RAMP-A
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Welcome!

Hyung Sook Lee

Kris Lindeblad

Janet Frost

Jackie Coomes

Cheryl Matern

Mark Bergeson

Scott Cooley

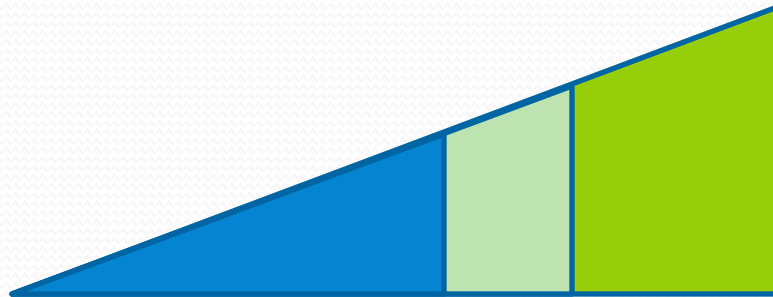Kathy Nitta

Brandon Mack

Matt Green

Ron Gentle

Helene Paroff

Erik Wolfrum

It All Started…

- Riverpoint Math and Science Partnership

- RAMP

- Cohorts I and II

- RAMP-A

Enduring Understanding

- Teaching requires focus on the content and learning targets (as defined by the Common Core Standards) as we engage in incorporating high-leverage practices.

- The combination of focused instruction, cognitive complexity, engagement strategies and authentic assessment moves students to understanding and the authentic use of learning.

Goals of the Grant

Deep common understanding of the Algebra 1 content in the CCSS

Increase student motivation, engagement and interest in mathematics

Thoughtful planning, instruction and assessment cycles

Professional reflection, support and growth in partnership with colleagues and community

Goals for Today

Mathematics: Extending our thinking about exponents, equivalent equations, seeing structure in expressions and creating equations

Standards for Mathematical Practice:

2 Reason abstractly and quantitatively.

3 Construct viable arguments and critique the reasoning of others.

Teaching Goal: Deepening cognitive complexity, balancing concepts and procedures

TPEP Goal: Understand how evaluation and the CCSS work together

Group Process and Collaboration

Requirements of Participants

- Know our <u>intentions</u> – use to guide actions
- Maintain <u>productive</u> ways of listening, responding, and inquiring
- Know when to be <u>assertive</u> (refocus, stay on task), when to <u>integrate</u> (attempt to understand others' viewpoints)
- Know and support the <u>group</u> purpose, process, development

What Does That Mean?

- Spirit of inquiry – listening more than telling, requires group members' skills

- None of us has the answer… all of us might!

- Leave it all out there – commitment to respect

- Right to receive, responsibility to give

Where Do I Fit In?

- This is what I will bring to the group.
- This is what I need help on.

Roles:

Organizer – schedule meetings, meetings, observations, communicate with administrator

Materials Manager – ensure everyone has copies of tasks, follow through

Recorder/Reporter – communicate with Jackie, minutes

Time Keeper – all contribute, meetings end on time, punctuality

Expectations

- 6 school year workshops: engage and support
- 3-day summer institute in June: 25th, 26th, 27th
- 2 observations this year; 1 each subsequent year
- 3 hours commitment outside of each workshop to involve:
  - Individual work, including online contributions to start at October 26th workshop.
  - Meetings with PLC, report back to whole group
  - Ongoing communication with administrators and team members

Making New Groups

- Each of you has a colored card with an equation on it.

- Find 2 – 3 other people that have the same colored card as you with equivalent (but not the same) equations.

- Find a place to sit together.
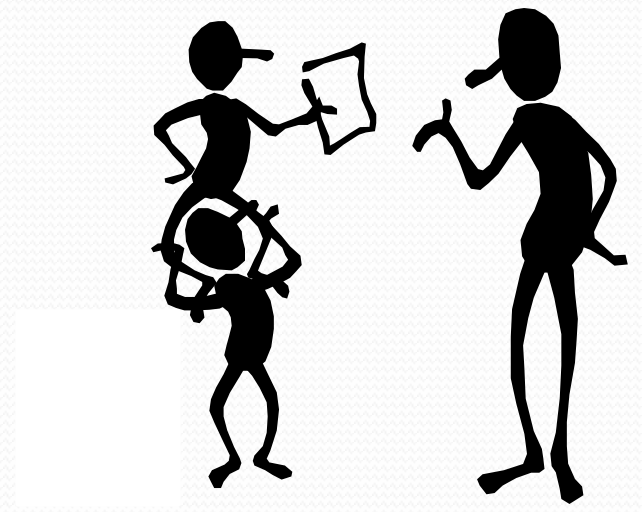
Doing Math Together

- Doing math together

Discuss…

What is hard about doing this?

What is fun about doing this?

What do I need to feel comfortable?

What is my learning style?

Norms for Doing Math

- Allow quiet think time, begin talking when everyone is ready.

- Offer <u>help</u>, not solutions when we ask.

- Ask for help when you need it.

- It's math, have fun!

- Stay on task and persist in problem solving.

- Stay open minded to alternative ways of thinking.

- Take responsibility for making contributions to your group.

- No one is done until everyone is done.

Look at your equations:

- Under what conditions are your equations equivalent?

- How do you know your equations are equivalent? (Consider the CCSS Algebra cluster statement as you answer: Understand solving equations as a process of reasoning and explain the reasoning.)

- Come up with at least 5 more equations that are equivalent to yours. What properties did you use?

Students' suggestions for $\dfrac{P}{v} = \dfrac{t}{r}$

- Determine if each equation is equivalent to the original, assuming no variable is zero.

- If it is correct, what justification would you hope to hear from students?

- For each correct equivalent equation, other students argued that it was not correct. What might they be thinking?

- If it is not correct, what misconception(s) might the student have?

$$rP + 3 = tv - 3$$

Break

Math Task

SMP 2 Reason abstractly and quantitatively.

SMP 3 Construct viable arguments and critique the reasoning of others.

Miguel and Anna –

1. Make a conjecture and think about what types of reasoning your students would use.

2. Discuss at your tables what makes a good conjecture and what criteria students might use to determine whether a conjecture is good.

Student Conjectures:

Consider the student responses to part 1:

1. "I think Miguel will take his money out first; I don't know why – I just think that."

2. "I think Anna will take her money out first because she only needs to lose half as much as Manuel gains."

3. "I think Miguel will take his out first because each year he is getting 5% of a larger and larger amount, but Anna is losing 5% of smaller amounts."

Potential of Representations

- What is the potential for each representation to support students' reasoning about the structure of the expressions?

- What other representations might support students' thinking about the structure of the expression?

Break: Reconvene in Rm 122 at 10:50

Grant Evaluation

- DTAMS: Aggregated data will be provided to funders.

- Use your identifier, the 4 digit number slid inside your name tag at the top of the test. Keep that as your reminder.

- This is purely informational for the grant, no personal identification.

- Not timed, do the best you can.
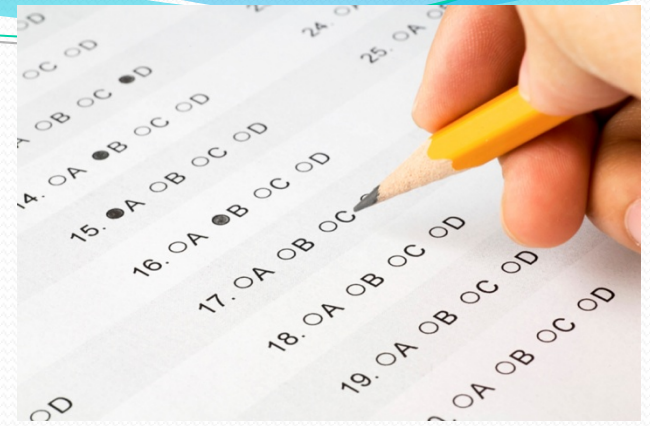
Lunch!

- Enjoy a nice lunch while you complete the Cognitive Complexity Task. ☺

- In your groups, use the recording sheet to record your decisions. No decimals.

- Post your group's decisions on the posters and be ready to defend them!

Examining tasks for opportunities to learn:

- Cognitive Complexity: use Webb's framework
- Standards for Mathematical Practice
  - SMP 2: Reason abstractly and quantitatively
  - SMP 3: Construct viable arguments and critique the reasoning of others
- From *How Students Learn* (Donovan & Bransford*)*:
  - Engaging preconceptions
  - Procedural knowledge connected to concepts
  - Opportunities for self-monitoring or reflection (metacognition)

Break

TPEP Overview

- Please welcome Helene Paroff and Erik Wolfrum from the NEWESD 101.

Revisiting the Goals for Today

Mathematics: Extending our thinking about exponents, equivalent equations, seeing structure in expressions and creating equations
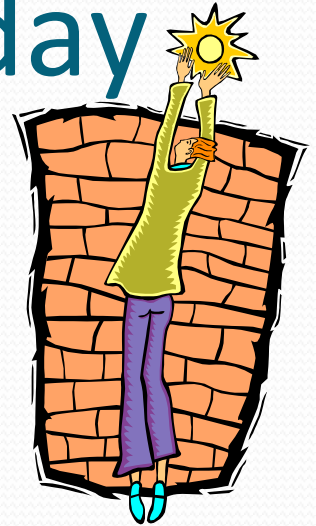
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Your Tasks Due in October

- Individual: Collect three consecutive days of tasks from one of your classes. (all examples, tasks, warm-ups, problems, homework or exercises done by your students. Record in order that students encountered them.)

- PLC: (Use the norms and roles) Meet to discuss EOC scores. Identify 2 areas of strengths and 3 areas of focus where improvement is needed.

- Choose one focus that needs improvement and answer these questions

Your Tasks Due in October

- Student interest surveys
- All math tasks given for three consecutive class days
- Look at Algebra 1 EOC data and determine areas of focus.

Evaluations

- Your evaluations are important to us. They are not just for clock hours, they guide and inform our work.

- Please take time to give thoughtful and complete responses. You may identify yourself or may remain anonymous.