

# **Elementary and Middle School Mathematics 2015 - 2016**



**January 13, 2016**

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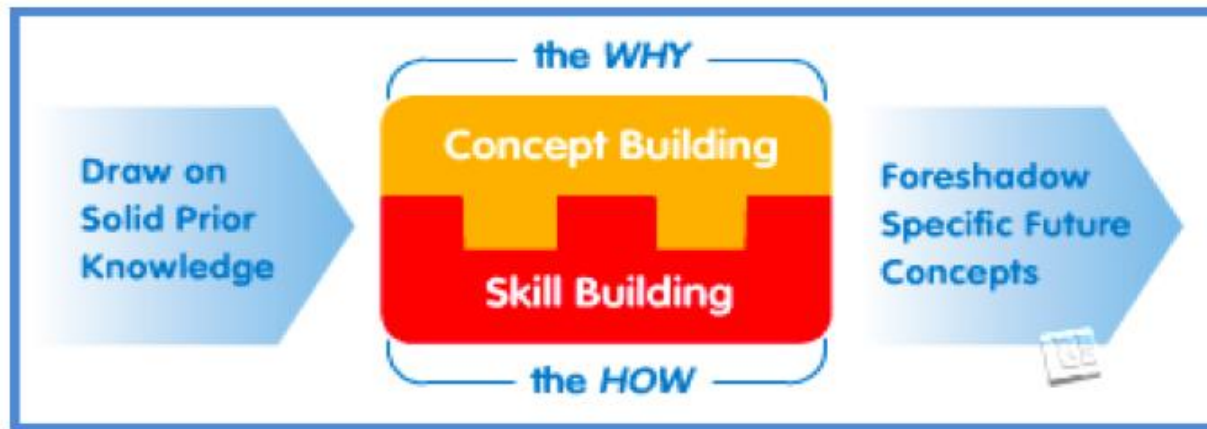
# Chappaqua Schools – A Comprehensive Approach to Mathematics

**Curriculum** - A curriculum is more than a collection of activities: it must be coherent, focused on important mathematics, well articulated across the grades, and shared across the district.

**Learning** - Students must learn mathematics with understanding, actively building new knowledge from experience and prior knowledge.

# Math in Focus – Singapore Math by Marshall Cavendish

## Interlocking Concepts and Skills



## Clear Visuals and Use of Models



# A Pictorial Model

The **Bar Model** method is a strategy that teaches students to draw diagrams in the form of rectangular **bars** to represent known and unknown quantities, as well as the relationships between these quantities.

# Bar Modeling

Nancy and Sue sold tickets for a concert.

Nancy sold 3,450 tickets.

Sue sold 1,286 fewer tickets than Nancy.

- a. How many tickets did Sue sell?
- b. How many tickets did they sell in all?

# Bar Modeling

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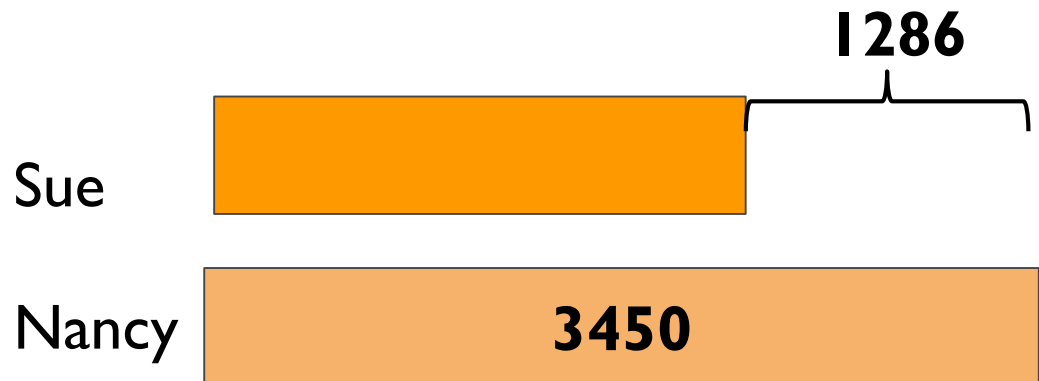
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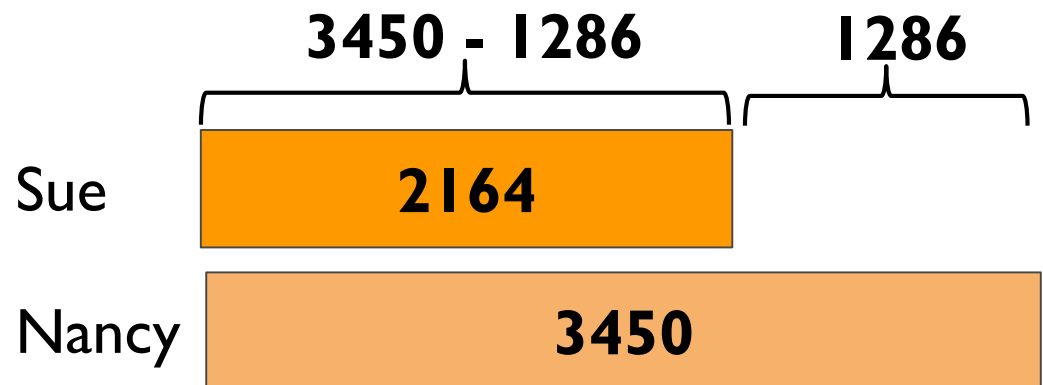
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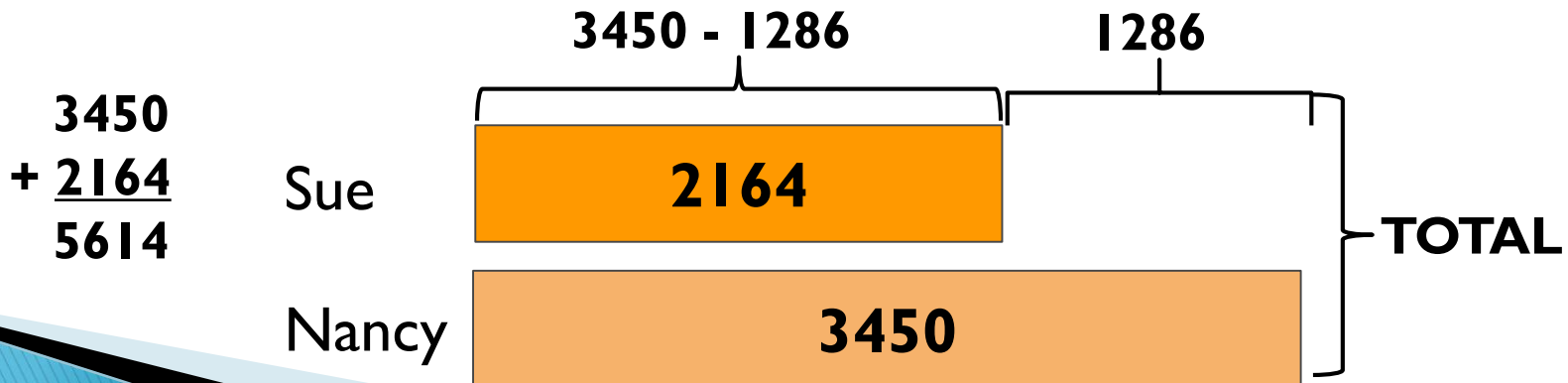




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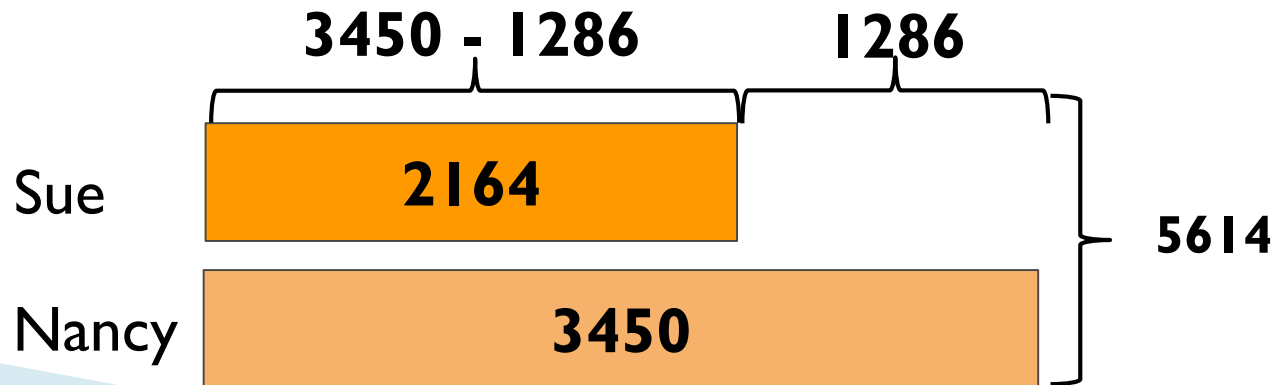
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# Student Engagement & Learning

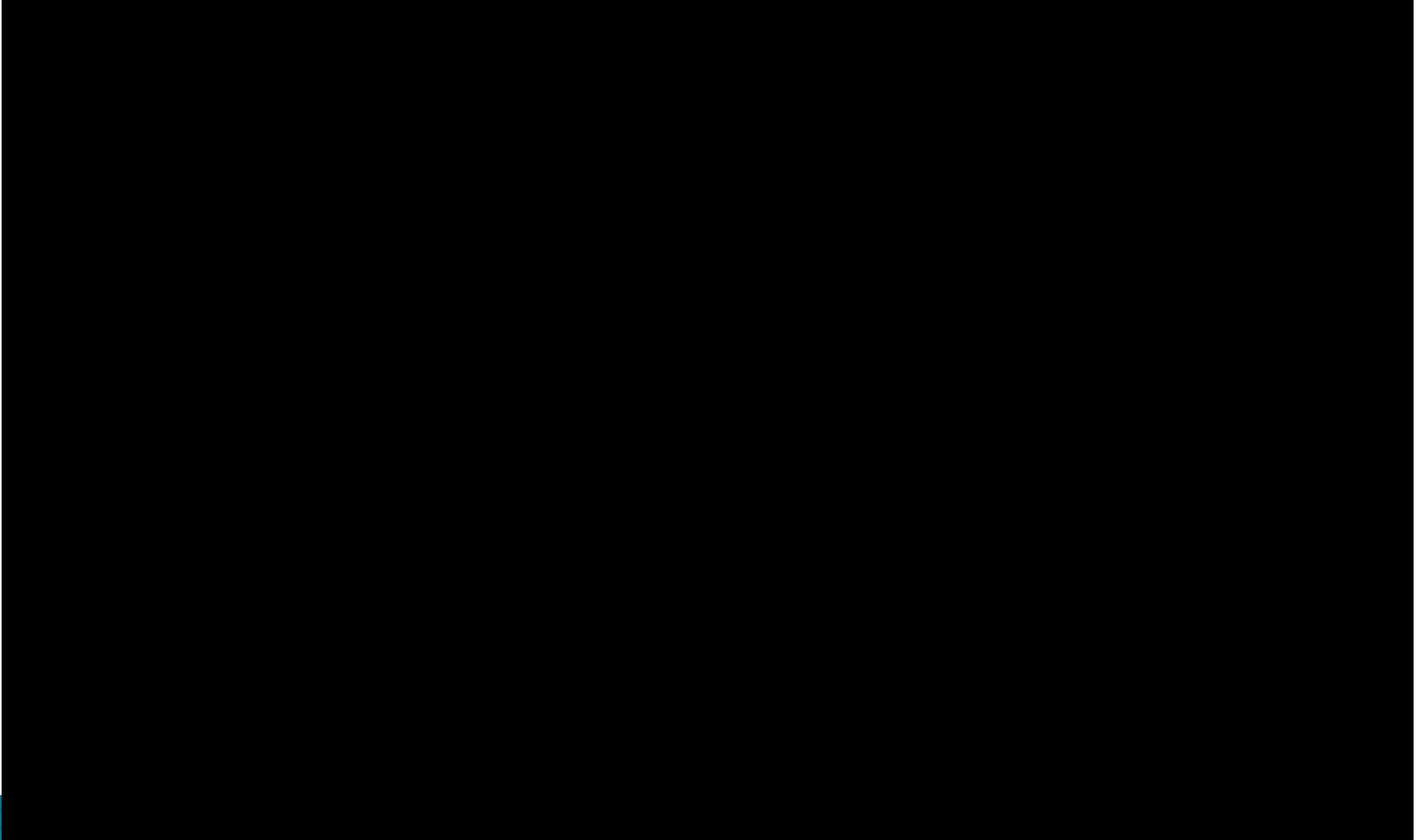
- ▶ Making sense of problems and persevere in solving them.
- ▶ Reasoning abstractly and quantitatively.
- ▶ Constructing viable arguments and critiquing the reasoning of others.
- ▶ Modeling with mathematics.
- ▶ Using appropriate tools strategically.

# Professional Development

This includes:

- ▶ demo lessons
- ▶ coaching
- ▶ planning
- ▶ pedagogical work
- ▶ classroom management
- ▶ differentiation

# K-5 Video



# Parent Education

- ▶ Spring 2015 - Information Session
- ▶ 2015-2016 - Parent Universities
- ▶ Fall 2015 - Knowledge Cafe

# K-5 Mathematics - Next Steps

- ▶ Spring Professional Development
- ▶ Summer Math In Focus Institutes
- ▶ Curriculum Planning - Year 2
- ▶ In-depth research and evaluation of curriculum and instruction

# Middle School

- ▶ Professional development for continuation of Math In Focus pedagogies
- ▶ Complete review of new textbook - Big Ideas Mathematics
- ▶ Evaluate online mathematics programs



# Conclusion

“I don’t want students polishing disconnected bike parts all day. I want them to get onto the bikes and ride freely, experiencing the pleasure of math, the joy of making connections, the euphoria of real mathematical thinking.

When teachers open up mathematics and teach broad, visual, creative math, then they teach math as a learning subject, instead of a performance subject. It is very hard for students to develop a growth mindset if they are only ever answering short questions with right and wrong answers.”

*Jo Boaler, Stanford University, Dec 2015, Atlantic Monthly*