THE OHIO STATE UNIVERSITY

Mathematics Teaching Institute

Day One – Creating a Culture for Mathematics in Grades 3 - 5

Sponsored by Ohio Department of Education

8 Standards for Mathematical Practice

Make sense of problems and persevere in solving them.

Reason abstractly and quantitatively.

Construct viable arguments and critique the reasoning of others.

Model with mathematics.

Use appropriate tools strategically.

Attend to precision.

Look for and make use of structure.

Look for and express regularity in repeated reasoning.

National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010). Common core state standards mathematics. Washington, D.C.: Author. Retrieved from http://www.corestandards.org/

How would you describe each of the following in a traditional math classroom?

Student Role	Teacher Role	The Environment

A Math Task in Three Acts by Dan Meyer

How many push-ups would Brutus/Bucky do during the course of the game?

Write down a number of push-ups that you know it too high? Too low?

What information is needed to get an answer?

A Math Task in Three Acts

What other questions could we ask?

Look for evidence of your group's specific Mathematical Practice in this task.

What CCSSM standards for content have we incorporated from grades three to five?

Which Mathematical Practice is most exemplified by this task? You can ONLY choose one!

What would do you feel our social norms should be for this week?

Write one social norm per post-it

Place each post-it on the chart paper by the door as you leave for lunch

Lunch

We will return at 12:45

Social Norms

Number and Operations in Base Ten Activities

- Counting to 21 Game
- The Game of NIM (How many will you take? By Bolt)
- *Really Big Numbers* by Richard Evans Schwartz

Reflect on each of the following after completing the Collaborative Problems Solving Tasks

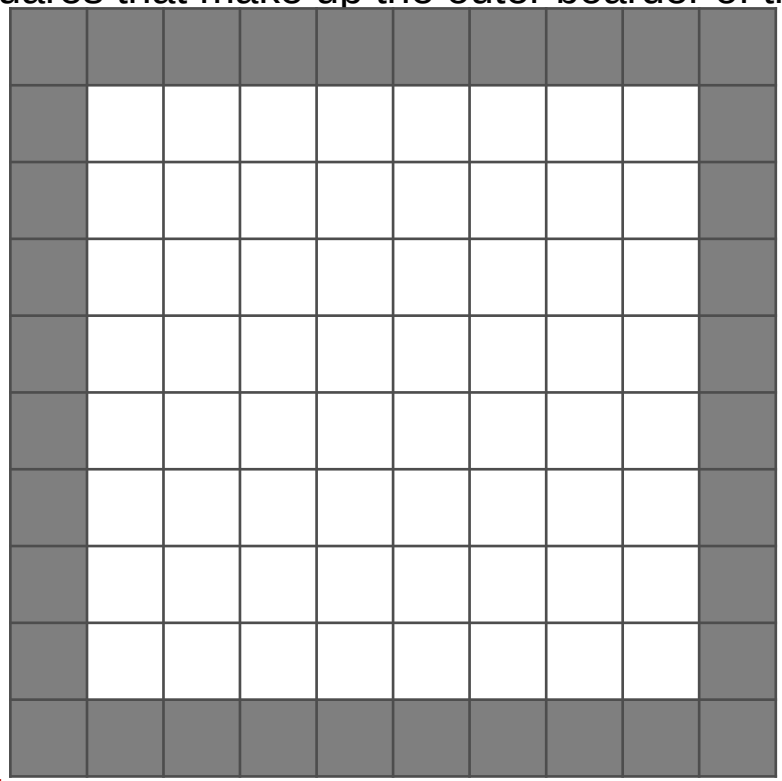
Student Role	Teacher Role	The Environment

Break

See you in 10 minutes

The Border Problem

Below is a 10x10 grid. ***Without counting***, how many different ways could you calculate the number of one-by-one squares that make up the outer boarder of the checkerboard?



From Boaler, J. & Humphreys, C. (2005). *Connecting mathematical ideas: Middle school video cases to support teaching and learning.* Portsmouth, NH: Heinemann.

Reflect on each of the following after watching the Border Problem Video

Student Role	Teacher Role	The Environment

What can you do to support student engagement with standards for mathematical practices during instruction?	What can we do as teachers to support students learning using mathematical practices?	What might the classroom environment look like when students and teachers engage with SMP?

What does it mean to DO mathematics in a 21st century classroom?

8 Mathematics Teaching Practices

1. Establish mathematics goals to focus learning.
2. Implement tasks that promote reasoning and problem solving.
3. Use and connect mathematical representations.
4. Facilitate meaningful mathematical discourse.
5. Pose purposeful questions.
6. Build procedural fluency from conceptual understanding.
7. Support productive struggle in learning mathematics.
8. Elicit and use evidence of student thinking.

National Council of Teachers of Mathematics. (2014). *Principles to action: Ensuring mathematical success for all.* Reston: VA. Author.
Additional information and the executive summary for the 8 Mathematical Teaching Practices can be found at http://www.nctm.org/PtA/

Please complete the daily feedback form

Homework

Read: ‘Never say anything a kid can say’ (Reinhart, 2000)

The Principals to Action information is available at http://www.nctm.org/PtA/