Linking Number Sense to Algebraic Thinking

~Visually & Symbolically~

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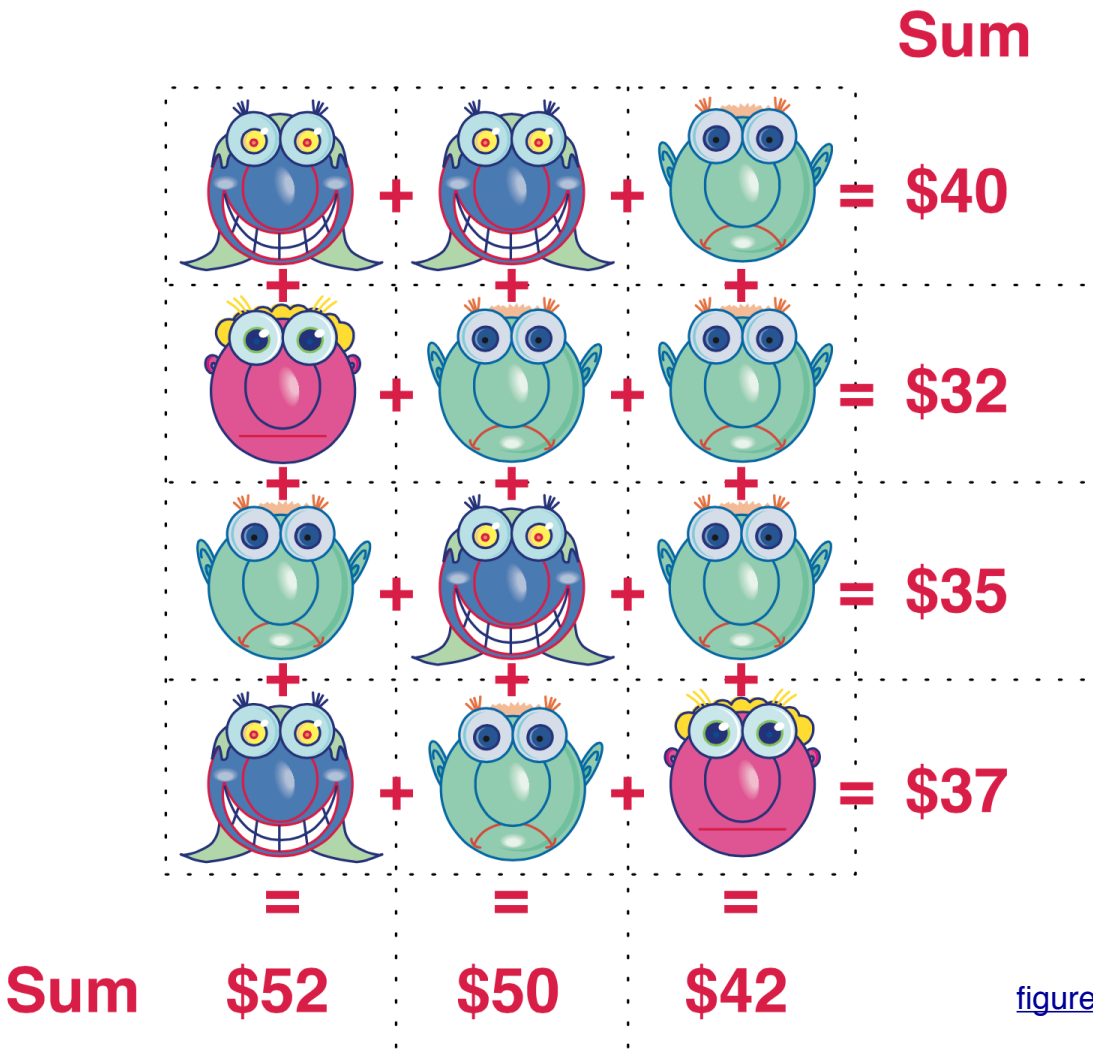
NCTM Annual Meeting & Exposition • April 18, 2015 • Boston, MA

Transitioning to a role supporting elementary teachers provided me one of my most powerful learning experiences. Sense making of numbers, especially visually, not only gave me a deeper understanding of number, but also of algebraic thinking. Come explore the powerful conceptual links between number and algebra, both with technology and without.



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What do you notice? What do you wonder? Similarities? Differences?

Number Sense	
12	$x + 2$
273	$2x^2 + 7x + 3$

Addition

231 + 145

$\left(2x^2+3x+1\right)+\left(x^2+4x+5\right)$

Subtraction

212 – 189

$\left(2x^2+x+2\right)-\left(x^2+8x+9\right)$

Multiplication

5 x 23

$5(2x + 3)$

23 x 14

$(2x+3)(x+4)$

Division

$36 \div 3$

$(3x + 6) \div 3$

$3972 \div 12$

$\left(3x^3 + 9x^2 + 7x + 2\right) \div \left(x + 2\right)$

Patterns

4, 7, 10, …

$3x + 1$