Learning Math, Doing Math: Fractals and Dynamic Geometry

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ABSTRACT

Learning Mathematics, Doing Mathematics is a teaching model under construction in the last years. The main feature of this Model is to create a Teacher and Learning Environment in which students work co-operatively in the achievement of common learning goals. One of these learning goals is the fostering of mathematical thinking skills such as the ability for pattern recognition and generalization.
In this context we find that the use of the Dynamic Mathematics software *The Geometer's Sketchpad* is of great help in the design of activities aimed to the achievement of the aforementioned goal. In particular, its capabilities for constructing fractals are very useful.
In this workshop we are going to construct and explore two fractals from the perspective of the mathematical knowledge we can promote in the constructions and the questions we can pose to students. The fractals that we are going to explore are a square spiral fractal and the Koch curve.
The workshop is intended for Secondary and High School teachers and researchers interested in the use of Dynamic Geometry software in a learner-centered setting. There is not necessary to have experience with the software.

Keywords
Co-operative Teaching Model, Fractals in Teaching, Dynamic Geometry, Pattern Recognition and Generalization.

Observations
We are going to use a computer lab with The Geometer's Sketchpad V5 in its computers. It is possible to download a demo of the software from Key Curriculum webpage.