

# Unlocking the Secrets: Part Evolution of Geometric Design Through Internal Dividing

Geometric design has been an integral part of human creativity since ancient times. From the intricate patterns of Islamic mosques to the breathtaking symmetry found in nature, geometric shapes and structures have always fascinated us. But what if there's more to geometric design than meets the eye? What if there's a hidden complexity within these forms that evolves over time?

## Understanding Internal Dividing

Internal dividing is a concept that delves into the fractal nature of geometric designs. It suggests that the overall structure of a design can be broken down into smaller, self-similar parts, which in turn can be broken down further into even smaller parts. This recursive nature leads to an infinite level of intricacy and progression within the design, much like a Russian nesting doll.

For example, take the famous Mandelbrot set, a fractal shape discovered in the late 1970s. When you zoom into different areas of the Mandelbrot set, you'll find similar shapes and patterns emerging at different scales. This demonstrates how geometric designs can unfold and evolve internally.



## Part 1 Evolution of Geometric design through internal dividing : Basic edition “Quilt design evolving with geometry” (Geometric design for patchwork quilters Series Book 411)

by Sachiyo Ishii (Kindle Edition)

★★★★★ 5 out of 5

Language : English

File size : 5050 KB

Text-to-Speech : Enabled

Screen Reader : Supported  
Enhanced typesetting : Enabled  
Print length : 15 pages  
Lending : Enabled



## The Evolution of Geometric Design

Now let's explore the fascinating evolution of geometric design through internal dividing. We'll delve into three key phases that highlight the beauty and complexity of this process:

### Phase 1: Emergence of Simple Building Blocks

Every geometric design starts with the emergence of simple building blocks. These building blocks are often symmetrical and repetitive, forming the foundation of the overall design. As these blocks interact and combine, they create increasingly complex patterns and structures.

Consider the case of Islamic tile patterns. These designs start with a basic unit, called a "girih." The girih is a symmetrical polygon with various internal symmetries. By arranging girih tiles in intricate ways, Islamic craftsmen have created awe-inspiring geometric tessellations that can go on indefinitely.

### Phase 2: Iterative Subdivision

Once the simple building blocks are in place, the design undergoes an iterative subdivision process. This involves breaking down the existing structure into smaller self-similar parts, which are then repeated to create a more intricate and sophisticated pattern.

A famous example of iterative subdivision is found in the Alhambra palace in Granada, Spain. The beautiful interlacing patterns on the walls and ceilings of this Islamic architectural marvel are a result of the subdivision of a base geometric shape called an "Alhambra motif." Each motif is successively divided and duplicated, creating an ever-increasing level of detail and complexity.

### **Phase 3: Infinite Level of Detail**

Finally, as the iterative subdivision process continues, the design approaches an infinite level of detail. Zooming into the smaller parts of the design reveals an astonishing level of intricacy and self-similarity. This is where the true magic of geometric design lies – in the infinite depths that unfold within each pattern.

One prime example of infinite detail is the artwork of Dutch artist M.C. Escher. Escher's intricate tessellations and mind-bending transformations showcase the staggering complexity that can be achieved through internal dividing. His famous "Metamorphosis" series, where one shape seamlessly transforms into another, is a testament to the infinite possibilities hidden within geometric designs.

Geometric design is a fascinating field that continues to captivate us with its beauty, symmetry, and mathematical precision. But beyond the surface-level aesthetics, the concept of internal dividing reveals a whole new world of intricacy and evolution.

By understanding the part evolution of geometric design and the recursive nature of internal dividing, we gain a deeper appreciation for the subtle complexities embedded within these designs. From the emergence of simple building blocks to the infinite level of detail, geometric designs offer a visual journey through the depths of creativity and mathematical harmony.



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This book is English version of geometric design for the patchwork quilter. The contents explain that the possibility and diversity of geometric design can be greatly increased by performing simple geometric operation of dividing polygon internally, and introduce geometric design using them.

This book is a newly written content in addition to reflections and notices after the serialization of the contents that were serialized in the Japanese magazine "Quilt Japan" from the spring issue of 2018. In addition, most designs of quilts are newly created after serialization.

I think that it will be good reference for the patchwork quilter who are considering the original design. Please take advantage of this book.



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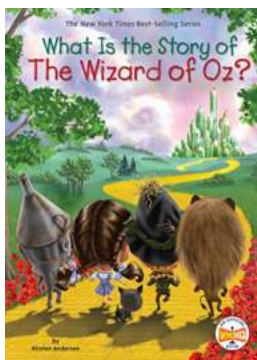
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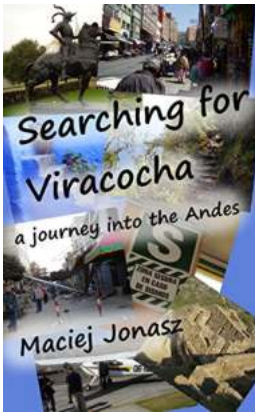
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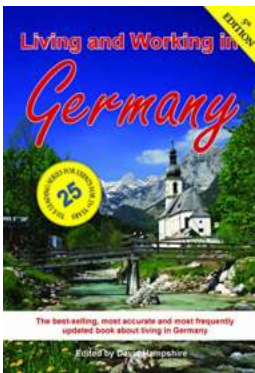
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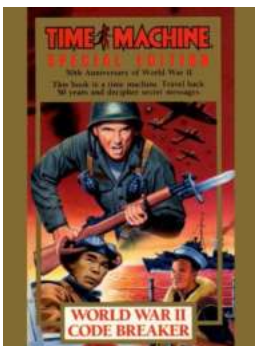
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