

Welcome!

RAMP-A: March 2013

- Examine students' work on a formative assessment
- Continue focus on CCSS and Standards for Mathematical Practices 2 and 3 while Task Planning
- Engagement strategies
- Continue discussion about motivating students to learn math
- Reflect on and share Little Changes

Goals for the day

- Maintain productive ways of listening, responding, and inquiring.
- Know and support the group purpose, process, development.

Revisiting the Norms

Group A: G-Prep,
Mountainside, LC, Salk
and Shaw

Group C: Mead,
Republic, Shadle, West
Valley & Barker, Libby
& Glover

Group B: Mt.
Spokane, U-Hi and
Bowdish, NC, Rogers,
Chase and Garry

Group D: Ferris, CV
and Barker, Cheney

Groups for the morning sessions

Round 1

- Groups A and B: Room 241 Task Planning
- Group C: Room 41 Examining Student Work
- Group D: Room 24 Teaching Strategies

Round 2

- Groups A and B: Room 241 Task Planning
- Group D: Room 41 Examining Student Work
- Group C: Room 24 Teaching Strategies

Break!

- Find coffee and snacks in room 41.



Round 3

- Groups C and D: Room 241 Task Planning
- Group A: Room 41 Examining Student Work
- Group B: Room 24 Teaching Strategies

Round 4

- Groups A and B: Room 241 Task Planning
- Group D: Room 41 Examining Student Work
- Group C: Room 24 Teaching Strategies

- Overview of the session:
 - 1. Do the task and unpack the math and identify the important ideas and the mathematical relationships about the ideas.
 - 3. Write a purpose for using the task
 - 2. Discuss ways students may work on the task and imagine ways we might respond.

Task Planning

- Write complete and multiple solutions.
- Describe the mathematical ideas.
- Identify important ideas in order to answer the question with conceptual understanding.
- Make connections between the ideas.

A Process for Unpacking the Math

Whole Group Sharing

- How did others think differently from you?
- What do you think are the connections between the tasks?
- Move to sit with your PLC.

- Choose to focus on one of the following: Task 1 and 2, Task 1 and 3, or all three:
- Compare the mathematical ideas you identified as most important in each part of the task:
- What math ideas are common to both tasks?
- What math ideas are just in either one?
- Which task do you think requires more advanced math understanding? Identify the math or the level of understanding that makes one task more advanced than the other.

Examining for Connections

- What math, if any, in this task will be new to your students?
- What mathematical ideas could be deepened, and,
- Which connections can be made stronger?

Consider your students

- With others in your PLC, consider the math that you want students to learn and how you want them to learn it (framed by which SMP?) and write a Lesson Purpose statement.
- Start a document on your Laptop called 'Task Planning (your PLC name)' and write your Purpose statement on it.

Write a Purpose Statement

- 1. Create potential student work that illustrates what you believe your students will do with the parts of the task you have chosen.
- 2. Choose 2 pieces of anticipated student work, and create a Task Dialogue that illustrates how you could respond to this student work to support your Purpose.
- **Email your Purpose statement and Task Dialogue to Jackie at jcoomes@ewu.edu (and to your PLC team members)**

Create Task Dialogues

- **Task Planning consisted of:**
- Examine the Math: Collaboratively identify mathematical purpose for the task, unpack the math, and identify important mathematical ideas, practices, and connections.
- Create a Task Dialogue: Write a purpose for using the task, anticipate student work, and think about how you would respond to students as they work on the task.
- **Reflect alone on the process:** Which part(s) of the process will be most important to you as you plan how you will implement it?

Reflect on the Process

- Plan and use at least two parts of Intersections in one of your classes, and
- Bring back a collection of student work.
- Reflect on the implementation of the task:
 - What did students do/say that surprised you?
 - What did students do/say that you expected?

Use the task in your class

- Session goals:
 - **Notice and describe** student work
 - Identify **evidence**
 - Student **thinking**
 - **Understanding/misunderstanding**
 - Generate ideas for **re-engagement**
- # Examining Student Work

- Guidelines for Looking at Student Work
 - **Key words** in each section?

Guidelines

- Match pairs of functions that have the most similar graphs. Briefly explain how you matched them.
- **a. $f(x)=2^x$**
- **b. $f(x)=3+4x$**
- **c. $f(x)=(x-3)(x-4)$**
- **d. $f(x)=3+4x^2$**
- **e. $f(x)=3+4^x$**
- **f. $f(x)=2x$**
- **g. $f(x)=2x^{-1}$**

Example of Student Work

- **Student A: Similar graphs:**
 - $f(x)=3+4x$ and $f(x)=3+4^x$
 - $f(x)=2x$ and $f(x)=2^x$
- **Notices similar locations of constants and variables**
- **Does not notice x as multiplier vs. exponent**
- **Does not understand difference between effects of multiplier and exponent**
- **Does not understand difference between linear and exponential functions**
- **Next step:**
 - Graph and examine tables of each function
 - Identify similarities and differences

- Teams of 2-3 – choose **facilitator**
- Choose **one middle** and **one low-level** example
- **Silently** look at one student's work
- No judgment of work quality, personal preference
- Facilitator: **What evidence did you see?**
- Group:
 - Describe **evidence**
 - Analyze **understanding/misunderstanding**
 - Discuss **re-engagement strategy**

Reflection

- How could you use this process in your teaching?

Scott Cooley University HS

Kris Lindeblad WSU

How has your RAMP experience been so far? 😊

Choose one of the graph types and tell why it describes your experience

Share with the people around you.

The Engaged Student

- *Engagement is a central aspect of effective teaching. Student engagement is not serendipitous. Student engagement happens as a result of a teacher's careful planning and execution of specific strategies.*

~Robert Marzano

The Engaged Student

- I understand there are varying levels of student engagement and I can recognize them in students.
- I understand that the daily choices and strategies of the teacher affects the engagement of students.

Goals for Today

Teachers wonder...

- Do I have their attention?
- Are they engaged in learning?

Students wonder...

- How do I feel?
- Am I interested?
- Is this important?
- Can I do it?



Aligned questions?

Teachers wonder...

- Do I have their attention?
- Are they engaged in learning?

Students wonder...

- How do I feel?
- Am I interested?
- Is this important?
- Can I do it?



Aligned questions?

Teachers wonder...

- Do I have their attention?
- Are they engaged in learning?

Students wonder...

- How do I feel?
- Am I interested?
- Is this important?
- Can I do it?



Aligned questions?

- According to Phillip Schlechty, engagement results when students are attentive, persistent, and committed. Students value and find meaning in the work and learn what they are expected to learn.
- Read the Schlechty descriptors of different levels of engagement
- Think of a student in your class that matches that descriptor. What phrases/evidence lets you know that?

Schlechty Center for Engagement

- Standard 1: Make sense of problems and persevere in solving them
- Standard 2: Reason abstractly and quantitatively
- **Standard 3: Construct viable arguments and critique the reasoning of others**
- Standard 4: Model with mathematics
- Standard 5: Use appropriate tools strategically
- Standard 6: Attend to precision
- Standard 7: Look for and make use of structure
- Standard 8: Look for and express regularity in repeated reasoning

An Engagement Strategy

- Draw a graph that has x-intercepts of $x = 3$ and $x = 8$.
- Choose which is the best illustration of a graph with x-intercepts of 3 and 8.
- Using the definition on the back board, describe to your group why you made that choice.
- What is the common misunderstanding of the other graphs based on the definition in the back.

Strategy: Example, Non-example

- Draw a graph of a function over the domain interval $[1,4]$.
- Choose which is the best illustration of the graph over the domain interval $[1,4]$.
- Using the definition on the back board, describe to your group why you made that choice.

Strategy: Example, Non-example

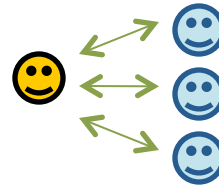
- What is the common misunderstanding of the other graphs based on the definition in the

- Choose one topic in your class that frequently reveals student misunderstanding.
- What question would you ask your students to get them to engage with this type of problem?
- What support sheet would you put in the back of the room to help students anchor their conversations?

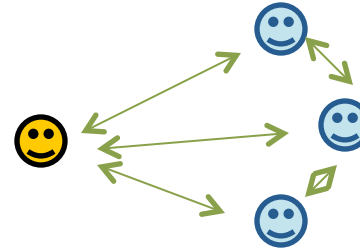
Strategy: Example, Non-example

Teachers Changing Focus

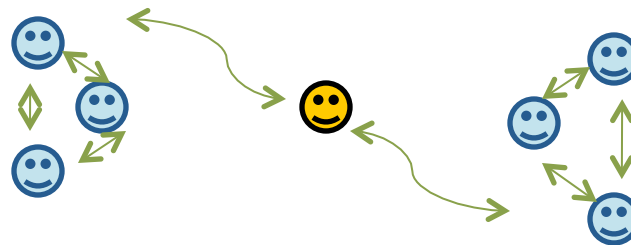
a) teacher centered.
(skills/procedures)



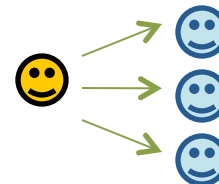
b) teacher assisted.
(concepts)



c) student centered.
(problem solving)



d) content centered.
(coverage)



- Our goals:
 - I understand there are varying levels of student engagement and I can recognize them in students.
 - I understand that the daily choices and strategies of the teacher affects the engagement of students.
- Complete the reflection sheet for yourself.

Take Aways

Today's question to discuss during
lunch:

Motivation to Learn

- How do we motivate students to learn ***with understanding?***

Lunch! (Room 241, sit with your



Little Changes

Break



- Think about how you will implement the Intersections task and plan your lesson:
 - Given YOUR students, what could be a good way to set it up?
 - How will you organize students and let them know what they will do and learn?
 - How will you challenge ALL students toward the purpose of your lesson?
 - How will you close the lesson?

Task Planning

- Discuss how you would respond to these questions:
- How will students learn the objectives for the lesson?
- How will students be motivated to participate in the lesson?
- What CCSS content standards are addressed? What evidence will be collected about student understanding of these standards?
- What CCSS Standards for Mathematical Practice will be addressed in this lesson? What evidence will be collected about

Questions from your administrator

- Discuss your Lesson plans with your Administrator.
- Collect student work from your implementation of the Intersection task to bring to the April workshop.
- Write a reflection on your classes' implementation of the task.
- Refocus on your revised Little Change.
- Visit the Moodle for documents from the workshop and insights from each other!

Homework

Evaluations

- Thank you, as always for your candid feedback!

