Promoting Mathematical Talk At Home with Young Children

In this article in Mathematics Teacher: Learning & Teaching PK-12, Anastasia Betts and Ji-Won Son (Age of Learning and State University of New York/Buffalo) say that school experiences with mathematics aren’t enough to overcome “wide disparities in students’ mathematical achievement.” They suggest the Four Cs strategy – Converse, Count, Compare, Categorize – as a way to involve parents and boost the frequency and quality of family math experiences. Here are their ideas for a menu of prompts to get parents involved:

• **Converse** – “Children are likely to be more engaged in activities that are related to their everyday experience and get more out of them than more formal mathematics experiences such as workbooks, handouts, or flashcards,” say Betts and Son. Some entry points:
  - Talk about time: *How long is it until we leave for school? How long can we play in the park?*
  - Talk about numbers: *What numbers are in front of that house? What numbers are on that license plate? What’s our phone number?*
  - Talk about patterns: *What patterns do you notice when you are out for a walk? On a drive? Are there patterns with those address numbers? Are there patterns with the traffic lights?*
  - Talk about shapes: *What shapes do you see around you? How do you know what shapes they are? How can you describe them? How many sides? Corners?*

• **Count** – “Number words are tricky,” say Betts and Son, “because they are used not only in the count sequence or to label the quantity in a set but also as the labels for numerals and as labels for order of position.” The more concrete and familiar the setting, the better children will understand these distinctions.
  - Sing songs with numbers and counting: *Five Little Monkeys, This Old Man, Buckle My Shoe.*
  - Play board games; role two dice to promote counting up to and past ten.
  - Play hide and seek with the seeker counting backwards from ten, then twenty.
  - Count on from one group of items to another. *I have five grapes; if we add your grapes to mine, how many do we have? Six, seven, eight…*

• **Compare** – Noticing objects (and groups of objects) with distinct characteristics is a foundational concept in spatial reasoning, geometry, measurement, data, and patterns.
- What makes a rectangle a rectangle? What makes a square a square? How are squares and rectangles the same? How are they different?
- Give clues to where a hidden object can be found, using words like above, below, in front of, behind, next to, bigger than, smaller than, higher or lower than.
- Help children learn the meaning of more, less, and the same when sharing snacks – Who has more? Who has less? Line them up and compare.
- Count the money saved in a piggy bank or a jar of loose change. Are there more quarters or dimes? Are there fewer pennies or nickels? Are quarters more money than pennies? Why?

• Categorize – Soon after young children notice distinct attributes of objects, they can begin to sort them into groups.
  - Loading and unloading the dishwasher presents great opportunities for sorting: Where do the forks go? Where do the spoons go?
  - So does folding laundry by attributes – shirts with shirts, socks with socks, etc. – discussing the attributes that distinguish them.
  - Get help organizing food in the fridge or cupboards. Where does this item go? Why?
  - Sort money saved in a piggy bank or loose change jar, discussing how coins differ or are the same. How do you know a quarter is a quarter, or a penny is a penny? Sort them.

“Fostering Parent-Child Math Talk with the 4Cs” by Anastasia Betts and Ji-Won Son in Mathematics Teacher: Learning & Teaching PK-12, October 2020 (Vol. 113, #10, pp. 791-799); the authors can be reached at albetts@buffalo.edu and jiwonson@buffalo.edu.