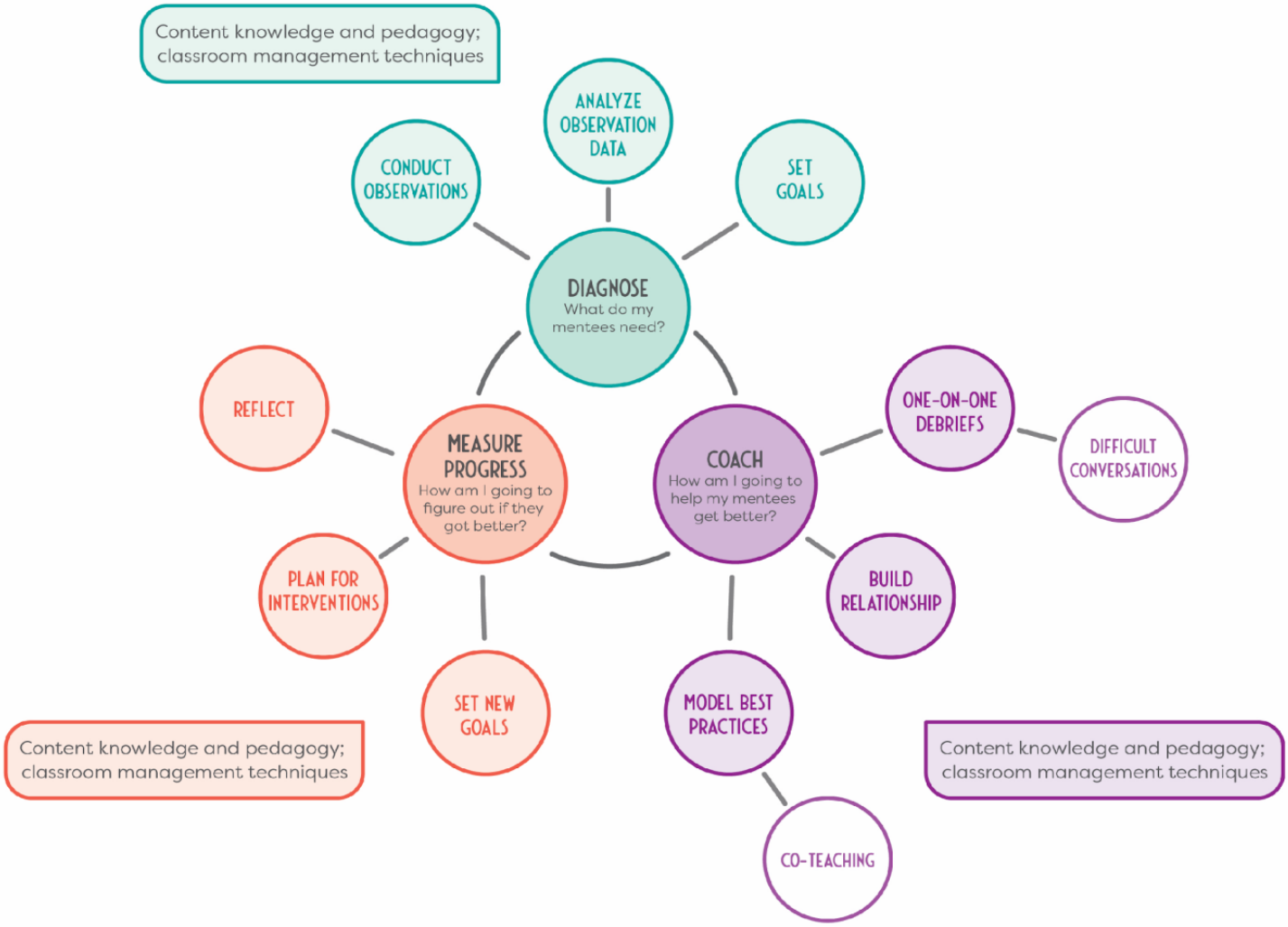
Louisiana Department of Education
Mentor Teacher Training

Module 5:
Coaching to Facilitate Productive Math Discourse

Elementary Cohort

Facilitated by Learning Forward

The Mentoring Cycle



Mentor Training Course Goals

Mentors will:

- Build **strong relationships** with mentees.
- **Diagnose and prioritize** mentee's strengths and areas for growth.
- Design and implement a **mentoring support plan**.
- Assess and deepen **mentor content knowledge and content-specific pedagogy**.

Module 5 Outcomes

- Set goals based on observation analysis of mentee.
- Practice one-on-one debrief conversations.
- Learn a model for facilitating productive student discourse in mathematics.

Module 5 Agenda

Morning

- Welcome and outcomes
- Productive mathematical discourse

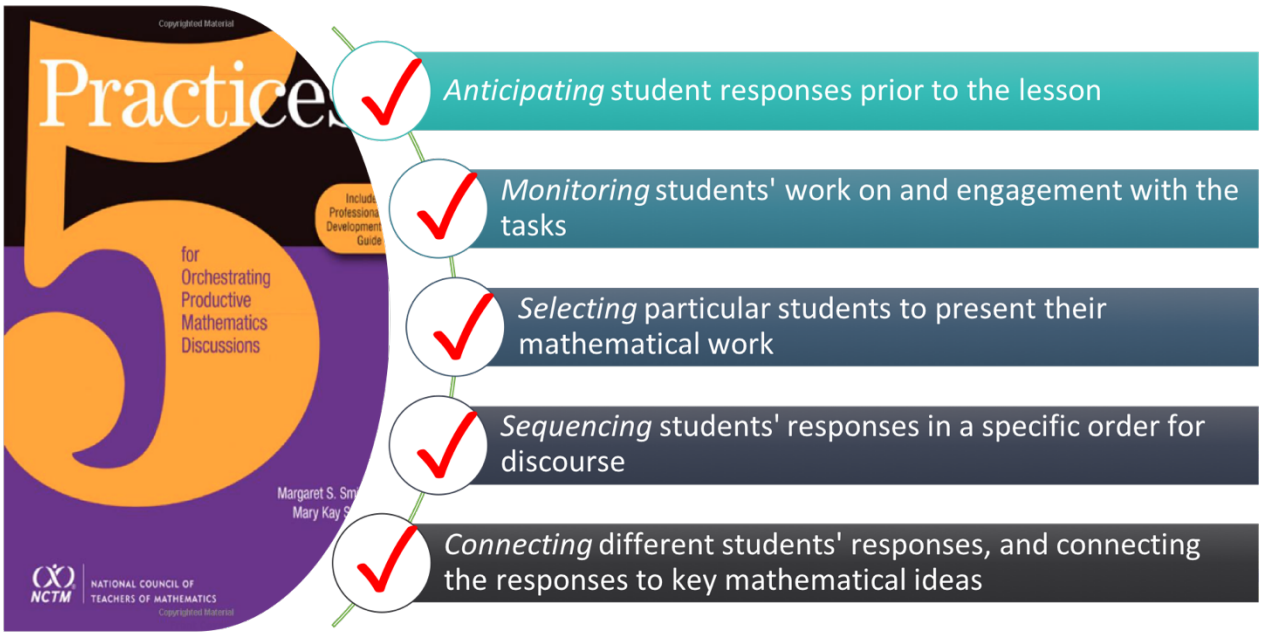
Lunch (45 min.)

Afternoon

- Set goals
- One-on-one debriefs
- Wrap-up

Agreements

Make the learning meaningful
Engage mentally and physically
Notice opportunities to support the learning of others
Take responsibility for your own learning
Own the outcomes
Respect the learning environment of self and others



Anticipating Student Responses in Mathematics

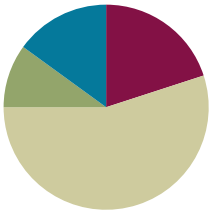
- Consider which strategies are likely to be most useful in addressing the content.
- Consider which strategies students are likely to use.
- Consider how to respond to likely student work.

Lesson 2

Objective: Recognize a digit represents 10 times the value of what it represents in the place to its right.

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(6 minutes)
Concept Development	(33 minutes)
Student Debrief	(9 minutes)
Total Time	**(60 minutes)**



Fluency Practice (12 minutes)

- Skip-Counting **3.OA.7** (4 minutes)
- Place Value **4.NBT.2** (4 minutes)
- Multiply by 10 **4.NB5.1** (4 minutes)

Skip-Counting (4 minutes)

Note: Practicing skip-counting on the number line builds a foundation for accessing higher-order concepts throughout the year.

Direct students to count by threes forward and backward to 36, focusing on the crossing-ten transitions.

Example: (3, 6, 9, 12, 9, 12, 9, 12, 15, 18, 21, 18, 21, 24, 27, 30, 27, 30, 33, 30, 33, 30, 33, 36…). The purpose of focusing on crossing the ten transitions is to help students make the connection that, for example, when adding 3 to 9, 9 + 1 is 10, and then 2 more is 12.

There is a similar purpose in counting down by threes; 12 – 2 is 10, and subtracting 1 more is 9. This work builds on the fluency work of previous grade levels. Students should understand that when crossing the ten, they are regrouping.

Direct students to count by fours forward and backward to 48, focusing on the crossing-ten transitions.

Place Value (4 minutes)

Materials: (S) Personal white board, unlabeled thousands place value chart (Lesson 1 Template)

Note: Reviewing and practicing place value skills in isolation prepares students for success in multiplying different place value units during the lesson.

T: (Project the place value chart to the thousands place.) Show 5 tens as place value disks, and write the number below it.

S: (Draw 5 tens. Write 5 below the tens column and 0 below the ones column.)

T: (Draw to correct student misunderstanding.) Say the number in unit form.

S: 5 tens.

T: Say the number in standard form.

S: 50.

Continue for the following possible sequence: 3 tens 2 ones, 4 hundreds 3 ones, 1 thousand 2 hundreds, 4 thousands 2 tens, and 4 thousands 2 hundreds 3 tens 5 ones.

Multiply by 10 (4 minutes)

Materials: (S) Personal white board

Note: This fluency activity reviews concepts learned in Lesson 1.

T: (Project 10 ones × 10 = 1 _____.) Fill in the blank.

S: (Write 10 ones × 10 = 1 hundred.)

T: Say the multiplication sentence in standard form.

S: 10 × 10 = 100.

Repeat for the following possible sequence: 10 × _____ = 2 hundreds; 10 × _____ = 3 hundreds; 10 × _____ = 7 hundreds; 10 × 1 hundred = 1 _____; 10 × ____ = 2 thousands; 10 × _____ = 8 thousands; 10 × 10 thousands = _____.

Application Problem (6 minutes)

Amy is baking muffins. Each baking tray can hold 6 muffins.

a. If Amy bakes 4 trays of muffins, how many muffins will she have in all?

b. The corner bakery produced 10 times as many muffins as Amy baked. How many muffins did the bakery produce?

Extension: If the corner bakery packages the muffins in boxes of 100, how many boxes of 100 could they make?

a) 4 × 6 = 24
Amy will have 24 muffins in all.

b) 10 × 24 = 240
The bakery produced 240 muffins.

Extension: They could make 2 boxes of 100 muffins.

Note: This Application Problem builds on the concept from the previous lesson of *10 times as many*.

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Concept Development (33 minutes)

Materials: (S) Personal white board, unlabeled millions place value chart (Template)

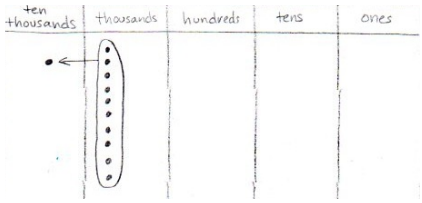
Problem 1: Multiply single units by 10 to build the place value chart to 1 million. Divide to reverse the process.

T: Label ones, tens, hundreds, and thousands on your place value chart.

T: On your personal white board, write the multiplication sentence that shows the relationship between 1 hundred and 1 thousand.

S: (Write 10 × 1 hundred = 10 hundreds = 1 thousand.)

T: Draw place value disks on your place value chart to find the value of 10 times 1 thousand.



T: (Circulate.) I saw that Tessa drew 10 disks in the thousands column. What does that represent?

S: 10 times 1 thousand equals 10 thousands. (10 × 1 thousand = 10 thousands.)

T: How else can 10 thousands be represented?

S: 10 thousands can be bundled because, when you have 10 of one unit, you can bundle them and move the bundle to the next column.

T: (Point to the place value chart.) Can anyone think of what the name of our next column after the thousands might be? (Students share. Label the **ten thousands** column.)

T: Now, write a complete multiplication sentence to show 10 times the value of 1 thousand. Show how you regroup.

S: (Write 10 × 1 thousand = 10 thousands = 1 ten thousand.)

T: On your place value chart, show what 10 times the value of 1 ten thousand equals. (Circulate and assist students as necessary.)

T: What is 10 times 1 ten thousand?

S: 10 ten thousands. → 1 **hundred thousand**.

T: That is our next larger unit. (Write 10 × 1 ten thousand = 10 ten thousands = 1 hundred thousand.)

T: To move another column to the left, what would be my next 10 times statement?

S: 10 times 1 hundred thousand.

T: Solve to find 10 times 1 hundred thousand. (Circulate and assist students as necessary.)

T: 10 hundred thousands can be bundled and represented as **1 million**. Title your column, and write the multiplication sentence.

S: (Write 10 × 1 hundred thousand = 10 hundred thousands = 1 million.)

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Scaffold student understanding of the place value pattern by recording the following sentence frames:

- 10 × 1 one is 1 ten
- 10 × 1 ten is 1 hundred
- 10 × 1 hundred is 1 thousand
- 10 × 1 thousand is 1 ten thousand
- 10 × 1 ten thousand is 1 hundred thousand

Students may benefit from speaking this pattern chorally. Deepen understanding with prepared visuals (perhaps using an interactive whiteboard).

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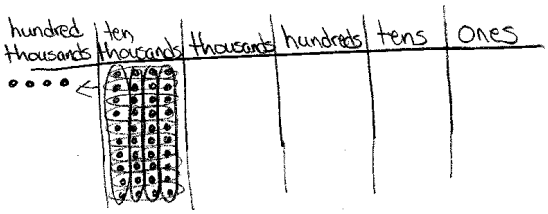
After having built the place value chart by multiplying by ten, quickly review the process simply moving from right to left on the place value chart and then reversing and moving left to right (e.g., 2 tens times 10 equals 2 hundreds; 2 hundreds times 10 equals 2 thousands; 2 thousands divided by 10 equals 2 hundreds; 2 hundreds divided by 10 equals 2 tens).

Problem 2: Multiply multiple copies of one unit by 10.

T: Draw place value disks, and write a multiplication sentence to show the value of 10 times 4 ten thousands.

T: 10 times 4 ten thousands is…?

S: 40 ten thousands. → 4 hundred thousands.



T: (Write 10 × 4 ten thousands = 40 ten thousands = 4 hundred thousands.) Explain to your partner how you know this equation is true.

Repeat with 10 × 3 hundred thousands.

Problem 3: Divide multiple copies of one unit by 10.

T: (Write 2 thousands ÷ 10.) What is the process for solving this division expression?

S: Use a place value chart. → Represent 2 thousands on a place value chart. Then, change them for smaller units so we can divide.

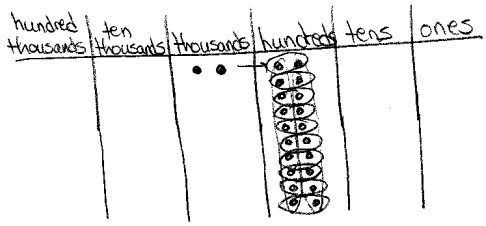
T: What would our place value chart look like if we changed each thousand for 10 smaller units?

S: 20 hundreds. → 2 thousands can be changed to be 20 hundreds because 2 thousands and 20 hundreds are equal.

T: Solve for the answer.

MP.1

S: 2 hundreds. → 2 thousands ÷ 10 is 2 hundreds because 2 thousands unbundled becomes 20 hundreds. → 20 hundreds divided by 10 is 2 hundreds. → 2 thousands ÷ 10 = 20 hundreds ÷ 10 = 2 hundreds.



Repeat with 3 hundred thousands ÷ 10.

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Problem 4: Multiply and divide multiple copies of two different units by 10.

T: Draw place value disks to show 3 hundreds and 2 tens.

T: (Write 10 × (3 hundreds 2 tens).) Work in pairs to solve this expression. I wrote 3 hundreds 2 tens in parentheses to show it is one number. (Circulate as students work. Clarify that both hundreds and tens must be multiplied by 10.)

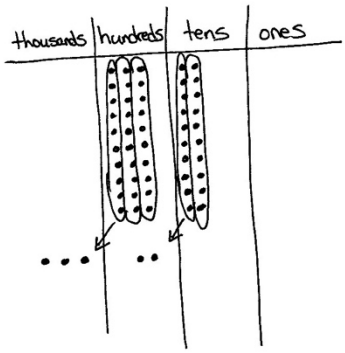
T: What is your product?

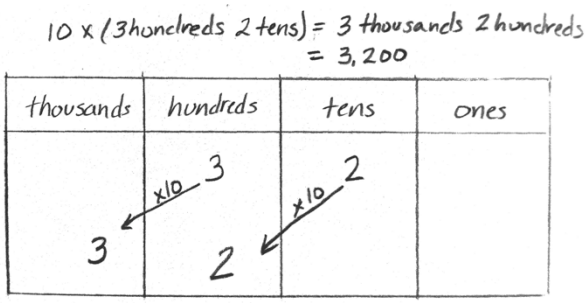
S: 3 thousands 2 hundreds.

T: (Write 10 × (3 hundreds 2 tens) = 3 thousands 2 hundreds.) How do we write this in standard form?

S: 3,200.

T: (Write 10 × (3 hundreds 2 tens) = 3 thousands 2 hundreds = 3,200.)

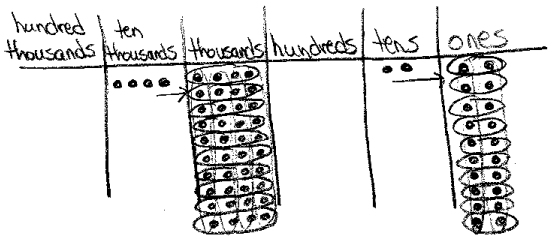


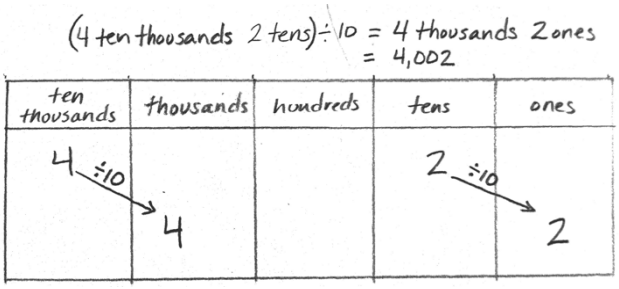


T: (Write (4 ten thousands 2 tens) ÷ 10.) In this expression, we have two units. Explain how you will find your answer.

S: We can use the place value chart again and represent the unbundled units and then divide. (Represent in the place value chart, and record the number sentence (4 ten thousands 2 tens) ÷ 10 = 4 thousands 2 ones = 4,002.)

T: Watch as I represent numbers in the place value chart to multiply or divide by ten instead of drawing disks.





Repeat with 10 × (4 thousands 5 hundreds) and (7 hundreds 9 tens) ÷ 10.

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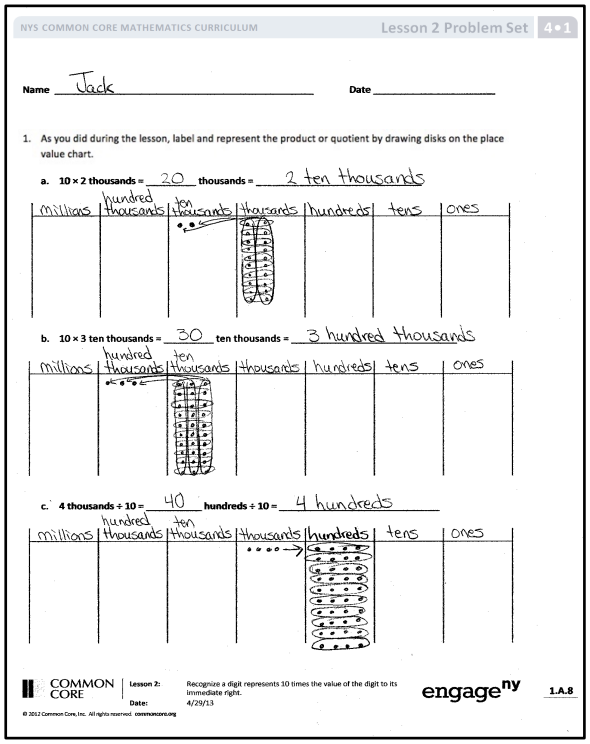
Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted 10 minutes. For some classes, it may be appropriate to modify the assignment by specifying which problems they work on first. Some problems do not specify a method for solving. Students should solve these problems using the RDW approach used for Application Problems.



NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 2 Problem Set 4•1

Name Jack Date

1. As you did during the lesson, label and represent the product or quotient by drawing disks on the place value chart.

a. 10 × 2 thousands = 20 thousands = 2 ten thousands

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

b. 10 × 3 ten thousands = 30 ten thousands = 3 hundred thousands

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

c. 4 thousands ÷ 10 = 40 hundreds ÷ 10 = 4 hundreds

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

COMMON CORE Lesson 2: Recognize a digit represents 10 times the value of the digit to its immediate right. Date: 4/29/13 engage^ny 1.A.8

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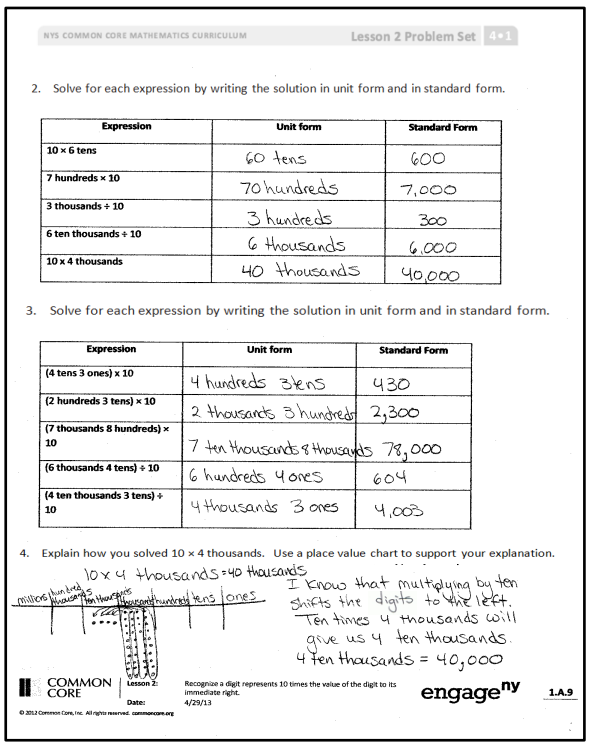
Student Debrief (9 minutes)

Lesson Objective: Recognize a digit represents 10 times the value of what it represents in the place to its right.

Invite students to review their solutions for the Problem Set and the totality of the lesson experience. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set.

Any combination of the questions below may be used to lead the discussion.

- How did we use patterns to predict the increasing units on the place value chart up to **1 million**? Can you predict the unit that is 10 times 1 million? 100 times 1 million?
- What happens when you multiply a number by 10? 1 **ten thousand** is what times 10? 1 **hundred thousand** is what times 10?
- Gail said she noticed that when you multiply a number by 10, you shift the digits one place to the left and put a zero in the ones place. Is she correct?
- How can you use multiplication and division to describe the relationship between units on the place value chart? Use Problem 1 (a) and (c) to help explain.
- Practice reading your answers in Problem 2 out loud. What similarities did you find in saying the numbers in unit form and standard form? Differences?



NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 2 Problem Set 4•1

2. Solve for each expression by writing the solution in unit form and in standard form.

Expression	Unit form	Standard Form
10 × 6 tens	60 tens	600
7 hundreds × 10	70 hundreds	7,000
3 thousands ÷ 10	3 hundreds	300
6 ten thousands ÷ 10	6 thousands	6,000
10 × 4 thousands	40 thousands	40,000

3. Solve for each expression by writing the solution in unit form and in standard form.

Expression	Unit form	Standard Form
(4 tens 3 ones) × 10	4 hundreds 3 tens	430
(2 hundreds 3 tens) × 10	2 thousands 3 hundreds	2,300
(7 thousands 8 hundreds) × 10	7 ten thousands 8 thousands	78,000
(6 thousands 4 tens) ÷ 10	6 hundreds 4 ones	604
(4 ten thousands 3 tens) ÷ 10	4 thousands 3 ones	4,003

4. Explain how you solved 10 × 4 thousands. Use a place value chart to support your explanation.

10 × 4 thousands = 40 thousands

I know that multiplying by ten shifts the digits to the left. Ten times 4 thousands will give us 4 ten thousands. 4 ten thousands = 40,000

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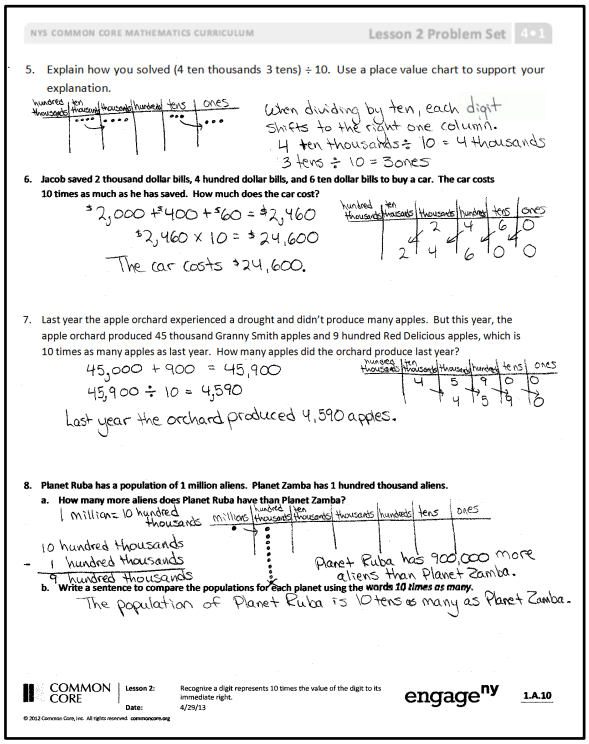
- In Problem 7, did you write your equation as a multiplication or division sentence? Which way is correct?
- Which part in Problem 3 was hardest to solve?
- When we multiply 6 tens times 10, as in Problem 2, are we multiplying the 6, the tens, or both? Does the digit or the unit change?
- Is 10 times 6 tens the same as 6 times 10 tens? (Use a place value chart to model.)
- Is 10 times 10 times 6 the same as 10 tens times 6? (Use a place value chart to model 10 times 10 is the same as 1 ten times 1 ten.)
- When we multiply or divide by 10, do we change the digits or the unit? Make a few examples.



NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 2 Problem Set 4•1

5. Explain how you solved (4 ten thousands 3 tens) ÷ 10. Use a place value chart to support your explanation.

When dividing by ten, each digit shifts to the right one column.
4 ten thousands ÷ 10 = 4 thousands
3 tens ÷ 10 = 3 ones

6. Jacob saved 2 thousand dollar bills, 4 hundred dollar bills, and 6 ten dollar bills to buy a car. The car costs 10 times as much as he has saved. How much does the car cost?

$2,000 + $400 + $60 = $2,460
$2,460 × 10 = $24,600
The car costs $24,600.

7. Last year the apple orchard experienced a drought and didn't produce many apples. But this year, the apple orchard produced 45 thousand Granny Smith apples and 9 hundred Red Delicious apples, which is 10 times as many apples as last year. How many apples did the orchard produce last year?

45,000 + 900 = 45,900
45,900 ÷ 10 = 4,590
Last year the orchard produced 4,590 apples.

8. Planet Ruba has a population of 1 million aliens. Planet Zamba has 1 hundred thousand aliens.
a. How many more aliens does Planet Ruba have than Planet Zamba?
1 million = 10 hundred thousands
10 hundred thousands − 1 hundred thousands = 9 hundred thousands
Planet Ruba has 900,000 more aliens than Planet Zamba.
b. Write a sentence to compare the populations for each planet using the words *10 times as many*.
The population of Planet Ruba is 10 times as many as Planet Zamba.

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Exit Ticket (3 minutes)

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work will help with assessing students' understanding of the concepts that were presented in today's lesson and planning more effectively for future lessons. The questions may be read aloud to the students.

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Name _____ Date _____

1. As you did during the lesson, label and represent the product or quotient by drawing disks on the place value chart.

   a. 10 × 2 thousands = _____ thousands = _____

   b. 10 × 3 ten thousands = _____ ten thousands = _____

   c. 4 thousands ÷ 10 = _____ hundreds ÷ 10 = _____

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2. Solve for each expression by writing the solution in unit form and in standard form.

Expression	Unit form	Standard Form
10 × 6 tens		
7 hundreds × 10		
3 thousands ÷ 10		
6 ten thousands ÷ 10		
10 × 4 thousands		

3. Solve for each expression by writing the solution in unit form and in standard form.

Expression	Unit form	Standard Form
(4 tens 3 ones) × 10		
(2 hundreds 3 tens) × 10		
(7 thousands 8 hundreds) × 10		
(6 thousands 4 tens) ÷ 10		
(4 ten thousands 3 tens) ÷ 10		

4. Explain how you solved 10 × 4 thousands. Use a place value chart to support your explanation.

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5. Explain how you solved (4 ten thousands 3 tens) ÷ 10. Use a place value chart to support your explanation.

6. Jacob saved 2 thousand dollar bills, 4 hundred dollar bills, and 6 ten dollar bills to buy a car. The car costs 10 times as much as he has saved. How much does the car cost?

7. Last year the apple orchard experienced a drought and did not produce many apples. But this year, the apple orchard produced 45 thousand Granny Smith apples and 9 hundred Red Delicious apples, which is 10 times as many apples as last year. How many apples did the orchard produce last year?

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8. Planet Ruba has a population of 1 million aliens. Planet Zamba has 1 hundred thousand aliens.
   a. How many more aliens does Planet Ruba have than Planet Zamba?

   b. Write a sentence to compare the populations for each planet using the words *10 times as many*.

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Name _____ Date _____

1. Fill in the blank to make a true number sentence. Use standard form.

   a. (4 ten thousands 6 hundreds) × 10 = _____

   b. (8 thousands 2 tens) ÷ 10 = _____

2. The Carson family saved up $39,580 for a new home. The cost of their dream home is 10 times as much as they have saved. How much does their dream home cost?

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Name _____ Date _____

1. As you did during the lesson, label and represent the product or quotient by drawing disks on the place value chart.

   a. 10 × 4 thousands = _____ thousands = _____

   b. 4 thousands ÷ 10 = _____ hundreds ÷ 10 = _____

2. Solve for each expression by writing the solution in unit form and in standard form.

Expression	Unit Form	Standard Form
10 × 3 tens		
5 hundreds × 10		
9 ten thousands ÷ 10		
10 × 7 thousands		

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3. Solve for each expression by writing the solution in unit form and in standard form.

Expression	Unit Form	Standard Form
(2 tens 1 one) × 10		
(5 hundreds 5 tens) × 10		
(2 thousands 7 tens) ÷ 10		
(4 ten thousands 8 hundreds) ÷ 10		

4. a. Emily collected $950 selling Girl Scout cookies all day Saturday. Emily's troop collected 10 times as much as she did. How much money did Emily's troop raise?

   b. On Saturday, Emily made 10 times as much as on Monday. How much money did Emily collect on Monday?

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unlabeled millions place value chart

Processes for Orchestrating Productive Mathematical Discourse

Anticipating student responses prior to the lesson

What should you consider?	How is this supported?
• The strategies that students might use to approach or solve a challenging mathematical task • How to respond to what students produce • Which strategies are most useful in addressing the mathematics to be learned	• Solving the problem in as many ways as possible • Solving the problem with other teachers • Drawing on relevant research when possible • Documenting student responses year to year

Monitoring students' work on, and engagement with, the task

What does this involve?	How is this supported?
• Circulating while students work, watching and listening • Recording interpretations, strategies, and points of confusion • Asking probing questions to get students back "on track" or to advance their understanding	• Anticipating student responses beforehand • Using a recording tool • Observing students' actual responses during independent work

Selecting particular students, or groups of students, to present their mathematical work

What does this involve?	How is this supported?
• Choosing students to present because of the mathematics in their responses • Making sure that over time all students are seen as authors of mathematical ideas and have the opportunity to demonstrate competence • Gaining some control over the content of the discussion	• Anticipating and monitoring • Planning in advance which types of responses to select, perhaps considering an incorrect solution to illustrate a typical misconception • Being ready to consider unanticipated solutions

Sequencing students' responses in a specific order for discussion

What does this involve?	How is this supported?
• Purposefully ordering presentations so the mathematics is accessible to all students • Building a mathematically coherent story line from prior knowledge to current grade-level standards.	• Anticipating, monitoring, and selecting • During anticipation work, considering how possible student responses are mathematically related
Ways to *Sequence* Student Responses	
• Begin with the strategy used by the majority of students before moving to those strategies that only a few students used. • Begin with a strategy that is more concrete, then move to strategies that are more abstract. • Present strategies that address common misconceptions. • Have related or contrasting strategies presented one right after the other.	

Connecting different students' responses, and *connecting* the responses to key mathematical ideas

What does this involve?	How is this supported?
• Encouraging students to make mathematical connections between different student responses through questioning • Making the key mathematical ideas that are the focus of the lesson salient • Considering extensions as they come from the students or the teacher	• Anticipating, monitoring, selecting, and sequencing • Considering how students might be prompted to recognize mathematical relationships between responses • Cultivating a classroom culture with explicit supports for student discourse.

— Citation: Adapted from Smith, M. S., & Stein, M. K. (2011). *5 practices for orchestrating productive mathematics discussions.* Reston, VA: National Council of Teachers of Mathematics.

Anticipating Student Responses:

Solve one- and two-step word problems within 100 using strategies based on place value

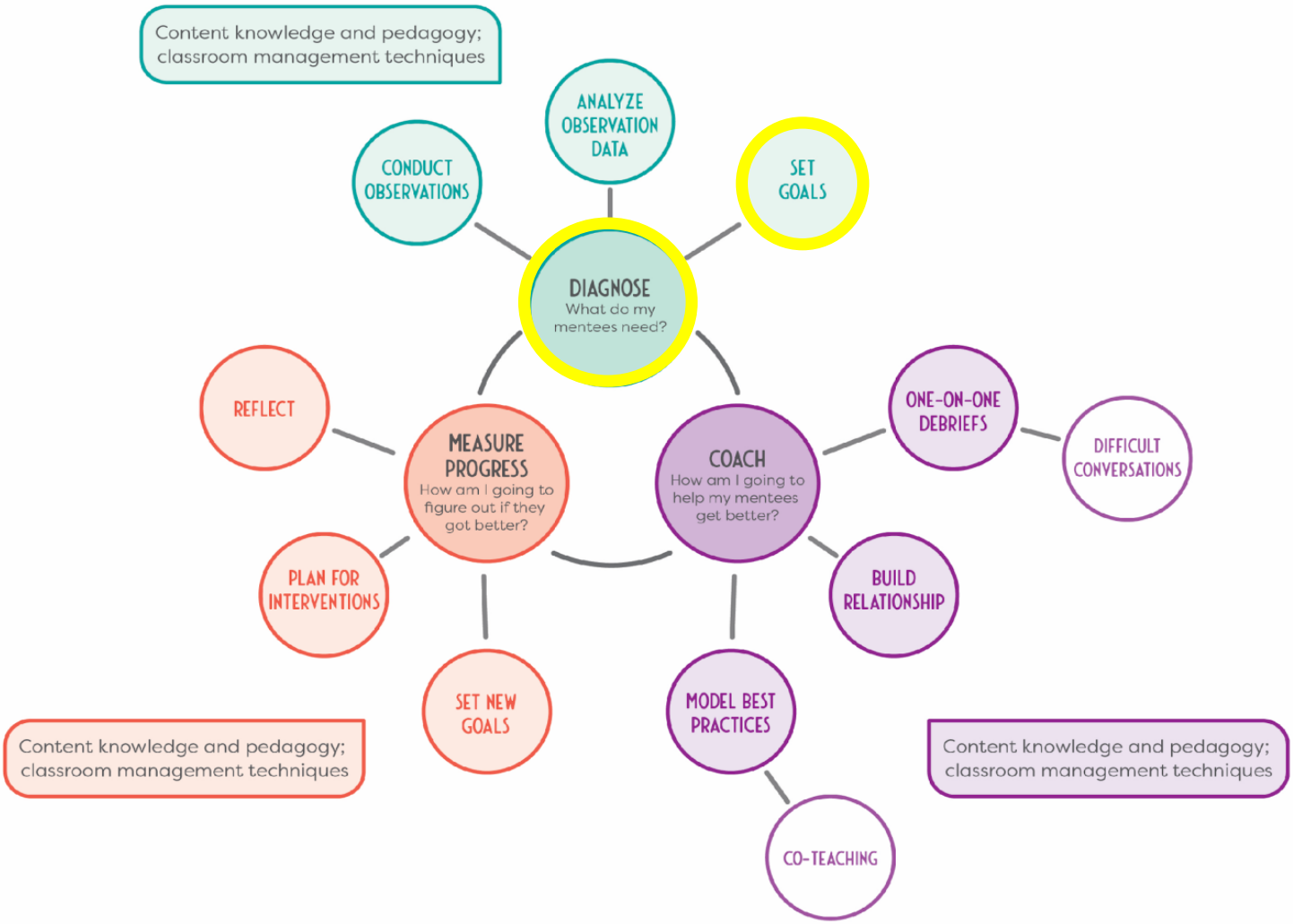
Work out the problems yourself:

Problem Set Question 1	Problem Set Question 2

Share, Review the Lesson Plan, Discuss, and Make Notes:

How else did people solve Question 1?	How else did people solve Question 2?
Which strategies are likely to be the most useful to students in meeting the objective of the lesson?	
Which strategies would students most likely use? (These may include strategies not included in this lesson)	
What misconceptions might students have?	
How would you respond to students who used these strategies or had these misconceptions?	

The Mentoring Cycle: Set Goals



Classroom Observation Tool		
Focus:		
Look-Fors	Student Behaviors	Teacher Behaviors
<u>Summary of Observation:</u>		

Classroom Observation Tool		
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Classroom Observation Tool		
Focus:		
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<u>Summary of Observation:</u>		

Analyzing Observation Data

Three key components of analyzing observation data:

- Analyze observation notes
- Recognize strengths and areas for growth
- Prioritize

Analyze Observation Notes:

Go back to your observation notes.

- Keep the focus of the observation in mind.
- Look for evidence or lack of evidence of the focus.
- Highlight and make notes in another color with that lens.

Recognize Strengths and Areas for Growth and Prioritize:

Go back to your highlights and analysis notes on your observation notes.

What does strong teaching for the focus area look like?

Strengths: Where do I see strong teaching for the focus area? (list)	**Areas for Growth:** Where do I see areas of missed opportunity? (list)	**Prioritize One Area for Growth:** When I think about what matters most for the focus area, which area for growth is most important? (select and make notes)
1.	**1.**	
2.	**2.**	
3.	**3.**	

Set Goals: 3 Key Components

- Review upcoming curriculum
- Align priorities
- Draft SMART goals

Draft SMART Goals

1. **Discuss:** What about the curriculum would inform your SMART goals?

2. **Discuss:** Where might the priority area of growth and the curriculum align?

3. **Draft** 2 SMART goals:

SMART Goal 1:

SMART Goal 2:

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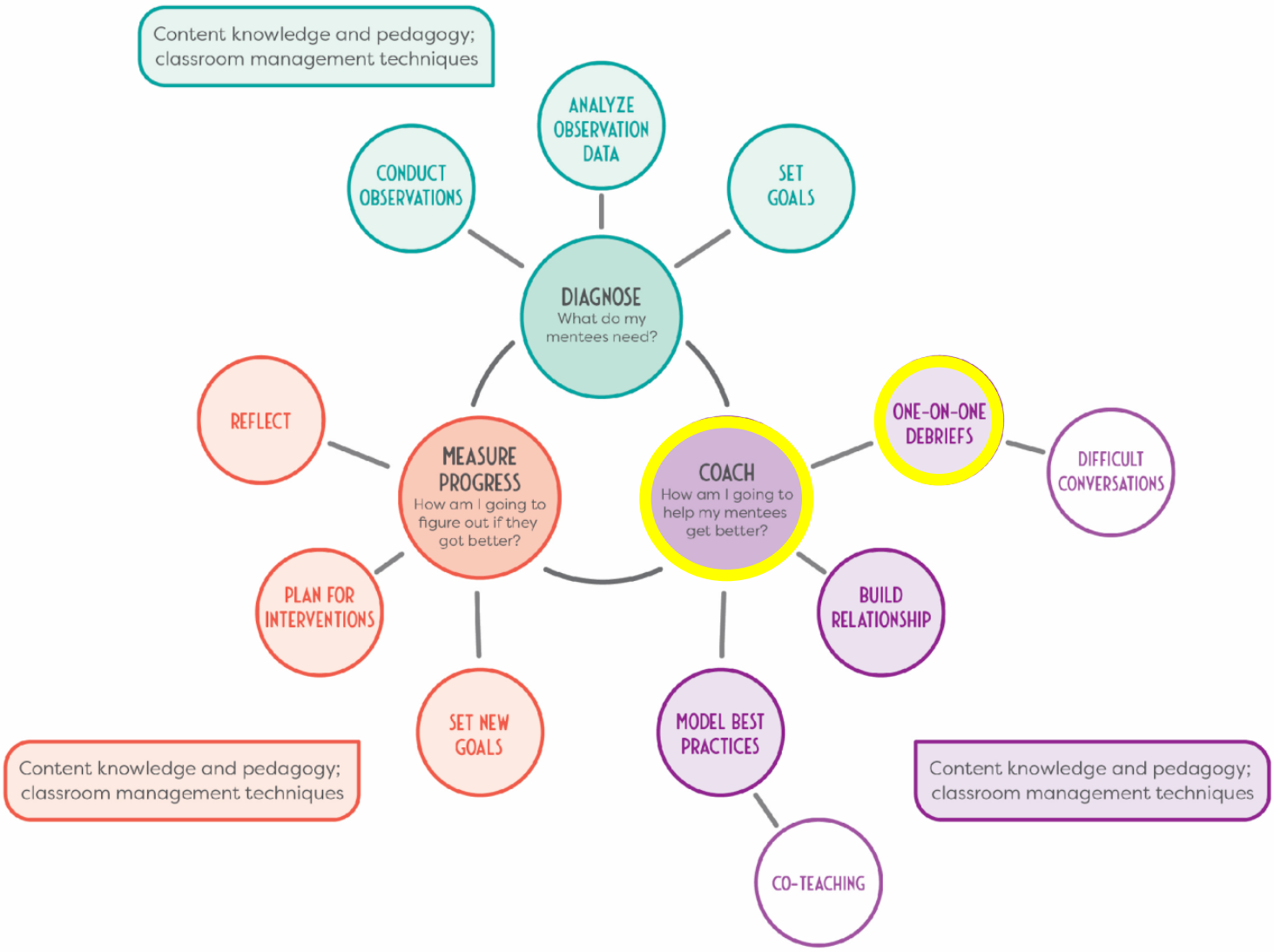
The Mentoring Cycle: One-on-One Debriefs



One-On-One Debriefs: 3 Key Components

- Plan for debrief
- Engage in debrief
- Practice difficult conversations

Plan to Engage in One-on-One Debriefs

Prioritized Area of Growth

Potential SMART Goals:

Guiding Questions	Planning Notes	Post Debrief Notes
What was the focus of the observed lesson?		
What was effective about the lesson in addressing the focus?		
What was ineffective about the lesson in addressing the focus?		
What might you change or modify to better address the focus of the lesson?		
What new learning might need to take place in order to better address the focus of the lesson?		
How can I, as a mentor, support the mentee?		
What next steps will I plan?		

Continuum of Mentoring Stances

Consult ⟷ **Collaborate** ⟷ **Reflect**

Consult	Collaborate	Reflect
Purpose: Provide information, technical assistance, problem solving, and advice, i.e. informing and assisting the mentee in implementing a specific set of instructional strategies, curriculum, procedures or assessments.	**Purpose**: Share ideas and problem solve collaboratively; working together to identify areas for instructional focus and problem solving based on student data and teacher competencies.	**Purpose**: Improve instructional decision- making and increase reflection on practice; encouraging self-directed thinking about instruction that is based on reflection and student outcomes.
Focus: Shares logistical information on "how we do things around here;" ensures the mentee implements the content and pedagogy accurately leading to student success.	**Focus**: Reciprocal support for growth and improvement of practice	**Focus**: Non-judgmental support for planning, instruction, assessment, reflection, problem solving (cognitive aspects of teaching).
Actions: Provides resources and assistance in accessing resources, demonstration lessons, planning conversations, and observations with reflection conversations.	**Actions**: Researching, co-planning, co-teaching, exchanging resources, conducting action research, examining student data, etc.	**Actions**: Learning-focused conversations which include inquiry, reflection, construction and deconstruction of knowledge about professional practice and student learning.
Language: Directive "It's a good idea to…; Always…; Keep in mind	**Language**: Collaborative "We might…" "Let's…" "How might our actions affect …?"	**Language**: Metacognitive What might be some ways to…? What research supports your decisions to...? What process do you use to…?
Result: Increased student achievement through the implementation of curriculum and instructional practices; Increased teacher content and content-specific pedagogical knowledge and skill.	**Result**: Resolved instructional problems based on teacher and mentor shared expertise; learning together to develop professional practice; increased student achievement.	**Result**: Tools/strategies for metacognition and independent problem solving on planning, instruction, and student achievement.
Whose direction: Mentor	**Whose direction**: Mentor and mentee jointly	**Whose direction**: Mentee

Adapted from Lipton, L. & Wellman, B. *Mentoring Matters, a Practical Guide to Learning-focused Relationships*

One-on-One Debrief Takeaways

What were your three biggest learnings?

What are your two biggest concerns?

What is your next action?

Module 5 Review

- As a learning team, revisit the outcomes and summarize your learning for each one.

- Share how you anticipate using what you learned when you mentor.

Assignments due for Module 6

Module 4/5 Assignments: Mentor work

- Establish partnership agreement with mentee and bring a copy to share and discuss
- Write a short narrative that identifies the SMART goal(s) you have set with mentee in the areas of classroom management, rigor, or math discourse. The narrative should describe the specific changes you hope to see in your mentee's practice and should clearly highlight how the data led to the goals you identified and prioritized. In order to write this you must observe the mentee, analyze your observation data, prioritize the most important need, draft 1-2 goals, and engage in a one-on-one debrief that results in agreeing on 1-2 SMART goals that you will work on together. Also bring your data, goals, and debrief notes (including on anything that was difficult!) for discussion.

Module 4/5 Assignments: Application to math content

Select a lesson from your curriculum. Bring the lesson with you for discussion.

- Think about the content of lesson, the delivery of instruction, and the activities students will be doing. Annotate in colored pen to show how Rigor is illustrated in the lesson. What specific instructional strategies are appropriate to teaching the content? What range of students' outcomes would be appropriate?
- Prepare to lead a mathematically productive discussion. Select a pivotal point in the lesson where discourse would help students achieve the learning goal. List multiple ways that you anticipate students would solve the problem and the misconceptions they may have for each type of response. Write several questions that you could ask about these approaches that could help students progress. Be sure that your questions lean on the coherence of the curriculum.