

Math in a Time of Corona Virus (With Apologies to Gabriel García Márquez)

The Center for Early Childhood Education has conducted six studies on children's play and math learning (Swaminathan & Trawick-Smith, 2020). How applicable our findings are to supporting children who are at home to sit out the Corona Virus! Play games (certain kinds) and create math geniuses during the pandemic!

Board Games

The evidence: Young children (preschool to age 8) who play board games at home and school are advanced in mathematical thinking and problem solving. Early math learning is a better predictor of later academic achievement than literacy. Concrete games with actual game pieces appear to be more effective than virtual games. Parents across many cultures—particularly fathers—prefer playing board games with their children over any other type of play.

Tips:

- Commercial games work well, as long as they include a die or dice, a spinner, or some other method of moving that includes number. In games that use color draw cards to move, like *Candyland*, substitute a die, spinner, or draw numbers on slips of paper out of a hat. Printable, patterns for making dice can be found online.
- If you don't have board games at home, print out simple, blank game boards online and create your own.
- Add consecutive numbers to each space of a board game you make to create a number line.
- For preschoolers, make boards that are linear; older children benefit from curving paths. Avoid intersecting paths.
- Ask children to create their own board games, based on a favorite book or a topic your child is interested in.
- Add numbers to each space along the board games that you make to create a number line.
- Play along with your child, using lots of **math talk** (“How many did you roll?” “How many more spaces are you ahead of me?” “What do you need to roll to get to the end?”)
- Discuss rules and turn taking and reduce any intense competition with siblings (or yourself, if you're really competitive!)
- Adapt the game—more spaces, two dice, a numerical die with a plus or minus die, and board game challenges—to promote advanced thinking for older children.

Card Games

The evidence: Children who play card games at home show increases in math achievement in school. Cards with numerals and cards with images (shapes, animals, colors) have distinct effects on areas of math learning. Numerical cards teach aspects of number; image cards promote spatial understanding. Rules for many children’s card games can be found online.

Tips:

- Use both standard playing cards and those with images if you have both. You can download playing cards and those with images online.
- Make your own playing cards with special challenges (e.g., those with varying types of triangles, parallelograms, trapezoids).
- Play games that teach numerical magnitude comparisons. For example, the traditional game *War* (sometimes named something less military) requires children to determine which numeral represents the greater number.
- Play numerical matching games. For example, *Go Fish* requires children to collect families of cards with the same numeral.
- Play numerical memory games. For example, *Memory* requires children not only to match numerals, but remember their locations.
- Play shape matching games. For older children a “match” should be defined as two cards with the same geometric shape, not identical shape (e.g., an Isosceles and a Scalene triangle are a match).
- Play games in which players collect cards so children need to compare who won the most.
- Play along with children and use **math talk** (e.g., “How much higher is my card than yours?” “Which of us won the most cards? How do you know?” “Why are these two shapes a match?”)
- Adapt games for older children. Create a deck of cards with two digit numerals or with shapes in which matching cards are not identical (e.g., two types of trapezoids match). Play games with two decks of cards.

Other Math Games That Are Recommended, But Not Yet Fully Studied

- Dominoes (standard set or have children make them for an additional math experience)
- Aiming games with score keeping—bowling game, ring toss, drop the clothespin in which children record and add up their scores.
- Guessing games that involve number (e.g., I’m thinking of a number with larger and smaller hints or “Which is the most?” games—e.g., “Which is the most: All the eggs in the refrigerator or shoes in my closet—guess first.”)
- Puzzles (from a few pieces to jigsaw puzzles) that promote spatial knowledge