Mathematical Modeling
Through Rich Tasks

Session 51
Time: 9:45-11:00 a.m.
Jake and Leah

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Today:

- Experience open-ended tasks that incorporate mathematical modeling and promote differentiation for all students.
  - Mathematical Discourse
  - Risk Taking
  - Values Mistakes
  - Student Ownership

- Create a task specific to your grade level standards, curriculum, and students.
  - Task Development
  - Intentional Planning

- Learn how to facilitate a math lesson that pushes students thinking.
  - Intentional, Nonleading questions
  - You, We, I
  - Discourse Drives Our Next Steps
You do (student),
We do (students),
I do (teachers).

NKCSD Workshop Structure

Start

You

I, we

Tasks

Teaching share

More tasks with partners, with new knowledge

Tasks with teams

Teaching share

Games, practice activities, Teacher pushes in

Exit slip
Teacher as a Facilitator

These tasks do not work if students rely on you... If you are the keeper of what is right and what is wrong.

The teacher as the facilitator is the architect of students’ active learning.
How would you draw/build a model for this problem?

How would a student in your classroom draw/build a model for this problem?

Is a model necessary?

\[ 9 \times 12 = (9 \times \_\_) + (\_\_ \times 7) = \_\_ + 63 = \_\_ \]
9 \times 12 = (9 \times \underline{\text{__}}) + (\underline{\text{__}} \times 7) = \underline{\text{__}} + 63 = \underline{\text{__}}
Given the Steps

Draw a 9 x 12 rectangle. How could you decompose it into two separate rectangles?

No struggle or thinking

Why only a rectangle?

So what?

No Real World Application
“…teachers don’t need to find new curriculum materials, as they can make adaptations to the tasks in the curriculum they use, opening them to create new and better opportunities for students.”

(Jo Boaler-Mathematical Mindsets, p.77)
1st Look-Task Development

Using the CCSS, or your online curriculum resource to:
• Find a standard that is coming up, for your students, that you would like to develop a rich task.
• Consider a question that you have used, or seen previously, that would meet that standard.

Today, you will see:
• A 3rd grade multiplication task
• A 5th grade decimal multiplication task
City to discuss increase in sidewalk safety for Kansas City elementary school students

Crestview Elementary to see safer route
Crestview Park
How could we design the space for the community garden?

**Requirements:**
- Gravel Area
- Grass/Planting Area

Share your model with your table. How much gravel? Grass/planting area? What steps did you go through?
G

Area = 38
Page A = 58