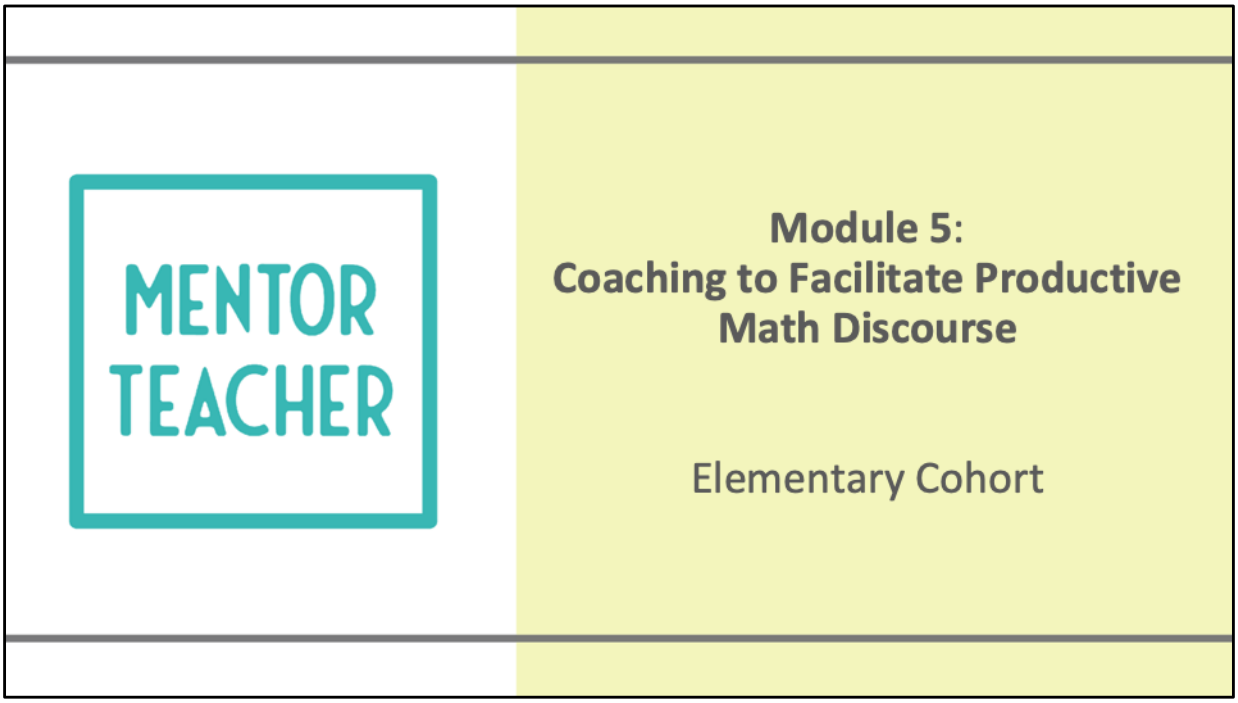



●**Duration:** 1 min.

●**Facilitator says**: Welcome to Module 5. We hope you had a good night's rest and look forward to another great day of learning today.

●**Facilitator does**: Reminder of logistics for training (restrooms, times, breaks, lunch, etc.)

## 20-Second Check In

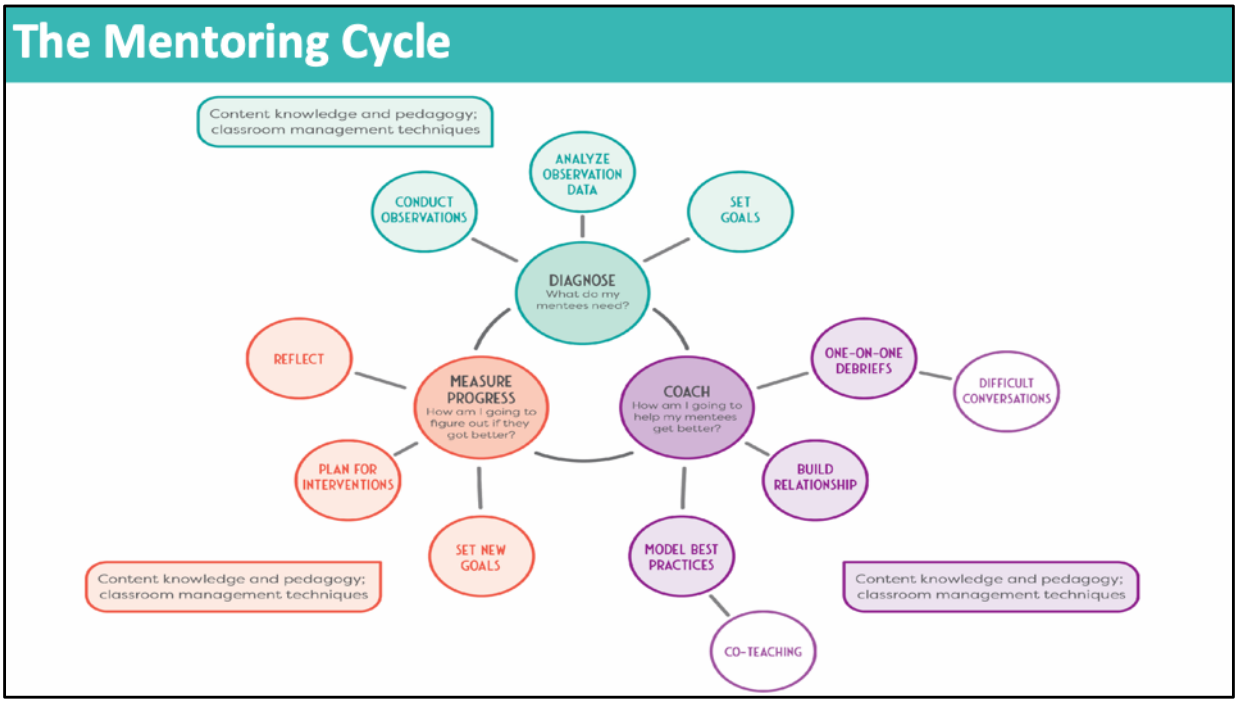
How are you at this moment?

- **Duration:** 3 minutes

- **Facilitator says:** Check Ins are valuable protocols for gaining an understanding and/or appreciating the "current state of being" of your colleagues. Examples: Are they ready to focus; are they distracted by challenges at home? While that may not let us alter our plans; at a minimum it helps us understand colleagues and empathy may help them to focus. In a moment I will ask you to do a ten second check in with your learning team.

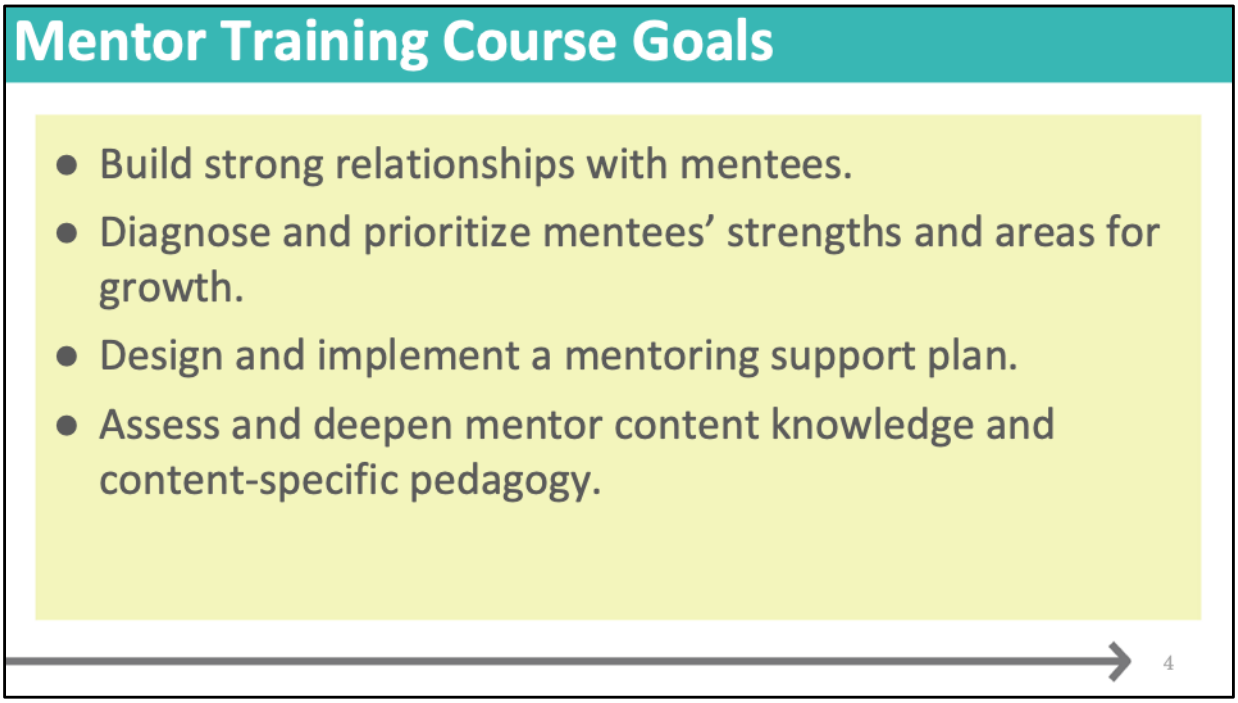
  Let me model. "I am rested, prepared and looking forward to the next day with you." Now it's your turn. (Allow participants to engage in their check-ins with their learning team.)

Image credit: beyondblue.org.au



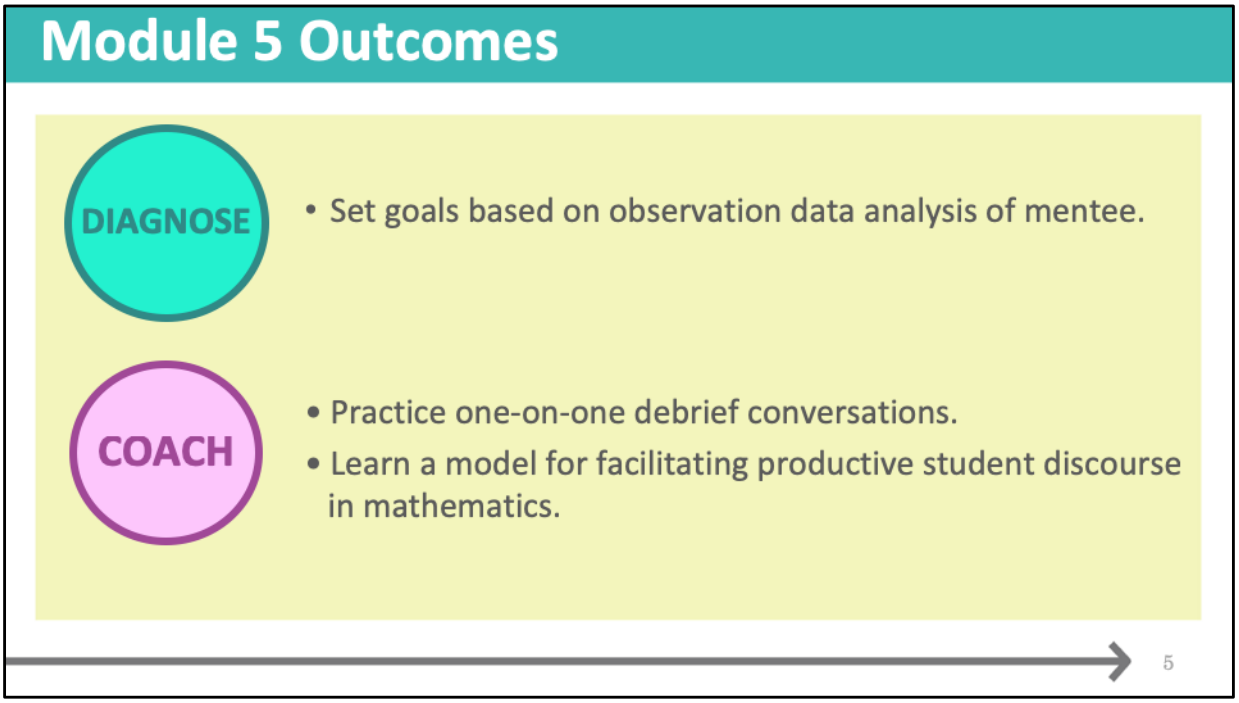

- **Duration:** 1 minute

- **Facilitator Says:** Remember, this is the mentor cycle that all of our work is grounded in. The mentor cycle illustrates all of the components of your role as a mentor - the concrete actions you will take when working with your mentees. Today, we'll be zooming in on aspects of Diagnose and Coach. By the end of the nine Modules we will have worked through all of the components of the cycle.




- **Duration:** 1 minute

- **Facilitator says:** Let's just take a moment to remind ourselves about the overarching goals of the Mentor Training Course. Yesterday in module 4 we focused on the instructional shifts in mathematics instruction which aligned with course goal 4. We discussed partnership agreements as a form of establishing a strong relationship with your mentees which aligns with goal 1. We also engaged in a classroom observation as well as analyzed observation data which aligns with goals 2 and 3.




●**Duration:** 2 minutes

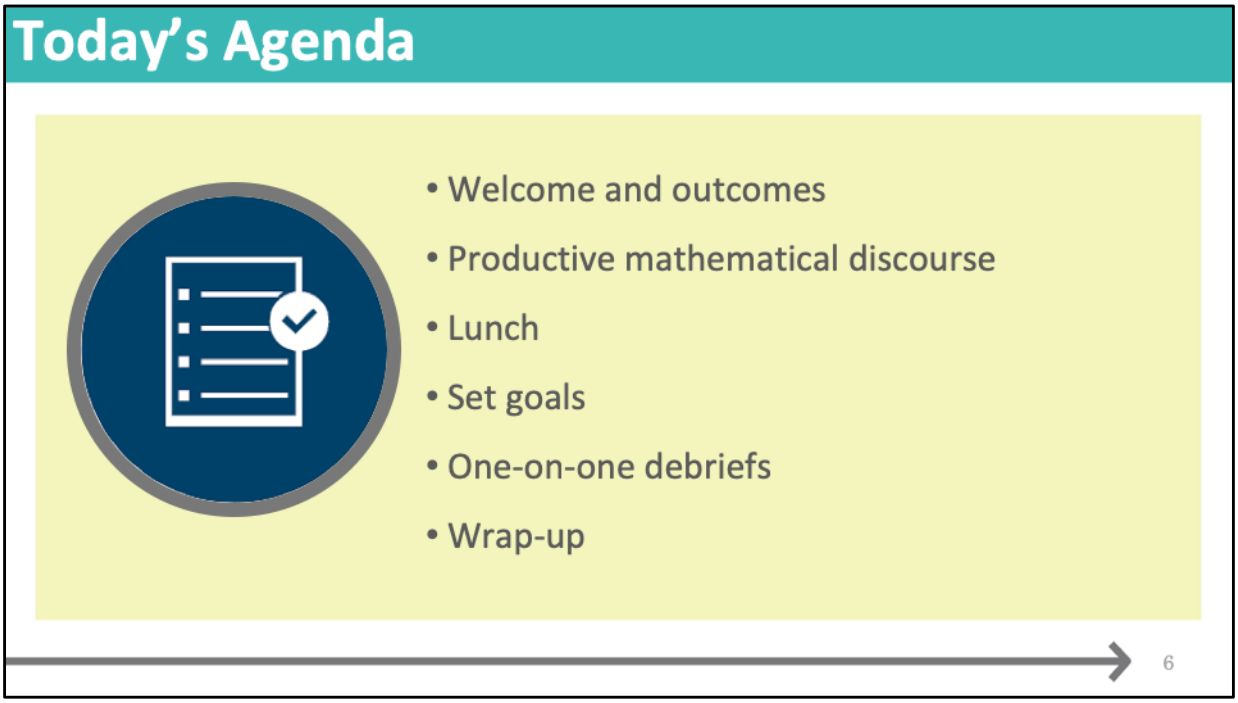
●**Facilitator says:** During this module, we will focus on two mentoring and one content oriented outcomes. We will also review our work in the Diagnose stage that we did together in the last module.

The state of Louisiana has invested significantly in the development of Tier 1 curriculum to ensure all educators have access to high quality curriculum and instructional materials. This investment resulted from compelling research on the impact on students when teachers work with HQ curriculum. We are committed to teachers and students having these materials – particularly our newest teachers and our teachers serving our most vulnerable students. Today's curriculum focus in on facilitating product student discourse in mathematics. For students to deeply master math, they must engage in product conversations about math in class.

We will pick up on yesterday's focus on the mentoring cycle which included conduct observations and analyze data and see how they connect to the next two steps in the cycle, set goals and one-on-one debrief. When we come together again this fall, we

will have time to revisit co teaching and model teaching and determine how they might fit into your work with your mentee.

- **Facilitator does:** Reminds participants that the outcomes appear on p. 2.




●**Duration**: 1 minute

●**Facilitator says:** You will see our agenda on p. 2 of your packet. We will begin with our content focus on productive mathematical discourse, then move into our mentoring focus of setting goals and conducting one-on-one debriefs with your mentees.

●**Duration**: 6 minutes

●**Facilitator says**: Yesterday your team made a commitment to focus on one agreement. Discuss among yourselves how well you kept that commitment. What went well and where did you struggle? Determine if you want to keep the same team commitment or focus somewhere else today.

●**Facilitator does**: Observes team conversations. Then after four minutes invite a quick report out from 2-3 groups.

## You Said . . .

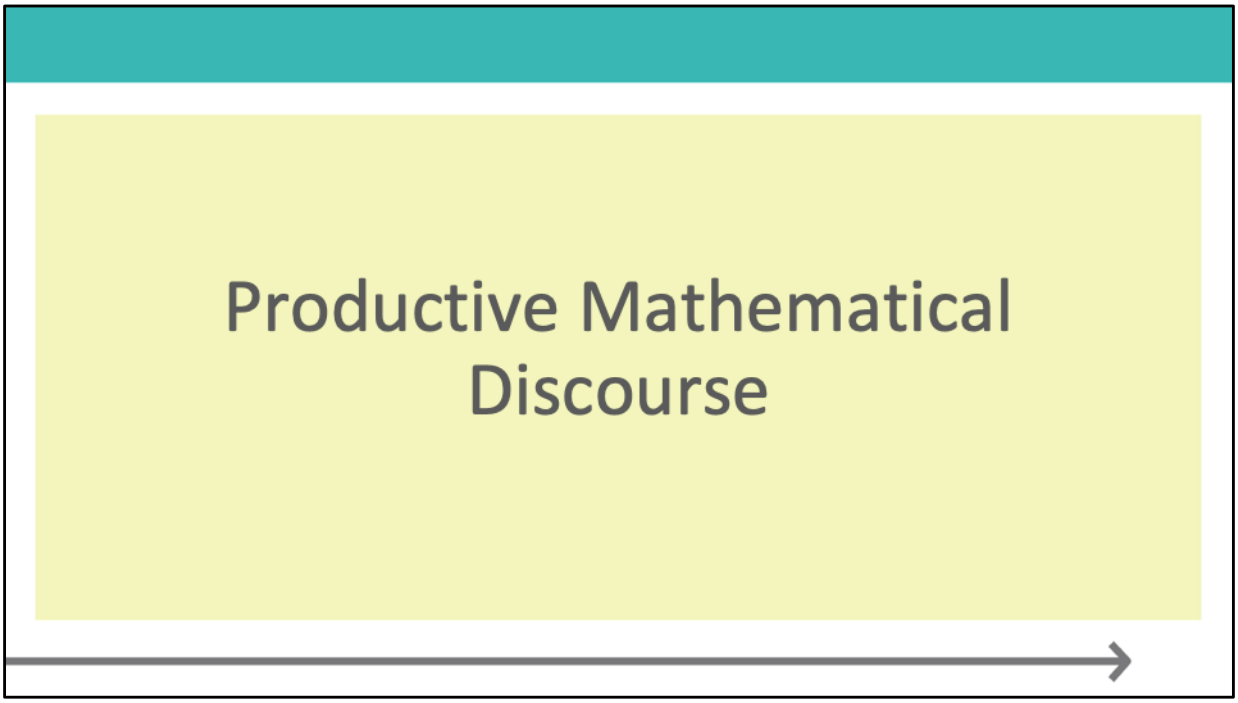
- Before I thought … and now I think…
- The most useful thing from today for my own teaching is…
- The most important thing from today for me to remember about working with my mentee is...

8

●**Duration**: 5 minutes

●**Facilitator says**: We want to share what you wrote on your exit cards yesterday. These are the highlights of what you said rather than every comment. If you have a question that we have not yet answered, please see us at break or lunch to get some of our thinking.

●**Facilitator does**: read a summary of about 5-8 big ideas for each of the items. Answer questions that are appropriate to answer in the large group.




- **Duration**: 1 minute

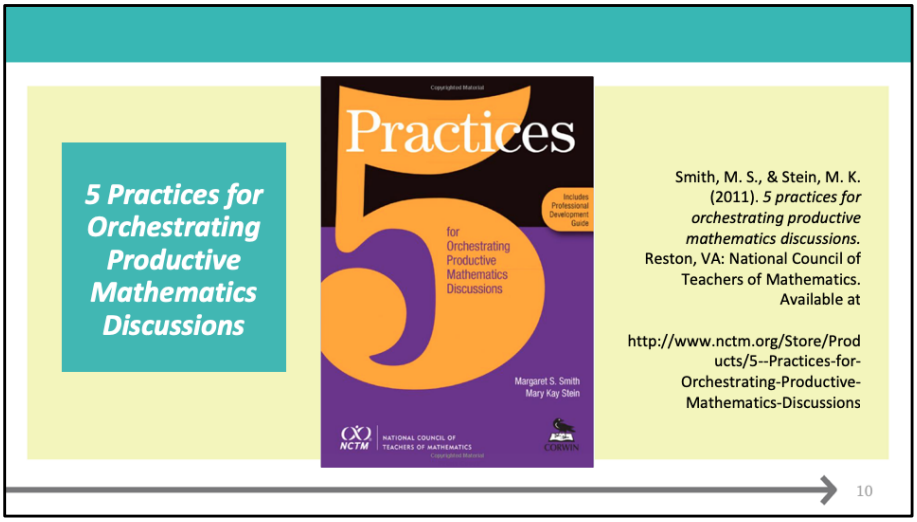
- **Facilitator says**: We will now dive into our math content for the day: productive mathematical discourse. Remember that your number one job as a mentor is to help your mentees implement their Tier 1 curriculum well. Like we talked about yesterday, there is a growing body of evidence to support the theory that providing teachers with a high-quality curriculum that reflects top-notch content and pedagogy is the fastest way to improve instruction. New teachers, perhaps more than anyone else, can benefit from using a strong curriculum. Even the best curricula can be difficult to implement as intended, especially for new teachers. As a mentor teacher, you play an instrumental role in helping and supporting teachers to implement their curriculum well. In order to do this we need to develop a common language around mathematical practices. Today's focus on mathematical discourse will help us do just that. For students to deeply master math, they must engage in productive conversations about math in class.
  As the standards for mathematics have shifted from primarily routine procedures and algorithms to also include building conceptual understanding

and applying knowledge, students must be able to reason, justify and model their thinking in mathematics. Achieving this require that teachers also shift their instruction, so that students are doing more of the cognitive lift. Productive discourse is an instructional tool that facilitates this by allowing teachers to use students' developing thinking to help other master the content. Productive discourse also helps teachers collect important information about what students are thinking and learning that can be used to adjust instruction.

The reality is that we see a dearth of these types of conversations in classrooms and as a mentor, you can help teachers who are using the EngageNY curriculum and other Tier 1 curriculums understand how to recognize each of these practices in order to best meet the intent of each lesson.

Remember, by first strengthening your content and pedagogical skills, you'll then be better prepared to support your mentees and help them build their content and pedagogical skills.

So let's dive into what discourse should look like in a math classroom.

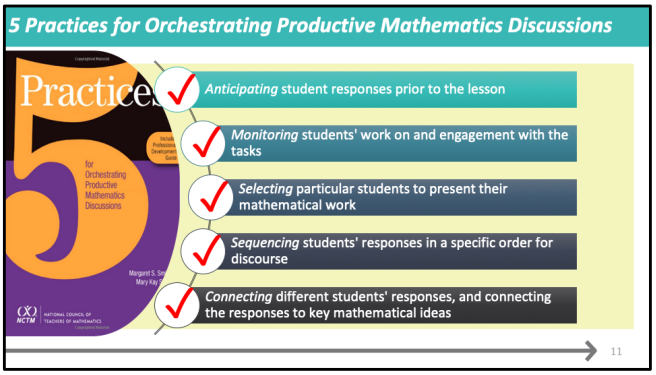



●**Duration:** 1 minute

●**Facilitator says**: To promote productive student discourse in the mathematics classroom, we will examine a 5-practices model as originated by Margaret Smith and Mary Kay Stein. Smith and Stein's research laid out the framework as a process for using student thinking and student work as the launch pad for rich discussions that get at the heart of important learning. The first iteration of this model was done with mathematics; later, the model was expanded to also address science discourse. We will use this resource as the foundation of our learning today. We'll be doing an overview of the model for facilitating mathematics discourse described in the National Council of Teachers of Mathematics book *5 Practices for Orchestrating Productive Mathematics Discussions*.

●**Words of Wisdom:** The "5-practices model" is very rich; participants can become overwhelmed, so strive to keep the overview of the 5 practices brief.

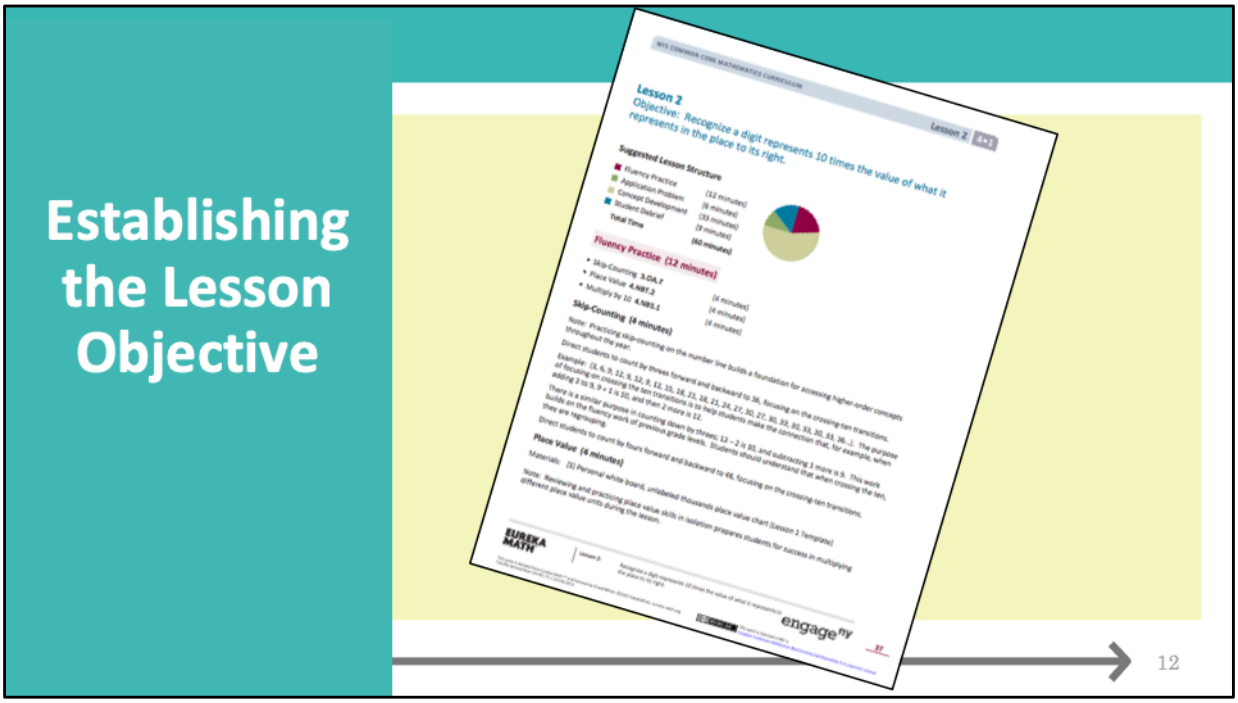
●**Citation:** Smith, M. S., & Stein, M. K. (2011). *5 Practices for Orchestrating Productive Mathematics Discussions.* Reston, VA: National Council of Teachers of Mathematics. Available at http://www.nctm.org/Store/Products/5--Practices-for-Orchestrating-Productive-Mathematics-Discussions




●**Duration:** 3 minutes

●**Facilitator does: Animate the slide for each step.**

●**Facilitator says**: This visual is an overview of the '5 practices model' for orchestrating productive mathematics discussions. It appears on p. 3. The '5 practices model' is a process of planning and instruction that teachers can implement for promoting productive discussions in classrooms. The EngageNY curriculum resource and other Tier 1 curriculums use these 5 practices in many lessons. One note - while EngageNY and other Tier 1 curriculums do make use of many of these practices, they don't call any of them out specifically. And so teachers often underestimate their importance, which leads them to deviate from the design of the lesson (skip, alter, etc.), especially when students struggle or teachers feel behind on pacing.
By taking the time to understand the model fully, you should be able to better implement the EngageNY curriculum to its fullest intent and better support your mentees understand how to recognize each of these practices in order to best meet the intent of the lesson. Remember that this visual is an overview of the '5 practices model' for orchestrating productive mathematics discussions. This process depends on the foundation of establishing a clear learning goal for discussions, which often EngageNY does for you. The first practice, ***Anticipating* student responses** to a challenging task, is part of the planning that occurs BEFORE students engage in the mathematics task. The second practice, ***Monitoring* student work** during engagement with the task, happens while students are working on the task, either individually, in pairs, or in small groups. The third practice, ***Selecting* particular student work** samples (or students, or groups of students, to present their mathematical work), happens after students have completed the task. The fourth practice, ***Sequencing* student work** in a specific order for discussion, also happens after students have completed the task. The fifth and final practice, ***Connecting* student work samples** to each other and to the key learning goal (connecting different students' responses, and connecting the responses to key mathematical ideas), happens after a sequence is determined.



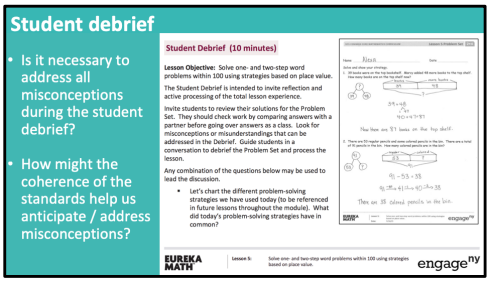

●**Duration:** 10 minutes

●**Critical Idea**: Establishing a clear standards-aligned learning goal is foundational to using the "5 practices model" for orchestrating productive mathematical discussions.

●**Facilitator says**: Before you use student work in a math discussion, you need to ensure that you are connecting the student responses back to the intended goal of the lesson as much as possible. Establishing a clear understanding of the lesson objective prior to beginning the lesson can ensure that teachers, as well as students, stay focused on what really matters and on what students need to learn during discussions. The lesson objective should drive the lesson and serve as the focus of student discussions. Turn to **Lesson 2: Recognize a digit represents 10 times the value of what it represents in the place to its right** on p. 4. Look at the Lesson Objective at the top of the first page. The lesson objective lays the framework for the lesson. Let's look at the Concept Development section of the lesson and see if we can determine how the lesson objective is achieved in the lesson. Note that locating in advance some possible 'Hot Spots' in the lesson—things that could hinder you and your students in achieving the lesson objective—will be very useful to you when you facilitate your students' mathematical discourse.

●**Facilitator does**: Allow 3 to 5 minutes for the participants to look through the Concept Development section of the lesson. Invite a few responses from participants

to share the goal/objective of the lesson with the whole group.




●**Duration:** 12 minutes

●***Critical Idea***: Facilitating a student discussion of the math enables students to grow their math understanding. The ways in which teachers respond to student efforts, including mistakes, is critical in helping students move toward achieving the learning goal.

●**Facilitator says*:*** When facilitating a math discussion in the classroom, you don't just want to have discussions willy-nilly. It's important that you select a pivotal point in the lesson where discourse would help students achieve the learning goal/objective of the lesson. If your school is using EngageNY, there is one portion of the lessons that most lends itself to student discourse: the Student Debrief. This is the section of EngageNY lessons you'll want to focus your time with the 5 Practices on. In your EngageNY lesson handout, locate the Student Debrief section on p. 9. Read this section and have a quick discussion about what you notice about Student Debriefs.

●**Facilitator does**: Allow 3 to 5 minutes for participants to read and discuss the section. Ask some participants to share with the whole group what they notice that relates to anticipating student responses.

- ○Possible responses (if these do not surface on their own, point them out to the group):
- ○*The Student Debrief section specifically calls out using this section to look for student misconceptions.*
- ○*Probing questions—additional extending questions—are provided for each of the Student Debrief questions, to help surface and address student misconceptions.*

●**Facilitator does**: Animate the questions.

●**Facilitator says**: I would like for you to take a minute and consider these questions with regard to student misconceptions. Take a few minutes to discuss them with your group.

●**Facilitator does**: Allow no more than 5 minutes for participants to discuss; then have some share their thoughts with the whole group.

- ○Possible responses:
- ○Is it necessary to address all misconceptions during the student debrief?
  - ■*No, there may be strategies coming up in future lessons that will help students with their misconceptions.*
- ○How might the coherence of the standards help us to anticipate/address misconceptions?
  - ■*We can use the Coherence Map/Remediation Guides to identify prerequisite standards from previous grade levels or within our own grade level that will help us*

*fill in gaps in student learning.*

●**Facilitator says:** The EngageNY resource makes use of many of the 5 Practices for Productive Mathematical Discourse even though the practices themselves are not specifically called out. Now we will explore the Practices with this EngageNY lesson to prepare us to be able to make more intentional instructional decisions when we recognize that there is an opportunity for student mathematical discourse.

# Anticipating Student Responses

| ***Anticipating*** **student responses prior to the lesson** | |
|---|---|
| **What does this involve?** | **How is this supported?** |
| • The strategies that students might use to approach or solve a challenging mathematical task<br>• How to respond to what students produce<br>• Which strategies are most useful in addressing the mathematics to be learned | • Solving the problem in as many ways as possible<br>• Solving the problem with other teachers<br>• Drawing on relevant research when possible<br>• Documenting student responses year to year |

— Adapted from Smith, M. S., & Stein, M. K. (2011). *5 practices for orchestrating productive mathematics discussions.* Reston, VA: National Council of Teachers of Mathematics. Available at http://www.nctm.org/Store/Products/5--Practices-for-Orchestrating-Productive-Mathematics-Discussions

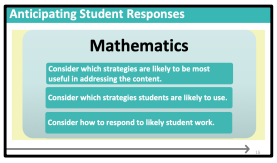
●**Duration: 5 minutes**

●***Critical Idea****:* The practice of *anticipating* is critical because it sets the teacher up to understand the math students are working on and the way it can be tackled.

●**Facilitator says**: Take a quick minute or two to review the slide and share your understanding of the process of ***Anticipating*** with those at your table.

●**Facilitator does**: Give participants a couple of minutes to talk with those in their groups, share the following with them:

●**Facilitator says:** The first practice is Anticipating Student Responses. This happens before you or your mentee even teach the lesson and facilitate a math discussion, and involves you responding to the problems in the lesson yourself and considering how students may respond so that you are ready to support misunderstandings, push their thinking, and make connections across different responses. After you understand the objective for the lesson you're teaching, but before you have students engage in the lesson and tackle and then discuss problems, it's important that you take the time to anticipate how students may respond to the math taks and problems at hand. In this way, you'll be ready to facilitate their understanding of the math.




●**Duration:** 5 minutes

●***Critical Idea:*** Continue to use the second grade EngageNY lesson to give participants a context for each of these 3 considerations for anticipating student responses. The last (third) box here is crucial for effectively anticipating student responses, because the ways in which teachers respond to student efforts, including mistakes, is critical to moving students toward achieving the learning goal.

●**Facilitator does: Animate box 1 only.**

●**Facilitator says:**When anticipating student responses it is important to give consideration to three important aspects of anticipating how students might interact with the task. First, consider which strategies are likely to be **most useful** to students: In mathematics, when teachers consider the most useful strategies that students are likely to use, teachers are able to predict the challenges that students might face and what can be done about these challenges. Understanding which strategies students have had the most success using makes it possible for teachers to make judgments about student progress while students are still working.

●**Facilitator does: Animate box 2 only.**

●**Facilitator says**: Next, teachers will need to consider what strategies students are **likely to use** in approaching an instructional task. Here, the challenge is to think of multiple ways students might approach the task. Thinking of multiple student approaches requires that teachers engage in the task or activity themselves to consider different ways it could be approached or interpreted. Teachers should consider the various representations that students might use in answering questions, as well as the common errors that students might make. Teachers should also consider

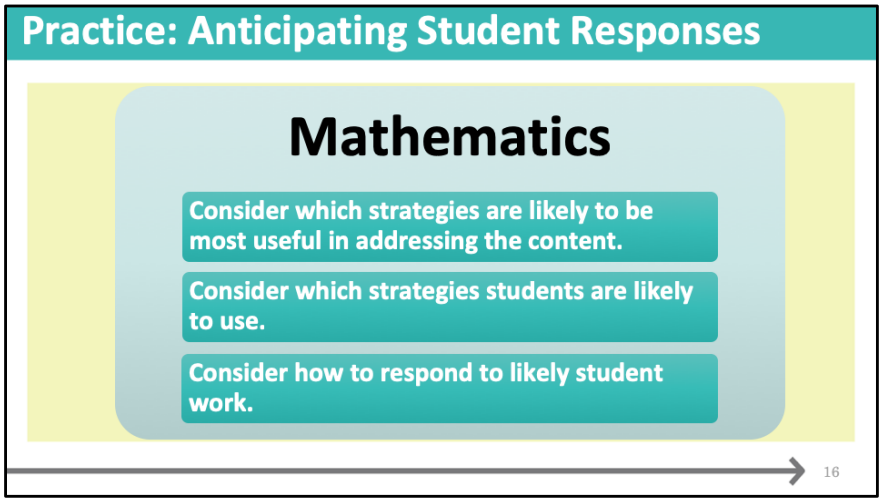
- how students might interpret a problem;
- the strategies students might use, both correct or incorrect; and
- how student strategies might relate to the learning goal(s) established.

●**Facilitator does: Animate box 3 only.**

●**Facilitator says**: Lastly, teachers will need to consider how they will **respond to likely student work**—that is, to the strategies that students choose and the answers they generate. By taking into consideration how students might work through a problem, teachers can begin to generate questions or select questions from the lesson that can be used to help students deepen their thinking. This pre-planning reduces the amount of time that teachers will need to spend reacting in the moment. It is a tendency for a teacher who is unprepared for a strategy used by a student to want to jump in and 'rescue' the student by redirecting them to a preferred strategy. This response is to be avoided if at all possible. We never want to stifle student thinking. We should instead make an effort to probe the student's thinking with questions that can help the teacher—and possibly the student—to make sense of the strategy they chose.

●***Words of Wisdom***: **Anticipating** requires teachers to engage in the task or activity themselves

before using it with students—and to consider different ways it could be approached or interpreted.




●**Duration:** 25 minutes

●**Facilitator says**: So let's try out anticipating student responses. There are two problems in this lesson that I would like you to examine - the first two questions in the Problem Set. Use your handout on page 21 to make notes. First, work on the two problems independently. Then, share your method for solving the problems and have a discussion at your table group using the information provided in the lesson about how you anticipate your students may respond to these questions. Remember to look back through the teacher guidance in the lesson plan and consider:

- Which strategies the lesson identifies that might be useful - which strategies are used to solve the problems that are given in the lesson? Which ones are most useful in addressing the content and objective of the lesson?
- Which strategies you anticipate your students may use (even if the strategies are not in the lesson)? It is important to note that the strategies we anticipate students will use may or may not reflect the strategies called out in the EngageNY lesson. This will depend on the level of instruction done around these strategies and the expectations set forth by the teacher on whether or not to use them. We need to be prepared for strategies outside the ones mentioned in the lesson.
- What misconceptions your students might have.
- And, finally, how you will respond with probing questions to each of these strategies/misconceptions.

You will have 20 minutes to discuss these two questions. You should be ready to share out some of your conversations when I call you back to the whole group.

●**Facilitator does**: Allow 20 minutes for participants to work through the handout and discuss anticipated responses to the questions. When time is up, ask for several to share

their responses with the whole group.

# Monitoring Students' Work

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

— Adapted from Smith, M. S., & Stein, M. K. (2011). *5 practices for orchestrating productive mathematics discussions.* Reston, VA: National Council of Teachers of Mathematics. Available at http://www.nctm.org/Store/Products/5--Practices-for-Orchestrating-Productive-Mathematics-Discussions

17

●**Duration: 5 minutes**

●***Critical Idea***: The practice of *monitoring* is critical because it ensures that the teacher has her finger on the pulse of how the students are approaching the work, which will prepare her to select students' work to discuss.

●**Facilitator says**: Take a quick minute or two to review the slide and share your understanding of the process of ***Monitoring*** with those at your table.

●**Facilitator does**: Give participants a couple of minutes to talk with those in their groups, share the following with them:

●**Facilitator says:** The second process, *monitoring students' work on, and engagement with, the task* happens during the work time of the math lesson, when students have been released to work independently, in partners, or in small groups, on the math work in the lesson. In EngageNY, this portion of the lesson is called the problem set. Teachers set themselves up for success with monitoring when you anticipate what you'll see ahead of time. When you start doing this, you can begin by

looking for 3 or 4 specific strategies. The purpose of monitoring students' work during work time is NOT to help every student "finish" the problem(s) correctly. This is a common misconception, and often teachers believe that they have to do this for a lesson to be successful. The point of monitoring students' work is instead to see how students are approaching the work - including misconceptions to address during future lessons or during other portions of the math lesson, such as during the student debrief.

Most Tier 1 curriculums, such as EngageNY, provide probing questions teachers can use to craft questions that are appropriate for their students' needs.

It's important that teachers find a recording tool that works for them. Some teachers like to use checklists, others take notes on what they see with each student. Find a system that allows you to quickly record what students are doing.

## Selecting Students to Present 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<br>• Making sure that over time all students are seen as authors of mathematical ideas and have the opportunity to demonstrate competence<br>• Gaining some control over the content of the discussion | • *Anticipating* and *monitoring*<br>• Planning in advance which types of responses to select, perhaps considering an incorrect solution to illustrate a typical misconception<br>• Being ready to consider unanticipated solutions |

— Adapted from Smith, M. S., & Stein, M. K. (2011). *5 practices for orchestrating productive mathematics discussions.* Reston, VA: National Council of Teachers of Mathematics. Available at http://www.nctm.org/Store/Products/5--Practices-for-Orchestrating-Productive-Mathematics-Discussions

●**Duration: 5 minutes**

●***Critical Idea***: The practice of *selecting* is critical because it gives the teacher control over what the whole class will discuss ensuring that the mathematics is at the heart of the lesson.

●**Facilitator says**: Take a quick minute or two to review the slide and share your understanding of the process of ***Selecting*** with those at your table.

●**Facilitator does**: Give participants a couple of minutes to talk with those in their groups, share the following with them:

●**Facilitator says:** The third process, *selecting particular students, or groups of students, to present their mathematical work*, happens after students have completed the task. *Selecting* is supported by anticipating possible responses, both correct and incorrect, before, and by monitoring students as they work on the task. This process involves reflection on the part of the teacher. When selecting students to present their work, the teacher must think about what was observed during the task, what strategies— both correct and incorrect—that individuals or groups used to complete the task, and what insights students might be able to share. Teachers must also recognize that over time, ALL students, including special needs students, should

have opportunities to share their thinking and demonstrate competence so that all students are seen as authors of mathematical ideas.

# Sequencing Work to Support Discourse

**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<br>• Building a mathematically coherent storyline from prior knowledge to current grade-level standards. | • *Anticipating*, *monitoring*, and *selecting*<br>• During anticipation of work, considering how possible student responses are mathematically related |

— Adapted from Smith, M. S., & Stein, M. K. (2011). *5 practices for orchestrating productive mathematics discussions.* Reston, VA: National Council of Teachers of Mathematics. Available at http://www.nctm.org/Store/Products/5--Practices-for-Orchestrating-Productive-Mathematics-Discussions

19

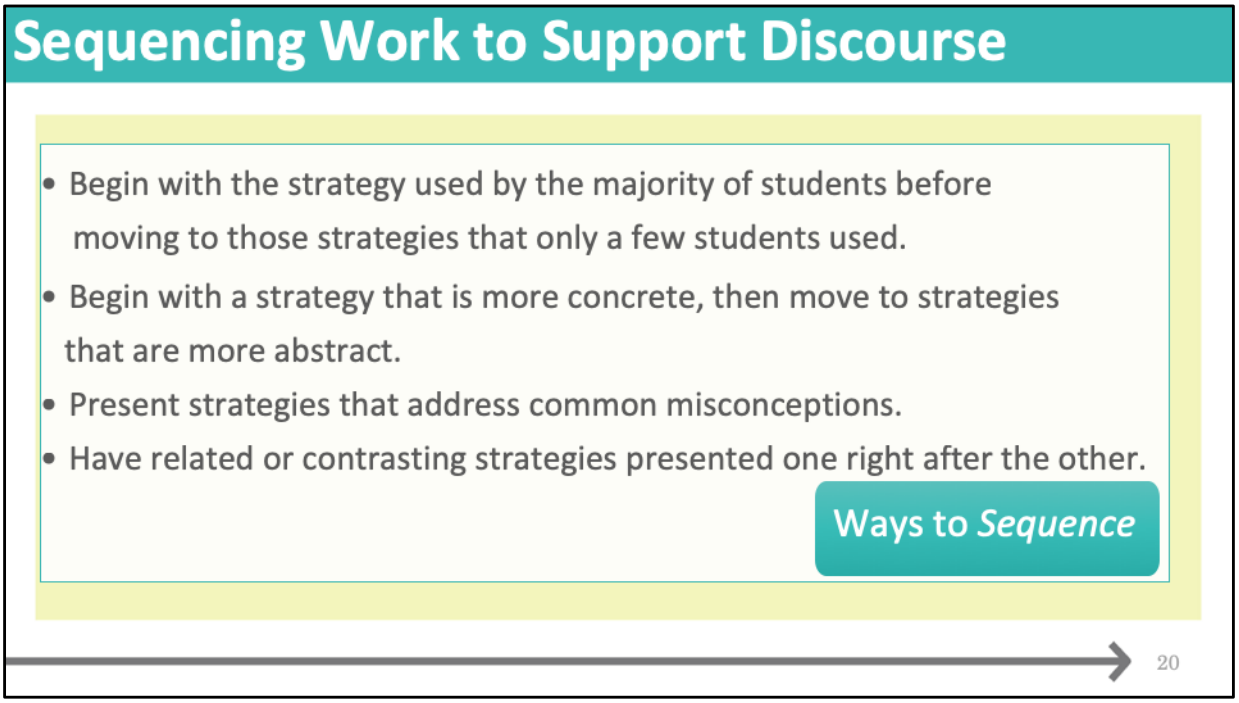
●**Duration:** 5 minutes

●***Critical Idea***: The key to *sequencing* is to order student work in a way that makes the mathematics accessible to all students and to build a mathematically coherent storyline.

●**Facilitator says**: Take a quick minute or two to review the slide and share your understanding of the process of ***Sequencing*** with those at your table.

●**Facilitator does**: Give participants a couple of minutes to talk with those in their groups.

●**Facilitator says**: The fourth process, *sequencing students' responses in a specific order for discussion*, also happens after students have completed the task. Sequencing is supported by anticipating possible responses beforehand, monitoring students as they work on the task, and taking time to reflect on students' work in order to select those who will present their work to the class. This process also involves reflection on the part of the teacher. When selecting students to present their work, the teacher must think about how to order student presentations so that a coherent 'storyline' is created, which will make the mathematics accessible to all students and will build students' understanding of the mathematics.




●**Duration:** 5 minutes

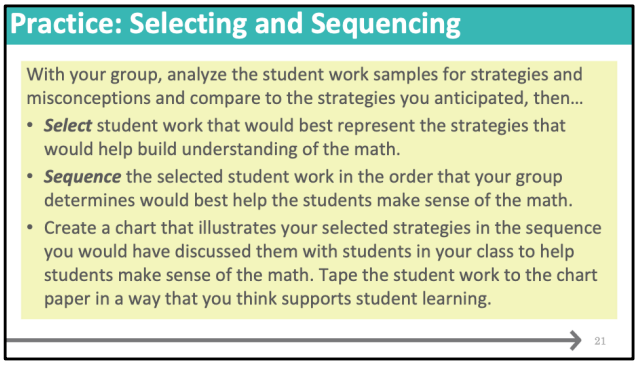
●***Critical Idea***: *Sequencing* students' responses for discussion is a critical step in developing student understanding of the mathematics. There are a number of ways teachers can sequence students' responses.

●**Facilitator says**: There are a number of ways in which we can sequence the presentation of student work.

●**Facilitator does**: Give them a minute or two to read the information on the slide, then provide clarification, if needed.

- ○"The way in which responses are sequenced will depend on a number of factors, such as:
  - ■The learning objective for students,
  - ■The mathematics involved, and
  - ■Students' current level of understanding."

●***Words of Wisdom***: This slide is important. Clarify that one approach to sequencing solutions is by presenting the most commonly used strategy first. However, it may not always be the best approach to sequencing student responses.




●**Duration:** 20 minutes

●***Critical Idea***: Participants will apply their knowledge of the "5 practices" to select and sequence student responses to a math task.

●**Facilitator does**: Hand out a set of student work, a sheet of chart paper, a length of tape, and several markers to each group.

●**Facilitator says**: Each page of student work has a different student's response to the task. As a group, you are going to analyze the student work and look for strategies, misconceptions, and different levels of understanding. These samples are taken from students who completed the exit ticket from the lesson we experienced earlier (Grade 4, Module 1, Topic, A, Lesson 2). Each sample represents the final work for a student. You are going to take on the role of the teacher and work with your group to analyze the student work for strategies and misconceptions. **Animate the slide**.

Then, your group will select the student work that you feel would best represent the strategies that would help build understanding of the math. **Animate the slide**.

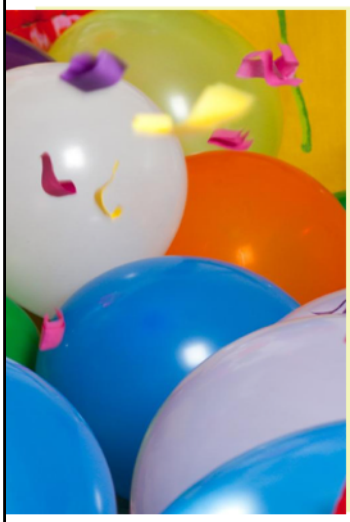
You will also ***Sequence*** the selected student work in the order that your group determines would best help the students make sense of the math. **Animate the slide**.

You will then work with your group to create a chart that illustrates your selected strategies in the sequence you would have them presented in your class to help students make sense of the math. You will tape the student work cards onto the chart paper in an order that you think would support student understanding.
Remember, as you look at these samples, it is not about only showcasing the correct answers or successful strategies. Sometimes it is just as meaningful to students' understanding to look at strategies that didn't work. There is not one correct way to sequence these strategies—just be ready to explain why your group chose to sequence them the way that you did and how that sequencing will help with student understanding.

●**Facilitator does**: Give groups time to Analyze, ***Select*** and ***Sequence*** student work as they plan for mathematical discourse. Have groups hang their charted strategies as they finish. If there is time, have participants share some of their thinking for their charts with the whole

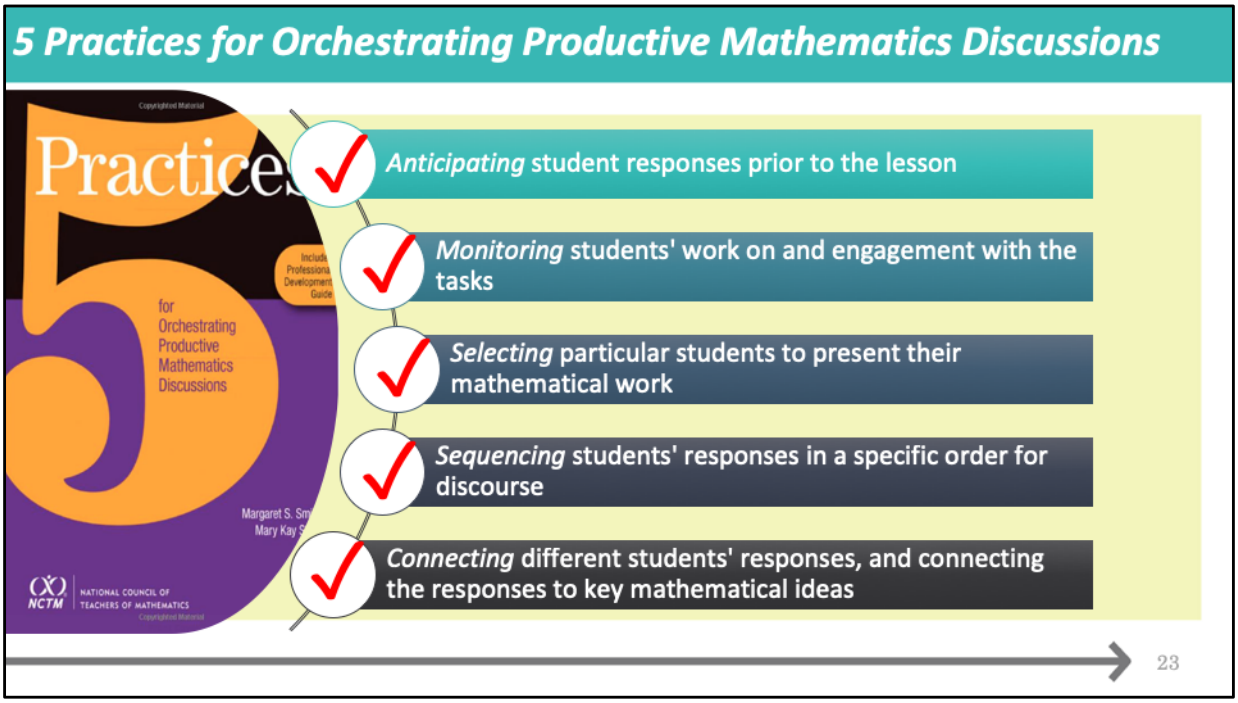
group. If running behind on time, groups can also do a gallery walk to see how others decided to select and sequence the student work.

●***Words of Wisdom***: Remember that these are the 3rd and 4th steps in the process of facilitating meaningful mathematical discourse. Before completing these steps, you would have anticipated student responses and monitored students as they worked, asking probing questions as you monitored. After you have selected the student work to discuss and determined the sequence to discuss them, you're ready to facilitate the discourse discussion, during which you'll connect student responses. We'll focus on that last practice after the break.



BREAK!

- 15 minutes




●**Duration:** 1 minute

●**Facilitator says**: Before our break, we engaged in the first 4 practices. Now, we are going to look at the last practice, ***Connecting* student work samples** to each other and to the key learning goal (connecting different students' responses, and connecting the responses to key mathematical ideas). This practice happens during the math discourse (remember, in an EngageNY lesson, that's called the Student Debrief).

## Connecting Responses and Key Idea

***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<br>• Making the key mathematical ideas that are the focus of the lesson salient<br>• Considering extensions as they come from the students or the teacher | • *Anticipating*, *monitoring*, *selecting*, and *sequencing*<br>• Considering how students might be prompted to recognize mathematical relationships between responses<br>• Cultivating a classroom culture with explicit supports for student discourse |

— Adapted from Smith, M. S., & Stein, M. K. (2011). *5 practices for orchestrating productive mathematics discussions.* Reston, VA: National Council of Teachers of Mathematics. Available at http://www.nctm.org/Store/Products/5--Practices-for-Orchestrating-Productive-Mathematics-Discussions

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●**Duration:** 5 minutes

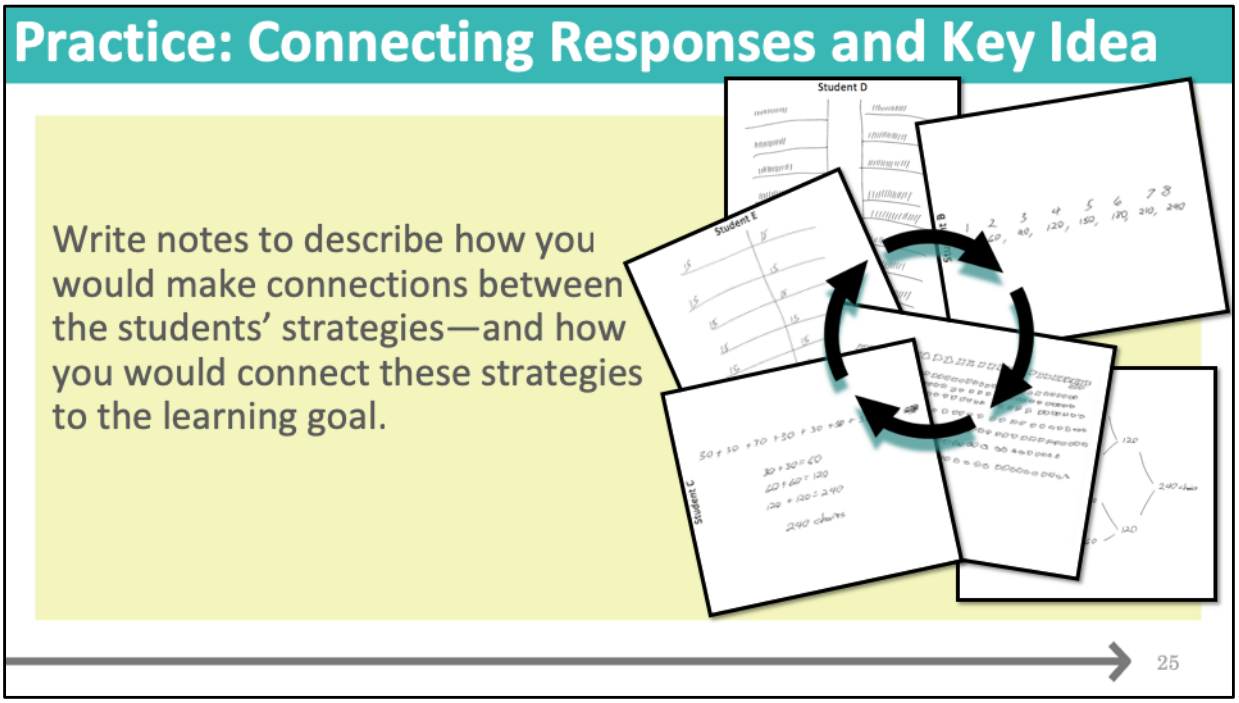
●***Critical Idea***: *Connecting* students' responses requires the teacher to craft questions or select questions from your Tier 1 curriculum resource that will make the mathematics visible and understandable. Questions must go beyond clarifying and probing, and must focus on mathematical meaning and relationships and make connections between mathematical ideas and representations.

●**Facilitator says**: Take a quick minute or two to review the slide and share your understanding of the process of ***Connecting*** with those at your table.

●**Facilitator does**: Give participants a couple of minutes to talk with those in their groups.

●**Facilitator says**: The fifth and final process, connecting different students' responses, and connecting the responses to key mathematical ideas, happens after a sequence is determined. Connecting is supported by the other four processes — anticipating, monitoring, selecting, and sequencing — because the way you choose to connect students' ideas to one another and to key mathematical ideas will depend upon the observations and decisions you make when implementing the other four processes. Like other processes in this framework, this process also involves reflection and planning on the part of the teacher. During the connecting process, the teachers must think about

how to keep the key mathematical ideas as the focus of the lesson, as well as how to use questions to help students make mathematical connections between the different responses that are presented. Teachers should also consider possible extensions that may surface during the discussion.



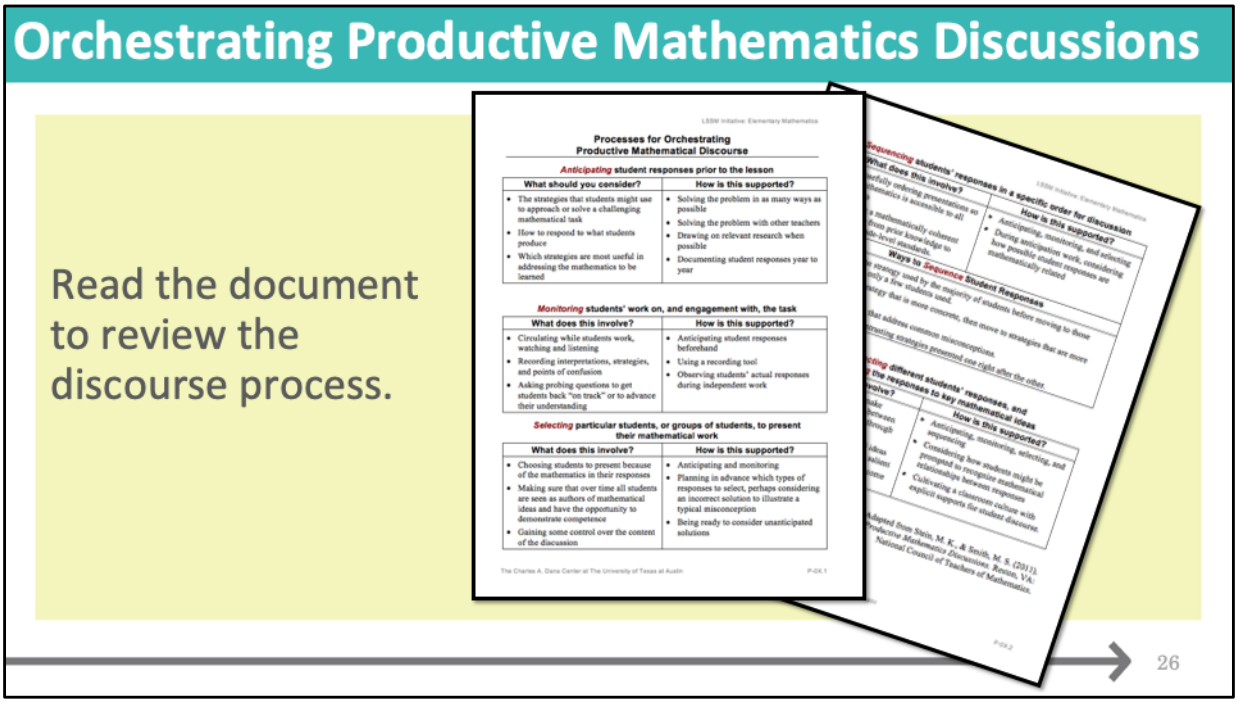

●**Duration:** 25 minutes

●***Critical Idea***: *Connecting* students' responses requires the teacher to craft questions or select questions from the Tier 1 curriculum that will make the mathematics visible and understandable. Questions must go beyond clarifying and probing, and must focus on mathematical meaning and relationships and make connections between mathematical ideas and representations.

●**Facilitator Says**: In order to practice the connecting process, we are going to use the student work you selected and sequenced before the break and look for possible connections we can make. The connecting process involves making connections between student responses and also connecting those responses to the intended mathematical learning,
You will go back to your charts from before the break where you've sequenced the student work from Grade 4, Module 1, Topic A, Lesson 2. Now, you will write to describe how you would make connections between the students' strategies and how you would connect them to the learning goal. You will have about 20 minutes to work on this, please hang your chart back up when your group is finished.

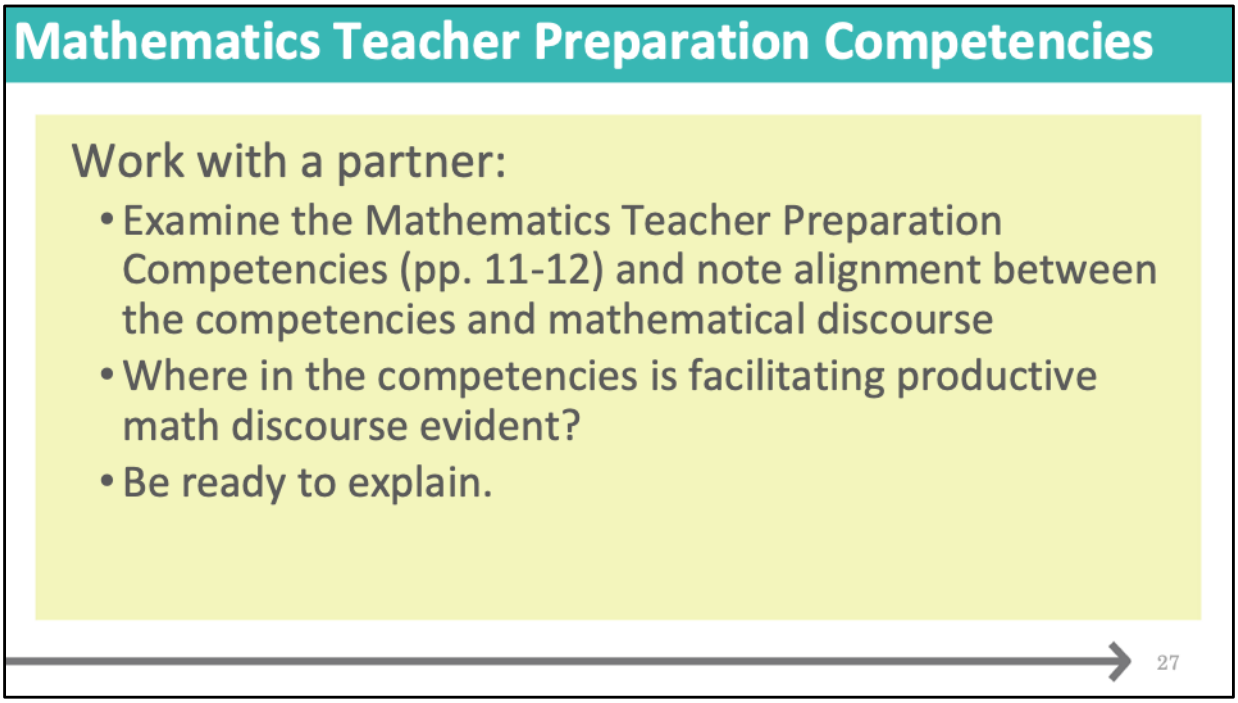
●**Facilitator does**: Give the groups 20 minutes to complete their charts. Debrief the activity by either highlighting some unique connections you noticed on the various charts or by asking participants to share out any "ah-has" they may have had while completing the activity.

●***Words of Wisdom***: Walk around while groups are completing their charts and look for groups that may be making some unique connections that others may not have thought of.




●**Duration:** 10 minutes

●**Facilitator says**: Now to finish, I would like to take some time to review the practices. This document highlights all '5 practices for orchestrating productive mathematical discourse'. Take a minute to read through the 5 practices and think about how this process will affect teaching and learning in your classroom and your mentor practices. Feel free to make notes.




- **Duration**: 15 minutes

- **Facilitator says**: Pull out your Teacher Preparation Competencies document and examine the Mathematics Content Knowledge and Content-specific Pedagogy competencies in mathematics on pp. 11-12.
  Identify specific competency areas where facilitating productive math discourse is evident.

- **Facilitator does:** Give participants time to review the math competencies. Then solicit responses from participants.

## Orchestrating Productive Mathematics Discussions

Take a few minutes to think about and answer the following questions:

- What strategies can you use to ensure that **ALL** students engage in mathematical discourse in your classroom?
- What can you do to leverage incorrect or incomplete reasoning or solutions to strengthen the learning of all students?
- Based on your learning for this section, what action step(s) might you take in order to foster a safe and positive environment for student discourse in your classroom?
- How can you apply your understanding of productive math discourse to facilitate your mentee's growth?

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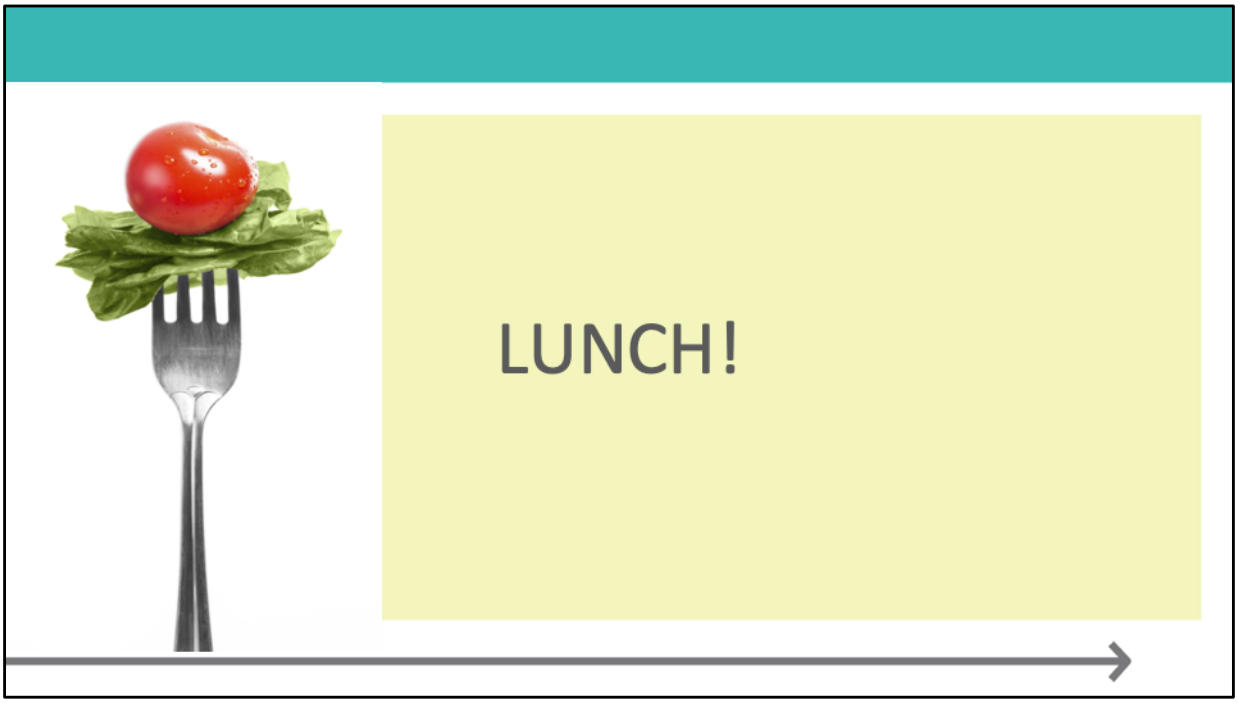
●**Duration:** 10 minutes

●***Critical Idea***: Determining action steps based on learning is a fundamental component to long-term success.

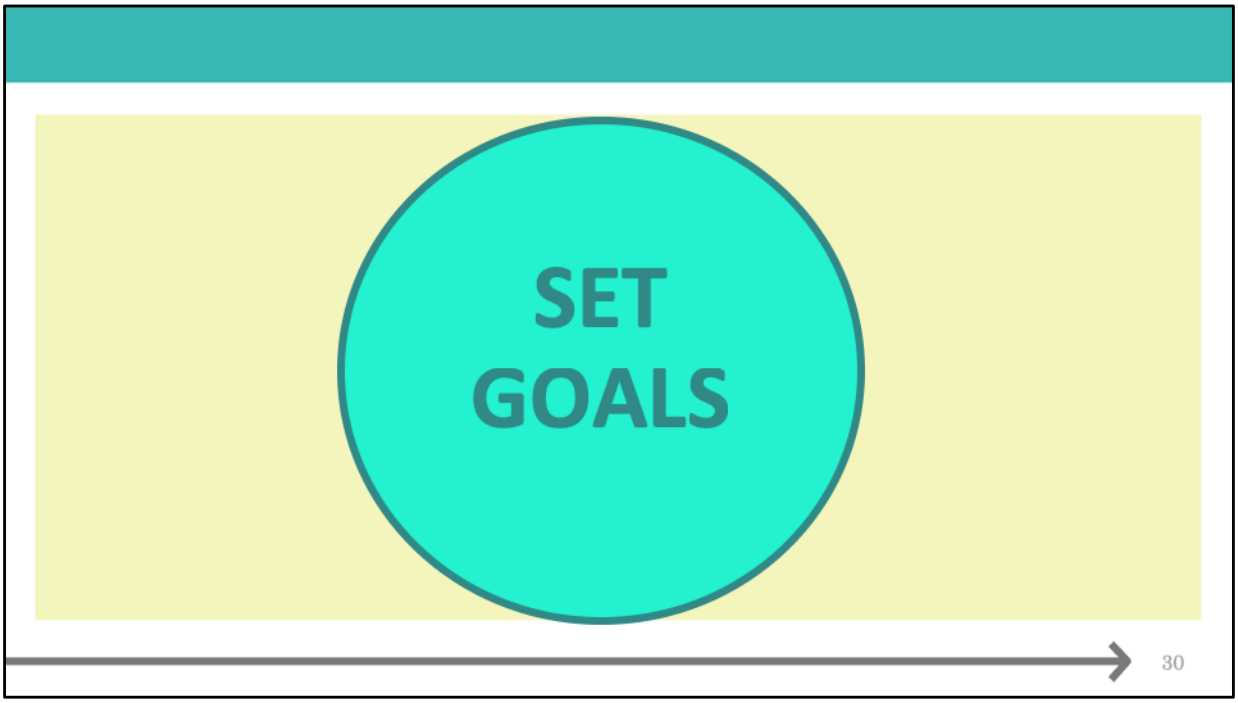
●**Facilitator says:** When you have finished reading, let's take some time to pause and reflect on our experience in planning for mathematical discourse. Take a moment to read the questions on the slide.

●**Facilitator does:** Give them individual time to think about the questions on the slide. Encourage them to jot down their thinking on a sticky note. After a few minutes, ask a few participants to make eye contact with someone they haven't worked with today and move to meet them in the room to share their reflections. Allow a couple minutes for participants to share. Ask a few participants to share what they discussed with the whole group.

●***Words of Wisdom***: This is an important conversation about the role of the classroom environment in ensuring all students openly engage in meaningful discourse. Participants need time to think about and discuss questions like these, and they need the support that they can find from one another as they think and talk about ways to support students as they engage in meaningful discourse.




- **Duration:** 45 minutes

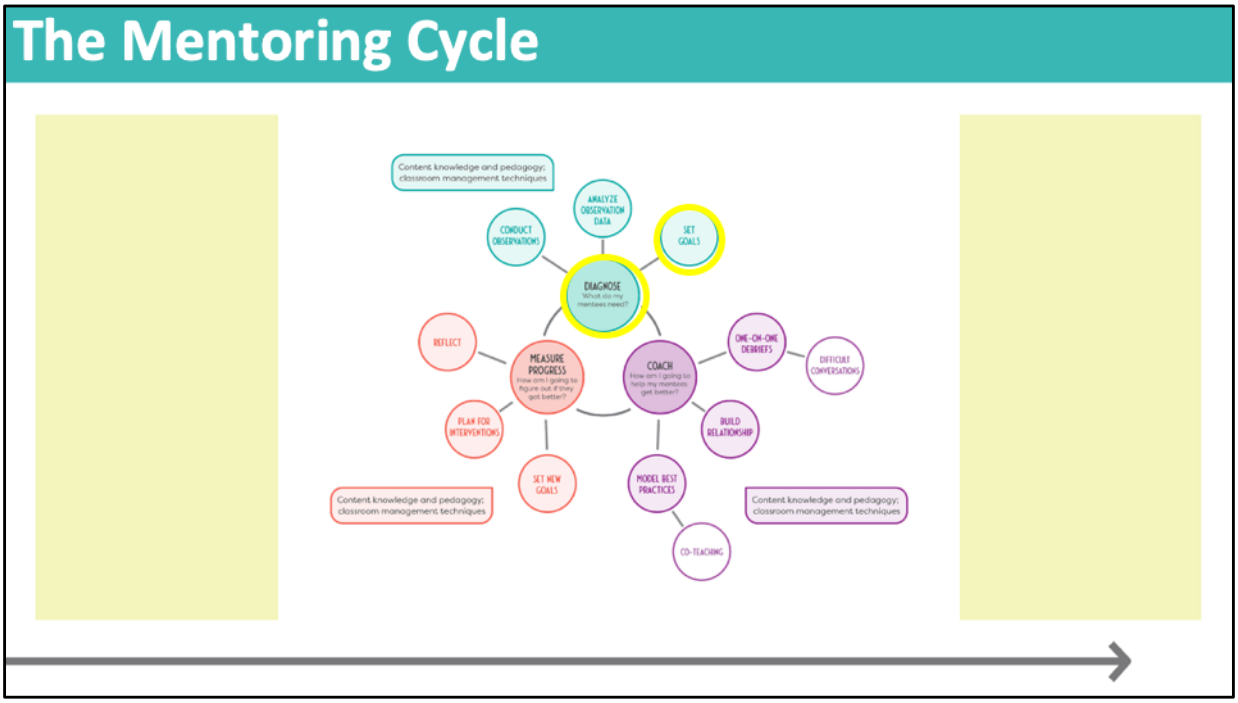



- **Duration**: 5 minutes

- **Facilitator says**: Welcome back from lunch. We had a very full morning. Find someone in the room that you have not spoken with today and introduce yourself and over the next three minutes share what you are most interested in doing next as a result of the conversation this morning.

- **Facilitator does:** Allow 3 minutes for participants to discuss, then bring the group back together.

- **Facilitator says:** Now that we've learned how to facilitate mathematical discourse we are going to turn our focus to our first mentor skill of the day, using analysis of observation notes to set goals for your mentee. We will be building on the work we completed yesterday to support us with our work this afternoon.




- **Duration**: 1 minute

- **Facilitator says**: Let's look back at the mentoring cycle to see how setting goals fits in. Yesterday in Module 4 we practiced the first two aspects of diagnosing what your mentee needs: conducting observations and analyzing the data from your observations. Once you have conducted an observation and analyzed the observation data, you can use your analysis to draft goals for your mentee. These potential goals will form the basis for a one-on-one debrief with your mentee, which we will dive into at the end of the day today and which is the first step in coaching your mentees to improve their practice.

# Observation Tools

| Classroom Observation Tool | | |
|---|---|---|
| Focus: | | |
| Look-fors | Student Behaviors | Teacher Behaviors |
| | | |
| Summary of Observation: | | |

| 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. | |

●**Duration**: 15 minutes

●**Facilitator says:** These two forms on the screen should look familiar. We worked with them yesterday as we worked through the early stages in the Mentoring Cycle. We used the first one to prepare and conduct a classroom observation. Remember that when you conduct an observation, you'll take non-judgemental notes of the teacher and student actions, and you'll also look at the student work that is produced. We used the second form to analyze our observation notes.

●**Facilitator says:** Turn to your learning team and share one aspect of these forms that will make supporting your mentee easier.

●**Facilitator does:** Allow participants to discuss for about 3 minutes, then invite a few people to recap their discussion for the whole group.

●**Facilitator says:** We will be using these same forms to conduct another observation and analysis - this time on a video that shows math discourse to connect

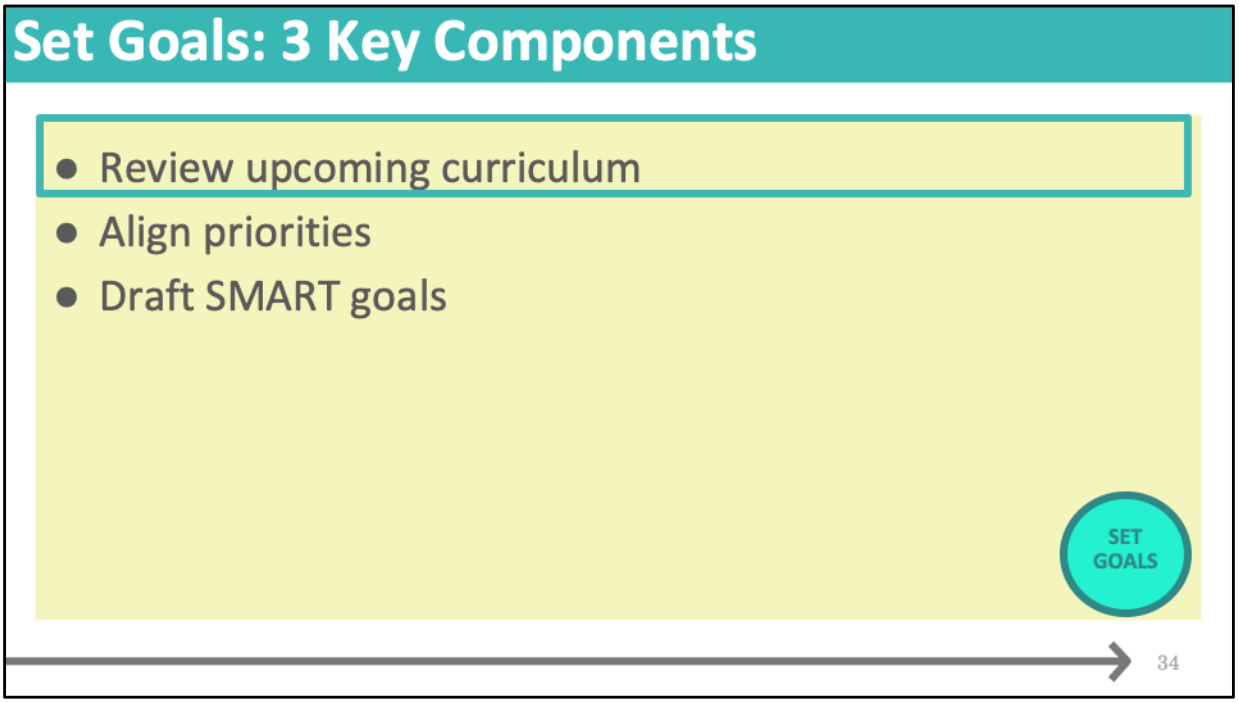
to this morning's content learning. Before we watch the video, work with a shoulder partner to complete the focus and look-fors sections on the classroom observation tool. Remember that for this classroom observation, the focus will be on mathematical discourse.

●**Facilitator does:** Give participants 5 minutes to complete the two designated sections on the observation tool. Then, show the video on the next slide.

●**Duration**: 18 minutes

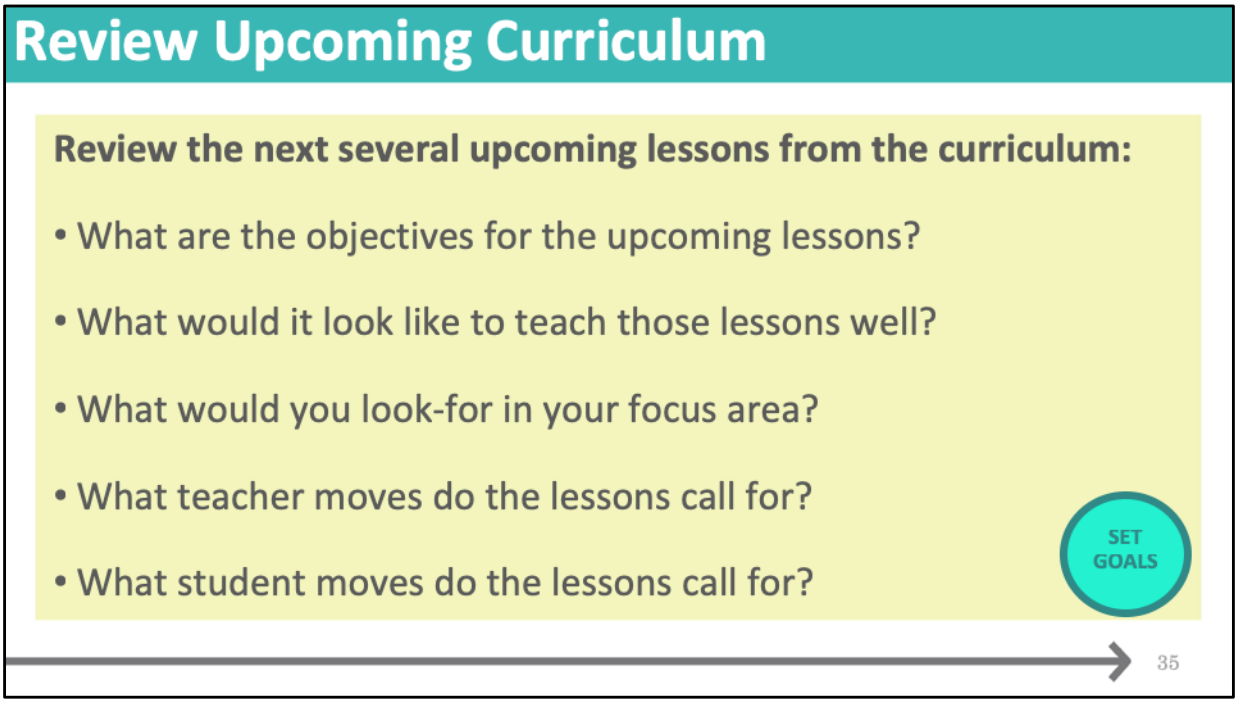
●**Facilitator does:** Observe participants taking notes on their observation note taking sheet as they watch the video. Then, provide 10 minutes for participants to work in a trio to analyze the strengths and areas for growth, and to prioritize one area of growth. Remember that participants did this in Module 4 with the video on rigor, so this is a review for them.

Video Link: https://drive.google.com/file/d/1jddzkN3Eywg8Q_tJrC1mnUyyrglJO3U-/view?usp=sharing



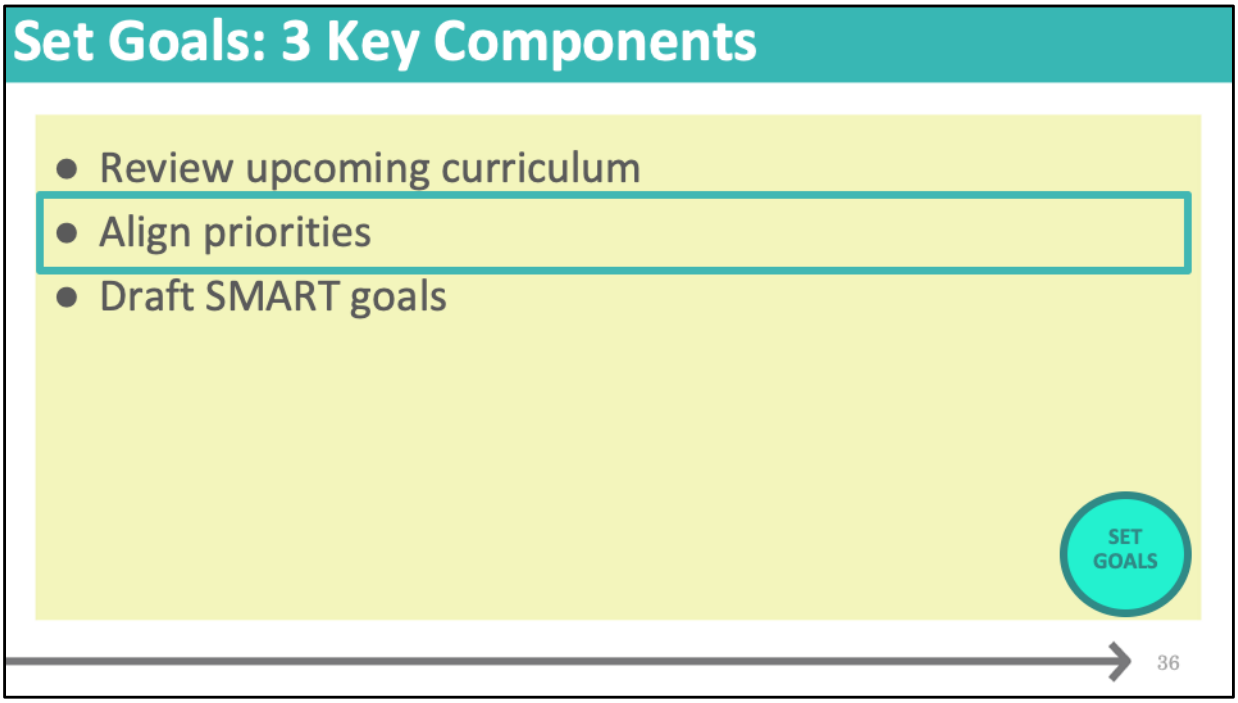

- **Duration**: 1 minute

- **Facilitator says**: After you have conducted an observation and analyzed your observation data, you can begin to set goals for your mentee. The first step in setting goals for your mentees is to step back from the observation you conducted and review the curriculum.

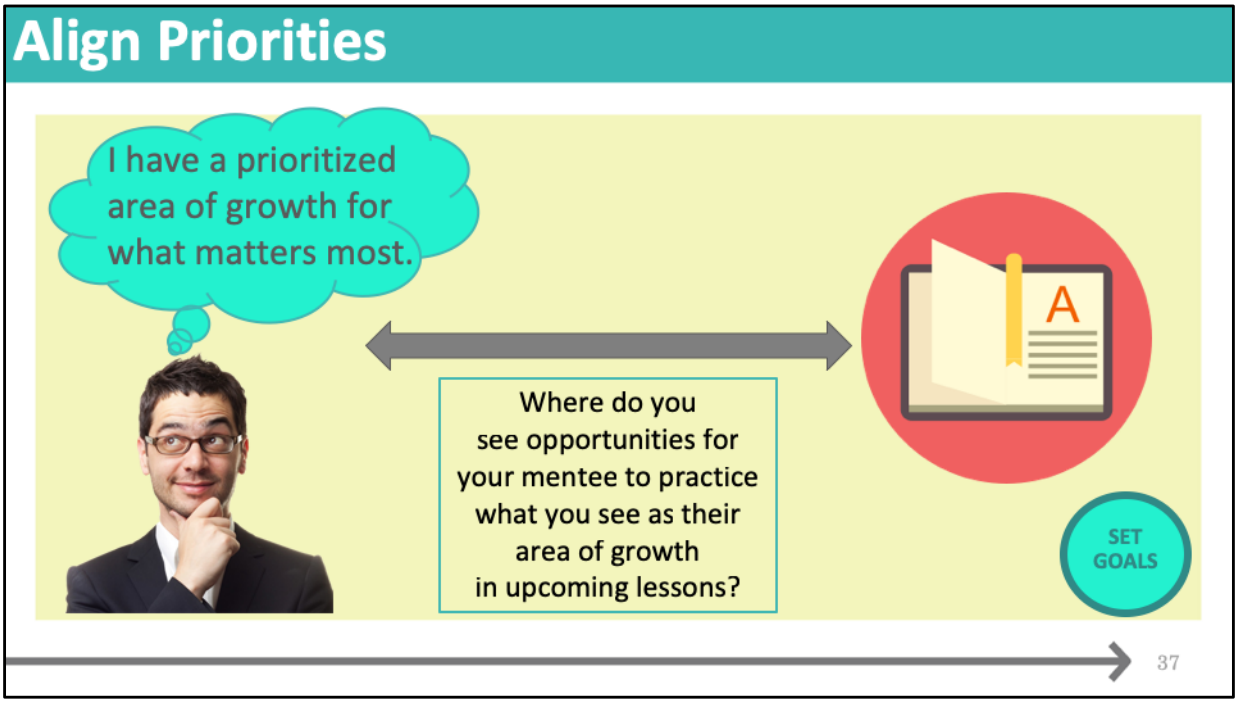



- **Duration**: 3 minutes

- **Facilitator says**: We start by reviewing the curriculum because your first job as a mentor is to help your mentee use the curriculum well. You don't want to set goals that run contrary to the curriculum or that would not be possible to achieve given what is currently being taught and what is coming up in the curriculum. When you study the curriculum, there are several things to keep in mind. You'll look forward to upcoming lessons, when your mentee would be practicing and improving their craft. Note that at first, you are just thinking about what the curriculum asks the teachers and students to do in order to engage successfully in the lesson.

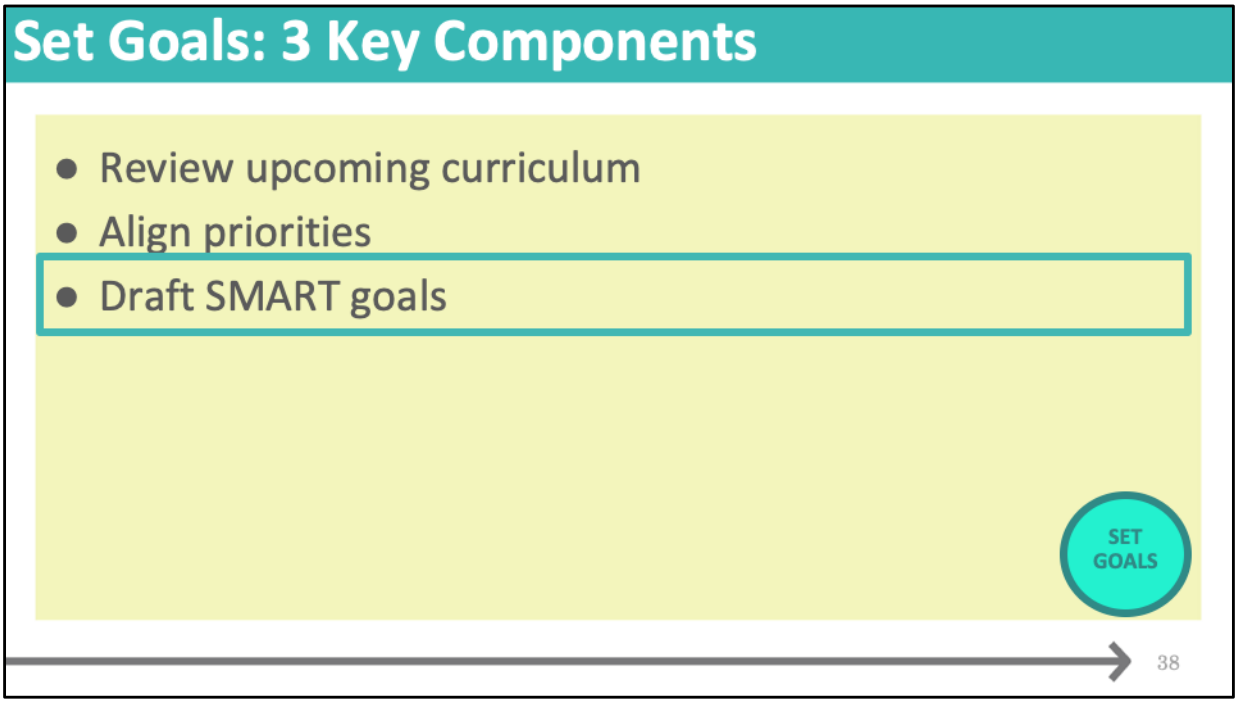



- **Duration**: 1 minute
- **Facilitator says**: After you understand the current and upcoming curriculum, you can then go back to the priorities you identified after analyzing your observation data to ensure that those priorities align with what is coming up in the curriculum.



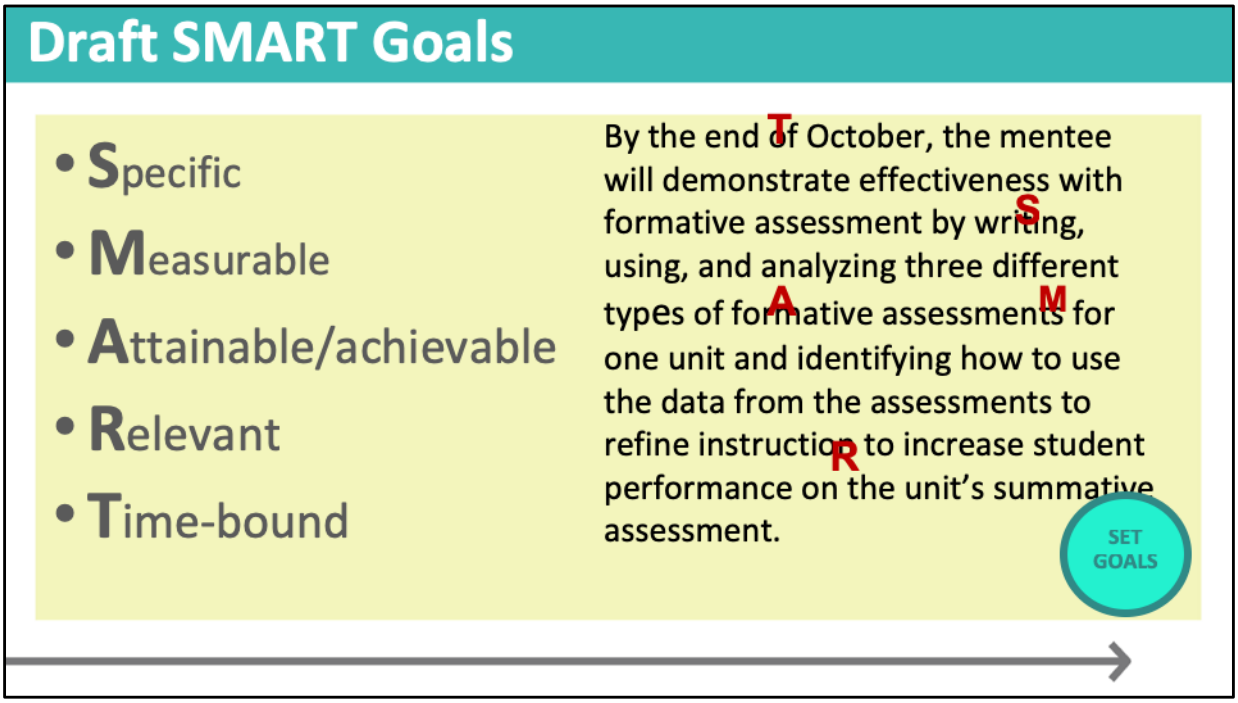

- **Duration**: 2 minutes

- **Facilitator says**: Yesterday in Module 4, you learned how to prioritize areas of need for your mentee. You asked yourself a series of questions to help you zoom in on what matters most for your focus area and you learned how to name priorities. Next, you'll take that prioritized area of growth and align it to the upcoming curriculum. Where do you see opportunities for your mentee to practice what you see as their area of growth in upcoming lessons? Finding those opportunities will set you up to draft some potential SMART goals for your mentee that are informed by your priorities from your observation as well as what's coming up in their curriculum.



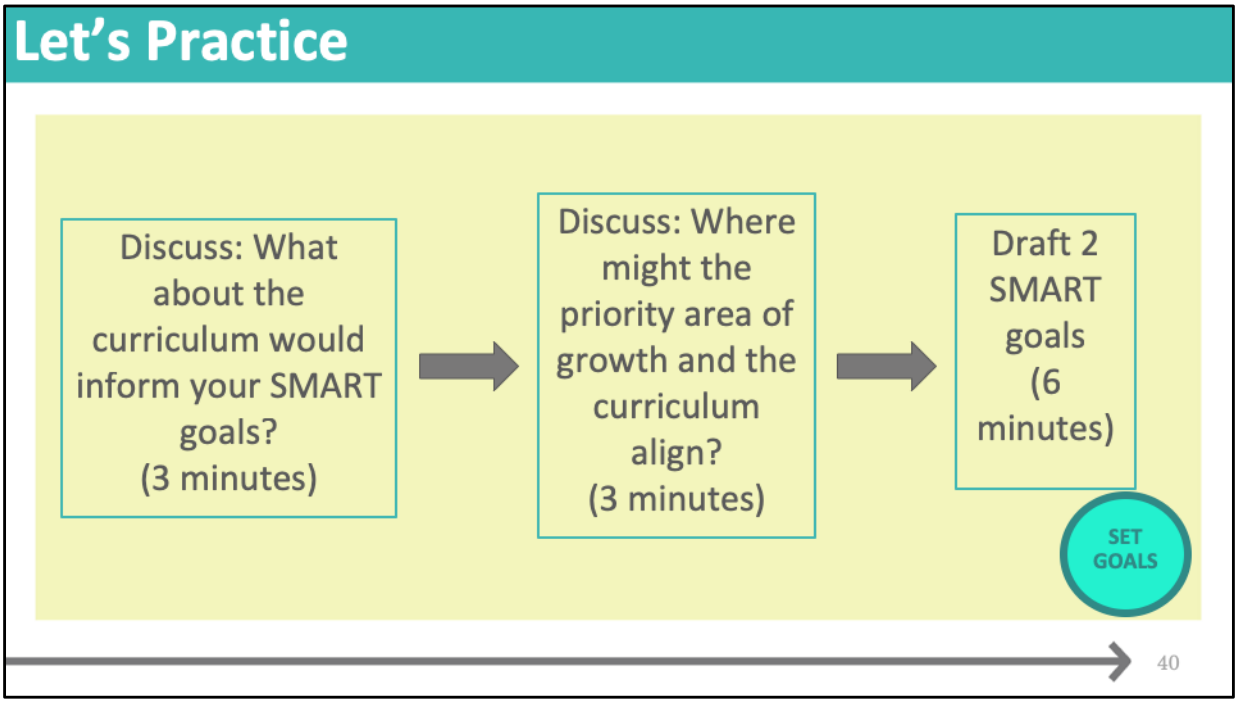

- **Duration**: 1 minute

- **Facilitator says**: Now that you have both curriculum and your top priority in mind, you can draft 1-2 potential SMART goals for your mentee. SMART goals are meaty and ambitious, which is why you'll limit yourself and your mentee to 1-2. Remember, you'll bring these ideas for goals with you to your debrief. Having goals in mind beforehand will help you guide and coach your mentee to setting strong goals that you can support them striving towards in their upcoming lessons.




- **Duration: 10** minutes

●**Facilitator says:** So let's take a look at the format of the goals. We recommend using a SMART goal format because it clarifies and specifies what is expected, how success is measured, and the timeline. SMART is an acronym that means **[Note: Animate slide as you share the acronym]** specific, measurable, attainable or achievable, relevant, and time-bound. Some will think that a goal that is this specific is not necessary. Our experience tells us that the more clear we can make the expectation, the easier it will be for the mentee to meet the expectation and for the mentor to provide the needed support and feedback to achieve the goal.
Here is a sample SMART goal. Read it together and work in a trio at your table to label the parts of the goal by the letters.
●**Facilitator does:** After 2 minutes, have one trio share how they labeled the goal and animate the rest of the slide to reveal the labels. Clarify if necessary if any participants do not understand any of the labels.



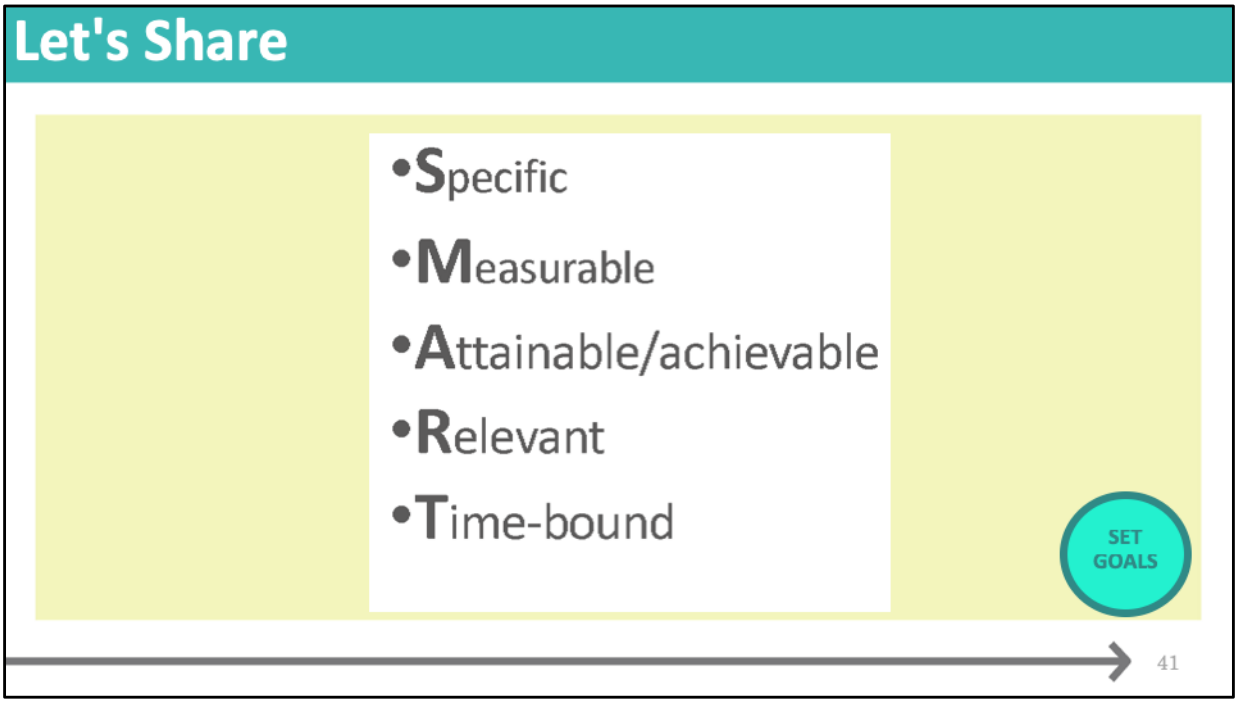

- **Duration:** 15 minutes

- **Facilitator says:** Let's practice setting goals using your observation notes and analysis of your observation from earlier. You'll continue to work in your same trio. Please take out your observation notes and your analysis of the teacher's strengths, weaknesses, and the area of growth you prioritized based on what matters most. What would you need to know about the curriculum to inform your SMART goals? Take 3 minutes to discuss this. You may jot down notes on the additional handout on page 28.

  Then, revisit the priorities that each of you created based on your observation analysis. Discuss where there may be opportunities in the upcoming lessons to work with you to grow in their priority area. Take 3 minutes to do this.

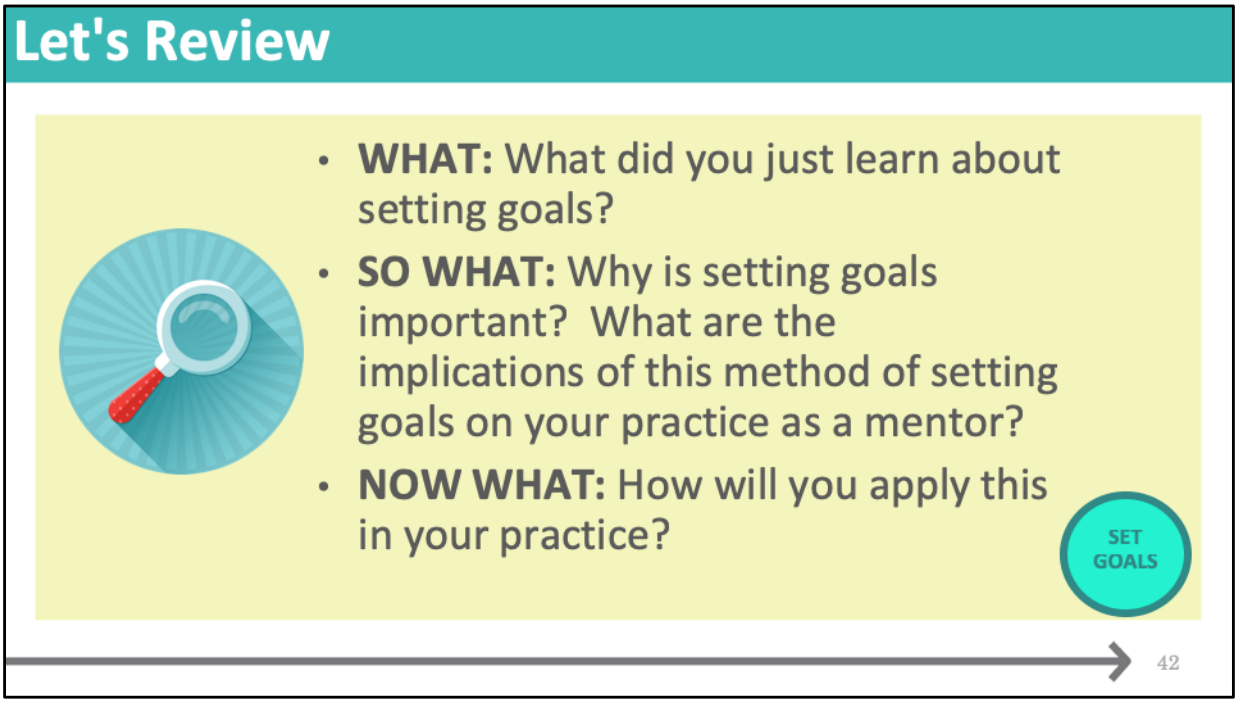
  Finally, try drafting 2 SMART goals that are specific, measurable, attainable/actionable, relevant, and time-bound for the teacher in the video based on the upcoming curriculum and her priority area of growth. Take 6 minutes to do this.

- **Facilitator does:** Circulates, clarifies, supports trios as they write their SMART goals. Ask trios to share parts of their goals with you as they are writing them so that you can provide feedback and support.




●**Duration: 10** minutes

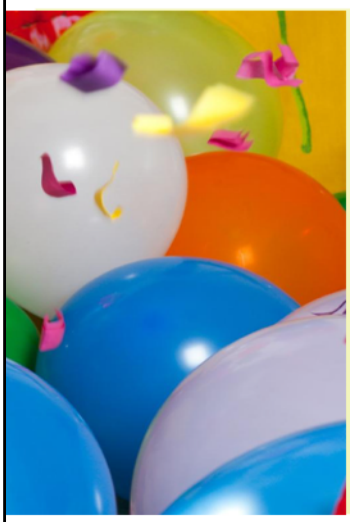
●**Facilitator does:** After 6 minutes of work time, invite 2-3 trios to share their goals with the whole group. As each trio shares, ask other participants to identify the S-M-A-R-T parts of the goals after they are read, using the acronym on the slide to support the discussion.




•**Duration:** 10 minutes

•**Facilitator says:** In your trios, please take 5 minutes to reflect on goal setting using the What-So What-Now What protocol.

•**Facilitator does:** Circulates and listens, shares out reflections that would benefit the whole group.

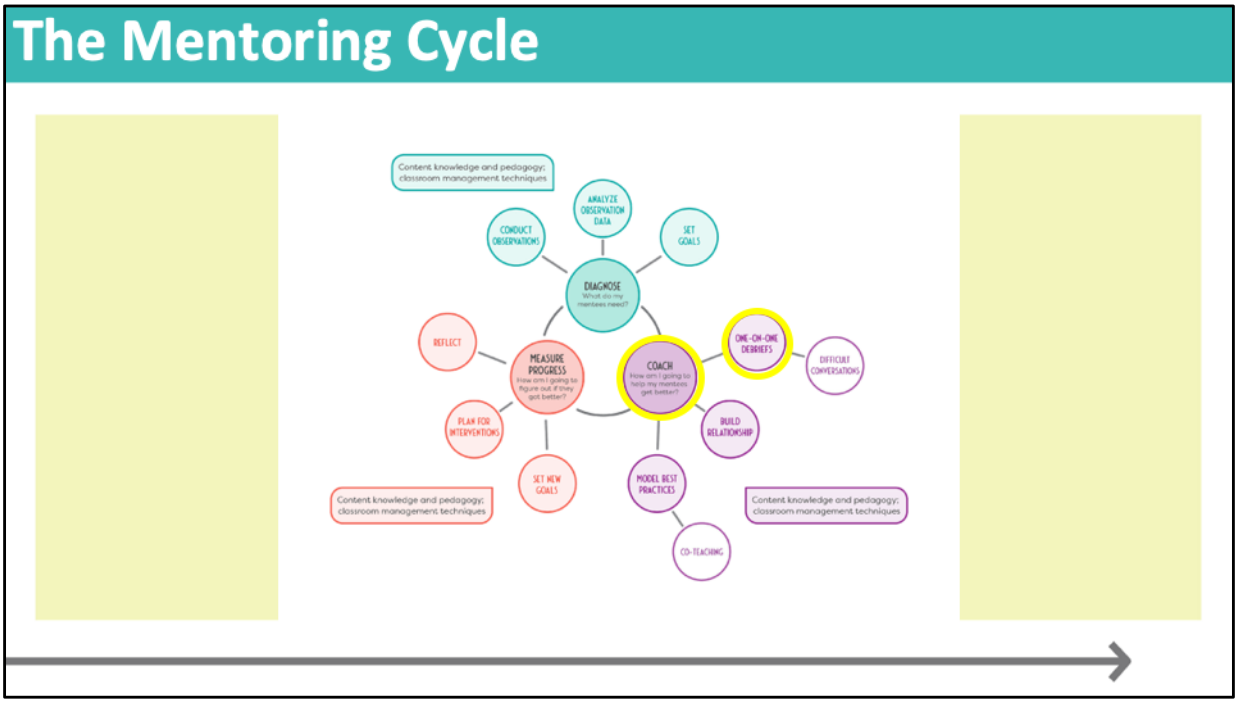


BREAK!

- 15 min.

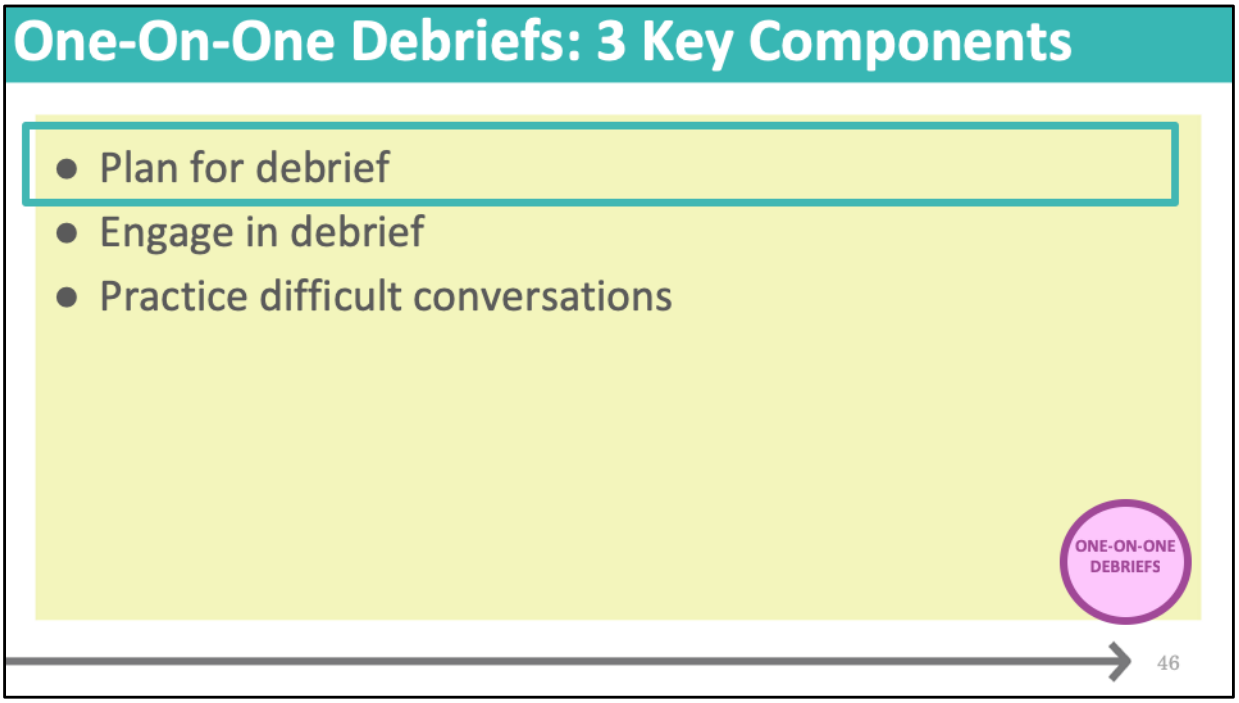
●**Duration**: 2 minutes

●**Facilitator says**: Once you have used your analysis of your observation data to draft 1-2 potential SMART goals for your mentee, you will use your potential goals to engage in a one-on-one debrief with your mentee. In previous modules we have discussed various topics that will support our learning for the one-on-one debrief including deep listening and paraphrasing, facilitating planning conversations, and questioning to promote thinking. These are important skills that will support your debrief conversations with your mentees.



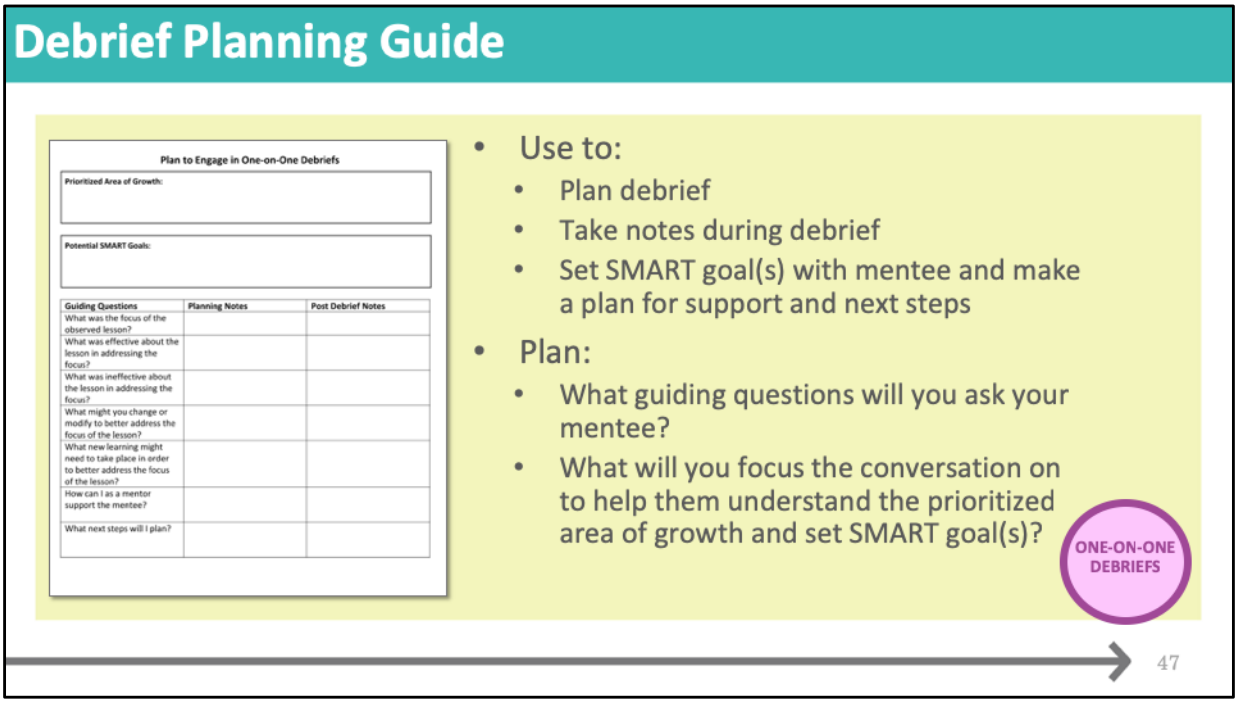

●**Duration**: 1 minute

●**Facilitator says**: Now we're moving into the Coach portion of the Mentoring Cycle. Yesterday we spent some time here as we discussed Building Relationships, which you will lean on when you sit down for the next part of the Coach portion, engaging in a one-on-one debrief. Remember, in your partnership agreement and when you scheduled the observation, you will have already scheduled when the debrief of the observation will be. It's important that you have some time, at least 60 minutes, in between the observation and the debrief to plan for the debrief. It's also important that you don't let more than 48-72 hours go by between the observation and the debrief as you want the lesson to be fresh in your and your mentee's memory, you want the observation notes you share to still be pertinent, and you want to support your mentee in their priority area of growth as soon as possible.




- **Duration**: 1 minute

- **Facilitator Says**: The first thing you'll do when you get ready for your scheduled debrief is to plan for it. Any time you debrief, you will increase your chances of having a successful conversation and guiding the mentee towards a meaningful goal that focuses on what really matters if you plan what you are going to say and how you might say it beforehand.




- **Duration:** 15 minutes

- **Facilitator Says:** Like I said earlier, you'll have already scheduled a debrief of your observation with your mentee, and you'll have given yourself some time in between your observation and your one-on-one debrief to sit down and plan for your debrief. This will first involve doing all the things we've been practicing so far – you'll analyze your data and draft 1-2 potential goals. The last thing you'll do before engaging in the debrief is plan exactly the questions you'll ask during the debrief. Take a look at the debrief planning sheet on page 30 of your handouts. You'll see that there is both space to plan the debrief and also to take notes during the debrief to refer back as you continue to work with your mentee after the conversation. You'll want to keep your observation note sheet as well as any student work produced during the lesson handy to refer to during the debrief conversation. But to make it easy for you, you'll also want to have all of your most important ideas right front-and-center on this one sheet. For that reason, there's a space at the top for you to jot down the area of growth that you prioritized as well as your 1-2 ideas for SMART goals that you created

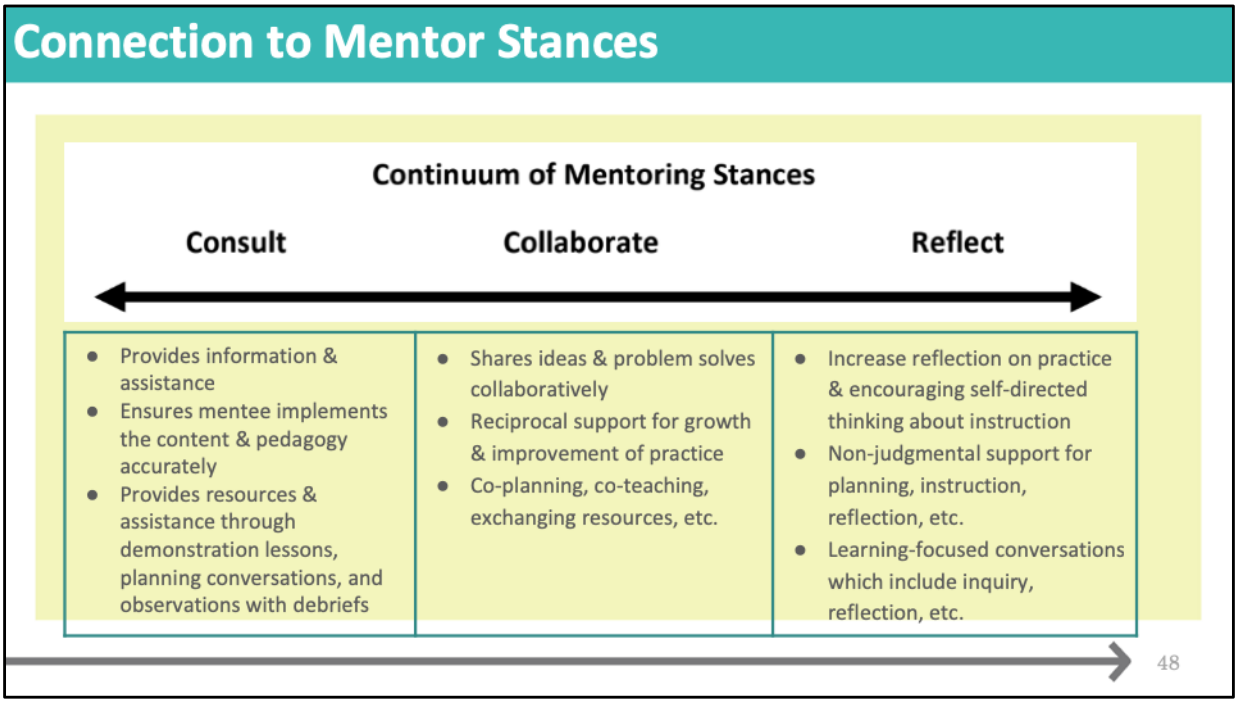
based on the upcoming curriculum and the prioritized area of growth. One of your goals in the debrief conversation will be to finalize 1-2 SMART goals with your mentee, and you'll do that through asking questions and discussing the lesson with your mentee.

Remember from Module 3 that powerful questions invite the mentee to do the thinking, are open-ended so allowing for many possible answers, create a culture of deep thinking about practice, and require the mentee to examine events from multiple perspectives. While the planning guide we are sharing with you has questions included as examples, feel free to use those and add in additional questions you think will engage the mentee in being reflective.

- **Facilitator Does:** Read slide

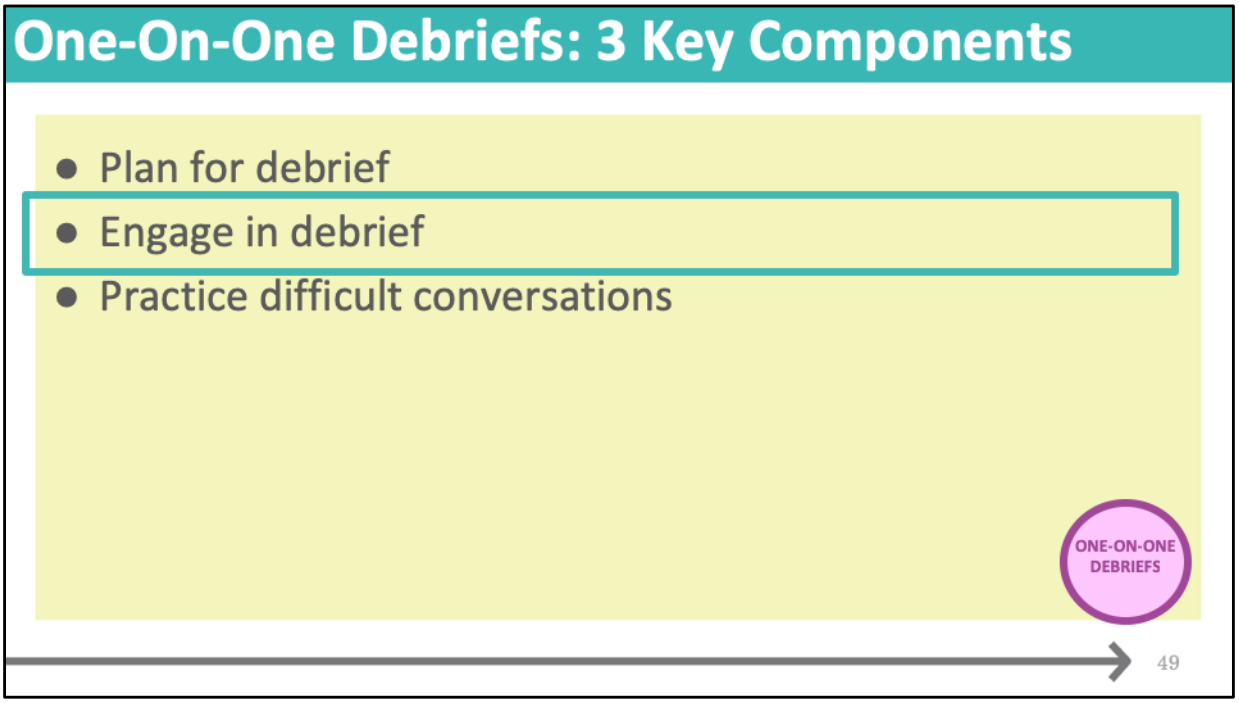
- **Facilitator Says:** Take 3 minutes to read through the guiding questions you can use to focus the debrief conversation with your mentee. Think about how asking guiding questions such as these can help you discuss the prioritized area of growth and set SMART goal(s). Also consider when it might make sense to look at student work to inform and support your conversation.

- **Facilitator Does:** After 3 minutes continue. On a piece of chart paper, large enough for all participants to see, model planning for a debrief conversation on the same lesson as used earlier in Module 5. Copy over the prioritized area for growth and the 1-2 SMART goals developed by participants earlier (or developed by you beforehand). Then, model reading through each of the guiding questions and jotting notes and questions specific to the lesson observed in the video in the "planning notes" column as if you were the mentor and the teacher in the video was the mentee.

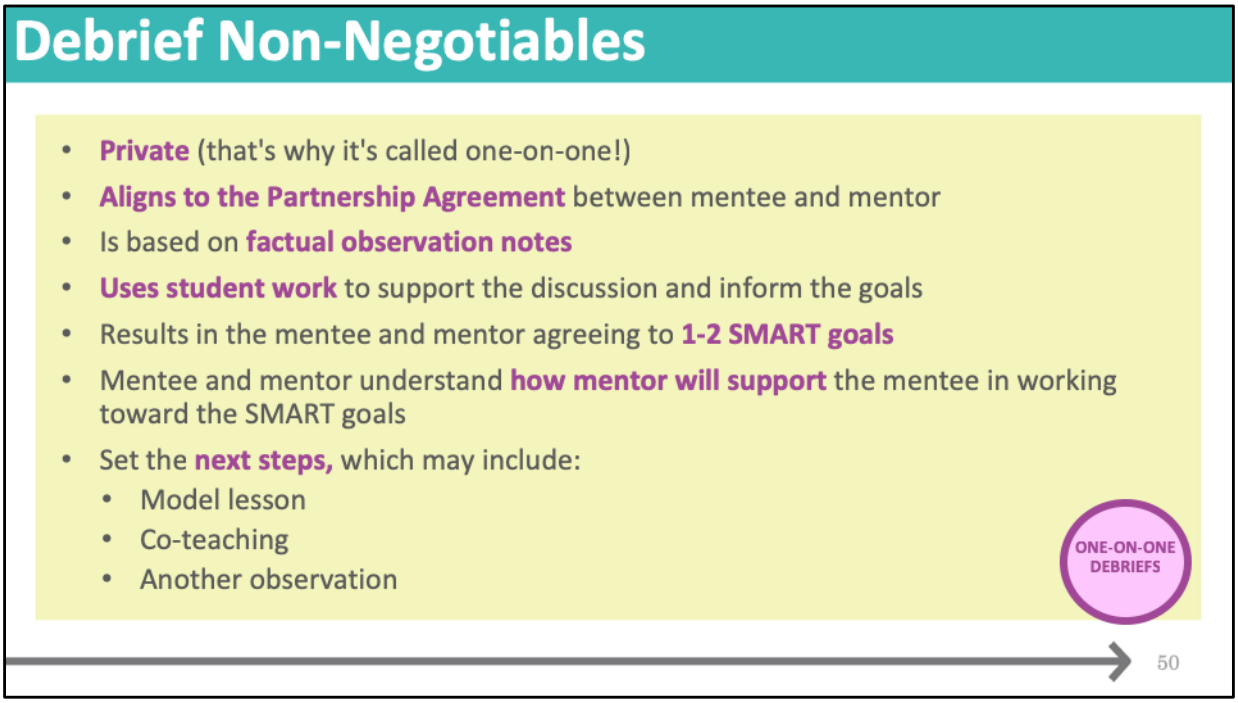



- **Duration:** 3 minutes

- **Facilitator Says:** Let's make a quick connection to the mentor stances we discussed back in module 2. We talked about 3 different stances a mentor can take when working with a mentee including consult, collaborate, and reflect. Each of these stances is summarized on the slide and a more detailed summary is included in your handouts on page 31. As you begin your work with the mentees, you will most likely spend the majority of your time in the consult mentoring stance. You will need to be more direct in your feedback, providing lots of helpful guidance and information regarding content and strong pedagogy. As you mentees improve their practice and begin to be more reflective you will move down the continuum to collaborate, where the debrief can become more of a collaborative conversation and open up co-teaching opportunities. By the end of the first year you may have just a few mentees for whom are ready for you to take on the reflect stance.




- **Duration**: 1 minute
- **Facilitator Says**: Once you have planned your debrief, you'll sit down with your mentee to engage in the debrief.



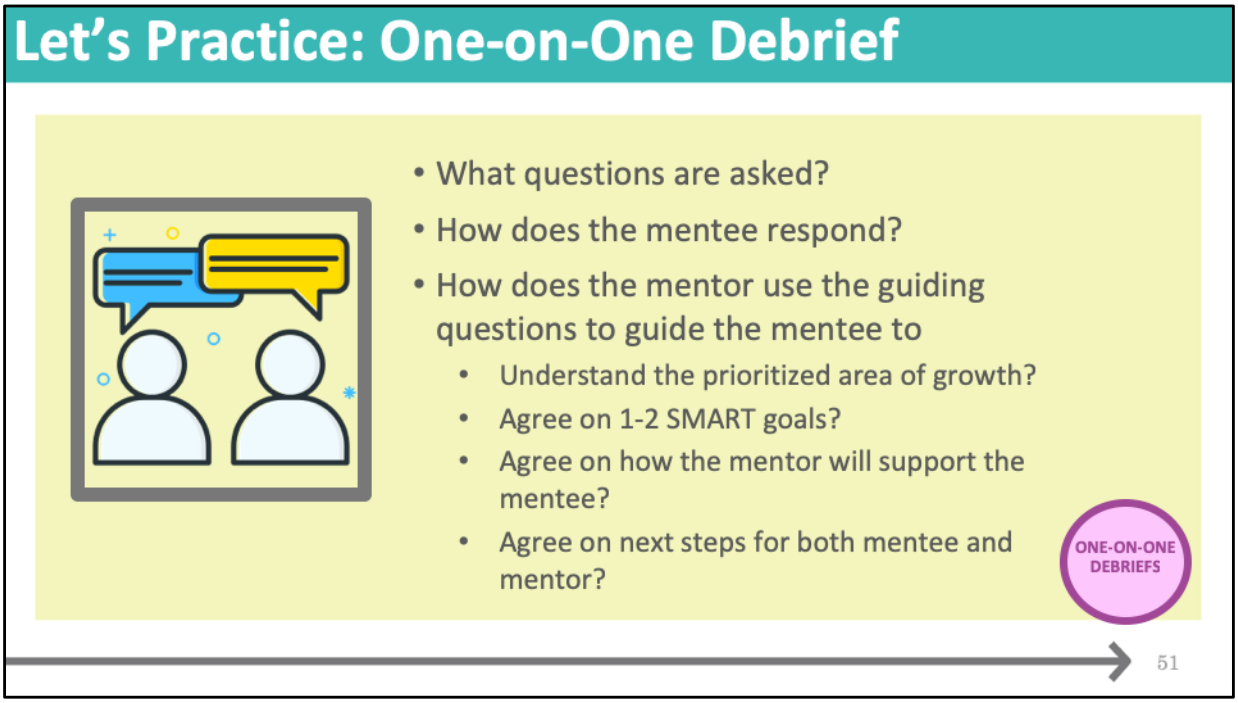

- **Duration**: 3 minutes

- **Facilitator Says**: There are some aspects of debriefs that are non-negotiables (read slide). Remember, we talked about modeling and co-teaching in earlier modules and we will re-visit and practice them in upcoming modules. We will also discuss how to gather and examine student work in future modules.

  Remember to put your deep listening and paraphrasing skills to work when you are engaging in the debrief conversation. When you utilize deep listening strategies you show that you value and appreciate the person, honor where the person is, understand through the speaker's lens rather than through the listener's, and you understand what is both said and unsaid.

  You'll also want to keep the three types of paraphrasing in mind to help guide your debrief conversations in the right direction. Paraphrasing can help you acknowledge and clarify, organize and connect, as well as shift logic. You can refer back to your notes from module 2 to access sentence stems that will

assist you in these three types of paraphrasing.




- **Duration:** 45 minutes

- **Facilitator Says:** Now we will model a debrief conversation for you. One of us will take the role of the mentee – playing the part of the teacher in the video we have been watching. The other of us will take the role of the mentor. I've already planned the questions I'd like to ask and how I'd like the conversation with the mentee to go (refer to filled in planning sheet on chart paper). So now, watch us model a debrief conversation. As you watch us, make notes on your planning sheet of what questions the mentor asked, how the mentee responded, and how the mentor used the guiding questions to guide the mentee to understand the prioritized area of growth, and to agree on 1-2 SMART goals, how the mentor will support the mentee, and what the next steps are for both mentee and mentor. (2 min)

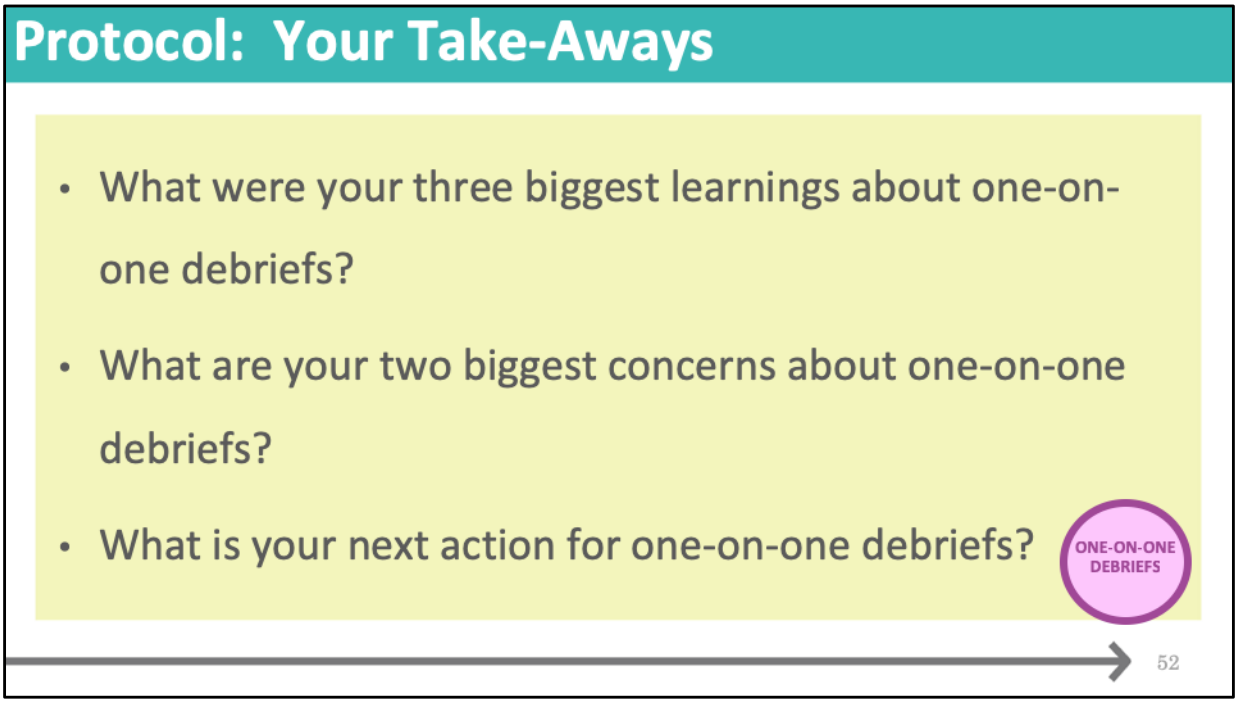
- **Facilitator Does:** Model debrief conversation, with one facilitator acting as mentor and one as mentee. Be sure that the mentor models taking notes on the debrief planning sheet for future reference. (18 min)

- **Facilitator Says:** Turn to the person sitting next to you and use your notes to discuss the model debrief using the questions on the slide. (5 min)

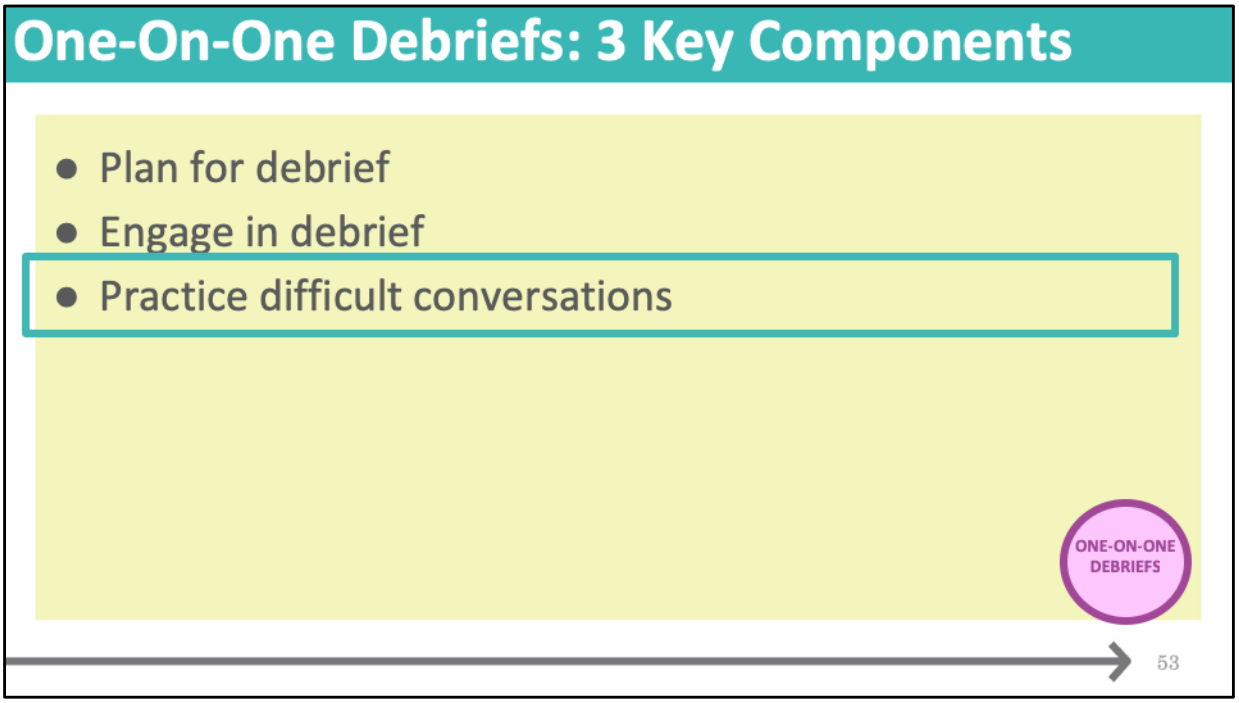
- **Facilitator Does:** Invite 2-3 responses to share with the whole group that would be helpful for everyone to hear. (5 min)

- **Facilitator Says:** Now it's your turn. With the person sitting next to you, you will team up to practice debriefing, with one of you taking the role of mentor and the other mentee. After 5 minutes, you'll switch, so that you both get a turn to be the mentor. First, take 5 minutes to jot down notes together in the planning column. I will let you know when to begin your first role play, and when 5 minutes is up so that you can switch roles. (15 min)

- **Facilitator Does:** Circulate and support partners as they practice, looking for exemplary models. After everyone has had a turn to practice, invite 1-2 exemplars from the group to fishbowl their role play for the group.




- **Duration**: 10 minutes
- **Facilitator Says**: Great job practicing debriefing conversations. In the same partners that just practiced debriefing one-on-one, engage in the three questions in the "Your Take-Aways" protocol that you see on the screen.
- **Facilitator Does:** Move throughout room, listening in, especially for participants sharing that they are concerned that the debrief conversation won't go as smoothly as the ones just practiced. Ask for questions and respond appropriately. (Ultimately we will have a list of possible questions and answers – we will develop these over time).




- **Duration**: 1 minute

- **Facilitator Says:** I heard a few people sharing that one of their concerns is that you'll have debrief conversations that are difficult – and that's a very real concern as discussing growing and changing can be difficult! When we meet again, we'll dive into several protocols that you can use with your mentees if you find yourself having a difficult conversation.

## Review of Outcomes

- 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.

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●**Duration**: 5 minutes

●**Facilitator says**: We have had a full day of learning together. As we come to a close, it is time for us to step back into review what we have learned today. Please revisit the learning outcomes on page 3 and work together in your learning teams to summarize what you learned related to each outcome. Share how you plan to use what you learned when you mentor.

●**Facilitator does**: Circulate and to listen carefully for the key points for today's learning.

## Module 4/5 Assignments

**Module 4/5 Assignments: Mentor work, Due Module 6**

- 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.

55

- **Duration:** 1 minute

●**Facilitator says:** Based on today's lesson you will have a mentor assignment and a content-specific assignment. Here is the mentor assignment. You see it here and on p. 33 of your packet. This assignment is due for Module 6, so you have plenty of time to complete it. This homework will also help you make progress towards earning Mentoring Microcredentials, which we'll introduce in Module 6.

●**Facilitator does:** Provide a minute of wait time.

●**Facilitator says:** What questions do you have?

●**Facilitator does**: Provide responses or invite participants to see you individually.

# Module 4/5 Assignments

**Module 4/5 Assignments: Application to math content, Due Module 6**

- 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.

56

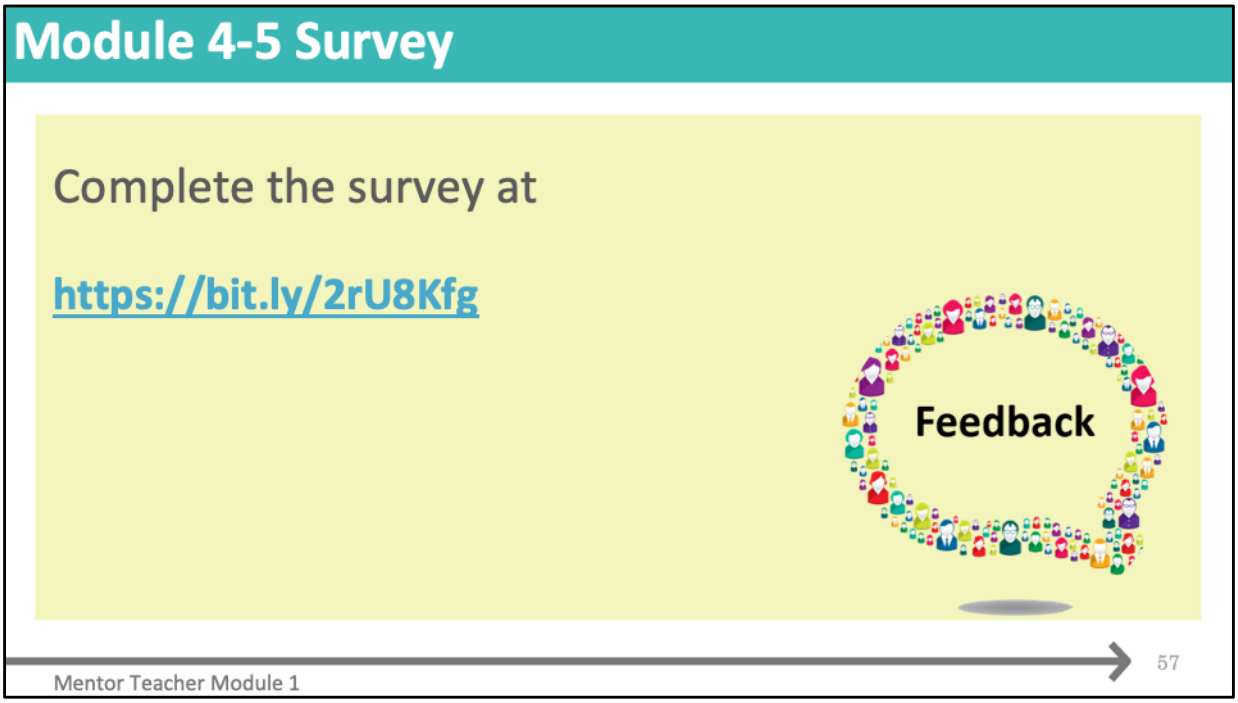
- **Duration:** 1 minute

●**Facilitator says:** Here is the content assignment. Again, you see it here and on p. 33 of your packet. This assignment is due for Module 6, so you have plenty of time to complete it. This homework will also help you make progress towards earning Math Microcredentials, which we'll introduce in Module 6.

●**Facilitator does:** Provide a minute of wait time.

●**Facilitator says:** What questions do you have?

●**Facilitator does**: Provide responses or invite participants to see you individually.




●**Duration**: 5 minutes

●**Facilitator says**: Please complete the survey before you leave. Your input helps us be better in our work to support your learning. Remember to scroll to the bottom of the page to find the survey.