

It's Not Magic, It's Math

by Tina Manzer

Thanks to geometry, a beautiful design seems to magically appear when I push around the magnetic diamonds of Fractiles 7.

“Geometry is where art and math meet,” explained Fractiles company founder Beverly Johnson. “The geometry in nature – in the seeds of a sunflower or a pinecone, or the whorls of a seashell – are inherently beautiful to us. We are hardwired to appreciate the symmetry of those patterns.”

The symmetry of Fractiles 7 occurs because each of the three differently shaped diamonds in the set features angles that are based on the number 7 (more specifically multiples of $1/14$ th of 360°). “There are only three shapes, but literally billions of combinations you can make with them if you have enough tiles,” noted Johnson. “This really smart guy named Albert Einstein once said, ‘Combinatory play is the key to productive thinking.’ When you really come down to it, there are not many brand new things, but there are always new combinations. Putting things together in different ways helps us learn.”

Beverly loves math but has no formal training in it. She spent most of her life raising her five children. But one day 14 years ago, when she was “playing” with some magnetic business cards on her refrigerator (“You know – the ones from the real estate lady and the plumber”) she found that cutting them up and arranging the pieces was way more satisfying to her than arranging the uniform rectangles. *It might make a good product*, Beverly thought. *There must be lots of people out there like me who love geometric art and would appreciate a user-friendly format.*

The name “Fractiles” is from the word “fractal” that describes the phenomenon of scaling or repeating a pattern on every scale. Every pattern we see in our world is a small part of a larger, yet similar pattern.

She showed her idea to Marc Pelletier, a Denver-based geometric artist who developed the “7” idea. “Other geometric toys are based on the number 5 or the number 6 – pattern blocks, for instance – but we wanted to do something different, unique and simple, but with a lot of combinations,” she said.

Today, Fractiles 7 for adults and children ages 6 and up fits into a variety of different sections of specialty stores. “It fits in the math category plus art, puzzles and ‘made in the USA’ sections,” said Beverly. “It’s in toy stores and the shops of science, art and children’s museums, and I’m also exploring school sup-

ply stores. A lot of teachers use Fractiles as an informal teaching tool. They tell me that the kids who just can’t focus on anything will fully engage with Fractiles.

“Some people say it helps them listen better,” added Beverly, who can create designs on the magnetic board while carrying on a conversation with someone – listening *and* responding. “If you were in church listening to a sermon, I would not consider it disrespectful to also be playing with Fractiles.”

They are often used in therapy for children and adults. In fact, sets are regularly featured in a catalog designed to help people with sensory integration dysfunction (DSI) and neurodevelopmental issues. Many children along the autism spectrum respond well to Fractiles, especially if they enjoy puzzles and are good at spatial awareness. A group of behavioral optometrists in Colorado use Fractiles for visual therapy and recently, a large Midwestern food company ordered 25 sets to use in a corporate team building exercise.

Fractiles 7 comes in three sizes: a 192-tile edition, a 96-tile “travel” edition, and a “fridge edition” with 48 tiles and no magnetic board. The travel edition, MAP-priced at \$26.95, is the best seller.

“It’s interesting where people in the industry stand on MAP pricing,” said Beverly. “My customers by and large appreciate it. Ninety-five percent of them say, ‘Oh good,’ because it’s going to protect them so that they can make a decent amount of money. I have to watch my margins, too, especially because I manufacture in the U.S. It’s expensive to manufacture here, but I’m not going to manufacture in China. I think MAP will have to play an important role in building up manufacturing in the U.S.”

The most difficult part about MAP is monitoring it, she added. “People you don’t know can get ahold of your product and all kinds of funny things can happen. In one case, I couldn’t get a fellow to stop selling so low. Meanwhile, my customers are thinking they can’t compete with his price. I contacted him through Amazon, but I didn’t know who he was. Finally, I bought the one Fractiles 7 that he had, and it turned out to be a used set with a lot of missing pieces.”

There are two things in particular that Beverly would like retailers to know about merchandising Fractiles. First, she wants every store that carries Fractiles to have a sample. “Just having a set open for people to play with is good,” she said. “I’m also willing to give retailers an over-the-phone demo, if that would be helpful.”

Second, her website (www.fractiles.com) is full of helpful selling information, including a simple one-page list of Fractiles’ unique selling points. “It gives sales associates benefits to present to customers like, ‘It’s a calming and focusing activity’ and ‘Makes millions of beautiful designs; there’s no wrong way to use it.’” 