SAMPLE LESSON PLAN USING MATH MAGIC BLOCKS®

GRADE LEVEL: Kindergarten
Introduction: Through manipulation of black blocks (which show the whole numbers from 1 to 10) students learn kinesthetically and visually basic number sense. Specifically, they feel that 2 is more than 1 because the 2-block is heavier, and rattles louder, than the 1-block. They confirm the tactile sensation by placing the 1-block in one pan of the balance and the 2-block in the other. The relative size of the first ten integers can be confirmed using the balance.

CCSS.MATH.CONTENT.K.CC.B.4.C
Understand that each successive number name refers to a quantity that is one larger.

Objective: Students acquire an understanding of the relative sizes of integers.
Preparation for lesson:
Assemble Scale (as seen on box scale come in). Blue pedestal snaps into blue base. Yellow balance arm snaps into top of pedestal. Two white pan holders snap into two pans. Pan holders are hung from ends of yellow balance arm. Balancing the balance (important!): With no weight in either pan, blue sliders (on balance arm) a slid in or out until the yellow arrow on the balance arm points *exactly* at the arrow on the blue pedestal.
Utilize black blocks only for this lesson.
Instruction: (place scale and blocks in front of youth)
1. Mentor places the 1-block and the 2-block face-down on the table, asks youth to guess which one is heavier just by lifting it slightly off the table. To check youth's guess, the two blocks are placed, still face down, one in each pan. Only after confirming that the 2-block IS heavier than the 1-block, is the youth invited to turn them over, and see the numbers.
2. Mentor shows the youth that he/she is placing the 1-block and the 2-block on the table, but again upside down. Without allowing the youth to

see the 3-block's identity, it is also placed face down on the table. Mentor then does the "shell game shuffle"–rapidly slides the blocks around on the table so that the youth loses track of where the 3-block is. Youth is then challenged to identify the block that is NOT the 1-block or the 2-block, but only, as before, by lifting each block slightly off the table. (No peeking! :) Mentor asks youth, "How can you know if you are right without looking at the number?" Youth plays with 1-, 2-and 3-blocks in balance pans to establish that $1 < 2 < 3$. Mentor finally reveals identity of the 3-block.

3. Mentor places, face up, the 2-block in one pan, 3-block in the other, then asks youth, "The 3-block is heavier than the 2-block. How much heavier IS it?" Mentor invites youth to place any block they choose into the 2-block pan, until they discover that the 1-block balances. Conclusion: the 3-block is 1 heavier than the 2-block. Question: Is each black block 1 heavier than the one before it?

4. Mentor shows two face-down blocks (8- and 9-blocks), challenges youth to guess which is bigger. Though the 9-block is still just a 1-block heavier than the 8-block, the two blocks are far more difficult to compare, since BOTH are so heavy to start with. After youth places blocks on pan balances in an attempt to confirm his/her guess, mentor asks youth, "How much heavier is the block in the pan that went down?" Invite youth to put any other block (face up) in 8-block pan. Keep trying until the pans balance. Conclusion: the 9-block is one heavier than the 8-block.

5. A variety of guessing games can be played in a similar fashion to establish the relative sizes of integers 1-10.

Final review–Mentor asks youth:
What is this called (scale)
What does the scale do? (Lets you compare blocks)
What can you tell me about the blocks? (some are lighter and heavier, they have numbers)
Blocks are all the same size, but they are all different. How are they different?
Closing/reflection: The whole numbers start with 1 and continue increasing by 1 each time, to make all the numbers from 1 to 10.