

Fractals are patterns that, no matter the scale, look identical. Fractals are all around us but you may never have noticed them. Nature is filled with fractals. An easy example is broccoli. The whole head looks like the small head looks like the floret. Many ocean creature shells are fractals as well as the way trees grow in a forest. Humans have utilized fractals in technology as well. Your cell phone antenna is a fractal!

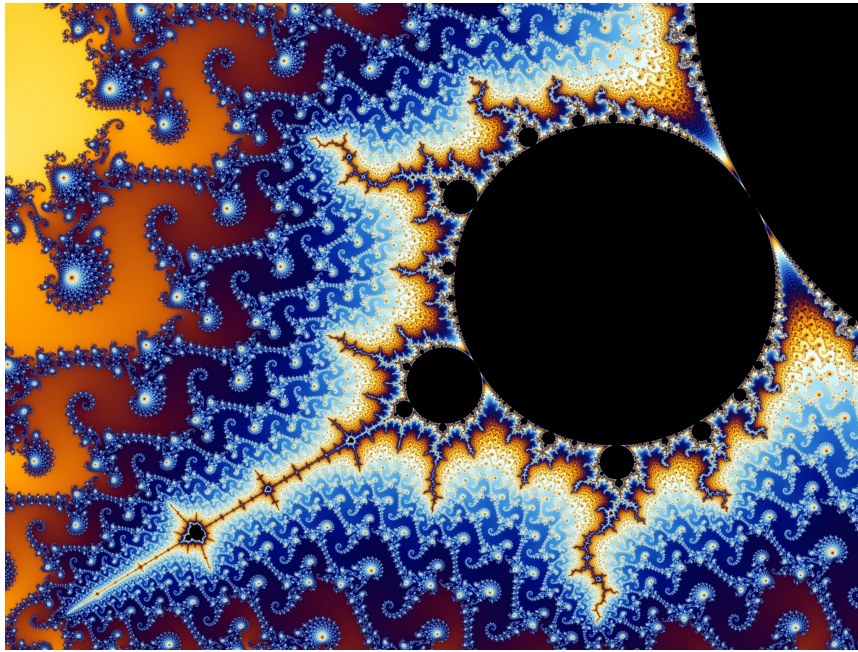


Why fractals in nature and technology? ... Fractals make complex patterns a simple reality. Looking back at the broccoli, fractals make it possible to code the DNA with one pattern and then scale it depending on things like soil condition, sunlight, etc. Sure there are going to be issues like animal and storm damage, but in an ideal environment, the broccoli will look perfectly symmetrical with stunningly similar patterns.

The body also utilizes fractals. The tubes in your lungs and kidneys are fractal patterned. Your eyes move in a fractal pattern which explains one reason why it likes looking at organized things and sometimes struggles with chaos. Fractals bring simplicity and order to things that seemingly look chaotic and disordered.

Who discovered fractals? ... Mathematician Benoit Mandelbrot used some of the first graphic abilities of computers to create "The Mandelbrot Set" in 1980 using some simple mathematical equations. The math of it all is a little difficult so I won't go into it, but his discovery of order-from-chaos has had its effect in many parts of society ranging from science and technology to clothing design. Please observe a picture of the Mandelbrot set. If we were to continuously zoom in on the picture we would continuously see the same image over and over again. Since

its discovery, many other fractal patterns have been computer generated but the Mandelbrot set is still the gold standard of fractals.



Ok, enough math. Why should I care about fractals? ... Have you ever heard of the Butterfly Effect? Over time, the term has taken on many meanings, but the idea is that a butterfly can flap its wings somewhere and change the wind patterns enough to create a huge storm on the other side of the world. One origin of the term is from the short story *A Sound of Thunder* by Ray Bradbury in 1952. In the story, which takes place in 2055, a company can bring

people back in time to hunt dinosaurs. The dinosaurs will be at a moment in time where they are about to die so shooting them isn't harmful to the world. In the story, a character accidentally steps off the "trail" and steps on a butterfly. When they come back to modern times, the world is ever so slightly different. Language is ever so slightly different for example. The idea is that small changes can in fact create big changes in the future.

This relates to fractals because a very small change in the pattern can create much bigger changes when given time and space to grow. This mirrors the famous Ghandi quote: "be the change you want to see in the world." By being the change, you help inspire other people to also change. One by one, that change can ripple out until it becomes a major shift in the world: all started with you making one simple change. The power of fractals!

There is a lot more to fractals than I talk about here but it's really an endless topic that does have many nuances. For more information and especially how it correlates to health, wellness, and acupuncture, please check out my book *Fractal Energy Balancing*.