

Going to the Park—Ordering and Patterning

What the Research Says

- When adults help children focus on and explore mathematical concepts and relationships during play (for example, discussing objects' geometric shapes; helping children count how many blocks are stacked in a tower), experts call this “mathematizing” the child’s world in ways that promote mathematical learning and development.
- For young children, mathematics begins with the language and science of understanding patterns.
- Patterns are based on understanding part-whole relationships and that includes the relationships among the different parts (for example, the petals on a daisy).
- Learning to recognize patterns helps children to organize and make sense of their world. This further promotes children’s ability to problem solve as they engage in new materials and activities.
- Learning to organize objects into a repeated sequence is called a “seriation” and this is another kind of pattern (such as the red-white pattern on a candy cane or the stripes on the American flag).
- Children use first, second, third, and so on to name the position or location of the different members belonging to a sequence (for example, in a repeated red, white, green, and blue pattern on a beaded necklace, the green bead is third).
- Strong pattern recognition leads to later algebraic understanding.
- Rich activities and conversations provide children with important opportunities to develop and practice reasoning and problem-solving skills as they use mathematical ideas and relationships, while simultaneously expanding children’s vocabulary.

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Activities for Families

- Create movement patterns with your child as you move at the park (such as hop, hop, hop, kick, hop, hop, hop, kick).
- Another variation is to count out loud (one, two, three, kick, one, two, three, kick) as your child moves.
- Switch roles and encourage your child to either call out the patterned movement (hop, hop, hop, kick) or count the patterned movement (one, two, three, kick) as you move.
- Point out and talk about nature's patterns (such as the pattern on a pine cone or leaf pattern on a tree) and man-made patterns (for example, brick or stone patterns along pathways) in the park.
- Ask your child to guess how many big or little steps it will take to move from one location to another at the park (for example, from the swings to the slide; from the big tree to the drinking fountain; from the playground to the car).
- Help your child count the stairs on the outdoor slide. Compare the number of steps on a higher slide with the number of steps on a lower slide.
- Look at and talk about plants, focusing your child's attention on leaf and petal patterns.
- Read a picture book before, during, or after a trip to the park. Help your child point out, count, and discuss the vivid patterns in feathers, flowers, people, and animals illustrated in picture books like Tana Hoban's, "Dots, Spots, Speckles, and Stripes."
- Bring a pad of paper and pencils, crayons, or markers to the park. Encourage your child to trace around or draw different objects with patterns (such as leaves or flowers). Write the words to label the object's parts. Make up stories about the objects and write down your child's story to read together at a later time.

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Advice for Families

- Children will notice patterns daily. Parents need to help children point out and recognize patterns in their clothes, on the sidewalk, on plants, and animals in the child's different surroundings.
- The key to teaching patterns is helping your child become aware of, and develop an interest in patterns and providing chances for her to create and extend patterns in daily life (such as comparing the buttons on her blouse and the buttons on her doll's dress).
- Make every trip to the park an enjoyable, shared experience. Engage your child in helping to decide which pattern activities she wants to participate in during each outing. Multiple trips to the park will allow you and your child to participate in different ways to observe and count patterns.
- Remember that the park is also an important physical outlet for your child to run, jump, swing, and climb. Allow your child lots of opportunity to move freely using large muscle movement. Take time for a nature walk, read a book, or draw nature patterns after your child has rested and is ready for a calmer activity that requires greater thought and focus.