Using Math Kit Manipulatives

*Please read the monthly EveryOne Counts© electronic newsletter for more tips on fun and effective ways to use your manipulatives.

Dry-Erase Board (inc. Marker and Eraser)

- Use to show your student how to solve a problem, to draw a helpful picture or to allow your student to show his/her work. Try writing several basic addition, subtraction or multiplication facts and asking the student to complete as many as possible in 60 seconds. Erase and repeat.

Index Cards

- Make flash cards. Write a simple equation on the front and a solution on the back. Alternatively, write the numbers 1-25 on your cards, mix them up, and have your student put them back in order. You can even write full equations (including the solution) on the front of your cards, cut them in half, mix them up, and ask your student to put them back together like a puzzle.

Hundreds Board

- Go through the board counting by 5's and 10's. To add difficulty, start on an irregular number (7, 13, 16, etc.) and count by 5's. Help your child see that counting by 5's, 10's or any other number is the equivalent of addition (or subtraction if you're counting downward).
- Incorporate your dice by playing "Race to 100." You and your student start at 1, roll the dice, and move forward the total number of spaces until one player reaches 100. This helps improve number sense and addition skills.
- Point to a random number on the 100's board. Ask your student how many more it takes to reach 100.
- Try money-related activities on your hundreds board. The board is perfect for determining how to make change for a dollar.
- Use the hundreds board to work on fractions. Show the student that one square on one row equals 1/10th of the row. Ask how many squares it takes to equal ½ of the row. You can increase difficulty as you go.

Number Line

- Use the number line for students still struggling with counting and basic addition/subtraction facts. Start at a number and add to it/subtract from it by counting the dots along the line.

Ruler & Paint Stick

- Use the ruler to introduce measurement in both standard and metric units. Show the student that all objects have a length, width and depth.
- Use the paint stick as a complement to the ruler in order to develop an intuitive sense for measurement and length. Place the paint stick on an object and ask the student to *estimate* how long the object is. Ask the student to compare the length of similar objects without using a ruler: Which one is longest?

Play Money

- Use to introduce monetary units. Ask the student to pretend s/he is shopping and needs to make exact change. Ask the student to pretend to be the owner of a shop and to assign monetary value to various objects. Can the student make the correct change for your purchase?

Clock

- Use to introduce analog time. Start in half-hour increments and work your way down to minutes. Ask the student to show you what time events in his/her life take place: What time does s/he arrive at school? Go to lunch? Go home? Complete his/her homework? How much time elapses between each one of these events?

Playing Cards

- To work on counting, play the game "More or Less". Pull the cards Ace through 10 out of your deck and hold them in your hands. Choose one card – the "secret card" – and place it face down. Then have your student pull one card at a time from the remaining nine cards. You tell the student whether the card is more or less than the "secret card". The game continues until the student can correctly guess the secret card.
- To work on number value and counting, play War. You and your student each take half of the deck of cards. Each of you flips a card at the same time. The higher card wins. Can your student always tell you which one is the higher card?
- To help your student recognize parts of 10, play "Make 10". Remove the face cards from your deck. Deal 12 cards face up. You and your student take turns finding and removing combinations of cards that add up to 10. When you agree that no more tens are possible, deal again.
- For fun, and to help develop spatial reasoning and memory, play "Memory". Take out half of the deck (all of the spades and clubs, for example), remove the face cards, and place the remaining cards face down so that all of the cards are arrange to make a square. Take turns with your student turning over a pair of cards. If the numbers match, the player wins the two cards and takes another turn. If the cards don't match, they're flipped face down and the next player has a turn.

Dominoes

- Turn one domino into a simple equation. The line in the middle becomes a plus or minus. Ask your student to determine what the solution is. (A domino with one dot on the left side and two dots on the right side represents 1+2=3).
- Add more dominoes to increase the difficulty of the equation. Ask your student to add the number of dots on three separate dominoes. Make two groups containing several dominoes each, and ask your student to subtract the number of dots in the first group from the number of dots in the second group.

Dice

- Dice may be used to work on basic addition or subtraction. Ask your student to roll two dice while you roll the other two dice. Who has the greater total?
- Use dice to reinforce counting and number sense. Ask your student to roll all four dice and place them in order of greatest to least (or vice versa).
- Introduce the concept of probability using dice. If you have two green dice, a red die and a white die, which color is most likely to appear if you choose one of the dice randomly?

Foam Numbers

- Use the numbers and symbols to build equations. Rearrange or add new symbols and ask your student how the solution changes according to each arrangement.
- Demonstrate the Commutative Property – switch the position of the numbers in an addition or multiplication equation and explain why the solution remains unchanged.

Snap Cubes

- Use to help build number sense and counting skills. Ask the student to arrange the snap cubes pieces into groups of five or ten and determine the total number of cubes. Ask the student to count by three's or seven's to increase difficulty.
- Arrange snap cubes by color to introduce probability and help your student recognize patterns.

Fraction Circle

- Start with ½ and work your way to smaller fractions. Compare a ¼ piece to a 1/8 piece. Which one is bigger/has more value? Use your dry-erase board to show your student the three forms of each fraction: Numerical, written and graphical (1/3, one-third, and a pie-chart with one-third shaded in). Discuss with your student why ½ is still bigger than $1/10^{th}$, even though it looks smaller when you write it down.

Pattern Blocks

- Use to introduce geometry. Explain how the number of sides on the block determines what we call it. See if your student can place the blocks in order according to the number of sides (triangle, square, pentagon, etc.).
- Use to help the student identify patterns. Spread the blocks across the table – Which ones are identical? Which ones are similar? Make a pattern – square, pentagon, hexagon, repeat – and ask the student to identify the pattern. Set up several rows of blocks, some in patterned sequences and some not. Can your student identify which sequences contain patterns and which do not?

Quiet Counters

- Perhaps the most versatile of the manipulatives, quite counters can be used to teach the student basic counting and number sense, addition, subtraction, multiplication and division. For multiplication, start with a simple equation – ex.) 2x5. Ask your student to make two piles of five counters. Repeat for 5x2 – have your student arrange five piles of two counters. For division, make a pile of counters equaling the numerator, then ask your student to divide the pile into the number of groups in the denominator. Ask your student how many piles were created.