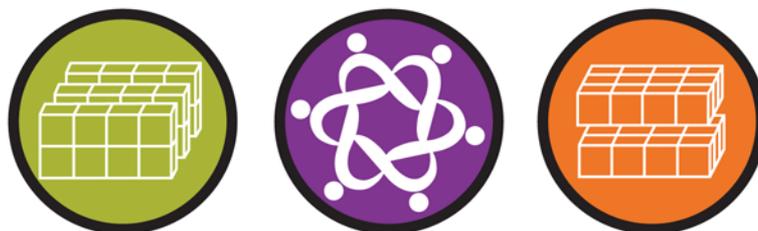


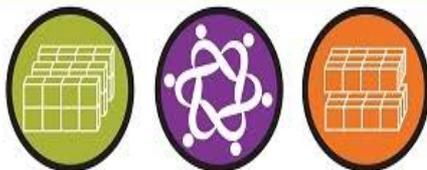
Welcome to ...



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Common Core for Mathematical Proficiency in Elementary Schools

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Agenda

- Math Task – Handshake Problem
- Connecting Arithmetic to Algebra
- Lunch
- Number Strings
- Math Task – The Squares and Vertices Problem
- Norm Setting
- Reflection



Math Task

Handshake Problem



Connecting Arithmetic to Algebra

Chapter 6: Focus on the Range of Learners *When Students Struggle and When They Excel*

“Each student described in this chapter has a unique mixture of strengths and needs in mathematics. There are ways in which ‘excelling’ students struggle and ‘struggling’ students excel.”

-Russell, Shifter, Bastable (2011)



Connecting Arithmetic to Algebra

Read page 67 through the first paragraph on page 78.

As you are reading: Highlight, underline, or make note of things you find significant or meaningful.

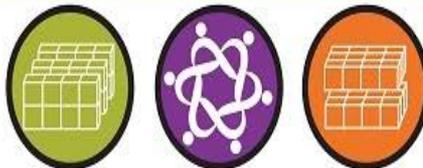
When your group is finished, take some time to discuss these things you highlighted, underlined, or made a note of.



Connecting Arithmetic to Algebra

Video – Why does $23 + 2 = 2 + 23$?

- Do you see students in this classroom who you suspect may excel in 2nd grade computation?
- How do learning experiences such as the one shown in the video benefit these students?



Connecting Arithmetic to Algebra

Focus Question #1 (pg. 87)

The classroom interviews and discussions in Chapter 6 illustrate how math instruction that emphasizes generalizations that underlie the behavior of the operations can support both learners who are having great difficulty with grade-level computation and learners who find grade-level computation to be quite easy for them.

- What connections do you see between the students described in this chapter and your own students?
- What questions about teaching or about learning does this chapter raise?



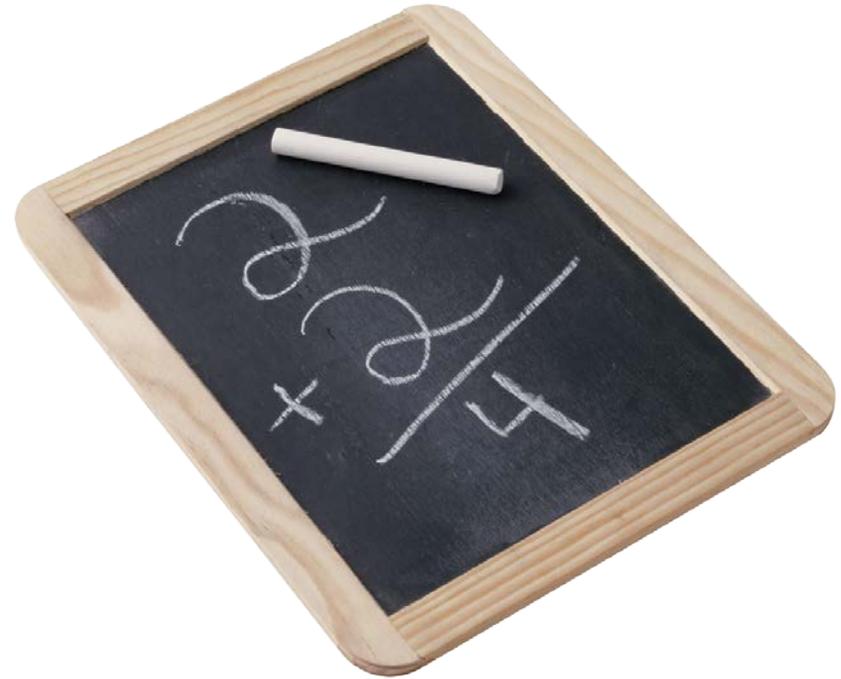
Lunch

I think, therefore I am.....Each problem that I solved became a rule which served afterwards to solve other problems.

- *Rene' Descartes, Discours de la Methode*



MINILESSONS



Minilessons Defined

- 10-15 minute lessons specifically designed to focus on computation strategies.
- Purpose is to highlight strategies and develop efficient mental math computation.
- Use a string of 4 or 5 related problems likely to develop certain strategies or big ideas important as landmarks on the landscape of learning.



Mental Math Strings

- Solve these problems mentally and indicate completion by using a thumbs up.
- Make note of the strategy that you used to solve each problem.
- Be prepared to share your strategy



Math String Defined

- Structured series of problems that are related in such a way as to develop and highlight number relationships and operations

Developing Addition Strategies

- Doubles and Near Doubles with Addition
- Splitting
- Making Jumps of Ten
- Moving to the Next “Friendly” Number
- Swapping
- Adding on vs. Removing

Developing Subtraction Strategies

- Doubles and Near Doubles with Subtraction
- Making Jumps of Ten Backward
- Moving to the Next Friendly Ten
- Constant Difference
- Canceling out Common Amounts



Math Task

The Squares and Vertices Problem

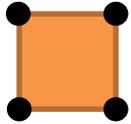


Figure 1

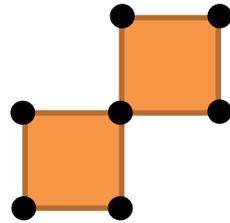


Figure 2

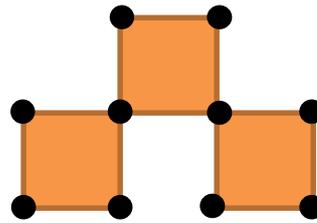


Figure 3

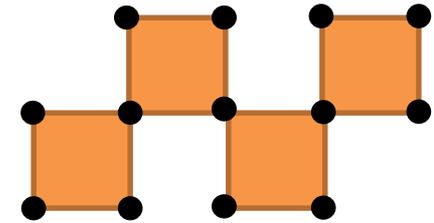


Figure 4

How would you describe the relationship between the number of squares and the number of vertices in each figure?



Learning Environment and Norm Setting

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-
- Mathematical Norms
 - Sociomathematical Norms



Elements of a Productive, Purposeful, and Meaningful Mathematics Classroom

- The Sound of Teachers:
 - Teachers supporting discourse
 - Teachers providing lesson summation/reflection/closure
 - Teachers engaging all students
- The Sound of Students:
 - Students justifying reasoning
 - Students analyzing the thinking of others
 - Students engaged in mathematizing

-
- The Sound of Students and Teachers:
 - Both students and teachers actively listening
 - Both students and teachers encouraging and modeling risk taking
 - Both students and teachers using mathematical vocabulary



Managing a Mathematical Classroom

Where Do I Start?



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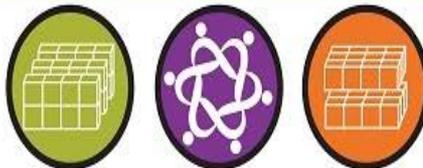
Classroom Space

- How will I organize and arrange the physical space so that it promotes exploration and interaction?
- How can I best encourage students to use our materials and tools effectively and responsibly?
- How will I create a mathematical culture in my classroom?



Storing Tools for Learning

- Where do I store them so that they are available to students at all times so that students are able to use whatever tools they choose to solve problems?
 - central “math center”
 - Separate bookshelf
 - Designated shelf in a closet
 - Containers of materials arranged along a wall



Creating a Mathematical Community

- How can I ensure that thinking and reasoning will be at the center of each student's mathematical experience?
- How can I ensure that every student in this classroom is recognized for his or her contributions?
- How can I encourage risk taking?



-
- How can I support the mathematical learning of my students
 - How can I help my students create an environment that is a safe place for each and every one of us?
 - Students ideas are respected and listened to and considered as valuable information
 - Anyone can ask questions freely and without embarrassment
 - Students are physically safe
-



Other Considerations

- Respect for differences
- Routines
- Grouping of students
- Ragged time and sponge activities
- Whole-class work



COMP Meeting Dates

- Thursday - September 24th
 - Lesson Study Dates
 - K -- Monday September 28 1 – Tuesday September 29
 - 2 – Wednesday September 30 3 – Thursday October 1
 - 4 & 5 – Friday October 2
- Tuesday – October 27th , 2015
- Saturday November 21st – Teaching Symposium
- Saturday -- January 23rd
 - Lesson Study Dates
 - K -- Monday January 25 1 – Tuesday January 26
 - 2 – Wednesday January 27 3 – Thursday January 28
 - 4 & 5 – Friday January 29



COMP Meeting Dates

Summer 2016

June 15th – 24th

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COMP Class Visits

Please complete the information sheet and give to Sandy before leaving today.



Reflection – Exit Ticket

Take a few moments to reflect on our time of thinking and learning today.

-- Exit Ticket - How will you utilize today's knowledge and experiences in your classroom practice?



Stay Safe

- Please help us put the room in proper order.
- Please leave your name tags for next time.

