



# Lesson Plan:

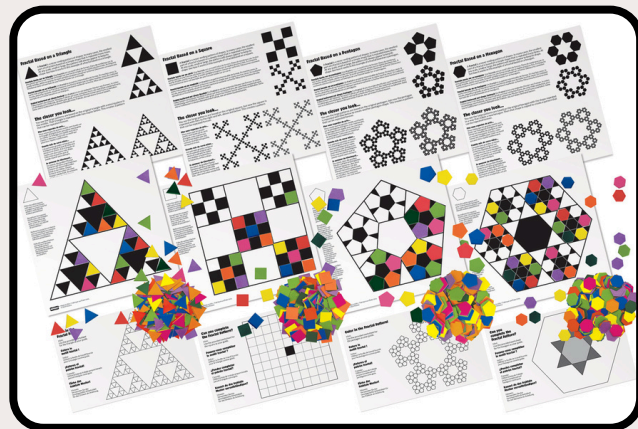
## Fractal Mosaics - Hands-On Patterning

Ages: 4+

Duration: 60 minutes

Group size: 2 - 12

Fractals are repeating patterns that can be found all around us in nature, like seashells, tree branches, leaves, and snowflakes. Using Fractal Mosaics, young learners explore an advanced concept while using colors and shapes to build simple, fun patterns. This activity supports early math skills, fine motor development, creativity, and helps children notice patterns in the world around them. It also really impresses parents!



### Activity:

1. Using the discussion guide on the back, introduce the concept of fractals.
2. Show students a completed fractal pattern example and talk about the colors and shapes.
3. Give each child a Fractal Mosaics sheet, a small pile of colorful tiles, and a glue stick.
4. Encourage children to match tiles to the shapes and colors on the sheet, filling in each section.
5. As they work, prompt children to notice the repeating shapes and colors. Use discussion questions on the back to further promote conversation.
6. Celebrate completed patterns and ask children to point out their favorite colors, shapes, or patterns they see in real life.

### Optional:

- Look for patterns in the classroom or outdoors (windows, flowers, or playground equipment).
- Ask children to name the colors and shapes as they work to reinforce vocabulary.

### Supplies Needed:

1. Fractal Mosaics Kit (pattern sheets + tiles)
2. Glue sticks

# Discussion Guide:



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### Activity Introduction

Have you ever looked closely at a snowflake? Or a fern leaf, or a piece of broccoli, or the branches of a tree? If you look very carefully, you might notice something magical – the big shape is made up of smaller shapes that look exactly the same. And those smaller shapes are made of even tinier shapes that look the same again. It's like a pattern that keeps repeating, going smaller and smaller and smaller, all the way down. That magical, repeating pattern has a name: it's called a fractal.

Fractals aren't just something scientists made up – nature has been making them all along! Every time a snowflake forms, every time a fern uncurls in the forest, every time lightning flashes across the sky, fractals are happening. Today, you are going to be a fractal artist. You'll take a big shape, fill it with the same smaller shapes, and watch your very own fractal come to life – just like the ones hiding all around you in the world.

### Additional Discussion

1. Before today, had you ever noticed a pattern that repeated itself inside a bigger shape? Where did you see it?
2. Can you think of anything in nature that looks the same whether you're looking at the whole thing or just a tiny piece of it?
3. Fractals happen in lightning, rivers, and even inside your own lungs! Why do you think nature likes to use the same patterns over and over?
4. If fractals go on forever getting smaller and smaller, do you think they ever actually stop? What do you think?
5. Do you have a favorite pattern – like stripes, dots, or zigzags? What makes that pattern feel like you?
6. Have you ever made something where you repeated the same shape or color over and over? How did it feel when you saw the finished pattern?
7. If you could turn anything in your life into a fractal – something that kept repeating and growing – what would you pick and why?