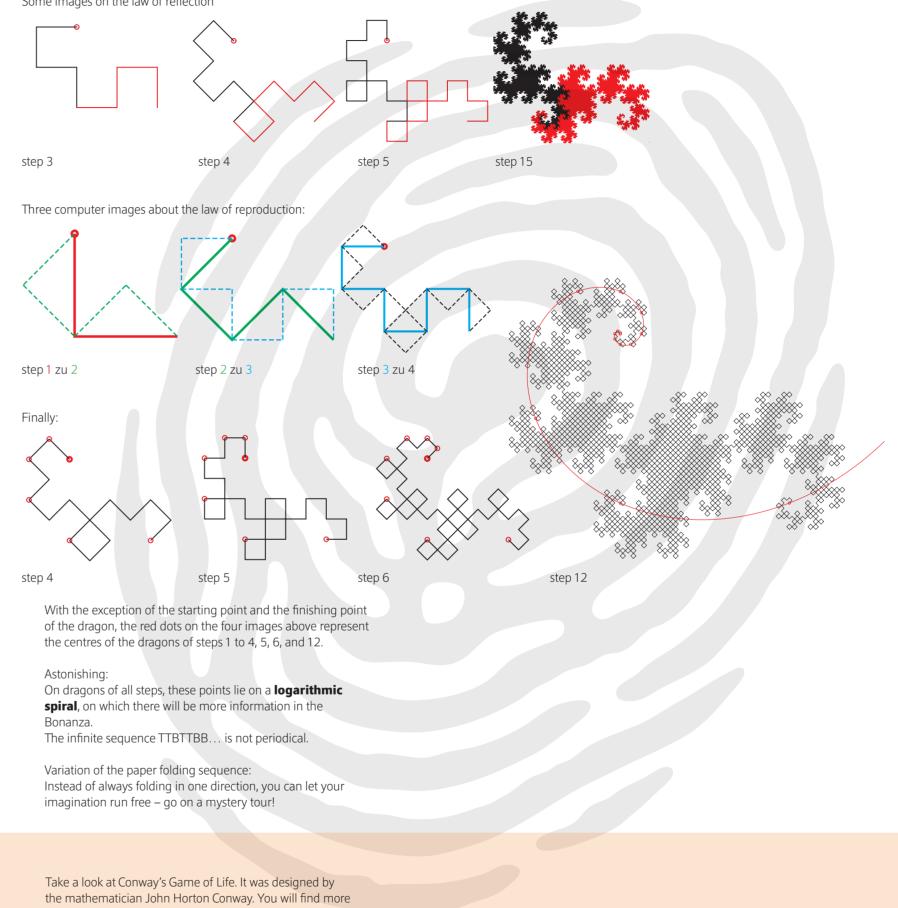
Research the following expression on the internet: Ð cellular automaton

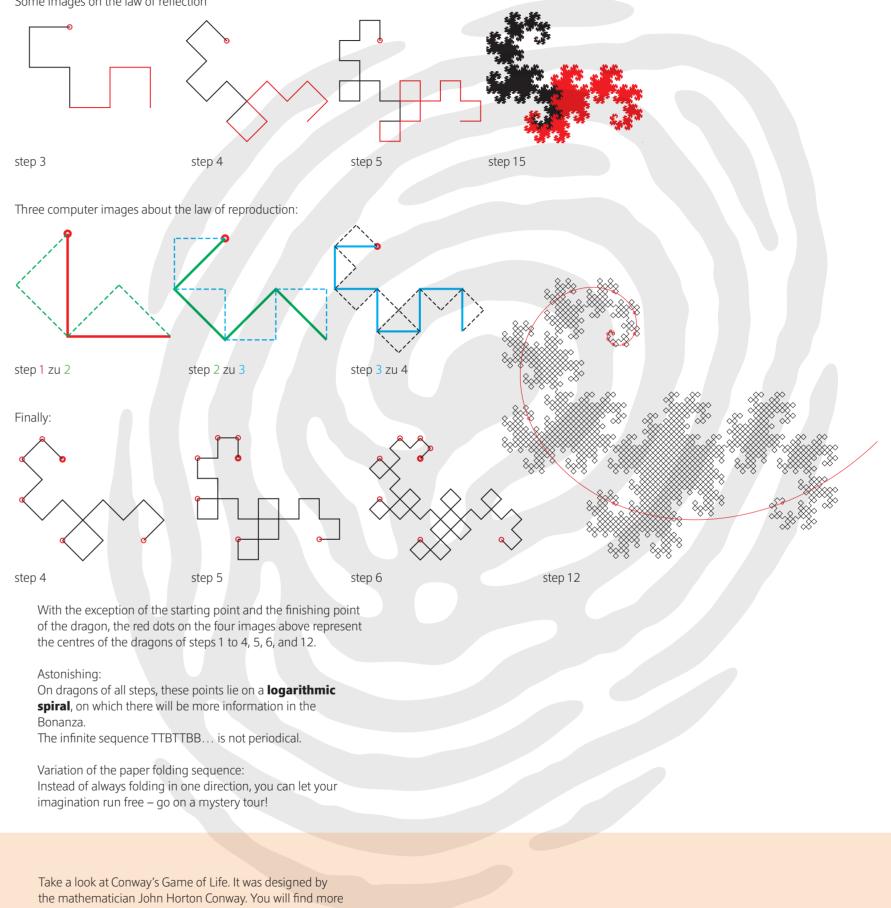
Look what you can find on the internet concerning: chaotic primordial soup

The cellular automata have fascinated you? If you want, you can continue your mystery tour at home. Here are some suggestions for you:

Some images on the law of reflection







information at:

- http://en.wikipedia.org/wiki/Conway's_Game_of_Life €
- www.math.com/students/wonders/life/life.htm Ð
- You can also find the game at: www.bitstorm.org/gameoflife/standalone/



once again the blueprint of the folding pattern has been found.

Own activity