

PD on Your Plan for Elementary Math



This professional development was designed with the needs of teachers in mind. It is rich in valuable information, chunked in small enough parts that can be completed during school time, planning times or meetings, and it is designed in order that teachers can work independently, in small groups, or online with other teachers.



Math Tasks – Part One *From Drab to Fab*

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This document is intended to be paired with the Math Tasks Part One video found here:
<http://pdonyourplan.com/lesson/math-tasks-part-1-from-drab-to-fab/>



Moriah and DeAnne are both at the final steps to completing their OEMS certification. Are you curious about becoming an Oklahoma Elementary Math Specialist? Explore Here:
<http://www.okhighered.org/ok-math/>

Pause and Think Reflection Questions:

ADDING CONTEXT

- ✿ What value is there in adding context?
- ✿ What connections could the students make?
- ✿ Think of a “naked” number problem you see often in your class, books, tests and think about a context that would help relate those numbers to real world math.

ADD A SITUATION

- ✿ What situations do your students find themselves in where they have to use math but have trouble connecting those situations to “school math”?
- ✿ Thinking of the “naked” number problem from before, how could you tie it to a situation the students would understand?

NEED TO KNOW

- ✿ What would your students need to know to continue with the problem presented in the “Add a Situation” section?
- ✿ Do they even know what they need to know to find what they want to know, you know? There is more on that later in the video.

MAKE IT PERSONAL

- ✿ Who do your students want to hear/learn about and possibly help?
- ✿ Tip: you may want to give your administrators a heads up. If you use them in a math problem, the students will let them know. Moriah knows all about that!

WAYS TO ADD COMPLEXITY:

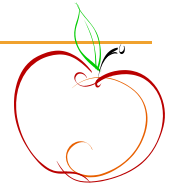
- ✿ Add computational steps – real life is messy, math should be too.
- ✿ Pick a side – because really, who likes to argue more than students?
- ✿ Multiple representations – take a look from all angles, in a large variety of ways, because something HAS to click eventually, right?
- ✿ Student led changes that change the outcome – Put them in charge, give them the freedom to explore and invest.

REMOVE THE NUMBERS:

- ✿ How do you think your students will react when you give them a problem without numbers?
- ✿ What kinds of questions will they have?

STARBURST PROBLEM

I want to cover one of the walls in my daughter's room, and since I am trying to "go green" at home, I wanted to use recyclable materials to do it. I was watching this commercial at home https://www.youtube.com/watch?v=E_ReGhUJUow&list=PLKK55IpuwPJGJwcN3v_jqAiKrNNE1NSy and I thought..."Starburst would be PERFECT! If I wanted to cover the wall with starburst wrappers, how many would I need? How do you know?"



- ✿ How does this problem compare to the "naked" number problem first presented?
- ✿ How does this problem differ from the problems typically presented in a textbook?
How could you make this problem personal to your students?
- ✿ What if you allowed them to use whatever material they choose to recycle? What wall would you choose?

Resources for Creating Your Math Tasks

Ten Design Principles for Engaging Math Tasks by Dan Meyer

<http://blog.mrmeyer.com/2012/ten-design-principles-for-engaging-math-tasks/>

Principles and Standards for School Mathematics: Guidelines for Worthwhile Mathematical Tasks

<http://www.fayar.net/east/teacher.web/math/standards/previous/ProfStds/TeachMath1.htm>

Characterizing the Cognitive Demands of Mathematical Tasks A Task-Sorting Activity

<http://www.mnstateassessments.org/wp-content/uploads/2013/08/C11-Handout-Cognitive-Demand-Task-Sort.pdf>

Example Task with Rubric and Student Samples

<http://www.insidemathematics.org/assets/common-core-math-tasks/quilt%20making.pdf>

NCTM has a wonderful article on the difference of word problems and problem solving. If you are a member, consider logging on to read this short but worthwhile article.

Visit #OKMath on Facebook to see what tasks and resources teachers around Oklahoma are sharing.