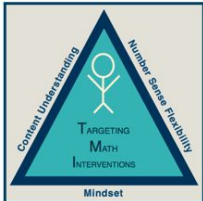
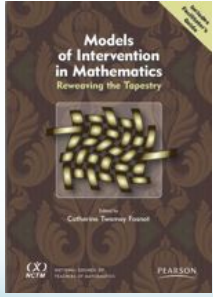


When Place Value Isn't in Place: Targeting Interventions



The logo is a blue triangle with a white stick figure in the center. The text 'CONTENT UNDERSTANDING' is on the left side, 'NUMBER SENSE FLEXIBILITY' is on the right side, and 'MINDSET' is at the bottom. The words 'TARGETING MATH INTERVENTIONS' are written across the center of the triangle.

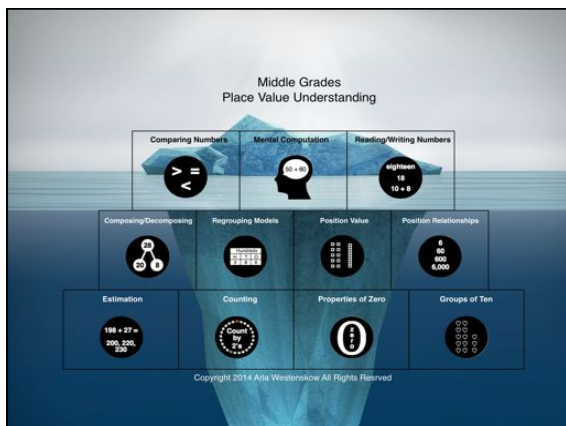
- Barbara Child – Math Teacher Specialist, Logan City School District
- Arla Westenskow – Director, TIME Clinic, Utah State University



The book cover features a dark background with a pattern of gold coins. The title 'Models of Intervention in Mathematics' is at the top, with the subtitle 'Reworking the Tapestry' below it. The publisher's name 'PEARSON' is at the bottom right.

The effect is to make school mathematics into a race – some students are 'ahead' of others, ...Its a sad race to nowhere.

Lockhart (2009)



Intervention Format

- Assess
- Determine sub skill
- Lesson
- Activity
- Daily Monitor – Informal or formal

$$\begin{array}{r}
 5687 \text{ to } 2849 \\
 - 900 \\
 4787 \\
 - 900 \\
 3887 \\
 1 - 80 \\
 3797 \\
 1 - 3 \\
 3800 \\
 - 200 \\
 3600 \\
 - 100 \\
 3500 \\
 - 1 \\
 3499 \\
 - 80 \\
 2919 \\
 - 200 \\
 2719 \\
 + 60 \\
 2779 \\
 + 100 \\
 2879 \\
 - 30 \\
 2849
 \end{array}$$

What does this student understand and not understand about **composing and decomposing**?

Composing/Decomposing

- The combining and breaking apart of numbers using place value
 - Examples:
 - The number 245 can be broken multiple ways.
 - 200 + 40 + 5
 - 190 + 55

Composing/Decomposing

- Combinations of 10 (1 + 9)
- Multiples of 10 (20 + 60)
- Expanded Notation (400 + 60 + 8)
- Compensation with Addition/Subtraction (120 + 40, 130 + 30, 140 + 40)
- Grouping with Multiplication/Division (60 = 2 x 30, 3 x 20, 4 x 15)

Composing/Decomposing

- Compensation with Addition/Subtraction

| | | |
|-------|-------|-------|
| 140 + | _____ | = 150 |
| 130 + | _____ | = 150 |
| 120 + | _____ | = 150 |
| 110 + | _____ | = 150 |
| 100 + | _____ | = 150 |

Composing/Decomposing

Rolling On

What does this student understand and not understand about **regrouping**?

Regrouping

| Hundreds | | |
|----------|---|---|
| H | T | O |
| 3 | 0 | 1 |

- Meaning of the Base 10 System (0-9 in each position)
- Transitions (moving from 10s to 100s - forwards & backwards)
- Addition & Subtraction (algorithm)
- Automaticity (mental math)
- One more, one less (11,000 + 1)

Regrouping



Write the number in word form.

2,064,300

two hundred and six thousand four hundred three hundred

(two hundred six millions four thousand three hundred)

What does this student understand and not understand about **position names and values**?

Position Value



- Period Conventions
- Period Names
- Ones, Tens, Hundreds...
- Position Names

Position Value

Knock, Knock

Write two multiplication sentences that equal 12,000. You may not use 1.

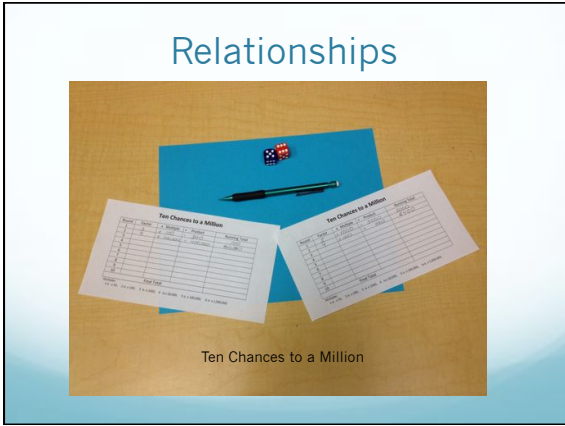
$$\begin{array}{r} 6,000 \\ \times 2,000 \\ \hline \end{array} = 12,000$$

$$\begin{array}{r} 4,000 \\ \times 3,000 \\ \hline \end{array} = 12,000$$

What does this student understand and not understand **position relationships**?

Relationships

- Conceptual Understanding of 10 times the number
- Place Values Shifts – Multiplication & Division
- Finding Missing Products & Divisors

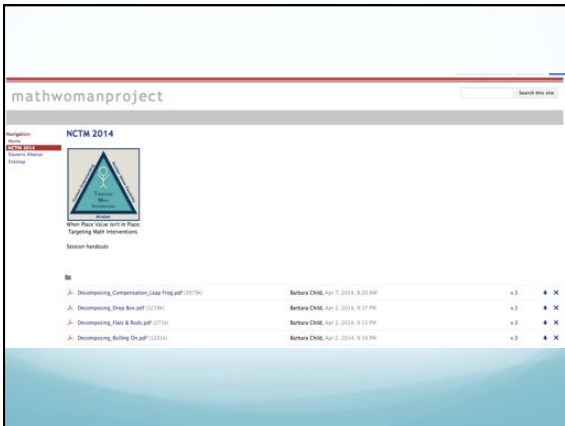


Contact Information

NCTM – April 10, 2014

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Handout link –
<https://sites.google.com/site/mathwomanproject/NCTM2014>



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