

EARLYPOLY COL_118_EN

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Formal / non-formal setting: **Formal**

Most relevant age group: **5–6 years**

Description of the idea / problem / exercise: **Pattern Play Path**

Competence Area(s): Mathematics (pattern recognition, logical thinking), Arts (visual patterns and symmetry), Interaction (if done in pairs – cooperative problem solving)

Materials: A variety of Polyuniverse pieces for each participant or pair. Additionally, prepare several pattern cards as prompts – these can be sequences of shapes and colors drawn on paper or built with actual pieces. For example, a strip showing: red circle – blue triangle – red circle – blue triangle – (?) asking what comes next. Include different difficulty levels (ABAB patterns, ABC patterns, or symmetric arrangements). Also provide a flat surface or grid where children will place pieces to replicate or continue patterns. Optionally, a mirror for exploring symmetry (placing it next to a half-pattern to see the reflection).

Learning Goals: Develop the ability to recognize, copy, and extend patterns – a foundational math skill; introduce concepts of symmetry and sequencing (which also tie into early coding and reading skills – recognizing sequences of symbols); exercise fine motor coordination by precisely placing pieces; foster focus and perseverance as children solve pattern “puzzles.” If working in pairs, it builds communication as they must agree on what comes next.

Game Description & Rules: This activity channels the idea of creating colorful patterns from identical modules. It can be done as a series of mini-challenges:

Step 1: Copy the Pattern: Show a simple pattern card (e.g., triangle – circle – triangle – circle). The task is for children to use Polyuniverse pieces to reproduce that pattern exactly. They lay out their shapes in a line on their board to match the card. Once done, they can check their work: “Does it go triangle, circle, triangle, circle in the same colors?” For beginners, start with one attribute (all shapes same color, or all same shape with different colors) before mixing shape and color in patterns.

Step 2: Extend the Pattern: Now present a pattern sequence and ask, “What comes next?” For example, “Red square, green square, red square, green square, ... what would be next?” The child places the correct next piece (red square) to continue. They can then keep extending if desired. Provide feedback and reasoning: “Yes, you put a red square because the pattern was alternating red, green.” Increase complexity with longer patterns (ABC or AABB sequences).

Step 3: Create Your Own Pattern: Encourage children to design a pattern for a friend to solve. One child arranges a sequence of pieces (kept somewhat hidden) and then shows the start of it to their partner, who must continue it. For example, a child makes “circle, triangle, triangle, circle, triangle, triangle...” and sees if their partner figures out the rule. This peer exchange makes it a game – they love “stumping” each other with tricky patterns. Make sure to rotate roles. Teachers circulate to help verbalize the patterns: “I notice you chose two triangles after every circle – that’s a cool pattern. Can your friend do the same?”

Step 4 (Extension): Introduce symmetry play: have children create a simple symmetric pattern (a mirror image) using a center line. For instance, place a blue circle in the middle, then a green triangle on each side of it, then a red square outward from each triangle. Using a mirror can help them see if the halves match. This is an advanced concept for this age, so treat it as exploratory and fun (maybe refer to it as making a “butterfly” pattern). It ties in with the idea from the book that children can create mandala-like arrangements and explore symmetry principles in a hands-on way.

Formative Assessment: As children engage in pattern tasks, note their level of mastery: who can quickly spot what comes next, and who might be guessing? If a child places wrong pieces, ask them to talk through their thought: “Show me your pattern, what’s repeating?” This often reveals if they understand the rule. Keep an eye on whether they focus on shape, color, or both. Mastery is demonstrated when they can create their own pattern with a clear rule. You can collect the pattern cards they complete and even label them with the child’s name as a record of learning – this shows their progression from simpler AB patterns to more complex ones. In pair work, observe the communication: are they able to explain the pattern to each other or negotiate disagreements? This indicates development in mathematical communication. Celebrate creative patterns by perhaps letting the class walk around an “exhibit” of each group’s unique pattern design. According to research, engaging with patterns and symmetry in early years lays groundwork for mathematical reasoning – you will likely see children’s confidence grow as they turn abstract patterns into something tangible and playful.