Rafe Esquith Problems

Citation: Esquith, R. (2007). *Teach like your hair's on fire: The methods and madness inside room 56*. Penguin.

The Game of Buzz

1.   Choose a "taboo digit" from 1 to 9. Then count consecutively 1, 2, 3, 4, …, replacing the digit you've chosen with the word *buzz*. Everyone participates in this fun activity.

For instance, if the taboo number is 6, the class would count:

1,   2,   3,   4,   5,   buzz,   7,   8,   9,   10 ,   11,   buzz (12 is a multiple of 6),   13,   14,   buzz (since 1 + 5 = 6),   buzz (since 16 has a 6)   buzz (since 17 has a 7 & 1 and 7 – 1 = 6),   buzz (since 18 is a multiple of 6),   19,   20,   21,   22,   buzz (since 2 x 3 = 6),   buzz (since 24 is a multiple of 6),   and so on.

Any digit can be selected, prime or composite or perfect squares can be selected, etc.

Task: Choose a "taboo digit" ____ Then, write out the numbers from 1 to 50 with "buzz in the appropriate spots as in the above example.

Count: 1,_____

_____

_____

Mental Math Activities

2.   *Start with the number of states in the United States of America. (____)*

Add a dozen. (Now they are adding ____ to get ____ .)

Then subtract the number of Supreme Court justices. (Subtract 9 to get ____ .)

Add the number of weeks in a fortnight which is how long the Wimbledon tournament lasts. (Add 2 to get ____).

Divide by 11 and show me your answer. (Everyone gets ____ .)

3.   *Start with the number of pints in a gallon. (8)*

Add the number of innings in a typical MLB game. (Add ____ ; the result is ____ .)

Multiply by the number of millimeters in a centimeter. (Multiply by ____ ; the result is ____ .)

Subtract the number of U.S. senators. (Subtract ____ ; the result is ____ .)

Subtract a half-dozen. (Subtract ____ ; the result is ____ .)

Show me the square root of this number. (Everyone gets ____ .)

4.   Three waitresses ─ Dulce, Marilyn, and Tracy ─ put all of their tips in one jar. Dulce went home and took one-third of the money as her share. Marilyn, not knowing that Dulce had taken her share, took what she thought was her share. Tracy, unaware that the others had taken what they thought were their shares, took one-third of the remaining money and left $8 in the jar. How much money was in the tip jar at the beginning?

Marcy Cook Tile Problems (http://marcycookmath.com/)

Use the numbers 0-9, each digit only once to complete these problem sets.

5.

6.

7.

ADDITION BALANCE TILES

8.   Moises saw a group of birds. One-half of the group was parakeets. One-quarter of the group was eagles. The rest were geese. There were 3 geese. How many of the birds were eagles?

9.   At the Hobart Shakespearean mathematics contest, each student was given 20 problems. Five points were awarded for each correct answer, and 2 points were deducted for each incorrect answer. Elena's score was 72. How many correct answers did she have?

10.   At the gym, 371 people use the weight room, 514 use the swimming pool, and 489 play tennis. Of these, 179 people swim and lift weights, 177 play tennis and lift weights, and 184 swim and play tennis. One hundred people do all three activities. Eighty-nine people do not do any of these activities. How many people go to this gym?

11.   Sir Ian McKellan wanted to give some gifts to the Hobart Shakespeareans. He made up a game to see who would get gifts. He lined up the 100 children, and gave the first child 100 sticks. He asked her to keep one and then walk down the line and give each child a stick. After doing her duty, the first child returned to her place in the line, never to be called on again. Then Sir Ian told the second child to walk down the line and take a stick from each even-numbered child starting with himself. The third child walked down the line looking only at children who were multiples of 3 and did two things; he took a stick from any child who had one, and he gave a stick to any who didn't. The fourth child did the same things with children who were multiples of 4, and this process continued all the way to the hundredth child. The game continued in this way until every child had given or collected sticks. Sir Ian gave a gift to any child who still had a stick at the end of the game. How many gifts did he give out? _____ To which students, and why (Discuss critical mathematical principles involved in the solution.)?