

Introducing Patterns to Preschoolers

Math activities for preschoolers serve many purposes. In order to build math readiness skills, preschool children should be involved in a wide variety of activities aimed at developing number recognition, sequencing, and one to one correspondence.

Preschoolers are beginning to recognize, describe, reproduce, extend, create and compare repeating patterns. Preschool children need to be involved with concrete materials to develop these pre-math skills. Within these pages are simple math activities for preschoolers to introduce or reinforce patterning skills using everyday household objects, inexpensive items and math manipulatives.

At the Children's Museum of New Hampshire, one exhibit that immerses children in the world of patterns is Pattern Palace. This colorful, imaginative castle environment is always 'under construction' and waiting for visitors to create new patterns and complete ones that have been started using a variety of hands-on materials. One of the foundations of math and reading is being able to create, recognize and repeat patterns. Pattern Palace provides a place for children to experience patterns in new and meaningful ways.

Questions to ask children:

- What is a pattern?
- What can you use to make a pattern?
- Do you see any patterns around you?
- Is there a way to hear patterns?
- How can you tell if something is a pattern?

Songs and Stories with Patterns

Songs Have Patterns

Both parents and teachers of preschoolers recognize the importance of music and song in child development. Most songs and rhymes that children know from school and home contain repeating patterns of words.

Ways to use song and music in patterning:

- Use the songs that children already know to reinforce the concept of patterns. Ask children to listen for the repeating pattern as they sing each song. Which words or whole sections of the song do we say over and over again? Which parts are new?
- Listen to music recordings and have children keep the beat by clapping, tapping their feet, or striking rhythm sticks together. Is there a repeating pattern in the music?
- During circle time, use simple rhythm instruments to explore music making by having students take turns trying to copy one another's beat and patterns. The teacher should begin with a few simple examples. If you do not have instruments, you can make patterns by clapping your hands, slapping your legs, drumming on the floor, etc.

Stories Have Patterns

Many stories also have repetitive refrains which invite the child to join in the story. When children hear the story of the Three Little Pigs, many cannot help but join in to say "I'll huff and I'll puff and I'll blow your house down." Recognizing and repeating patterns in stories is yet another way to reinforce the concept of patterns with children. Just like having children continue patterns using math manipulatives, you can also encourage children to continue literary patterns by adapting or continuing the story found in a repeating pattern book. Work together with preschoolers to create your own version of a favorite repetitive story.

The books listed below are a few examples of stories with repeating patterns:

Martin, Bill, Jr., (Eric Carle illustrator) Brown Bear, Brown Bear, What Do You See? Henry Holt and Co. 1991. The rhythmic, repetitive pattern of the text and the bold animal pictures makes this book an all time favorite. Children love listening to the simple rhymes and are soon chanting them along with the reader.

Brown, Margaret Wise, The Runaway Bunny, Harper & Row, 1977.

A little bunny wants to run away. As he speaks of each idea for adventure, mother bunny counters with her way of catching up with him. This is a gentle story with a circle pattern which many young children enjoy.

Galdone, Paul, illustrator, The Three Little Kittens, Clarion, 1986.

The Gingerbread Boy, The Three Bears, The Three Little Pigs, Clarion, 1984; The Little Red Hen, McGraw Hill, 1974. A talented artist breathes new life into many of our classic children's folk tales through his marvelous visualizations just brimming with action, color and vitality. Each of these books contains its unique repetitive pattern and a clear sequence of events.

Wood, Audrey, The Napping House, Harcourt, Brace Jovanovich Publishers, 1984.

A delightful story of cumulative rhymes, which builds vocabulary while engaging children. A sequence of characters lie down on a cozy bed where the flea bites the mouse who scares the cat in an ever expanding chain of events. The changes in lighting suggest the passage of night and emerging day.

Pattern Activities

Observing Patterns:

- Look for patterns on leaves or other items in nature.
- Exploring patterns in wallpaper or other objects around the school or home.
- Find patterns on the United States flag.

Creating Their Own Patterns:

- Working with simple patterns in their bead and block construction.
- Building patterns with two colors of Unifix cubes or pattern blocks.
- Coloring every second or fifth or tenth day on a calendar of days in school.
- Creating patterns using sponge printing, collage materials, geometric shapes, gift wrap or wall paper samples.

Finishing Patterns:

Finish the pattern activities can be done a variety of ways:

- Make a 'finish the color pattern' worksheet for small activity time or on a larger poster activity for circle.
- Make patterns of varying types and have the children use crayons to finish the pattern themselves.
- A 'finish the color' pattern can also be done using unifix cubes, other blocks or any colorful objects that can be arranged by children.
- Other finish the pattern activities can be done using shapes, numbers, letters, or any number of natural objects such as different seashells, rocks, beans, etc.

Extending Patterns:

Create Patterns by Extending and Comparing

- Using manipulatives, create a simple ABAB pattern using the attribute of color, for example: red counting disk, yellow disk, red disk, yellow disk. This pattern can be created in a line on a tabletop, or as a circle in a sorting tray.
- Progress to other attributes, such as animals or size according to the child's developmental level. (Geometric shapes should not be used until the child has mastered shape identification.) This activity can also be extended to more difficult patterns, such as: ABCABC, AABBAABB, etc.

Pattern Games/Group Activities

Boy/Girl Class Pattern:

Challenge the entire class to make a line that alternates between boy-girl-boy-girl-boy-girl. If there is not an even number of boys and girls try to have the children make patterns using other characteristics including clothing. This is a good pattern activity for children who learn via movement.

Pattern Walk:

Take a walk and ask them to point out repeating patterns that they see along the way (in sidewalks, buildings, fences, etc.).

Repeat a Sequence of Sounds:

Gather a variety of sound producing items such as a bell, tamborine, half-filled water bottle, metal pie plate and fork, toys that make sounds, etc. The wider variety of sounds, the better. Gather children in a circle with all the items in the middle. Demonstrate the sound that each object makes for the children and talk about what each item is called. Ask them to describe each sound for you.

Take the objects out of the circle and place them nearby, but in a place where not in the students' sight. Start out by creating an AB pattern by choosing two objects and making their sounds three times. (Example: ring the bell, shake the tambourine, bell, tambourine, bell, tambourine). Explain to students that for the first round, you are going to choose two objects to make an AB pattern. Have them guess which objects you chose. Depending on the age of your students and their familiarity with patterns, you could create more complex patterns for them to guess, or have students take turns creating their own mystery sound patterns.

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