# GEOMETRICIAN'S VIEWS

## TOPIC: FRACTALS

Co-funded by the Erasmus+ Programme of the European Union

### MATHEMATICAL VIEW

The construction of a "giant" Pythagorean tree allowed students to practice the iterative mathematical procedure, typical of fractal geometry. It turned out that the activity was ideal not only to learn the concepts of powers of two and exponential growth but also to calculate the timing of completion and the planning of the different steps involved.
The activity was featured on the national scientific news last October 6th, 2021.

Researcher
Simone Pacetti

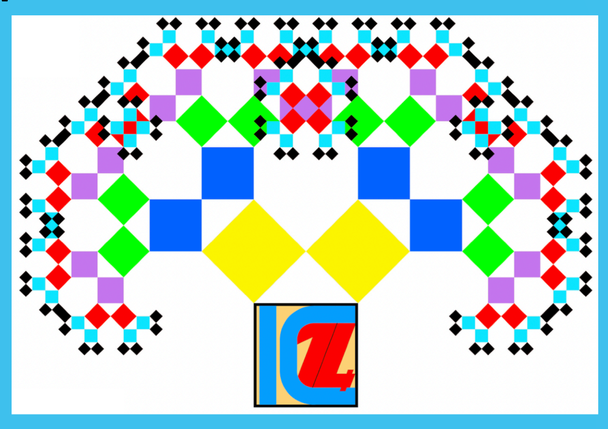
### ARTISTIC VIEW

Coloring
the infinity of Mandelbrot and Sierpinski fractals

The combination of primary and secondary colors creates harmonies and chromatic contrasts that are repeated within the fractal geometric shapes, highlighting increasing and decreasing rhythmic trends.

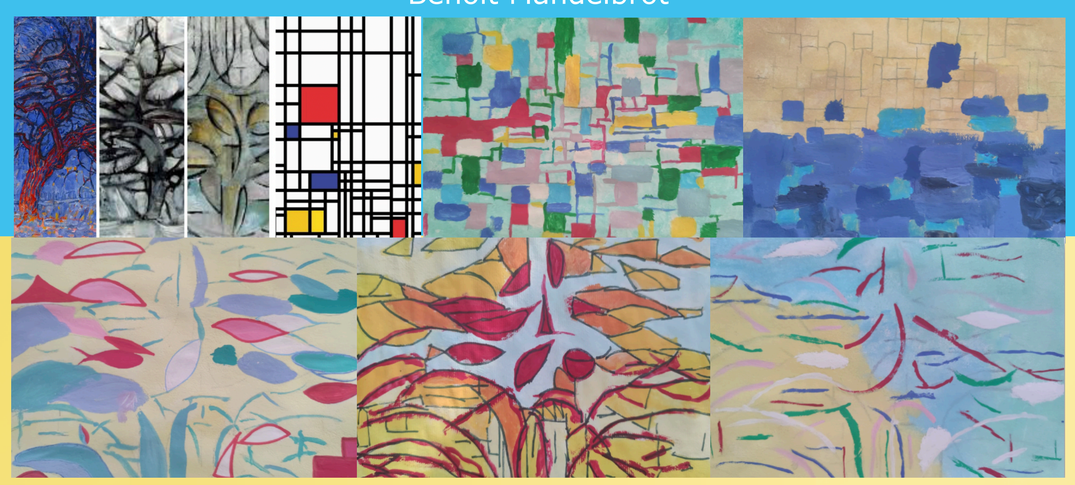
Artist
Laura Ceccarelli

### COMMON VIEW

Fractal geometry proved to be an extraordinary approximation of many natural and scientific phenomena (trees, rivers, coastlines, mountains, clouds, seashells, hurricanes, galaxies). Mandelbrot understood that this new geometry could better approximate the chaotic behaviour, often typical of the natural world. The researcher and the artist underlined how the concept of self-similarity is widespread in science and mathematics as well as in art. From Mondrian to recent results about cauliflower fractal forms arising from perturbations of floral gene networks, this educational path makes students aware of the need for a different geometry to understand the world around them.

*"Fractal geometry is not just a chapter of mathematics, but one that helps Everyman to see the same world differently"*
Benoît Mandelbrot



Istituto Comprensivo Perugia 14

GEOMETRICIAN'S VIEWS