## Delicate, fractal, dynamic

## Own activity

## The dragon curve.

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


Step 3: valley folds T and mountain folds B

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


Law of reflection.

ake 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 Now formulate the
you have gained 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 once again the blueprint of the folding pattern has been found.


| step 1 | T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| step 2 | T | T | в |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| step 3 | T | T | в | T |  |  | в | B |  |  |  |  |  |  |  |  |  |  |  | - |  |  |  |  |  |  |  |  |  |  |  |
| step 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| step 5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## 5. Research recommendation

Look for the following expressions on the internet: $\stackrel{\ominus}{\boldsymbol{\Theta}} \stackrel{\text { Laplace's demo }}{\boldsymbol{\ominus}}$ butterfly effect

- Mandelbrot set and "Apfelmännchen"
$\stackrel{\ominus}{\ominus}$ © Julia set

Research the following expession on the interne:
cellular automaton
Look what you can find on the internet concerning
chaotic primordial soup
The cellular automata have fascinated your
If you want, you can continue your mystery tour at home Here are some suggestions for you:

Some images on the law of reflection


Three computer images about the law of reproduction


Take a look at Conway's Game of Life. It was designed by
the mathematician John Horton Conway. You will find more
mation at
http://en.wikipedia.org/wiki/Conway's_Game_of_Life
mw.math.com/students/wonders/life/life.htm
You can also find the game at
www.bitstorm.org/gameoflife/standalone/

