

# Professional Development 2.0: The Next Generation of PD

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Erin Wheeler

Kate Austin

# Learning Targets—Content

- I can engage in aspects of a coaching cycle, deliberate practice, and instructional rounds through simulation and case studies.
- I can use student work to frame the learning for professional development.
- I can describe a key feature of these structures and connect them to the professional learning needs of my school system through an action plan.

# Learning Targets—Character

- Each time I'm tempted to focus on the obstacles, I can reframe my thinking with **optimism** by focusing on the opportunities for transformation.

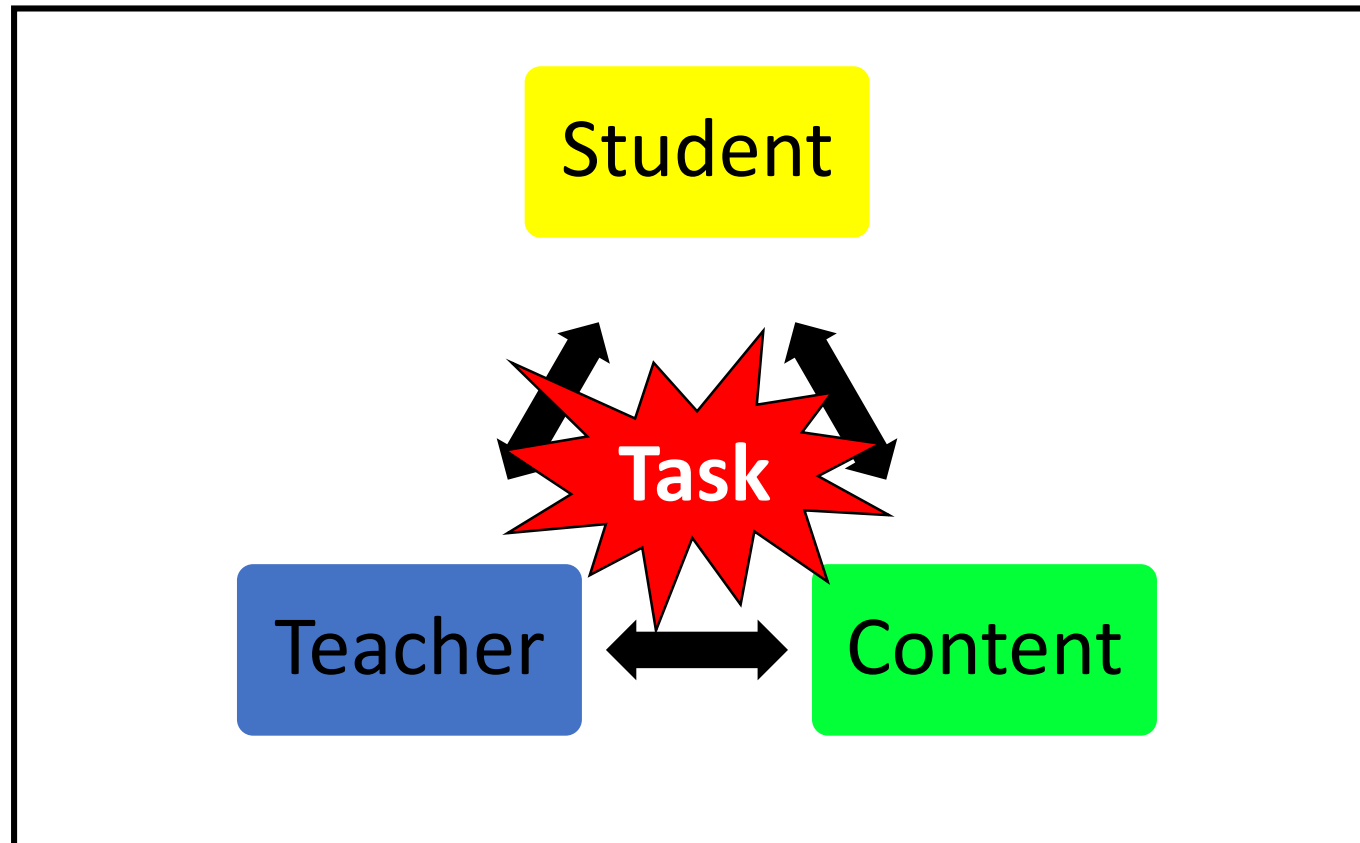
The challenges and obstacles before us are very real,  
but so are the opportunities to change  
mathematics instruction for the better.  
Let's choose to be optimists.

# A Sense of Urgency ...

“Too often, however, schools and districts neglect to provide veteran teachers with the resources and support necessary to maximize the effectiveness of these standards-based initiatives. Teachers are a school’s greatest resource ...”

**Zimmermann, Gwen. *Empowering the Mentor of the Experienced Mathematics Teacher*.  
Reston, VA: National Council of Teachers of Mathematics, 2009.**

# The Instructional Core

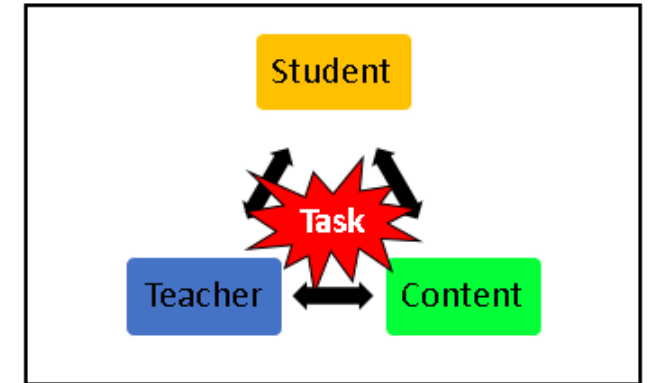
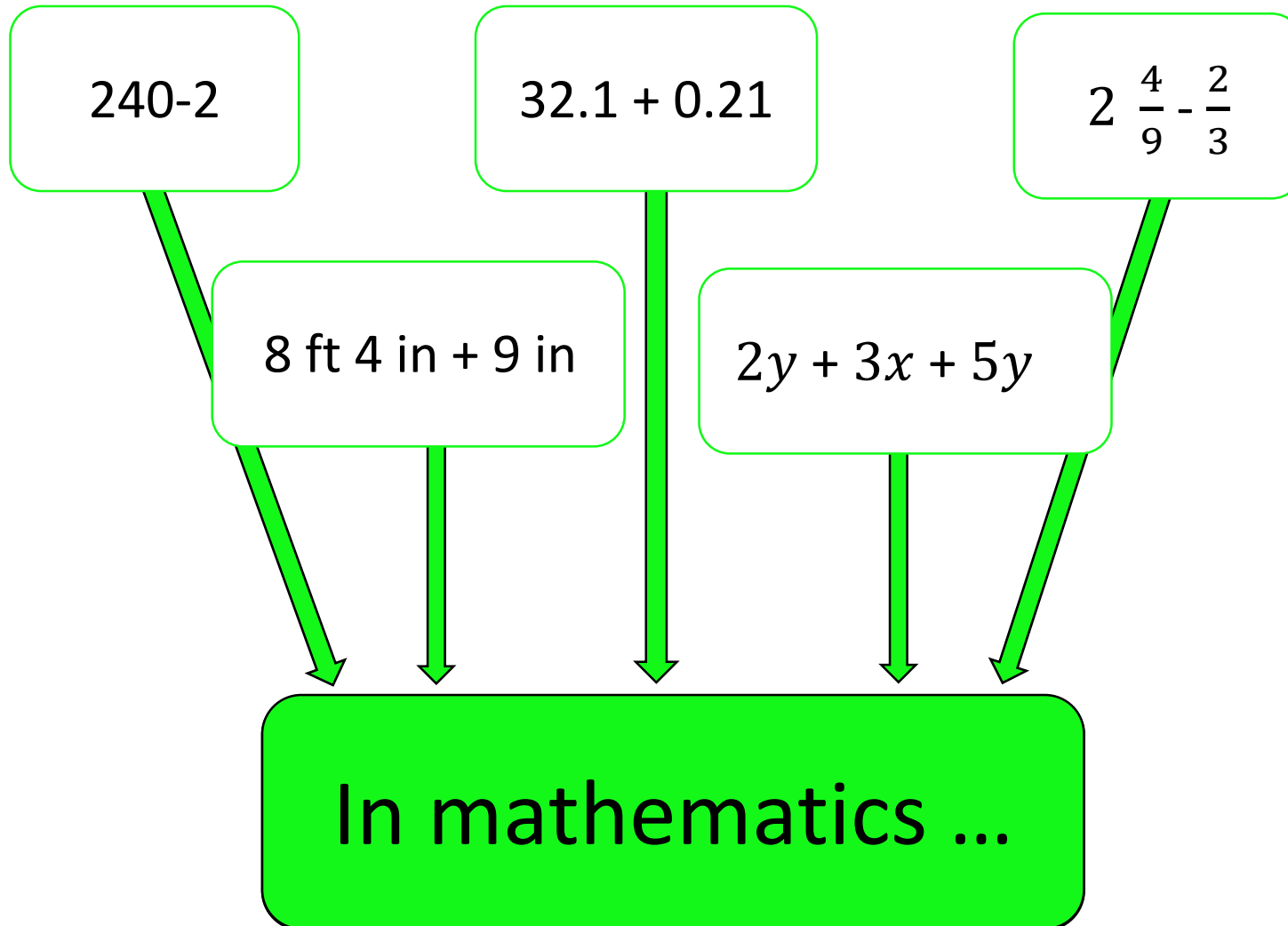


City, Elizabeth A. *Instructional Rounds in Education: A Network Approach to Improving Teaching and Learning*. Cambridge, MA: Harvard Education Press, 2009.

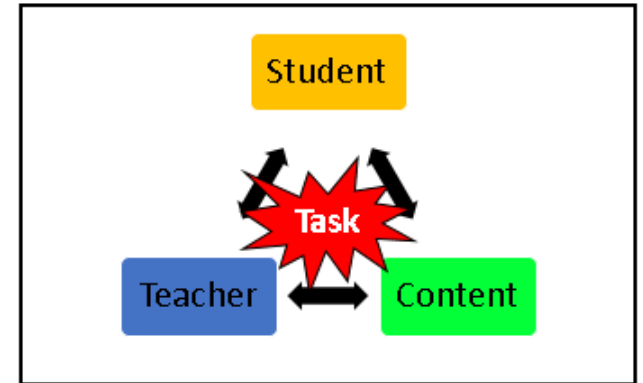
# Professional Learning Needs

- Consider the professional learning needs of your system
  - Brainstorm
  - One need per sticky note
  - Resource (time or money) → What learning need does it serve?

# Signs of Change: Level of Content



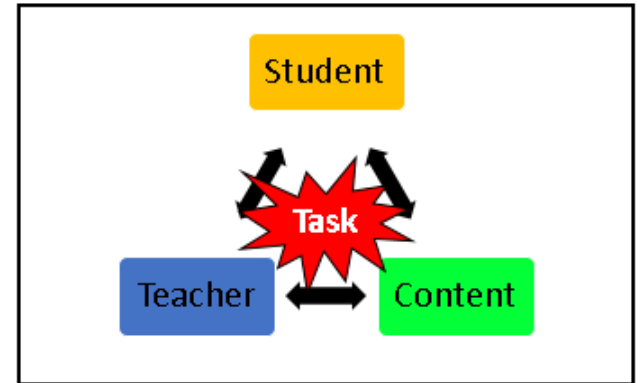
# Signs of Change: Teacher Knowledge and Skill



We become better math teachers through off-stage practice.



# Signs of Change: Task Predicts Performance



Solve the problems together.




Anticipate  
the task  
requirements.

# Signs of Change: Shared Curriculum

**P-5**  
GRADE

## Mathematics Curriculum

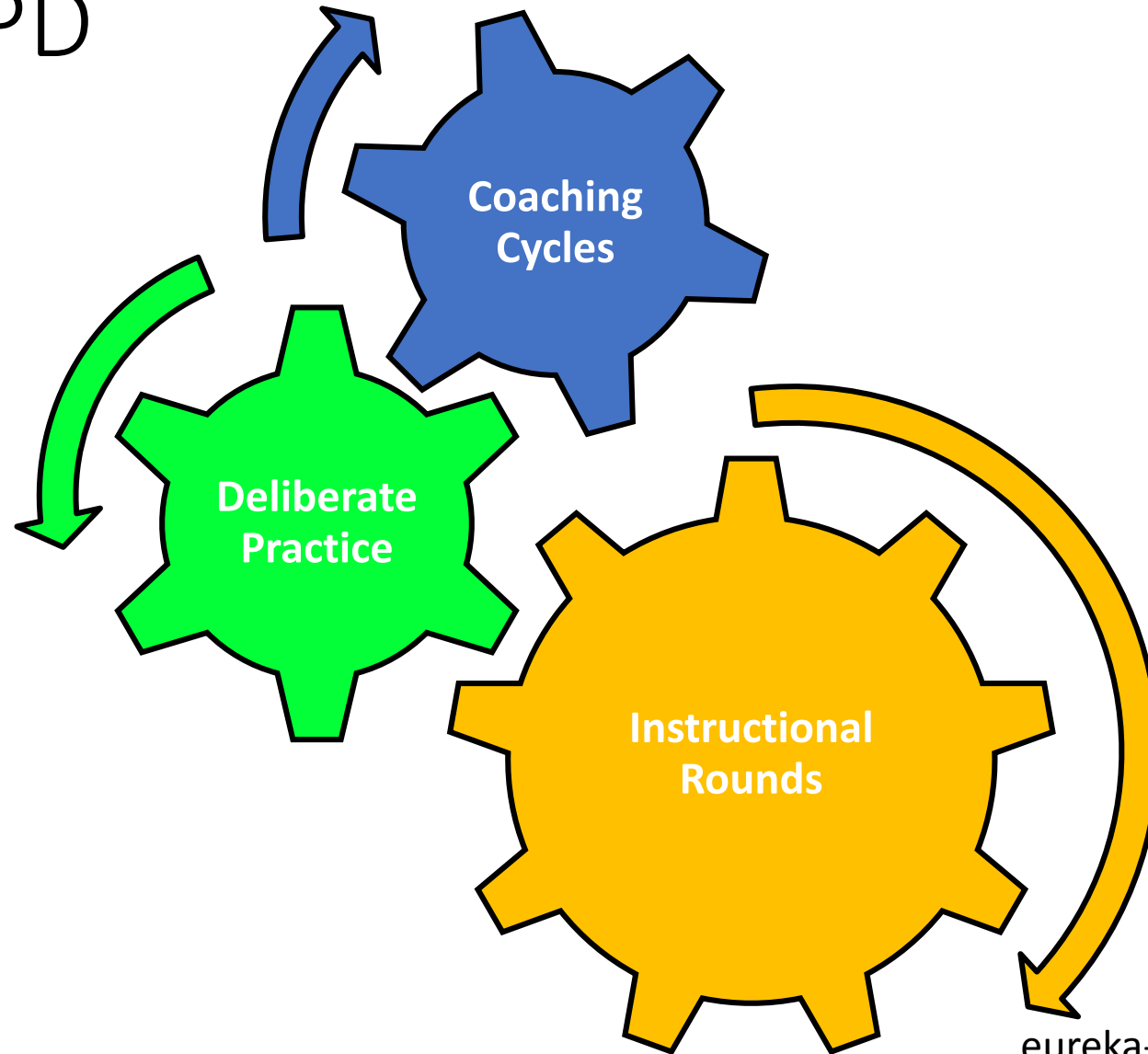


***A Story of Units:***  
**A Curriculum Overview for Grades P–5**

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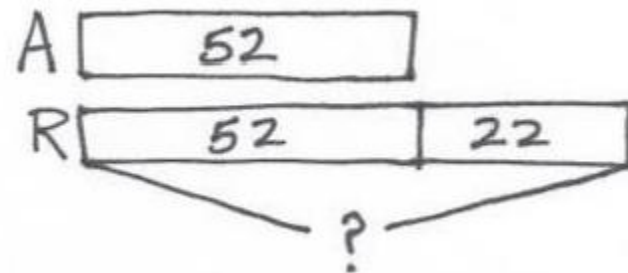
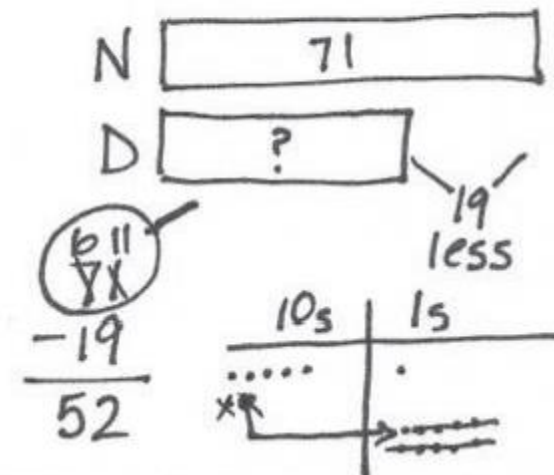
# Tools for the Next Generation of PD



# Entry Point for Coaching

4. Andy spent 71 hours studying in November.  
 In December, he studied 19 hours less.  
 Rachel studied 22 hours more than Andy studied in December.  
 How many hours did Rachel study in December?

Andy's hours



$$52 + 22 = 74$$

Rachel studied 74 hours  
 in December.

# Notice and Wonder?

**Teacher Prompt:** “Draw a picture to represent or show what is happening in the problem.”

What do you notice and wonder about how students responded to this prompt? (page 3 of your handouts)



Maviana  
Problem Set

1. Kelvin rode the bus 52 times in December.

In January, he rode the bus 19 times less.

Mikaili rode the bus 22 more times than Kelvin in January.

How many times did Mikaili ride the bus in January?

$$\begin{array}{r} 52 \\ - 22 \\ \hline 30 \end{array}$$

$$\begin{array}{r|l} 00000 & 00 \\ 3 & 0 \end{array}$$

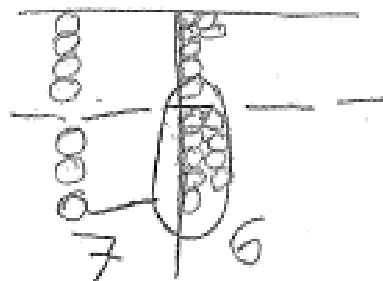
Katherine

2. The cook made 47 tamales.  
She made 29 more burritos than tamales.



- a. How many burritos did the cook make?

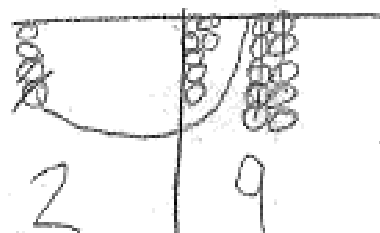
$$47 + 29 = 76$$



The cook made 76 burritos.

- b. The cook made 18 fewer tamales than tacos. How many tacos did the cook make?

✱  $47 - 18 = 29$



The cook made 29 tacos.

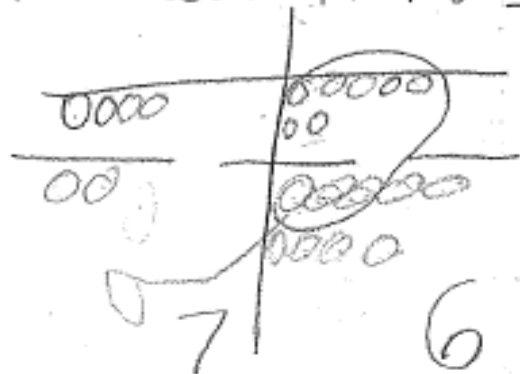
Gabriela

2. The cook made 47 tamales.  
She made 29 more burritos than tamales.

✓ a. How many burritos did the cook make?

$$47 + 29 = 76$$

the cook has 76 tamales



- b. The cook made 18 fewer tamales than tacos. How many tacos did the cook make?

$$29 + 18 = \boxed{47}$$

tacos

the cook has 47 tacos





# Problem Set Giovanni<sup>2</sup>

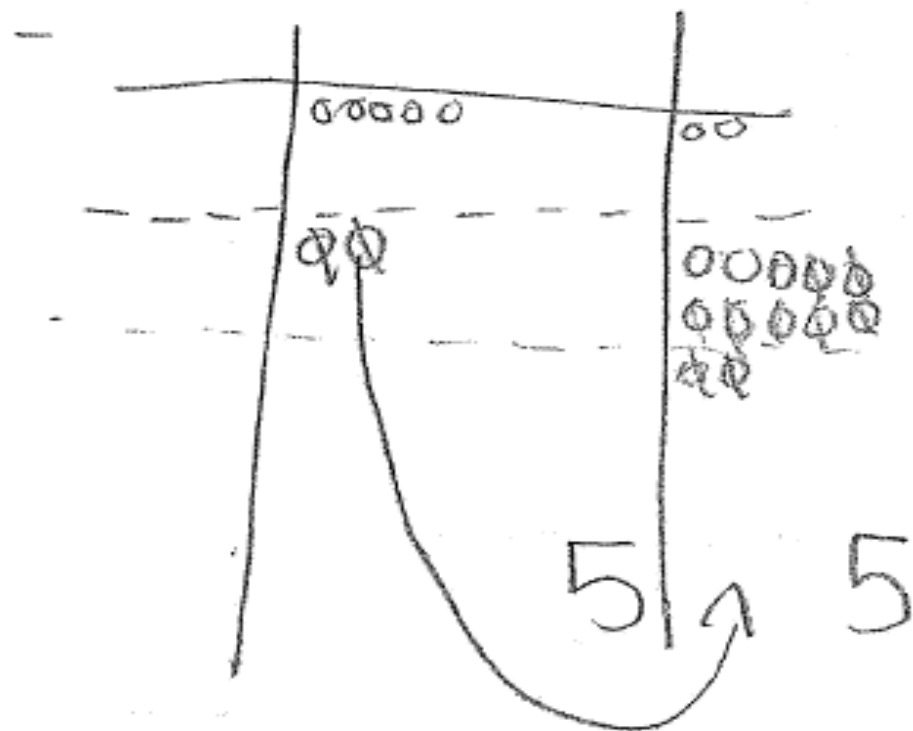
1. Kelvin rode the bus 52 times in December.

In January, he rode the bus 19 times less.

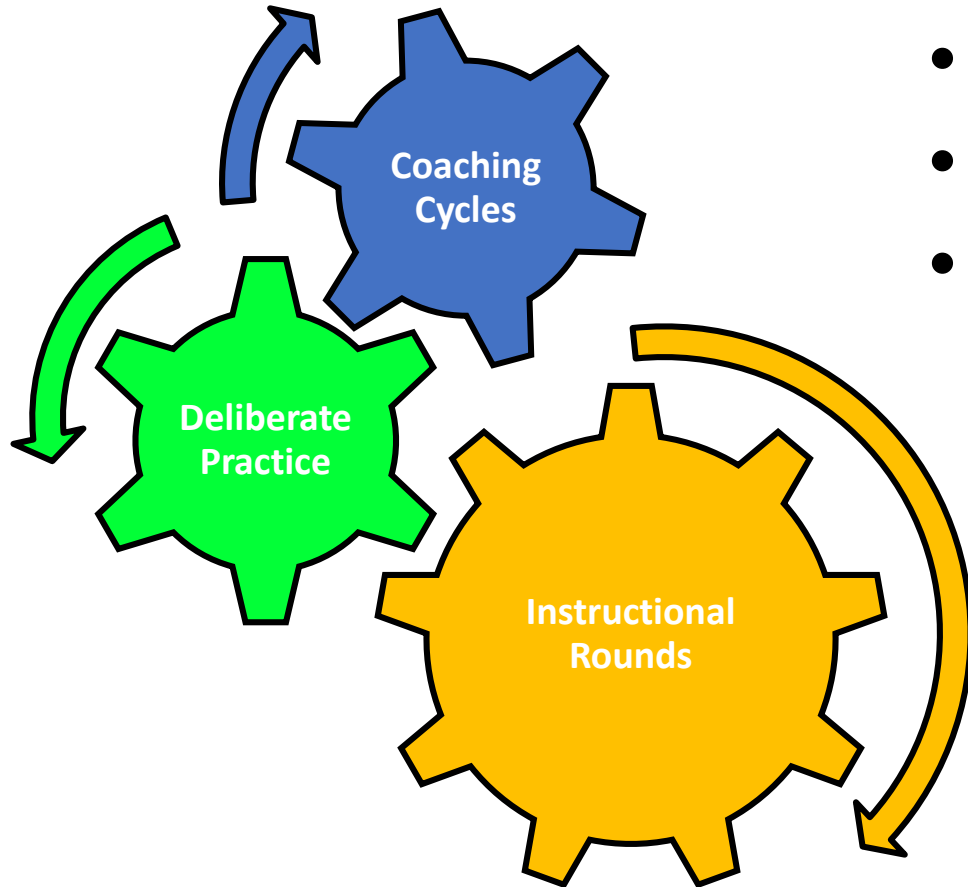
Mikaili rode the bus 22 more times than Kelvin in January.

How many times did Mikaili ride the bus in January?

$$52 + 22 - 19 = 55$$



# Coaching Key Points



- Focuses on student learning needs
- Differentiated instruction for adults
- Just-in-time learning of content
- Positive relationships are essential

# Deliberate Practice

## Longer/Shorter (2 minutes)

Materials: (T) Board or document camera

Note: Working with visualizing proportional relationships between numbers can support students' number sense development. By using tape diagram models, students can recognize methods for representing numbers in relation to other numbers.

Write one pair of numbers on the board at a time (e.g., 5 and 5).  
Draw a rectangle under the first number.

T: This rectangle is long enough to hold this row of 5 dots.  
(Draw 5 dots so that they fill the space.)

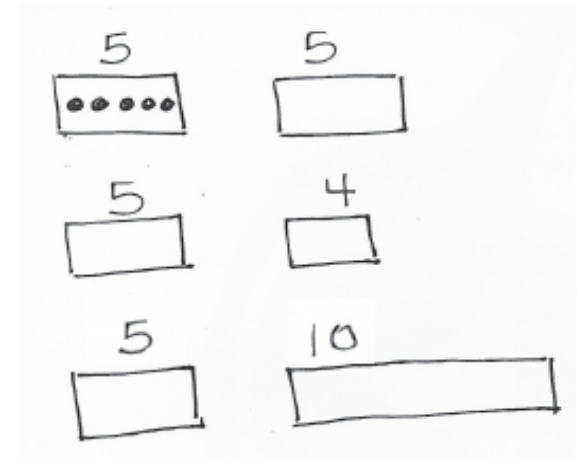
T: (Point to the second number, which in this first example is also 5.) I'm going to start drawing a rectangle that is long enough to hold a row of 5 dots of the same size. Tell me when to stop.

T/S: (Begin drawing a rectangle, and give students the chance to say "Stop!" when it is approximately the same size as the first rectangle.)

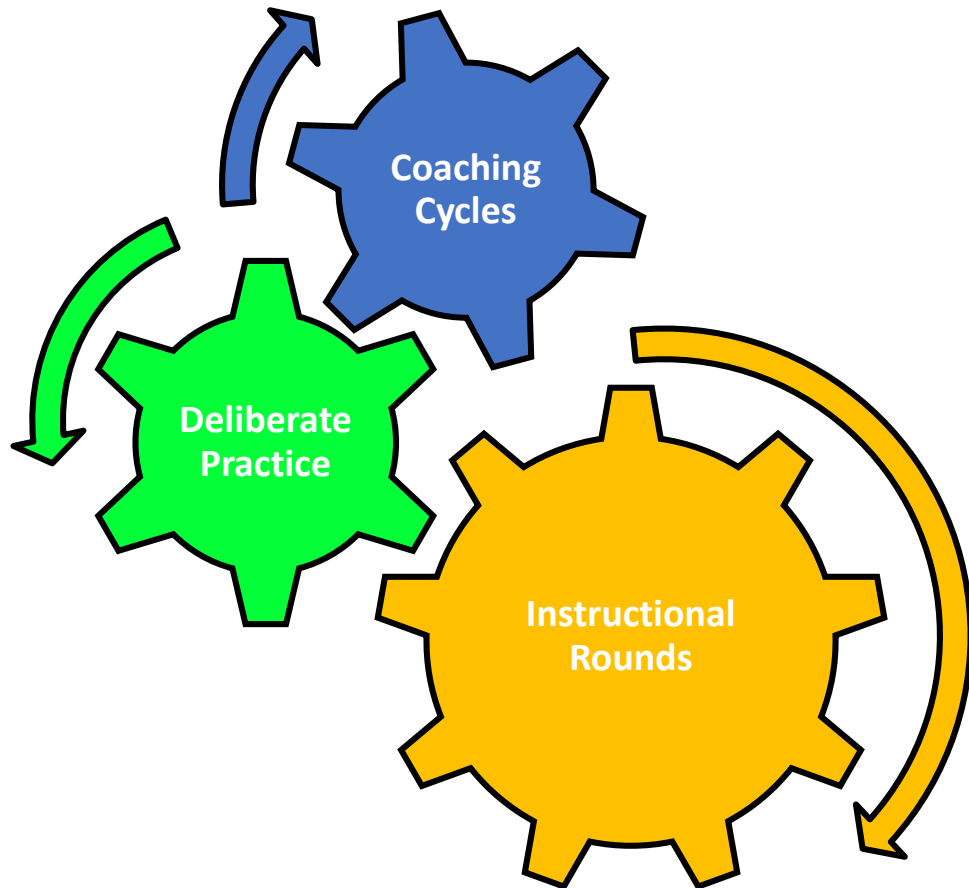
T: Why did you say "stop" there?

S: It is about the same size as the first rectangle.

Repeat this process for the following sequence of numbers: 5 and 4, 5 and 10, 1 and 3, 4 and 6, 10 and 20.  
Only draw the dots for the first example. Have students talk about how the first number relates to the second number using language such as *a little longer*, *a little shorter*, *much longer*, *double*, etc. Have students who find this challenging use a number line with their left pointer finger on zero and their right pointer finger on the number (endpoint).



# Deliberate Practice Key Points



- Rehearse as if students are there.
- Show! Don't tell.
- Polish a small portion.
- Give feedback when it can help improve instruction.

# Instructional Rounds: Ground Rules

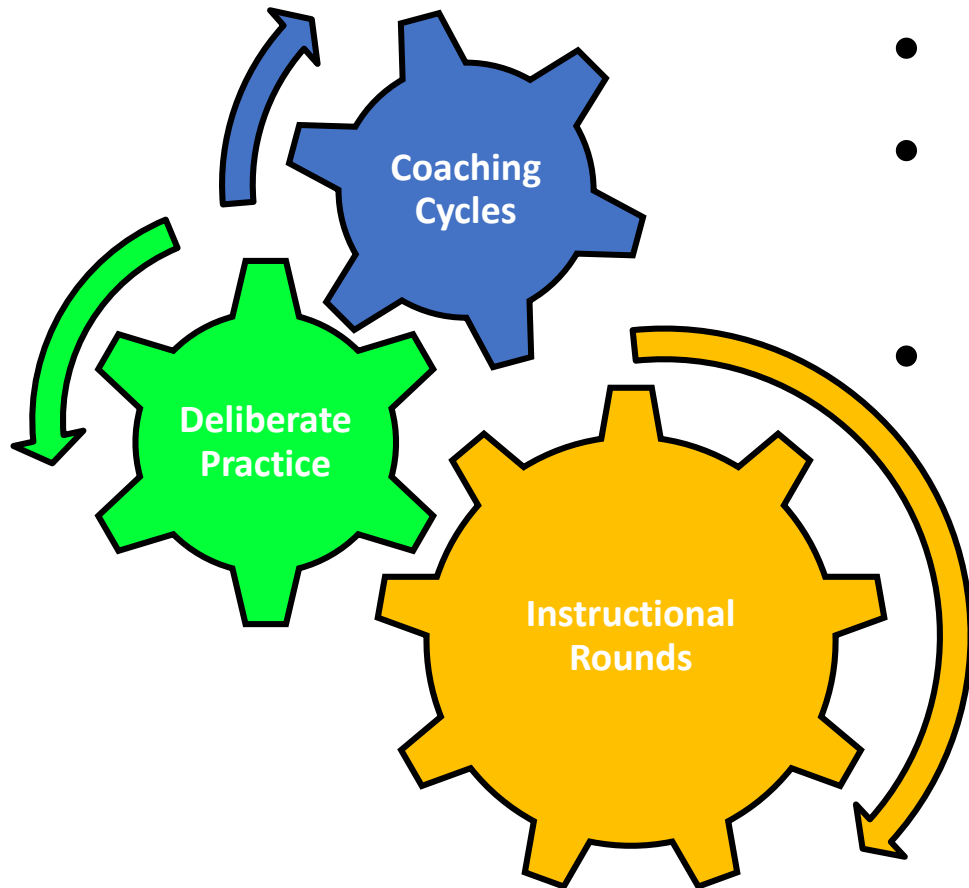
1. What are teachers doing and saying?
2. What are students doing and saying?
3. What is the task?

**City, Elizabeth A. *Instructional Rounds in Education: A Network Approach to Improving Teaching and Learning.* Cambridge, MA: Harvard Education Press, 2009.**

# Instructional Rounds: Learning to See

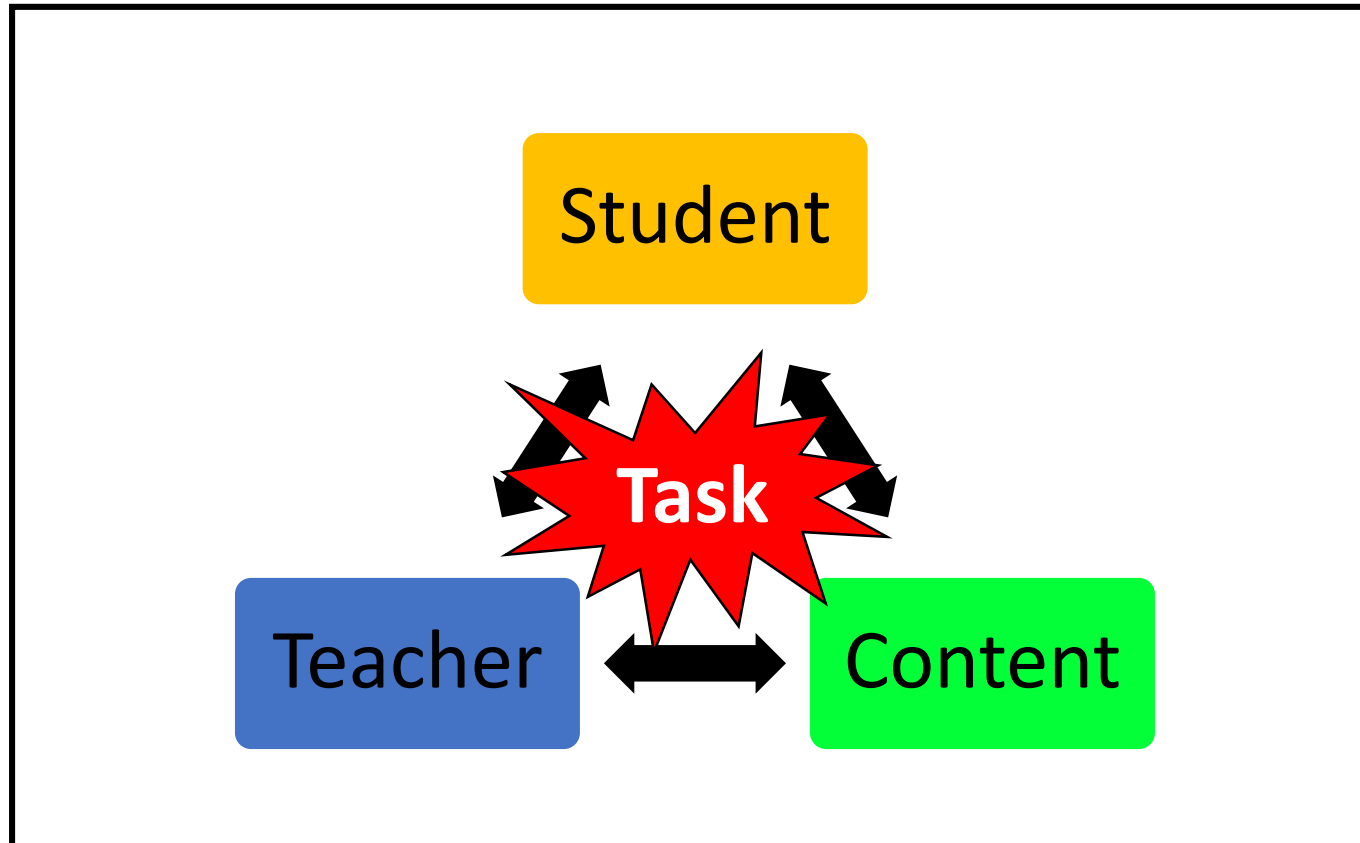


# Instructional Rounds Key Points



- Focus on seeing the Instructional Core
- Be descriptive
- Professional learning in context of your system
- Independent practitioners → collective knowledge and mutual commitment

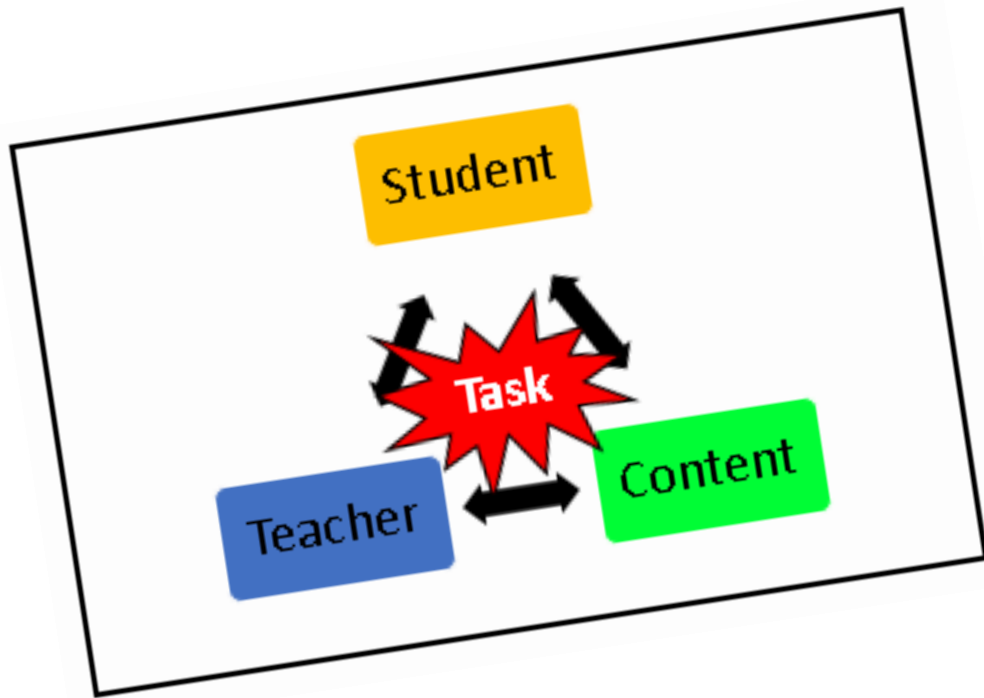
# The Instructional Core



City, Elizabeth A. *Instructional Rounds in Education: A Network Approach to Improving Teaching and Learning*. Cambridge, MA: Harvard Education Press, 2009.



# Action Plan



How could you apply these tools within your system to address the professional needs you identified?

# Online Support

## SOCIAL MEDIA:

- [Facebook.com/eurekamathofficial](https://www.facebook.com/eurekamathofficial)
- [Pinterest.com/eurekamath0130](https://www.pinterest.com/eurekamath0130)
- [Twitter.com/eureka\\_math](https://twitter.com/eureka_math)

## EUREKA PROGRAM SUPPORT:

- [EurekaProgramSupport@GreatMinds.org](mailto:EurekaProgramSupport@GreatMinds.org)

## EUREKA MATH CHAMPIONS NETWORK:

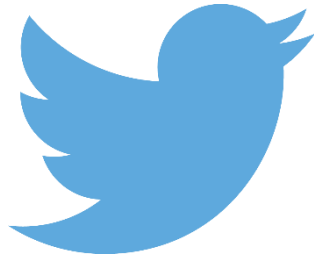
- [Greatminds.net/maps/math/champions](https://www.greatminds.net/maps/math/champions)



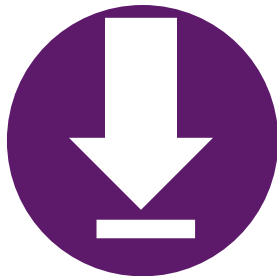


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