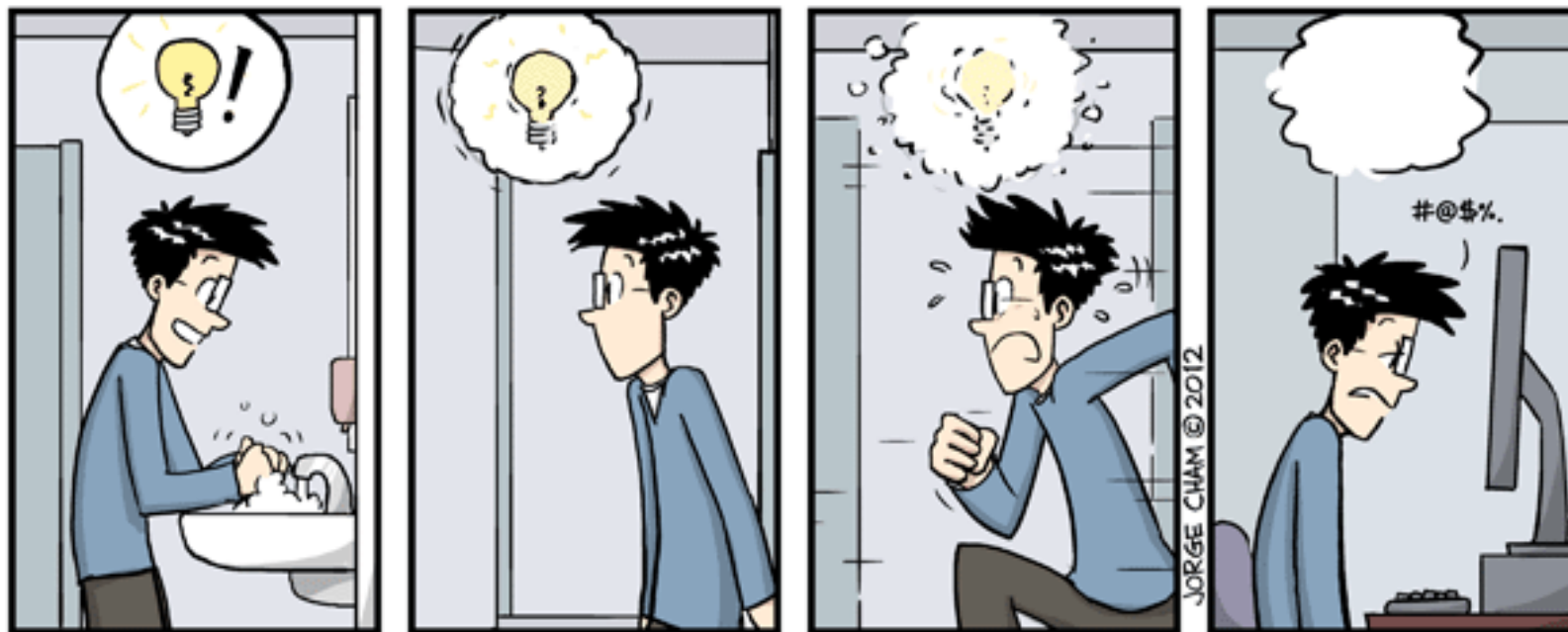


Reflecting on Practice: Implementing Worthwhile Tasks



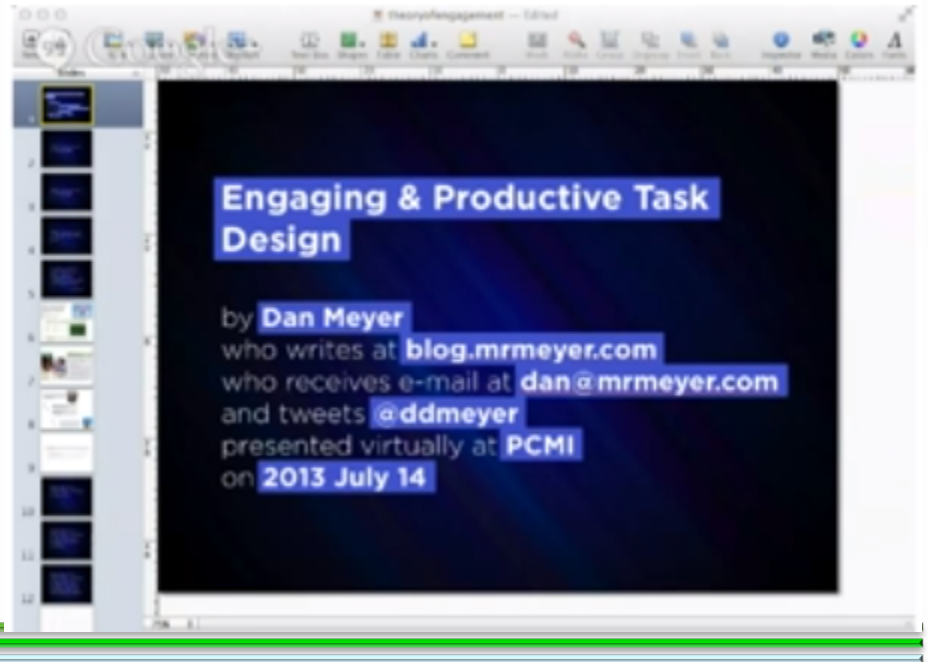
Unit 3, Session 1



Dan Meyer

As you introduce yourself at your table, share some comments about Dan Meyer's webinar yesterday.

<http://bit.ly/pcmidadanmeyer>



Unit 1: What makes a worthwhile mathematical task?

- Critical thinking – cognitive demand
- Mathematical goal
- Opportunity for discussion

Unit 2: How do we adapt tasks to make them more meaningful?

- Use carefully chosen student thinking about a standard task
- More open – less scaffolding
- Rewrite task using criteria

Unit 3: Implementation



Graphing Linear Equations (US TIMSS video)

Using a pencil and the large piece of graph paper, graph the following linear equations:

1) $y = \frac{2}{3}x + 8$

2) $y = \frac{3}{5}x - 10$

3) $y = 3x + 7$

4) $y = \frac{1}{4}x - 4$

5) $y = x - 5$

After these five equations are graphed, check with me before proceeding.

Now, graph the next five equations

6) $y = -\frac{5}{3}x + 8$

7) $y = -4x - 1$

8) $y = -\frac{1}{3}x + 12$

9) $y = -\frac{3}{2}x + 14$

10) $y = -x + 3$

Answer the questions on the next page

Page 2

- 1) What is similar about linear equations 1 through 5?
- 2) What is similar about linear equations 6 through 10?
- 3) Which line goes up the fastest?
- 4) Which line goes down the fastest?
- 5) What do you notice about the intersection between equation 1 and 9?
- 6) What do you notice about the intersection between equation 2 and 6?
- 7) What do you notice about the intersection between equation 3 and 8?
- 8) What do you notice about the intersection between equation 4 and 7?
- 9) What do you notice about the intersection between equation 5 and 10?
- 10) Are any of the lines parallel to one another? If not, why do you think so?



Graphing Linear Equations

As you watch, think about:

What things had the teacher done to prepare for the lesson?

What evidence do you see that students are ready or not ready to do the task?

(US 8th grade TIMSS video)



Graphing linear equations

- “What things had the teacher done to prepare for the lesson?”
- “What do students need to know to do this task? ”
- “What questions or other check-ins could have elicited evidence they were lacking in knowledge or understanding?”



It has been one month since Ichiro's mother has entered the hospital. He has decided to say a prayer with his smaller brother at a local temple every morning so that she will be well soon.

There are 18 10-yen coins in Ichiro's wallet and just 22 five-yen coins in his smaller brother's wallet. They have decided every time to take one coin from each of them, and put them in the offertory box, and continue their prayers until either wallet becomes empty. One day after they were done with their prayers, when they looked into each other's wallets, the smaller brother's amount of money was greater than Ichiro's.

How many days has it been since they started praying?

Ichiro's Mother

What planning/anticipating do you need to do before you would give this to your students?



Ichiro's Mother

As you watch, think about the question:

What do you think the teacher planned for in preparing the lesson?

Japanese 8th grade TIMMS video

<http://timssvideo.com/49>



Ichiro's Mother

What do you think the teacher planned for in preparing the lesson?

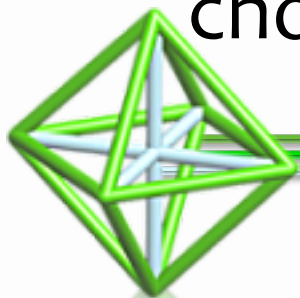
Japanese 8th grade TIMSS video

<http://timssvideo.com/49>



Cal's favorite Japanese word

- Blake Petersen from BYU
- Kikan-Shido: “Between Desks Instruction”
- A term from Japanese lesson-study, describing the teacher's walking around the room, predominantly monitoring or guiding student activity – the teacher makes *intentional* choices to speak or interact with students.



Getting ready

What things do you need to think about when you are planning to implement a task in your classroom ?



Homework

Read Before Instruction: Thinking about the Lesson

In Horn, I.S. (2012). *Strength in Numbers: Collaborative Learning in Secondary Mathematics*. Reston, VA: National Council of Teachers of Mathematics.

As you read, focus on the question:

- *How does this fit with the Graphing Equations and Inequalities videos and the discussion we had about them?*



References

- Graphing Linear Equations Video: US1
<http://timssvideo.com/videos/mathematics/United%20States>
- Solving Inequalities Video: JP3
<http://timssvideo.com/49>

