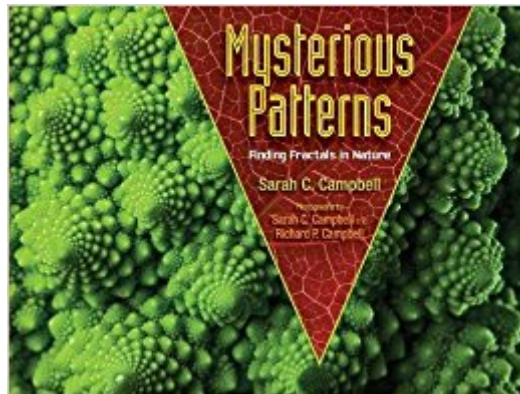




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Mysterious Patterns: Finding Fractals In Nature



Synopsis

Nature's repeating patterns, better known as fractals, are beautiful, universal, and explain much about how things grow. Fractals can also be quantified mathematically. Here is an elegant introduction to fractals through examples that can be seen in parks, rivers, and our very own backyards. Readers will be fascinated to learn that broccoli florets are fractals; just like mountain ranges, river systems, and trees; and will share in the wonder of math as it is reflected in the world around us. Perfect for any elementary school classroom or library, *Mysterious Patterns* is an exciting interdisciplinary introduction to repeating patterns.

Book Information

Lexile Measure: 1040L (What's this?)

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Age Range: 7 - 10 years

Grade Level: 2 - 5

Customer Reviews

Gr 3-6 "The team who explored the Fibonacci sequence in *Growing Patterns* (Boyds Mills, 2010) returns with a similar book about fractals. Until 1975, there was no name for shapes in nature in which smaller parts looked like the whole shape. Then mathematician Benoit Mandelbrot, who had been thinking about and studying these patterns, named them fractals. Using clear text and outstanding color photographs, Campbell explores the concept of these unusual shapes. Beginning with circles, cones, and cylinders, she leads readers carefully and concisely through examples of fractals such as trees, rivers, mountains, broccoli, lightning, and lungs. The photographs, sometimes

highlighting the ever-smaller pieces of a vegetable fractal against a black background, sometimes drawing back to give a aerial view of a geological feature, are crisp and precise and underscore the clear text. The book invites readers to construct a geometric fractal as a hands-on exemplar of the concept. An afterword reveals more of Mandelbrot's background and work, which will be an inspiration to budding scientists/mathematicians.â "Marge Loch-Wouters, La Crosse Public Library, WI

The creators of *Growing Patterns: Fibonacci Numbers in Nature* (2010) present another mathematical concept related to patterns and fractals. After introducing classic geometric shapes, the discussion shifts to Mandelbrot's observations of fractals with a brief explanation (â œEvery fractal shape has smaller parts that look like the whole shapeâ •) and a series of examples. In the first, a line segment branches into a Y, with each arm branching again and again into ever smaller Y's, while an adjacent photo shows a bare-branched tree. Many clear color photos illustrate the examples, which include a broccoli crown, a clustered flower head, lightning, and a mountain range. The latter may be hard for children to grasp as an example of fractals, as there's little clarification and no graphic aid apart from a photo of mountain peaks. The afterword comments on Mandelbrot and some possible applications of his ideas (invisibility cloaks, anyone?). While clearer explanations would have made this a stronger book, this beautifully designed volume is a useful resource and, apparently, the only children's book devoted to fractals. Grades 3-5. --Carolyn Phelan

Charming book that teaches and illustrates a math concept that is not often taught in schools. I loved it, and would recommend it for grades K through 6. Teachers, librarians, grandparents, parents -- if you have a kid that loves math and you're struggling to think of a gift, this makes the perfect choice. It's unlikely that the child has ever seen anything like it before.

I love it!

Fantastic book and author. This brings mathematical concepts down to a child's level in a non-condescending manner. The photos are great as well. Very profound. I also recommend the book on Fibonacci numbers by this same author.

A wonderful book for children- gorgeous pictures that offer opportunities for conversation.

01.05.15 My book arrived and I have been looking for patterns like crazy! I have so much yarn and I hope I can knit and/or crochet some Fractals designs!

KIDS LOVED IT

Not much there.

I have taught math for over 40 years and I love introducing complex math topics with concrete examples. Both *Mysterious Patterns: Finding Fractals in Nature* and *Growing Patterns: Fibonacci Numbers in Nature* are two of my favorite books to use with my middle school students. Students tend to think of mathematics as being arithmetic, just numbers. These books beautifully illustrate how mathematics manifests itself in nature. After reading this book, I never look at broccoli or Queen Anne's Lace the same way: they are a mathematical miracle manifested in nature. Sarah Campbell's books also use very precise terminology, but in a way that is easy to understand. That is important for students to learn to discuss real mathematical problems with precise terms. And then there is the photography. Each photo makes the concept of fractals easier to understand and to marvel at. Recently I went hiking with my grandchildren in Great Smoky Mountain National Park. I enjoyed watching them pick up acorns, leaves, sticks, rocks, and marvel at the treasures they discovered. Sarah Campbell's books help me continue this conversation with my grand kids when we look at the beautiful photos in her books.

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