



# NUMBERS IN NATURE

A MIRROR MAZE

**Contacts:**  
Amy Patti, amy.patt@msichicago.org, (773) 947-6005  
Isabel Morales, isabel.morales@msichicago.org, (773) 947-6003

## EXPLORE A CAPTIVATING WORLD WITH *NUMBERS IN NATURE* AT MSI *New permanent exhibit explores mathematical patterns in nature with a mirror maze experience*

**CHICAGO, Ill.**—Never look at the world the same way again. *Numbers in Nature: A Mirror Maze* is an interactive and immersive new permanent exhibit at the Museum of Science and Industry, Chicago that exposes and explains the mathematical patterns that abound in the natural world—from the delicate nested spirals of a sunflower’s seeds, to the ridges of a majestic mountain range, to the layout of the Universe—providing a unique perspective of our daily surroundings.

The centerpiece of the exhibit is an 1,800-square-foot elaborate mirror maze in which guests can explore and navigate a seemingly infinite repeating pattern of mirrors. Interactive elements throughout the exhibit allow for hands-on learning to understand that math is all around us in everyday life, revealing the beauty of our world through numbers. The exhibit opens October 8, 2014 on the Museum’s Main Level and is included in Museum Entry.

“The Museum is thrilled to open an exhibit that illuminates mathematics and numbers in a fun, interactive way,” said Kurt Haunfelner, MSI’s vice president of exhibits and collections. “By showcasing that fascinating numerical patterns are all around us, we hope that both kids and adults alike will become inspired to discover more about how math, as a part of the STEM fields, is a strong and important presence in our daily lives.”

### **Introduction to Patterns in Our World**

As guests enter the exhibit, they will be greeted by lenticular images that animate imagery from nature—showing the many repeating patterns that are easily identifiable—if they know where to look!

From there, an immersive theater presentation will display a large-format media piece with stunning footage of nature, the human body, and even art and architecture. Animated computer graphics will be superimposed over the images to uncover the mathematical patterns—spirals, the Golden Ratio ( $\phi$ ), Voronoi patterns and fractal branching—beneath these familiar objects. The film will help explain why these patterns exist and how they show themselves in various facets of the natural and cultural worlds.

Building upon the examples in the theater, an interactive area allows guests to identify patterns that surround them every day and to create numerical patterns of their own. They will be able to manipulate images of snowflakes, sea shells, flowers and more—triggering the geometry that underlies those things to appear—as well as create a numerical sequence to understand how a pattern is generated from repeating a simple set of rules.

### **The Mirror Maze**

When guests make their way to the centerpiece of the exhibit—the mirror maze—they are exposed to a pattern of triangles that repeat in a dizzying array of mirrors. This fascinating, yet challenging, space will envelop guests within what appears to be an endless pattern—1,800 square feet of it! Guests will encounter intriguing questions and activities to further immerse themselves in the repetition, symmetry and tessellation presented in the maze. Dead ends are scattered throughout, and hidden within this

self-guided experience is a small secret room. Finding it rewards guests with bonus puzzles, imagery and artifacts that expand the connection to mathematics.

### **Hands-on Discovery**

Upon leaving the maze, guests will have more opportunities for hands-on activities in a final gallery.

#### Patterns in Nature:

- Draw patterns on a digital screen—like connecting dots to draw spirals and creating Fibonacci rectangles—and see real-world objects that show that same pattern.
- Use templates to try to align a spiral to a series of objects from nature and the man-made world. Which objects come close to the spiral and which don't?
- Learn how fractal patterns are used to make computer-generated landscapes, such as intricate mountain ranges, in movies.

#### Patterns in Yourself:

- Step in front of a large two-way mirror and strike various poses while a projection superimposes patterns and proportions on your body in real time.
- Look through an eyepiece to observe how blood vessels branch within your eyes.
- Compare similar patterns, like fractal branching, that appear in the human body and in nature by viewing a plastinated human lung and a Lichtenberg figure, a sculpture that captures a lightning strike in a piece of acrylic.
- Observe just how much symmetry—or lack thereof—is present in the human face.

#### Patterns in Music, Art and Architecture:

- Compose a piece of music using symmetry: vary a single musical motive and hear your creations played back.
- Create a musical scale with mathematical proportions using a playable harp.
- Discover and compare similar patterns in architecture from varying parts of the world—from the Taj Mahal to the Beijing National Stadium—built millennia apart.

The exhibit also features an array of artifacts—Bighorn sheep antlers, honeycomb and an aluminum anthill casting—that demonstrate real examples of patterns in objects from the natural world.

*Numbers in Nature: A Mirror Maze* is included in Museum Entry. Free, timed-entry tickets are available at the exhibit entrance.

### **About The Museum of Science and Industry, Chicago (MSI)**

The Museum of Science and Industry, Chicago (MSI), one of the largest science museums in the world, offers world-class and uniquely interactive science experiences that inspire inventive genius and foster curiosity. Through groundbreaking and award-winning exhibits that can't be found anywhere else, to Live Science Experiences that make you the scientist—a visit to MSI is where fun and learning mix. Through its Welcome to Science Initiative, MSI offers a variety of student, teacher and family programs that make a difference in communities and contribute to the Museum's larger vision: to inspire and motivate children to achieve their full potential in science, technology, medicine and engineering. Come visit and find your inspiration! MSI is open 9:30–4 p.m. every day except Thanksgiving and Christmas day. Extended hours, until 5:30 p.m., are offered during peak periods. The Museum is supported in part through the generosity of the people of Chicago through the Chicago Park District. For more information, find MSI online at [msichicago.org](http://msichicago.org) or call (773) 684-1414.

###