School Year 2016-2017

Math Module 3

Grades K-2
# Table of Contents

1. Module Overview ................................................................. 3
2. Module Observation and 5P Debrief Form ................................................ 15
3. Lesson Preparation Guide ....................................................... 23
4. Lesson Preparation Guide for Special Education Teachers .................... 25
5. Lesson Practice Protocol ....................................................... 27
6. Seminar 1 Plan ...................................................................... 29
7. Seminar 1 Slide Deck ............................................................. 38
8. Seminar 1 Module Internalization Template ........................................... 50
9. Seminar 1 Module Internalization Template for Special Education Teachers 52
10. Seminar 1 Module Internalization Sample – Grade 1 ......................... 54
11. Seminar 1 Module Internalization Sample – Grade 2 ....................... 60
12. Seminar 1 Plan ...................................................................... 64
13. Seminar 1 Slide Deck ............................................................. 77
14. Seminar 2-5 Lesson Annotation Sample – Grade K ......................... 93
15. Seminar 2-5 Lesson Annotation Sample – Grade 1 .......................... 98
16. Seminar 2-5 Lesson Annotation Sample – Grade 2 ......................... 103
17. Seminar 2-5 Lesson Annotation Sample for Special Education Teachers – Grade 3 109
18. Seminar 2-5 Lesson Annotation Sample - Problem Set for Special Education Teachers – Grade 3 115
19. Seminar 2-5 Lesson Annotation Sample - Word Wall for Special Education Teachers – Grade 3 120
20. Seminar 3-5 Plan .................................................................. 121
21. Seminar 3-5 Slide Deck ......................................................... 134
22. Seminar 6 Plan ..................................................................... 149
23. Seminar 6 Slide Deck ............................................................. 158
24. Seminar 6 Quick Sort Looking at Student Work Protocol .................. 170
25. Seminar 6 EQuIP Looking at Student Work Protocol ....................... 173
26. Seminar 6 Looking at Student Work Notes Sheet ................................ 179
27. Seminar 6 Looking at Student Work Notes Sheet for Special Education Teachers 182
LEAP MODULE THREE: Planning and Facilitating Engaging Eureka Lessons  
[Math: K-5]

Essential Questions:
- How can we effectively plan with Eureka?
- How do we deepen our knowledge of the content through planning?
- How can knowledge of the content make us more efficient at planning?
- How do specific topics develop in math?

Module Overview:
To teach a strong, Common Core aligned lesson takes dedicated time for deep planning. It takes time to internalize and practice the lesson and requires access to knowledgeable content partners and resources to deepen expertise. In LEAP Module Three, LEAP leaders leverage many of the tools and resources introduced in LEAP Modules One and Two in order to create a strong planning process. Through this process, all teachers will be prepared for upcoming lessons while continuing to deepen their knowledge of the Eureka curriculum and the Common Core Standards.

Throughout module three, LEAP leaders will be able to adjust the timing of the LEAP Seminars to meet the needs of their teams in a timely manner. The module is designed to be flexible in the sequence of the seminars while still providing structured support. Specifically, 3.1 (module 3, seminar 1) focuses on module internalization and would be ideal for a LEAP team that is one to two weeks away from beginning a new Eureka Module. Exemplar planning documents that emphasize the key content at each grade level have been provided for the next Eureka module, according to the DCPS planning guide. Likewise, seminar 3.6 (module 3, seminar 6) focuses on looking at student work following a Mid-Module or End-of-Module Assessment. Using the pacing guide, LEAP leaders should sequence this module during a week when many LEAP team members have administered a Mid-Module or End-of-Module Assessment.

Seminars 3.2-3.5 (module 3, seminars 2-5) are the heart of LEAP Module 3. These four seminars focus on lesson planning and preparation. These seminars will strengthen teacher planning skills as well as knowledge of content by inviting LEAP teams to do a careful study of the Eureka curriculum and by accessing a variety of resources that were introduced in LEAP Math Modules One and Two. These seminars will allow teachers to begin planning their lessons for the next
week of instruction during the LEAP Seminar, while also accessing key resources and protocols to build their content knowledge. By repeating these sessions throughout the module, teachers will build strong planning habits. This will also help to ensure that LEAP seminars are predictable and focused on the critical and challenging work of instructional planning. A visual of this tool is featured on page one of this module overview. In Canvas, you will also find a companion Lesson Preparation Guide that has been specifically developed for special education teachers. This version is identical to the original guide but includes additional questions that have been differentiated to meet the needs of special education teachers. Furthermore, there are three exemplar lesson annotations (for the 3rd grade, 8th grade, and geometry lessons) that contain additional annotations specifically for special education teachers.

In LEAP Math Module Three, there are six provided seminars and additional flex weeks. During the flex weeks, LEAP leaders are encouraged to explore tools and protocols that have been introduced throughout the first two modules. These include the following:

- Focus of the Grade Level (M1:S1)
- Coherence Map and Coherence Card Sort (M1:S1)
- Lesson Internalization Protocol (M1:S2)
- Practicing Concept Development or Application Portions of the Lesson (M1: S4,5)
- Quick Sort Protocol (M1:S6,7)
- Module Internalization Protocol (M2:S1)
- Differentiating the Content of the Module (M2:S2-4)

**Key Artifacts for the Module:**

*To inform data-driven planning and facilitation, analysis of these artifacts may provide information regarding impact on teacher practice and student learning.*

- Module Internalization (Seminar One)
- Lesson Annotations using the Lesson Preparation Guide (Seminars Two – Five)
- Looking at Student Work Analysis (Seminar Six)
Module Rationale: This module was designed to address trends in strengths and gaps with regard to student learning and teacher practice. These trends were identified from instructional observations and input from principals, teachers, and coaches.

<table>
<thead>
<tr>
<th>Areas of Strength</th>
<th>Areas of Focus</th>
<th>Aligned Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>evidence of CCSS practices</td>
<td>building on and extending current evidence of CCSS practices</td>
<td>effective implementation of this module should lead toward meeting the following goals</td>
</tr>
</tbody>
</table>

Generally speaking...

**Teachers are:**
Most teachers are using Eureka and accessing a more conceptual curriculum; however, many teachers appear most comfortable with fluency practice.

Some teachers are customizing the learning experiences to meet varied needs of students.

Schools are more welcoming of collaboration, resources, and new suggestions. There is also a new openness to collaborating with other schools.

**Students are:**
Many students are now able to discuss and articulate strategies for how they determined answers to tasks.

Generally speaking...

**Teachers are:**
Some teachers are struggling with teaching in a more conceptual way and reverting to teaching mostly procedural skills and fluency.

When students are not fully prepared, some teachers may avoid teaching the grade level content instead of scaffolding up to the grade level content.

Many teachers are struggling with pacing issues.

Some teachers may not be fully comfortable in the content of the lessons and may lack sufficient planning time to learn the content pedagogy while preparing for daily lessons.

**Students are:**

Generally speaking...

**Teachers are:**
Continuing to strengthen the delivery of rigorous content by:

- Extending previous learning by making connections with mathematics content, methods, and models from previous grades.
- Intentionally targeting the aspect(s) of rigor (conceptual understanding, procedural skill and fluency, application) called for by the standard(s) being addressed.

Continuing to strengthen well-planned, purposeful learning experiences by:

- Including explanations, representations, and/or examples to make the content of the lesson explicit.
Many students are improving performance on procedural skill and fluency standards. Some students are experiencing challenges with conceptual understanding and as a result are not able to transfer learning across lessons, leading to struggles with application problems.

Students entering the curriculum with a variety of readiness levels, and in the upper grades, are unfamiliar with many of the strategies that may have been covered by Eureka in earlier grades.

Some students are experiencing challenges from the language and vocabulary. This is a particular impediment for students with special needs. In general, students may not be offered or take advantage of opportunities to engage in mathematical discourse.

- Including opportunities for students to share, discuss, and justify their mathematical reasoning through discourse.
- Supporting and promoting variation in solution methods to strengthen students’ understanding of the content and mathematical structures.

**Students are:**
Students master rigorous mathematical content as evidenced by % proficiency on the upcoming Eureka Module Assessment.

<table>
<thead>
<tr>
<th>Enduring Understandings:</th>
</tr>
</thead>
<tbody>
<tr>
<td>● By studying the curriculum during planning, teachers can strengthen their knowledge of mathematical pedagogy and the standards.</td>
</tr>
<tr>
<td>● By strengthening their knowledge of the standards, teachers can make planning more effective and efficient.</td>
</tr>
<tr>
<td>● Internalizing an existing curriculum, while similar to lesson planning, requires different habits, resources, and dispositions.</td>
</tr>
<tr>
<td>● Collaborative planning results in stronger and more purposeful lesson design that will meet the needs of a greater number of students.</td>
</tr>
</tbody>
</table>

In addition to these general Enduring Understandings, there are key understandings for the mathematics for each grade band and each grade level. These key understandings are emphasized throughout all the LEAP Math Module 3 seminar plans with gray boxes. In these gray boxes, LEAP leaders will see the specific mathematical content for their grade band explicitly spelled out in the facilitation notes. These notes are intended as a key supplement to allow LEAP leaders to build the content expertise of their teams. In addition, exemplars for each grade level (K-12) have been provided for Module Internalization and Lesson Preparation. These also emphasize the key content understandings of each grade level and should be studied by LEAP leaders prior to the seminars. During the seminars, the example module internalization and lesson preparation resources can be valuable tools for establishing common criteria for successful planning.
LEAP Weekly Module Summary

Seminar One: How does internalizing a Eureka Module deepen my understanding of the standards and content strategies?

<table>
<thead>
<tr>
<th>Seminar Objectives</th>
<th>Seminar Outcomes</th>
<th>Seminar Criteria for Success</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assess and address opportunity gaps in their own understanding for an upcoming module.</strong>&lt;br&gt;Describe how the progression of lessons within a module builds towards the End-of-Module Assessments.</td>
<td>Teachers will complete a Module Internalization Protocol for one of their upcoming modules.</td>
<td>Teachers identify at least one misconception or new learning that is related to the content or content pedagogy. Teachers can describe how the progression of each lesson builds towards the Mid-Module and End-of-Module Assessments.</td>
</tr>
</tbody>
</table>
### Seminars 2-5: How do I annotate and prepare to teach a Eureka Lesson so I am meeting the key mathematics of the standards?

<table>
<thead>
<tr>
<th>Seminar Objectives</th>
<th>Seminar Outcomes</th>
<th>Seminar Criteria for Success</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What are teachers learning?</strong></td>
<td><strong>What should teachers get?</strong></td>
<td><strong>How will we know teachers got it?</strong></td>
</tr>
</tbody>
</table>
| Leverage tools and resources to increase their knowledge of the standards and content covered in an upcoming Eureka Lesson. Identify or create opportunities for student engagement with mathematical practices in an upcoming Eureka Lesson. OPTIONAL: Identify at least one concrete strategy to improve their instruction based on their lesson practice and feedback. | Teachers will prepare for an upcoming lesson through lesson annotations on the standards, lesson content, and student engagement. OPTIONAL: Teacher will be able to practice and reflect upon a prioritized piece of an upcoming lesson. | Standards:  
- Identify the portion of the grade level standard targeted by the lesson.  
- Identify the correct aspect(s) of rigor targeted in the lesson.  
- Make connections to prior lessons, future lessons, and PARCC (if applicable). Mathematics of the Lesson:  
- Identify the key mathematical idea or concept.  
- Analyze grade level problems.  
- Identify key mathematical vocabulary.  
- Anticipate common student misconceptions. Customizing the Lesson:  
- Identifies in Eureka or creates strong opportunities to develop student mathematical practices aligned to the lesson.  
- Identifies in Eureka or creates checks for understanding and discussion questions.  
- Adjusts pacing to meet the needs of students.  
- Selects “must-do” and “could-do” problems. |

### Seminar 6: How can student work drive our instruction?

<table>
<thead>
<tr>
<th>Seminar Objectives</th>
<th>Seminar Outcomes</th>
<th>Seminar Criteria for Success</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What are teachers learning?</strong></td>
<td><strong>What should teachers get?</strong></td>
<td><strong>How will we know teachers got it?</strong></td>
</tr>
<tr>
<td>Analyze strengths and gaps in student work aligned to standards. Evaluate effectiveness of planning and instruction and identify implications for practice.</td>
<td>Teachers will bring student work aligned from a Eureka Mid-Module or End of Module Assessment and will use the Quick Sort Protocol to analyze the alignment of the task to the standards, identify trends</td>
<td>Exemplar for task is rooted in common expectations of proficiency as outlined in the standards and assessment. Evidence is specific, descriptive, free of judgment, and aligned to CCSS.</td>
</tr>
</tbody>
</table>
Observation/Debrief Guidance (K-5)

The following table outlines focus areas/questions that have been identified within each Weekly Seminar Plan. It is important to note that over the course of the module, LEAP Leaders will customize plans of support and focus for their team members based on identified needs. In this regard, the potential sources of evidence and teacher action steps should be chosen in alignment with each teacher’s focus of instructional support.

<table>
<thead>
<tr>
<th>Focusing Questions</th>
<th>LEAP Leaders will collect evidence of...</th>
<th>Potential Teacher Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Content of the Lesson (IPG Core Action 1)</strong></td>
<td>In the lesson preparation and in debrief conversations, the teacher is able to:</td>
<td>Study the Coherence Map or Common Core Companion to determine what students and teachers should be doing to meet the depth of this grade level standard. (Focus and Rigor)</td>
</tr>
<tr>
<td>● Do the problems, activities, and student work reflect the depth of the grade level standards? (Focus)</td>
<td>● Identify the portion of the grade level standard(s) targeted by the lesson.</td>
<td>Explicitly plan questions or explanations that connect this standard (or a standard from an upcoming lesson) to previous standards so that student can see how the mathematics builds from itself and makes sense. (Coherence)</td>
</tr>
<tr>
<td>● Are students making connections to other standards and lessons? (Coherence)</td>
<td>● Identify the correct aspect(s) of rigor targeted in the lesson. The teacher can articulate which lessons focus on conceptual understanding, fluency, or application.</td>
<td></td>
</tr>
<tr>
<td>● Are the students mastering the aspect of rigor – fluency, conceptual understanding, or application – that is called for by the standard? (Rigor)</td>
<td>● Makes explicit connections to prior lessons and Foundational Standards and how the lesson connects to future lessons</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● Selects “must-do” problems that are most aligned with the standards and expectations for PARCC</td>
<td></td>
</tr>
<tr>
<td><strong>Eureka Lesson Components (IPG Core Action 2 and 3)</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Does the teacher create positive, predictable, and efficient routines for fluency practice? | The LEAP Leader should script teacher and student actions during the fluency routine – including time stamps of when transitions occur. | ✓ Practice delivering fluency directions in a warm, challenging tone.  
✓ Create routines for celebrating students’ progress and effort on fluency work.  
✓ Craft a roll-out speech to clarify routines for specific fluency activities (e.g. counting, sprints).  
✓ Explicitly reinforce expectations for student think time within routines.  
✓ Practice fluency routines with a coach so that fluency sprints and counting exercises are quick and efficient.  
✓ Practice engaging all students through quick interventions to prompt responses (e.g. hand gestures, visual cues, audible signals).  
✓ Differentiation Opportunities:  
  o Students have access to the fluency sprints the night before to practice  
  o Fluency sprints are assigned for classwork or homework  
  o Teacher creates differentiated sprints as needed |

### Concept Development

**How does the teacher leverage the Eureka lesson to develop the conceptual understanding of students?**

**Concept Development:**
The LEAP Leader should script teacher questions and student responses during the Concept Development portion of the lesson. The observer should specifically listen for the following:
- Potential student misconceptions
- Moments where the teacher could have asked a question instead of telling

**Concept Development**

- Practice Identifying three potential student misconceptions for upcoming concept development lessons.
- Use the mathematical models and teaching scripts from a Eureka Concept Development problem to develop open ended questions that respond to student misunderstandings.
<table>
<thead>
<tr>
<th>Application</th>
<th>Application</th>
<th>Application</th>
</tr>
</thead>
</table>
| **How does the teacher leverage the application problems in the Eureka curriculum to help students model with mathematics in real world contexts?** | **The LEAP Leader should script teacher questions and student responses during the Application Problem portion of the lesson.** Observer should specifically listen for the following:  
  - Clarity of teacher directions  
  - Places where the teacher could have asked a question instead of telling an answer  
  - Opportunities for the teacher to connect students thinking back to mathematical models | ✓ Practice using the Pictures, Numbers, and Words strategy and script out efficient and clear directions.  
  ✓ Identify potential student misconceptions for an upcoming application problem.  
  ✓ Have the LEAP Leader role play a student and use open-ended questions to develop students’ understanding with an upcoming application problem.  
  ✓ Have the LEAP Leader role play a student and find opportunities to connect students’ thinking to mathematical models with an upcoming application problem. |

<table>
<thead>
<tr>
<th>Student Debrief</th>
<th>Student Debrief</th>
<th>Student Debrief</th>
</tr>
</thead>
</table>
| **Are students making connections between parts of the lesson, concepts, strategies, and tools on their own?**  
  **Are exit tickets being used to assess students' knowledge of the lesson taught to guide future instruction?** | **The LEAP Leader should script teacher questions and student responses during the student debrief portion of the lesson and examine student work from the exit tickets.**  
  Observer should listen for the following:  
  - The extent to which students are making | ✓ Practice scripting the ideal responses that students would make during the student debrief of an upcoming lesson that would connect the part of the lesson, concepts, strategies, and their own tools. |
connections between their own work, the parts of the lesson, and the standard
• The depth of students’ understanding of the standard

✓ Plan three scaffolding questions that would support students in sharing these ideal responses.
✓ Analyze exit tickets in a coaching session to determine potential re-teaching opportunities.

### Traditional Year LEAP Module 3 Pacing Calendar (K-12)

<table>
<thead>
<tr>
<th>Week</th>
<th>Learning Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Term 2</strong></td>
<td></td>
</tr>
<tr>
<td>January 12</td>
<td>Weekday Workshop #3</td>
</tr>
<tr>
<td></td>
<td>LEAP Module 3 Review and Facilitation</td>
</tr>
<tr>
<td>Week of Jan. 16</td>
<td>FLEX WEEK (Suggestion – Student Work Protocol)</td>
</tr>
<tr>
<td>Jan. 19</td>
<td>PD Day 4 (school-based LEAP teams)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Week of Jan. 23</td>
<td>LEAP Module 3: Planning and Facilitating Engaging Eureka Lessons</td>
</tr>
<tr>
<td></td>
<td>LEAP Cycle 3.1: Module Internalization</td>
</tr>
<tr>
<td>Week of Jan. 30</td>
<td>LEAP Module 3: Planning and Facilitating Engaging Eureka Lessons</td>
</tr>
<tr>
<td></td>
<td>LEAP Cycle 3.2: Lesson Internalization &amp; Annotation Introduction</td>
</tr>
<tr>
<td>Week of Feb. 6</td>
<td>LEAP Module 3: Planning and Facilitating Engaging Eureka Lessons</td>
</tr>
<tr>
<td></td>
<td>LEAP Cycle 3.3: Lesson Internalization &amp; Annotation (Suggestion: Lesson Annotation Phase One)</td>
</tr>
<tr>
<td>Feb. 17</td>
<td>PD Day 5</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Week of Feb. 20</td>
<td>LEAP Module 3: Planning and Facilitating Engaging Eureka Lessons</td>
</tr>
<tr>
<td></td>
<td>LEAP Cycle 3.4: Lesson Internalization &amp; Annotation (Suggestion: Lesson Annotation Phase Two)</td>
</tr>
<tr>
<td>Week of Feb. 27</td>
<td>LEAP Module 3: Planning and Facilitating Engaging Eureka Lessons</td>
</tr>
<tr>
<td></td>
<td>LEAP Cycle 3.5: Lesson Internalization &amp; Annotation (Suggestion: Lesson Annotation Phase Three)</td>
</tr>
<tr>
<td>March 2</td>
<td>Weekday Workshop #4</td>
</tr>
<tr>
<td>Week of Mar. 6</td>
<td>LEAP Module 3: Planning and Facilitating Engaging Eureka Lessons</td>
</tr>
<tr>
<td></td>
<td>LEAP Cycle 3.6: Analyzing Student Work</td>
</tr>
<tr>
<td>Week</td>
<td>Learning Experience</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Week of Mar. 13</td>
<td>FLEX WEEK (<em>Suggestion – Revisit Module Internalization</em>)</td>
</tr>
<tr>
<td>Week of Mar. 20</td>
<td>FLEX WEEK (<em>Suggestion – Lesson Internalization &amp; Annotation</em>)</td>
</tr>
<tr>
<td>Mar. 31</td>
<td>PD Day 6</td>
</tr>
</tbody>
</table>

**Extended Year LEAP Module 3 Pacing Calendar (K-8)**
| Term 2 | January 12 | Weekday Workshop #3  
LEAP Module 3 Review and Facilitation |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Week of Jan. 16</td>
<td>FLEX WEEK (<em>Suggestion – Student Work Protocol</em>)</td>
<td></td>
</tr>
<tr>
<td>Jan. 27</td>
<td>PD Day 4 (school-based LEAP teams)</td>
<td></td>
</tr>
</tbody>
</table>
| Week of Jan. 31 | LEAP Module 3: Planning and Facilitating Engaging Eureka Lessons  
LEAP Cycle 3.1: Module Internalization |
| Week of Feb. 6 | LEAP Module 3: Planning and Facilitating Engaging Eureka Lessons  
LEAP Cycle 3.2: Lesson Internalization & Annotation Introduction |
| Feb. 17 | PD Day 5 |
| Week of Feb. 20 | LEAP Module 3: Planning and Facilitating Engaging Eureka Lessons  
LEAP Cycle 3.3: Lesson Internalization & Annotation  
(*Suggestion: Lesson Annotation Phase One*) |
| Week of Feb. 27 | LEAP Module 3: Planning and Facilitating Engaging Eureka Lessons  
LEAP Cycle 3.4: Lesson Internalization & Annotation  
(*Suggestion: Lesson Annotation Phase Two*) |
| March 2 | Weekday Workshop #4 |
| Week of Mar. 6 | LEAP Module 3: Planning and Facilitating Engaging Eureka Lessons  
LEAP Cycle 3.5: Lesson Internalization & Annotation  
(*Suggestion: Lesson Annotation Phase Three*) |
| Week of Mar. 13 | LEAP Module 3: Planning and Facilitating Engaging Eureka Lessons  
LEAP Cycle 3.6: Analyzing Student Work |
| Week of Mar. 20 | FLEX WEEK (*Suggestion – Revisit Module Internalization*) |
| Week of Mar. 27 | FLEX WEEK (*Suggestion – Lesson Internalization & Annotation*) |
| Week of Apr. 3 | FLEX WEEK (*Suggestion – Lesson Internalization & Annotation*) |
LEAP Observation and 5P Debrief Template

This observation and debrief framework is adapted from Bambrick’s coaching model to be intentionally content-focused. This tool is designed to be used as a guide for observers conducting weekly, 15-minute formative observations that occur as a part of the LEAP Weekly Cycle. LEAP observers are encouraged to record information using Whetstone, the LEAP Platform.

<table>
<thead>
<tr>
<th>Observation</th>
<th>Planning</th>
<th>5P Debrief</th>
<th>Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>These sections are completed by the observer before/during the classroom observation.</td>
<td>These sections are completed by the observer after the classroom observation but before the debrief conversation.</td>
<td>These sections are completed by the observer during the debrief conversation.</td>
<td>These sections are completed by the Office of Instructional Practice (OIP) content teams. The content in these sections is pre-loaded from LEAP Module Overviews and LEAP Seminar Plans. This content is specific to each LEAP team’s current LEAP Module and LEAP Seminar. In addition, guiding questions and coaching best practices are included in the 5P Debrief conversation section.</td>
</tr>
</tbody>
</table>
LEAP Observation and 5P Debrief Template – Module 3

Pre-Observation

Before conducting the weekly LEAP Observation, take 3-5 minutes to review the context of the observation. This includes the LEAP Module Overview, LEAP Seminar outcomes, objectives, and criteria for success, as well as observation focus questions, evidence to collect during the observation, and potential teacher action steps. A quick review of this information will help narrow the focus of the observation and ensure that the most meaningful information is collected to inform the 5P debrief.

<table>
<thead>
<tr>
<th>Date &amp; Time (observation):</th>
<th>Teacher:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date &amp; Time (debrief):</td>
<td>Observer:</td>
</tr>
<tr>
<td>Grade Level / Content Area:</td>
<td>LEAP Seminar Leader:</td>
</tr>
</tbody>
</table>

Overview

While the Leap Seminars in Module 3 focus on planning and lesson internalization, the observations for Math LEAP Module 3 continue to focus on classroom practices. This Observation and 5P Debrief tool for Math LEAP Module 3 focuses on Eureka best practices to be observed in the classroom in order to continue to develop teachers’ implementation of the Eureka curriculum. The intention with this re-designed tool is that teachers and LEAP Leaders can work together on a skill for multiple weeks in order to more fully develop that skill. Additionally, this tool should allow for more flexibility in terms of scheduling the observation to see specific components of the math block.

How to Use this Guide:

Before going into a teacher’s classroom, consider that teacher’s areas of strength and potential growth areas based on previous observations. Schedule the observation for a specific time to observe the part of the math block identified to prioritize for the teacher (fluency, concept development, application, or student debrief). This could be the same for each teacher on the LEAP Team, or different for each individual teacher, depending on teacher need. Then, use the “Focus Questions” and “Evidence to Collect” sections of the tool that correspond to the focus area to guide the observation, and consider the matching “Potential Teacher Action Steps” when planning the 5P Debrief conversation and determining an action step.

<table>
<thead>
<tr>
<th>Observation and 5P Debrief Focus:</th>
<th>Potential Teacher Action Steps:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Content of the Lesson (Core Action I)</td>
<td>Overall Content of the Lesson (Core Action I)</td>
</tr>
</tbody>
</table>
Do the problems, activities, and student work reflect the depth of the grade level standards? (Focus)
Are students making connections to other standards and lessons? (Coherence)
Are the students mastering the aspect of rigor – fluency, conceptual understanding, or application – that is called for by the standard? (Rigor)

Evidence to Collect
In the lesson preparation and in debrief conversations, the teacher is able to:
- Identify the portion of the grade level standard(s) targeted by the lesson.
- Identify the correct aspect(s) of rigor targeted in the lesson. The teacher can articulate which lessons focus on conceptual understanding, fluency, or application.
- Makes explicit connections to prior lessons and Foundational Standards and how the lesson connects to future lessons.
- Selects “must-do” problems that are most aligned with the standards and expectations for PARCC.

Eureka Lesson Components (Core Action Two and Three)

**Fluency**

**Focus Question:**
Does the teacher create positive, predictable, and efficient routines for fluency practice?

**Evidence to Collect**
The LEAP Leader should script teacher and student actions during the fluency routine – including time stamps of when transitions occur.

Eureka Lesson Components (Core Action Two and Three)

**Fluency**

- Practice delivering fluency directions in a warm, challenging tone.
- Create routines for celebrating students’ progress and effort on fluency work.
- Crafts a roll-out speech to clarify routines for specific fluency activities (e.g. counting, sprints).
- Explicitly reinforce expectations for student think time within routines.
- Practice fluency routines with a coach so that fluency sprints and counting exercises are quick and efficient.
- Practice engaging all students through quick interventions to prompt responses (e.g. hand gestures, visual cues, audible signals).
- Differentiation Opportunities:
**Concept Development**

**Focus Question:**
How does the teacher leverage the Eureka lesson to develop the conceptual understanding of students?

**Evidence to Collect:**
The LEAP Leader should script teacher questions and student responses during the Concept Development portion of the lesson. The observer should specifically listen for the following:
- Potential student misconceptions
- Moments where the teacher could have asked a question instead of telling
- Opportunities to connect students comments back to models and representations

**Application**

**Focus Question:**
How does the teacher leverage the application problems in the Eureka curriculum to help students model with mathematics in real world contexts?

**Evidence to Collect:**
The LEAP Leader should script teacher questions and student responses during the Application Problem portion of the lesson. Observer should specifically listen for the following:
- Clarity of teacher directions
- Places where the teacher could have asked a question instead of telling an answer
- Opportunities for the teacher to connect students thinking back to mathematical models

---

- Students have access to the fluency sprints the night before to practice
- Fluency sprints are assigned for classwork or homework
- Teacher creates differentiated sprints as needed

**Concept Development**
- Practice Identifying three potential student misconceptions for upcoming concept development lessons.
- Use the mathematical models and teaching scripts from a Eureka Concept Development problem to develop open ended questions that respond to student misunderstandings.
- Have the LEAP Leader role play a student and work to guide the student through questioning and models.
- Create more opportunities for student discussion during the concept development portion of a Eureka lesson.
- Plan more purposeful use of manipulatives and models connected to address student misconceptions.

**Application**
- Practice using the Pictures, Numbers, and Words strategy and script out efficient and clear directions
- Identify potential student misconceptions for an upcoming application problem
- Have the LEAP Leader role play a student and use open ended questions to develop students’ understanding with an upcoming application problem
- Have the LEAP Leader role play a student and find opportunities to connect students’ thinking to mathematical models with an upcoming application problem
**Student Debrief**

**Focus Questions:**
- Are students make connections between parts of the lesson, concepts, strategies, and tools on their own?
- Are exit tickets are used to assess students' knowledge of the lesson taught to guide future instruction?

**Evidence to Collect:**
The LEAP Leader should script teacher questions and student responses during the student debrief portion of the lesson and examine student work from the exit tickets.

Observer should specifically listen for the following:
- The extent to which students are making connections between their own work, the parts of the lesson, and the standard
- The depth of students’ understanding of the standard

**Student Debrief**
- Practice scripting the ideal responses that students would make at during the student debrief of an upcoming lesson that would connect the part of the lesson, concepts, strategies, and their own tools.
- Plan three scaffolding questions that would support students in sharing these ideal responses.
- Analyze the exit tickets in a coaching session to determine potential re-teaching opportunities.

**Observation**
During the 15-minute observation, collect evidence to use during the 5P Debrief based on the Observation and 5P Debrief Focus (above). Effective evidence is specific, descriptive and judgment-free. Collect evidence through scripting, narration, counting, timing, tracking trends, and/or taking photos of student work. Record evidence in a template that makes the most sense to you and copy it in the space below if doing so is helpful to have as a reference as you complete your planning process. Any observation notes entered here are visible only to the observer, and will not be visible to the teacher observed.

**Lesson Objective:**

**Observation Notes**
*LEAP Leaders may choose to take notes directly into this template, on Whetstone, the LEAP Platform, or in some other template of your choosing.

**5P Debrief Conversation**
Create a plan for the 5P Debrief. Use these questions as a guide, choosing 1 or more questions to ask the teacher in each section. While pre-planning, consider Potential Teacher Actions Steps (above) for the current LEAP Module. Consider the needs of the teacher, informed by evidence collected while in the classroom, and determine 1-2 of the provided potential action steps to discuss. During the 5P Debrief, collaborate with the teacher to determine the best action step and record it in the space below. The most important result is that the teacher leaves the conversation with a clear action step and a plan for how to implement the action step in the classroom. Finally, close out by expressing gratitude and determining next steps.
### 5P Debrief Conversation
#### Protocol / Guiding Questions:

<table>
<thead>
<tr>
<th>STEP 1 – PRAISE</th>
<th>Pre-Planning Notes:</th>
<th>Notes During 5P Debrief Conversation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>What positive teacher/student actions will you highlight from the classroom observation?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2 minutes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• How do you think the lesson went?</td>
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<td></td>
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<tr>
<td>• One great action I noticed was that you ____. What was the impact? (OR) The impact was _____. Nice work!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• In our last LEAP Seminar, we planned for ____. How did that go?</td>
<td></td>
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</tr>
<tr>
<td>• Our prior action step was ____. What lessons did you learn that we can build on, moving forward?</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STEP 2 – PROCESS</th>
<th>Pre-Planning Notes:</th>
<th>Notes During 5P Debrief Conversation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>What student work or evidence will you examine with the teacher to guide the discussion?</td>
<td></td>
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<tr>
<td>2-6 minutes</td>
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<td></td>
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<tr>
<td>• Look at the text or task.</td>
<td></td>
<td></td>
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<tr>
<td>• What is the ideal student response to the text or task?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Look at the student evidence (student work and/or responses captured during the observation). What are students saying/writing about the text or task? What questions did you ask students during the lesson to get these responses?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Looking at student work/responses, what is the gap between current and ideal student performance?</td>
<td></td>
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</tr>
<tr>
<td>• What scaffolds can we plan to ensure students can reach the ideal student response?</td>
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</tr>
</tbody>
</table>
### STEP 3 – PRIORITIZE
**What is the key action step for the teacher to focus on in the next week?**

*1 minute*

- Refer to list of suggested action steps in the Potential Teacher Actions Steps (above); use one of the provided action steps or customize as necessary.
- Based on what we just talked about, it might make sense to focus on _____. (OR) Based on what we just talked about, what do you think it make sense to focus on?
- Your action step for today is ____. This is important because _____.
- Record the action step on Whetstone, the LEAP Platform.

### STEP 4 – PLAN / PRACTICE
**How will the teacher apply the action step to improve his/her instruction?**

*13-20 minutes*

- Which lesson in the next week can we use to practice this skill?
  - What part in this lesson should we focus on?
- Let’s co-plan for this part of the future lesson together.
- Spend several minutes scripting side-by-side with the teacher.
  - Script the ideal student response.
  - Script teacher language, as needed.
- Let’s role play this part of the future lesson together.
  - Practice delivery of the content planned to check for clarity and economy of language.
  - Role play as a student who gets the answer correctly.
  - Role play as a student who does not get the answer correct on the first try.
### STEP 5 – CLOSE-OUT

**What are our next steps, moving forward?**

1-3 minutes

- What did you learn today?
- **Investment:** How will this strategy make a positive impact on your students?
- **Application:** When specifically do you plan to use this strategy? What would it look like/sound like for you to use this strategy effectively?
- **Transfer:** How can I best support your performance in this area between now and our next visit in 2 weeks? What evidence will you share with me?
- What is one thing that went well about today’s meeting? What is one thing I can improve for next time?
- **Gratitude:** Thank you for ____.
STEPS TO PLANNING
A PURPOSEFUL LESSON
WITH EUREKA

MODULE INTERNALIZATION

1. Complete and correct the Mid-Module and End-of-Module Assessments.
2. Read the Module Overview, Table of Contents, and Exit Tickets.
3. Read the lesson titles and lesson objectives.

LESSON INTERNALIZATION

1. Complete and correct the Exit Ticket and Problem Set. Record your questions and connections to other content.
2. Read the Topic Overview and Student Outcome(s), and then compare the Student Outcome(s) to the Exit Ticket.
3. Read and annotate the lesson using the Lesson Preparation Guide located on the other side, accessing the following resources as needed:
   - Lesson Video Gallery from Great Minds
   - The Common Core Companion
   - PARCC Released Problems
   - Coherence Map on Achieve the Core

SUMMARY QUESTIONS

Before teaching, ensure that you are clear on these three summary questions:

1. In your own words, what are the key mathematics that you want students to understand from this lesson?
2. How will you ensure that all learners will be able to access the mathematics (e.g. adjustments in pacing, grouping, and explanations to address potential misconceptions and learning gaps)?
3. How will you know that students have mastered the content?

POST LESSON REFLECTION

After you have taught the lesson, what notes will you make to yourself in preparation to teach the lesson next year?
STANDARDS
TOOLS: TOPIC OVERVIEW, COHERENCE MAP, PARCC
Standards
• What part of the standard(s) am I targeting?
• Based on the Foundational Standards, what are the pre-requisite skills and knowledge? How does the standard connect to future work?
• Which aspect(s) of rigor does the targeted standard require?
• How has this standard been assessed on PARCC (Grade 3-12 Only)?

MATHEMATICS OF THE LESSON
TOOLS: EXIT TICKET, COMMON CORE COMPANION, PROGRESSIONS DOCUMENTS
Key Mathematics
• What did I learn about the math of the lesson by doing the exit ticket?
• What is the key mathematical idea or concept from this lesson?
Mathematical Language
• What mathematical language should students use in this lesson?
Mathematical Explanations
• What common misconceptions related to this topic do I anticipate will arise?

BRIDGE TO PRACTICE: CUSTOMIZING THE LESSON
TOOLS: LEAP TEAM CONVERSATIONS
Grade Level Problems
• Which must-do question(s) and problem(s) assess the key mathematics of this lesson?
• Which could-do question(s) and problem(s) can be used to extend students’ thinking?
Pacing
• How will I adjust the pacing of the lesson?
Checks for Understanding
• What strategies and opportunities will I use to check for understanding throughout the lesson?
Student Thinking
• How will I develop student thinking aligned to the Standards for Mathematical Practice?
Student Scaffolds
• What learning gaps do I anticipate and how will I teach those skills (e.g. mini lesson, stations, etc.)?
• What barriers to learning do I anticipate, and how will I provide multiple opportunities to learn (e.g. technology, cooperative learning, manipulatives, etc.)?
STEPS TO PLANNING A PURPOSEFUL LESSON WITH EUREKA FOR SPECIAL EDUCATION TEACHERS

**MODULE INTERNALIZATION**

1. Complete and correct the Mid-Module and End-of-Module Assessments.
2. Read the Module Overview, Table of Contents, and Exit Tickets.
3. Read the lesson titles and lesson objectives.

**LESSON INTERNALIZATION**

1. Complete and correct the Exit Ticket and Problem Set. Record your questions and connections to other content.
2. Read the Topic Overview and Student Outcome(s), and then compare the Student Outcome(s) to the Exit Ticket.
3. Read and annotate the lesson using the Lesson Preparation Guide located on the other side, accessing the following resources as needed:
   - Lesson Video Gallery from Great Minds
   - The Common Core Companion
   - PARCC Released Problems
   - Coherence Map on Achieve the Core

**SUMMARY QUESTIONS**

Before teaching, ensure that you are clear on these three summary questions:

1. In your own words, what are the key mathematics that you want students to understand from this lesson?
2. How will you ensure that all learners will be able to access the mathematics (e.g. adjustments in pacing, grouping, and explanations to address potential misconceptions and learning gaps)?
3. How will you know that students have mastered the content?

**POST LESSON REFLECTION**

After you have taught the lesson, what notes will you make to yourself in preparation to teach the lesson next year?
STANDARDS
TOOLS: TOPIC OVERVIEW, COHERENCE MAP, PARCC, STUDENTS’ IEPs

Standards
• What part of the standard(s) am I targeting?
• Based on the Foundational Standards, what are the prerequisite skills and knowledge? How does the standard connect to future work?
• Which of my students’ IEP goals align to these standards and should be targeted during the lesson?
• Which aspect(s) of rigor does the targeted standard require?
• How has this standard been assessed on PARCC (Grades 3–12)?

MATHMATICS OF THE LESSON
TOOLS: EXIT TICKET, COMMON CORE COMPANION, PROGRESSIONS DOCUMENTS, STUDENTS’ IEPs

Key Mathematics
• What did I learn about the math of the lesson by doing the exit ticket?
• What is the key mathematical idea or concept from this lesson?

Mathematical Language
• What mathematical language will I explicitly teach?

Mathematical Explanations
• What information/vocabulary do I need to front-load so students can access the lesson?
• What common misconceptions related to this topic do I anticipate will arise?
• How can I explain this concept in more than one way (visually, auditorily, and/or kinesthetically)?

BRIDGE TO PRACTICE: CUSTOMIZING THE LESSON
TOOLS: LEAP TEAM CONVERSATIONS, STUDENT DATA, STUDENTS’ IEPs

Grade Level Problems
• Which must-do question(s) and problem(s) assess the key mathematics of this lesson?
• Which could-do question(s) and problem(s) can be used to extend students’ thinking?

Pacing
• How will I adjust the pacing of the lesson?

Checks for Understanding
• What strategies and opportunities will I use to check for understanding and collect data during my lesson?

Student Thinking
• How will I develop student thinking aligned to the Standards for Mathematical Practice?

Student Scaffolds
• What learning gaps do I anticipate and how will I teach those skills (e.g. mini lesson, stations, warm up)?
• What barriers to learning do I anticipate, and how will I provide multiple opportunities to learn (e.g. technology, cooperative learning, additional manipulatives)?
• What accommodations do students need to access this lesson?

Instructional Method
• Co-teachers: Which co-teaching method will we use?
• Resource Teachers: How will I support my students during this lesson (e.g. small group mini lesson, stations, supporting the general education teacher)?
Math Lesson Practice Protocol

Purpose
This protocol supports teachers in preparing to teach an upcoming lesson in a supportive and collaborative space. The entire protocol can be executed in 25 minutes, allowing teachers to give and receive meaningful feedback on key sections of their upcoming sections.

Step One: Preparation (Before the protocol)
- Each teacher selects an upcoming Eureka lesson plan for the next week. This lesson might be one with particularly challenging content or it align to specific high-leverage teaching practices of student learning needs.
- Before the practice, the teacher has taken time to internalize the lesson. Any grade level problems associated with the lesson have been done by the teacher, and the teacher has identified new learnings for him/herself as well as for his/her students.
- The questions that the teacher will use to make the mathematics of the lesson explicit and to check for understanding have been identified in the Eureka lesson plan.
- Resources such as the Coherence Map, the Module Overview, The Common Core Mathematics Companion, and released PARCC problems have been consulted to build knowledge of the standards.

Step Two: Practice (15 minutes for groups of two, 21 minutes for groups of three)
- The LEAP leader or another member of the LEAP team reviews the norms for practice. The following are sample norms adapted from KIPP Content Teams that could serve as a model: (1 minute)
  ○ Everyone participates.
  ○ Keep teaching without stopping or re-do’s
  ○ All participants are fully engaged without side conversations.
  ○ Everyone incorporates previous feedback, even if the feedback was for another person.
  ○ Mistakes are normal and expected. Practice helps catch mistakes before we make them with students.
  ○ Awkwardness is normal and expected.
- Each teacher identifies a five minute section of an upcoming lesson to practice. (2 minutes)
- Each teacher takes five minutes to deliver an important piece of an upcoming lesson with the other teachers serving as student(s), who provide a variety of answer types in their responses. (5 minutes)
- Each observing teacher provides one piece of high leverage feedback. The cheat sheet on the following page can be used as a scaffold to help craft high leverage feedback. (1 minute)
- Subsequent teachers should work to incorporate previous feedback as they practice.

Step Three: Reflection (5-7 minutes)
- Each teacher shares her/his individual perspective on what she/he learned through the practice.
- The team summarizes themes and common areas of instructional focus that might be prioritized in future practice sessions.
- All LEAP team members publically record their individual action steps in the seminar tracker and commit to sharing their progress at the next LEAP meeting.
## Lesson Practice Protocol: Feedback Cheat Sheet

### Criteria for Success:
- The teacher simulated the lesson without stopping or repeating.
- The instruction reached the depth of the standards
- The instruction made the mathematics of the lesson explicit.
- The instruction engaged students in mathematical practices

<table>
<thead>
<tr>
<th>Feedback Focus Areas</th>
<th>Constructive Feedback “Next time try…”</th>
</tr>
</thead>
</table>
| **Quality Practice**         | To stand and deliver the lesson as if you were in your classroom.  
                              | To practice the lesson without stopping or repeating a section.    
                              | To use the exact language that you would use with students as opposed to narrating parts of the lesson |
| **The Standards**            | To target the correct aspect(s) of rigor: Conceptual Understanding, Application, and/or Procedural Skill and Fluency by...  
                              | To explicitly make connections to previous content and/or future content by... |
| **Mathematics of the Lesson**| To try making the mathematical explanations clearer by...  
                              | To use the following model or representation...  
                              | To anticipate the following student misconception...  
                              | To emphasize the following mathematical language... |
| **Student Engagement**        | To encourage more student discourse/thinking by...  
                              | To check for understanding of the key content by...  
                              | To adjust pacing of the lesson by... |
| **Tone**                     | To slow down your speech and cadence  
                              | To make your tone more sincere, curious, or patient |
| **Body Language**            | To make more eye contact  
                              | To open up your body language so that you are fully engaging the class |
Module Three: Planning and Facilitating Engaging Eureka Lessons

Seminar One: Module Internalization

How does internalizing a Eureka Module deepen my understanding of the standards and math content?

| Grade Band | Math K-2 | Length in Minutes | 90 |

Overview:
How do I begin to internalize the content of a Eureka Module to deepen my own knowledge of mathematics and the knowledge of my students? How will I know what is the core content, what is foundational, and what is condensable? And given the depth of the content, how will I adjust it to my students’ needs?

This seminar is included as the first in LEAP Math Module 3. Please note that LEAP Leaders can adjust the sequence of seminars in module 3 to best fit the needs of their LEAP Teams. In seminar 1, teachers complete a second Module Internalization Protocol (the first was done in LEAP Module 2, Seminar 1). A revised template is introduced in this seminar to guide teachers through the Module Internalization Protocol.

Examples of completed module internalization are provided for each grade level. There are specific places within this seminar where the template is used. However, it would be appropriate to use the sample template throughout the seminar whenever additional support is needed to support the protocol, the math content, or the misconception, questions, and/or connections that teachers are being asked to make throughout the seminar.

In addition, there is an additional version of the Module Internalization Protocol designed specifically for special education teachers. This template is similar to the original but contains additional questions that have been differentiated for special education teachers. Using this template, special education teachers will be guided to think through how they can best utilize the Module Internalization Protocol to plan specially designed math instruction that integrates IEP goal instruction with grade-level content.

This seminar should be facilitated 1-2 weeks prior to starting a new Eureka Module. If this time frame does not work for all seminar participants because different grade levels or courses are beginning new Eureka Modules at different times, consider the following options for adapting timing to meet the needs of all teachers:

- Use seminar 1 with a small group of teachers while other teachers on the LEAP team continue with another week of lesson preparation and annotation (see seminars 2-5).
- Facilitate seminar 1 as early as the first grade level or course needs to plan for the next Eureka Module, even if other grade levels will not teach a new module for many weeks. The other teachers may have many weeks before teaching the next Eureka Module, but they will still benefit from thinking through their next upcoming module.
- Split the difference, and facilitate seminar 1 at a time that is in between the direct timing needs of the teachers on your LEAP team.

This protocol introduced in this seminar complements the Lesson Internalization Protocol featured in the first LEAP Module. The Module Internalization Protocol is a valuable tool that will help you deepen your understanding mathematical content, and it will be an important part of your practice as you continue to encounter new Eureka Modules through the remainder of the year.
<table>
<thead>
<tr>
<th>Objective(s)</th>
<th>Outcome(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assess and address opportunities and gaps in their own understanding in for an upcoming module.</td>
<td>Teachers will complete the module internalization protocol for one of their upcoming modules.</td>
</tr>
<tr>
<td>Describe how the progression of lessons within a Module builds towards the End-of-Module Assessments.</td>
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</table>

**Criteria for Success**

- Teachers identify at least one misconception or new learning that is related to the content or content pedagogy.
- Teachers are able to describe how the progression of each lessons builds towards the Mid-Module and End of Module Assessments.

**Essential Practices Connection**

**Essential Practice 2: Challenge Students with Rigorous Content**

In seminar 1, teachers will complete the Module Internalization Protocol in order to truly internalize the content covered during the next Eureka Module. The protocol provides opportunities for analyzing what aspect of rigor is covered throughout the upcoming module, and requires teachers to deeply consider the standards taught during the upcoming Eureka Module.

**Mathematics**

*This practice aligns with Instructional Practice Guide (IPG) Core Action 1: Ensure the work of the lesson reflects the shifts required by the CCSS for Mathematics.*

- For example, mathematics content:
  - Extends previous learning by making connections with mathematics content, methods, and models from previous grades.
  - Intentionally targets the aspect(s) of rigor (conceptual understanding, procedural skill and fluency, application) called for by the standards(s) being addressed.
  - Focuses on and promotes a depth of understanding of content in these domains (grades):
    - Numbers and operations in base 10 (1-5)
    - Numbers and operations - Fractions (3-5)
    - The number system (6-8)
    - Number and quantity (HS)
    - Measurement and data (1-15)
    - Geometry (2-15)
    - Statistics and probability (5-15)
    - Operations and algebraic thinking (1-5)
    - Expressions and equations (6-8)
    - Ratios and proportional relationships (6-7)
    - Functions (HS)
    - Algebra (HS)
    - Modeling (HS)

**Pre-Work**

**LEAP Leader:**

**Bring:** Bring (either in print form or electronic) a copy of identified Eureka Modules that each grade level will be using for the Protocol.

**Copy:**
- Module Internalization Protocol for each teacher.
- Module Internalization Protocol for Special Education Teachers.
- Mid-Module and End-of-Module assessments for the identified Modules that each grade level will be using for each teacher.
- Module Internalization Protocol exemplar for each teacher for each grade level/course.

**Complete:**
- Mid-Module and End-of-Module assessments for all Modules that will be in this seminar
- Scoring for each assessment using the ‘Progressions Towards Mastery’ in Teacher’s Manuals.

**Review:** Read through the Module Internalization Protocol exemplars for each grade level/course. Become familiar with the content of each exemplar.

**LEAP Participants:**

**Bring:** All participants should bring a copy (either in print form or electronic) of the upcoming Eureka Module they will use with this protocol during the session.
- Electronic copies or paper copies of the Modules will both work.
- Special education teachers should bring an electronic or hard copy of their students’ IEPs.
Collaborating for Equity & Opportunities for Differentiation: LEAP Seminars are an opportunity for all educators, across all specialization areas (literacy, language acquisition, special education, etc.) to plan instruction that raises the achievement for all learners. We encourage collaborative planning and shared ownership of student outcomes. Seminar plans will provide prompts with specific opportunities to differentiate instruction using Universal Design for Learning and Co-teaching Models based on content goals and anticipated student needs.

Universal Design for Learning (UDL): UDL is a research-based framework that addresses learner diversity and provides educators with instructional practices to ensure all individuals are provided equal opportunities to learn. The UDL framework is grounded in three principles: Multiple means of representation – using a variety of methods to present information, provide a range of means to support; Multiple means of action and expression – providing learners with alternative ways to act skillfully and demonstrate what they know; Multiple means of engagement – tapping into learners’ interests by offering choices of content and tools; motivating learners by offering adjustable levels of challenge.

Co-teaching for Student Success (COT): Co-teaching is two or more professionals delivering substantive instruction to a diverse group of students in a single physical space (Friend, 2016). Both educators on the co-teaching team are responsible for differentiating the instructional planning and delivery, assessment of student achievement, and classroom management. Five collaborative teaching approaches have proven to be successful to guide educators who work together in co-teaching partnerships to differentiate instruction; One-Lead/One-Support; Teaming; Alternative Teaching; Station Teaching, and Parallel Teaching.
<table>
<thead>
<tr>
<th>10 min</th>
<th>Reflection, Seminar Agenda/Objectives, Norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 min</td>
<td>Reflection</td>
</tr>
<tr>
<td></td>
<td>Revisit the commitments and action steps made from the last seminar.</td>
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<td></td>
<td>● Take a moment to look at your commitment(s) and/or action step(s) from the last seminar.</td>
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<td></td>
<td>● During two minutes of private thinking time, jot on a post-it how you are doing. What can you celebrate? What challenges do you have?</td>
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<td>● In a go-around, each participant can share one celebration and one challenge.</td>
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<td></td>
<td>The LEAP leader can follow up on this activity and offer support through the week if additional conversations are needed with some participants.</td>
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<tr>
<td>3 min</td>
<td>Seminar Agenda/Objectives</td>
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<td></td>
<td>Say: “Today during our seminar, we’re going to prepare for an upcoming Eureka Module using the Module Internalization Process. As a reminder, we already did this protocol once as a team during module 2, seminar 1. The protocol template looks different but the process and questions are all the same.”</td>
</tr>
<tr>
<td>1 min</td>
<td>Norms</td>
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<tr>
<td></td>
<td>Say: “Given our goals for this seminar, which of our team norms do we need to keep in mind for our work together?”</td>
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<td></td>
<td>Possible suggestions:</td>
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<tr>
<td></td>
<td>● Speaking with one voice</td>
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<td></td>
<td>● Embracing the growth mindset/working as a learner</td>
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<td>● Pushing to see connections across our department</td>
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<td>70 min</td>
<td>Framing</td>
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<tr>
<td>5 min</td>
<td>“Today we will be completing the Module Internalization Protocol to prepare to teach an upcoming Eureka Module. As already stated, we have completed this protocol once before.”</td>
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<td></td>
<td>“Take a minute to read through the protocol and remind ourselves of this process from last time. Annotate things that worked well before with the protocol using exclamation marks and questions and/or wonderings that you might have with question marks.”</td>
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<tr>
<td></td>
<td>Discussion: “What excites you about this process? What clarifying questions do you have?”</td>
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<tr>
<td></td>
<td>Say: “When we used this protocol in a previous Seminar, we explored one Module together to learn the process. This time we will each work on our own Modules and come back together for reflection after each step. Let’s begin.”</td>
</tr>
<tr>
<td></td>
<td>Note to LEAP Leaders: This process may look different in many ways depending on the group that you are facilitating. You may have grade-alike or course-alike partnerships or groups that want to work together. You may have singletons who will work independently except for during reflection. You may have singletons who choose to sit together for support and discussion during the</td>
</tr>
</tbody>
</table>
Facilitator Note: All special education teachers will participate in the Module Internalization process using the Module Internalization Protocol for Special Education Teachers. While ELS/SLS/BES teachers will complete the process individually, direct inclusion/resource teachers to work alongside (one of) their general education counterparts. As they do so, ask them to reflect on the following questions:

- Based on their students’ present levels, what strengths and deficits will impact each student’s understanding of this module’s concepts?
- Which of their students’ IEP goals align with the problem items on the assessment and, thus, should be targeted in the upcoming weeks?
- Which IEP accommodations will their students need to access the upcoming module instruction and assessment?
- How, through their role in the classroom, can they support the students with disabilities in understanding the content and concepts that will be assessed?

Module Internalization Protocol: Step One

Say, “Can a volunteer please read step one of the module internalization process for us?”

Complete Step One of the Unit Internalization Protocol by doing the following:

- On your own, complete Mid-Module and/or End-of-Module Assessments for your Module.

It is likely that teachers may not be able to finish all problems and/or both assessments given the abbreviated time. They may choose to skip repetitive problems or just complete one of the assessments.

Teachers in grade level or course teams may decide which assessment to start on first (Mid-Module or End-of-Module). Some teachers that are grade level or course alike may decide to divide the two assessments between the group, and share out responses after completing.

Teachers should not look at the rubric and solutions until they have attempted each of the problems. To support with this, be sure to print a fresh paper copy of each assessment for each teacher on your LEAP Team.

Note to LEAP Leaders: Make sure to complete each assessment before facilitating this seminar. Record your own questions, misconceptions, and connections to other math ahead of time, so that you are able to fully support teachers during the protocol.

After completing one or both, correct the assessments. This work can be done alone or with grade level/course alike partnerships or groups.

When correcting the assessment(s), read through the Standards that are addressed in the Assessment Task(s). These will be on a page directly after the blank Mid-Module Assessment or End-of-Module Assessment pages at the back of the Teacher’s Manual. Also, read through ‘A Progression Toward Mastery’ which will be right after the Mid-Module Standards or End-of-Module Standards in the Teacher’s Manual.
A Progression Toward Mastery is provided to describe steps that illuminate the gradually increasing understandings that students develop on their way to proficiency. In this chart, this progress is presented from left (Step 1) to right (Step 4). The learning goal for students is to achieve Step 4 mastery. These steps are meant to help teachers and students identify and celebrate what the students CAN do now and what they need to work on next.

**Facilitator Note:** As special education teachers complete the assessment(s), discuss how, through their role in the classroom, they can support the students with disabilities in understanding the content and concepts being assessed. Which of their students’ IEP goals match problem items on the assessment and, thus, should be targeted in the upcoming week? Which IEP accommodations will the students need to access the assessment? Teachers should record their planning notes on the Module Internalization Protocol for Special Education Teachers.

Say: “The Common Core expects students to learn and connect mathematical concepts that were not required when most teachers were in school themselves. As a result, many teachers need a process to help them internalize and learn the mathematics in a unit.”

“Step One of the Module Internalization Protocol helps teachers dig into the assessments. This helps teachers identify their own questions and misconceptions before digging into the Unit Overview or lessons. Many times, students will have the same questions or misconceptions, but if the teachers identify these before they begin to teach, they can make necessary connections for students, so students resolve these misconceptions before the assessment. We are going to try Step One.”

“As you take the assessment on your own, track your own questions, misconceptions, and connections to other content on the Protocol template.”

**Facilitator Look-Fors and Listen-Fors:** You may hear a teacher expound on the challenge of the problems and that if it’s hard for teachers, how are the students going to be able to answer the questions? Highlight for your team that they will be looking at ways to accommodate students at various levels in later Seminars. Also, highlight that when the teachers internalize the math and can predict students’ misconceptions, they can more efficiently use the misconceptions for learning and connections rather than run into them as stumbling blocks.

This is a great time to highlight the specialists in the room, particularly the special education teachers, who are trained in identifying learning challenges and developing subsequent scaffolds and supports. As they are planning and thinking through student misconceptions, encourage your general education teachers to collaborate with and learn from the expertise of the special education teachers.

Teachers might be uncomfortable tackling some of the math content and/or using new math models. They may want to look ahead into the Eureka Module to find out how to complete assessment problems. If they do this, it’s not a big problem. Just make sure they note the difficult tasks, misconception, and/or misunderstandings so they can predict students’ misconceptions.
Reflection Questions:
- Did any questions surprise you or challenge you?
- What about those questions was surprising or challenging?

Step One: Key Points for Kindergarten to Second Grade
The End-of-Module Assessment asks students to demonstrate their conceptual understanding of (add in content for each grade level/grade band). The following are some potential areas for discussion and/or potential support needs for teachers who are unsure about the mathematics of these modules:

Kindergarten:
In grade K, Module 4 (Number Pairs, Addition and Subtraction to 10) students take a big step in mathematics – addition and subtraction. They engage in this work through composition and decomposition of numbers and use the number bond model to represent and understand the relationship between parts and wholes. Students use objects, fingers, mental images, math drawings, and sounds.
In this Module students are working with addition and subtraction symbols in expressions and equations. They also work with kindergarten addition word problems.
Students should use their counting abilities and knowledge of numbers from previous modules when doing the addition and subtraction work in this module.

First Grade:
In grade 1, Module 4 (Place Value, Comparison, Addition and Subtraction to 40) students build on the work of place value within 20 from module 2 to now focus on the role of place value in adding and subtracting within 40. Students compare numbers using the symbols for ‘greater than’ and ‘less than’. They use place value understanding to find 10 less, 10 more, 1 less, and 1 more. Students use familiar strategies to add and subtract. They also solve first grade addition story situations.
The work students do in this Module directly relates to the work they will do in Module 6 where they extend this work of addition and subtraction within 40 to place value understanding within 100. It also connects to addition and subtraction work in 2nd grade that is based on place value strategies and understanding through 1000.

Second Grade:
In grade 2, Module 5 (Addition and Subtraction within 1000 with Word Problems to 100) students are using the work they did in Module 4, developing addition and subtraction fluency within 100, to begin developing a conceptual understanding for the standard algorithm by using place value strategies to add and subtract within 1000. They do this by composing and decomposing tens and hundreds. Students represent this work at first using manipulative models and then transition to drawings. Students have to use place value reasoning and properties of operations to explain their work.
It is important for students in this Module to relate manipulatives, math drawings, and/or mental math strategies to a written method that connects to the standard algorithm. This furthers the conceptual understanding that needs to proceed third grade work with the standard algorithm. This second-grade work also connects to the first-grade work with place value understanding for adding and subtracting within 100.

The Common Core Companion can be a useful resource to highlight additional information on the standards and the Modules. The Progressions Documents (K-5 Operations and Algebraic Thinking and K-5 Number and Operations in Base Ten) can also provide additional learning for the content in the K-2 Modules. In addition, the Coherence Map can highlight mathematics connections to other grade levels.
Module Internalization Protocol: Step Two
Say: “Now that we have had a chance to experience the End-of-Module Assessment and experience the challenge of the standards, let’s dig into the Module Overview to see if we can find some of the answers to the questions that we’ve raised. Can someone read the PowerPoint slide with directions for this step of the protocol?”

Complete Step Two of the Unit Internalization Protocol by doing the following:
- Read the Eureka Math Module Overview for your chosen module.
- As you read, make note of and record your misconceptions, questions, and connections to other math content on the protocol template or in your Teacher’s Manual.

Reflection Questions:
- What questions and misconceptions did the Module Overview help answer and clarify?
- What questions would you want to answer before teaching this Module?

Step Two: Key Points for Kindergarten to Second Grade
The Module Overview makes explicit the connections between different topics within this module. It may be worth discussing how the different topics across this module build on one another to develop students’ conceptual understanding. The team may wish to examine how the different models and representations connect to each other across the Module. While teachers will be accustomed to these standards, Eureka may introduce strategies and representations that are unfamiliar.

The Module Internalization Protocol Exemplars provides grade level specific content information that should be used and referenced.

As teachers examine the Module Overview, it may be useful to highlight the Focus Standards, the Extension Standards, the Foundational Standards, the Focus for Standards for Mathematical Practice, the Terminology, and the Assessment Summary. In addition, teachers should observe that the standards assessed in the Mid-Module and End-of-Module Assessments are not entirely the same. Thus, it is necessary to take both assessments as part of the Module Internalization Protocol.

Module Internalization Protocol: Step Three
Say: “Finally, in step three of the protocol we take a look at the progression of lessons in the Module. We are only going to look at the lesson titles and overviews rather than the entire lesson. We want to pay attention to how the lessons may spiral or build on one another towards the Module Assessments.”

Complete Step Three of the Unit Internalization Protocol by doing the following:
- On your own, with your partner, or as a group read the topic overviews, lesson titles, and lesson objectives for your given Modules. Please note that we are not reading the entire lessons, but just their titles and objectives.
- Record how the lessons build upon each other and towards the Mid-Module and End-of-Module Assessments.
### Step Three: Key Points for Kindergarten to Second Grade

As teachers explore the topic overviews and the lesson titles, they should observe that lessons often spiral and build on each other. While the Modules cover a wide range of content, teachers’ ability to adjust instruction will depend on their knowledge of how the lessons connect to one another.

### Facilitator Look-Fors and Listen-Fors:

During the group discussion, teachers may identify different ways that internalizing the Module Overview could improve pacing and allow students flexibility in the timing of their mastery. Highlight the following: knowing how one lesson leads into the next, how the lessons build on past content to improve teachers’ pacing. With traditional textbooks, one lesson may be on adding fractions and the next may be on subtracting fractions. With Eureka, the lessons build on the last lesson, incorporate prior understanding, and add on to previous concepts in a gradual way. Understanding this and internalizing the coherence of the lessons allows teachers to move to the next lesson and use the content within the new lesson to address any misconceptions from previous days. With traditional textbooks, teachers had to spend many days on one lesson. With a coherence program like Eureka Math, students develop their understanding over time, and through the sequence of lessons, so teachers can move to the next lesson without doing every problem of the previous lesson. Teachers can also move to the next lesson without students mastering the content of each individual lesson, knowing that conceptual understanding will be built upon previous learning and continue to develop from lesson to lesson.

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<thead>
<tr>
<th>10 min (8 min)</th>
<th>Reflection:</th>
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<td>Have teachers identify at least one misconception or new learning that is related to the content or content pedagogy.</td>
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</table>

Teachers also record a commitment they will make that they will bring to the next seminar read to discuss.

### Final Reflection

- What support will each of us need in order to make that happen to internalize our Modules moving forward?

### Seminar Feedback:

- What went well today?
- What could have been even better?
Module 3, Seminar 1: Module Internalization
How does internalizing a Eureka Module deepen my understanding of the standards and content strategies?
Grade Band: K-2
Revisit the commitments and action steps made from the last Seminar.

- Take a moment to look at your commitment(s) and/or action step(s) from the last Seminar.
- During two minutes of private thinking time, jot on a post-it how it is going. What can you celebrate? What challenges do you have?
- In a go-around, each participant can share one celebration and one challenge.
Objectives:

• Assess and address opportunities and gaps in their own understanding in for an upcoming Module.

• Describe how the progression of lessons within a Module builds towards the End-of-Module Assessments.

Agenda:

• Inspiration/Reflection (6)
• Objectives and Agenda (3)
• Norms (1)
• Module Internalization Protocol
  • Step One (25)
  • Step Two (25)
  • Step Three (15)
• Bridge to Practice Reflection (10)
Revisiting Our Norms
Module Internalization Protocol: How does internalizing a Eureka Module deepen my understanding of the standards and content strategies?
Protocol:
Complete Step One of the Unit Internalization Protocol by doing the following:

• On your own, complete and correct the Mid-Module and End-of-Module Assessments for your chosen upcoming Eureka Module.

• You will be unlikely to finish the entire assessment(s) but work as many problems as you can. After you have finished, use the rubric and answer key to correct your work.

• Record your misconceptions, questions, and connections to other math content.

20 minutes

Eureka Module, Module Assessments
With your group, reflect on the following:

• Did any questions surprise you or challenge you? What about those questions was surprising or challenging?
Protocol:

Complete Step Two of the Unit Internalization Protocol by doing the following:

• Read the Eureka Module Overview for your upcoming Module.

• Record your misconceptions, questions, and connections to other math content on the Protocol Template.

20 minutes
Module Internalization Protocol: Step Two

With your group, reflect on the following:

• What questions and misconceptions did the Module Overview help answer and clarify?
• What questions would you want to answer before teaching this Module?

5 minutes
Protocol:
Complete Step Three of the Module Internalization Protocol by doing the following:

• With your partner or group, read the topic overviews, lesson titles, and lesson objectives for your given Module.

• What questions and misconceptions did the Module Overview help answer and clarify?

• What questions would you want to answer before teaching this Module?

15 minutes
Reflect:

• Identify at least one misconception or new learning that is related to the content or content pedagogy.

• What support will each of us need in order to make that happen to internalize our Modules moving forward?
Seminar Feedback:
What went well today?
What could have been even better?

2 minutes
# Eureka Module Internalization Protocol

## Module Information

<table>
<thead>
<tr>
<th>Module</th>
<th>Standards Covered</th>
<th>Pre-Requisite Standards</th>
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<tr>
<th>Assessment Date(s)</th>
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## Step One: Mid-Module Assessment

Complete and correct the Mid-Module Assessment.
- Record your misconceptions, questions, and connections to other content.
- Answer the following:
  - What was challenging about this assessment?
  - What questions would you want to answer before teaching this module?

## Step One: End-of-Module Assessment

Complete and correct the End-Of-Module Assessment.
- Record your misconceptions, questions, and connections to other content.
- Answer the following:
  - What was challenging about this assessment?
  - What questions would you want to answer before teaching this module?

## Step Two: The Module Overview

Read the Module Overview.
- Record any new misconceptions, questions, or connections that arise.
- Record any new understandings or clarifications you gain.
- Answer the following:
  - How does this module build students’ understanding of the Major Work of the Grade over time?
  - What are the “Foundational Standards” listed that make up students’ prior knowledge, and where in the past modules or years are those standards taught?
  - What are the concrete, pictorial, and abstract models required in this module for students to show their conceptual understanding of the content?

## Step Three: The Lessons

Read the lesson titles and lesson objectives.
- Answer the following:
  - How does each new lesson build on and reinforce the concepts of the lesson(s) previous to it?
## Module Information

<table>
<thead>
<tr>
<th>Module</th>
<th>Length</th>
<th>XX Days</th>
<th>Date Range:</th>
<th>Assessment Date(s)</th>
<th>Mid-Module:</th>
<th>End of Module:</th>
</tr>
</thead>
</table>

## Standards Covered

This area could be pre-populated based on the grade-level, course and module number. It could also be copied and pasted from the Module Teacher’s Manual.

## Pre-Requisite Standards Covered

This area could be pre-populated based on the grade-level, course and module number. It could also be copied and pasted from the Module Teacher’s Manual.

## Student Name

**TW (3rd Grade)**

**Lesson:** Using Multiplication to Determine the Area of a Rectangle

### Student Strengths

(From Present Levels)

- When using manipulatives, generally grasps new math concepts
- Understands the concept of multiplication
- Is a visual learner

### Student Weaknesses

(From Present Levels)

- Does not demonstrate multiplication fluency
- Demonstrates number reversals
- Has difficulty with decoding

### IEP Goals that Align with Module Standards and the Prerequisite Foundational Standards

- Given a problem situation, TW will determine the area of a rectangle in 4 out of 5 trials.

### Accommodations Needed to Access this Module

- Provide calculator or multiplication chart to eliminate calculation barrier
- Teach all new concepts with visual AND manipulatives
- Read aloud all math problems
### Step One: Mid-Module Assessment

Complete and correct the Mid-Module Assessment.
- Record your misconceptions, questions, and connections to other content.
- Answer the following:
  - What was challenging about this assessment?
  - What questions would you want to answer before teaching this module?
  - What challenges do you anticipate your students will experience?

### Step One: End-of-Module Assessment

Complete and correct the End-Of-Module Assessment.
- Record your misconceptions, questions, and connections to other content.
- Answer the following:
  - What was challenging about this assessment?
  - What questions would you want to answer before teaching this module?
  - What challenges do you anticipate your students will experience?

### Step Two: The Module Overview

Read the Module Overview.
- Record any new misconceptions, questions, or connections that arise.
- Record any new understandings or clarifications you gain.
- Answer the following:
  - How does this module build students’ understanding of the Major Work of the Grade over time?
  - What are the “Foundational Standards” and prerequisite skills that students must have to access this module? Use the Links, Achieve the Core, and/or the Louisiana Remediation Guides to determine where in previous grades the prerequisite standards are taught.
  - What are the concrete, pictorial, and abstract models required in this module for students to show their conceptual understanding of the content?

### Step Three: The Lessons

Read the lesson titles and lesson objectives.
- Answer the following:
  - How does each new lesson build on and reinforce the concepts of the lesson(s) previous to it?

*Highlighted questions have been differentiated and emphasized for special education teachers*

**Links:** [https://drive.google.com/drive/u/1/search?q=links](https://drive.google.com/drive/u/1/search?q=links)

**Achieve the Core:** [http://achievethecore.org/coherence-map/](http://achievethecore.org/coherence-map/)

**Louisiana Remediation Guides:** [https://www.louisianabelieves.com/resources/library/k-12-math-year-long-planning](https://www.louisianabelieves.com/resources/library/k-12-math-year-long-planning)
<table>
<thead>
<tr>
<th>Module Information</th>
<th>Standards Covered</th>
<th>Pre-Requisite Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 4</td>
<td>Represent and solve problems involving addition and subtraction.(^1)</td>
<td></td>
</tr>
<tr>
<td><strong>Standards Covered</strong></td>
<td><strong>Pre-Requisite Standards</strong></td>
<td></td>
</tr>
<tr>
<td>1.OA.1</td>
<td>1.OA.1</td>
<td></td>
</tr>
<tr>
<td>Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem. (See CCLS Glossary, Table 1.)</td>
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<tr>
<td>1.NBT.1</td>
<td>1.NBT.1</td>
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<tr>
<td>Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.</td>
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<tr>
<td>1.NBT.2</td>
<td>1.NBT.2</td>
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<tr>
<td>Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones—called a “ten.”</td>
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<tr>
<td>Foundational Standards</td>
<td>Foundational Standards</td>
<td></td>
</tr>
<tr>
<td>K.OA.3</td>
<td>K.OA.3</td>
<td></td>
</tr>
<tr>
<td>Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., (5 = 2 + 3) and (5 = 4 + 1)).</td>
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</tr>
<tr>
<td>K.OA.4</td>
<td>K.OA.4</td>
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<tr>
<td>For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.</td>
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<td></td>
</tr>
<tr>
<td>K.NBT.1</td>
<td>K.NBT.1</td>
<td></td>
</tr>
<tr>
<td>Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., (18 = 10 + 8)); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.</td>
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\(^1\)The balance of this cluster is addressed in Module 2.  
\(^2\)Focus on numbers to 40.  
\(^3\)Focus on numbers to 40; 1.NBT.2 is addressed in Module 2.
c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).

1.NBT.3 Compare two two-digit numbers based on meaning of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.

Use place value understanding and properties of operations to add and subtract.  

1.NBT.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.

1.NBT.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.

1.NBT.6 Subtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the

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4Focus on numbers to 40.
relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

<table>
<thead>
<tr>
<th>Step One: Mid-Module Assessment</th>
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<tbody>
<tr>
<td>Complete and correct the Mid-Module Assessment.</td>
</tr>
<tr>
<td>● Record your misconceptions, questions, and connections to other content.</td>
</tr>
</tbody>
</table>

The following item (3a) relates to future work with a number line. A connection could be made to the 'number path' which first grade students start to use as a model to represent addition and subtraction in Module 1.

It is interesting that this student example does not seem to take into account the quantities that students write and their relative value compared to the quantities of ten(s) listed for them. I would note if students placed 19 right before the 20 versus right in the middle of 10 and 20. Additionally, I would want to see students placing 35 right in the middle of 30 and 40, versus closer to one of these decade numbers than the other.

3. Some numbers have been placed below in order from 0 to 40. Place the numbers from the rectangle in order between the tens.

   ![Rectangle with numbers](image)

<table>
<thead>
<tr>
<th>Step One: End-of-Module Assessment</th>
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</thead>
<tbody>
<tr>
<td>Complete and correct the End-Of-Module Assessment.</td>
</tr>
<tr>
<td>● Record your misconceptions, questions, and connections to other content.</td>
</tr>
</tbody>
</table>

When I first read the following item (1a) I thought students were asked to solve a 'take from, change unknown' application problem. Then when I looked at the sample solution, it looks like an 'add to, start unknown' problem. These problem types can be found in the Common Core State Standards Glossary in the table 'Common Addition and Subtraction Situations'. When I read the scoring rubric, it specifically stated that students have to write an 'addition sentence'. This could be a misconception for students and I wonder if a subtraction sentence would work for this math situation.

a) Maria is having a party for 17 of her friends. She already invited some friends. She has 12 more invitations to send. How many friends has she already invited? |

   ![Diagram with numbers](image)

   Maria already invited 5 friends.
The following item (3b) goes beyond comparing numbers and asks students a question that will assess their conceptual understanding of place value of tens and ones. Without the shading part of this task, student might just look at the quantities as a whole amount (not the number of tens and ones) and know which is more and which is less based on their understanding of quantity. It is important for future place value work in upcoming first grade Module __ and second grade that students are able to order numbers by looking at only tens or only ones.

Since the first number is 2 tens and 2 ones, it might be especially tricky for students to share the ‘2’ that’s in the ones column. Further discussion around what these 2 ‘two’ actually represent (one represents 2 and one represents 20) even though they look the same, might be necessary.

b. Shade in the tens or the ones on the place value charts below to show which digit you looked at to help you put the pair of numbers in order from least to greatest.

<table>
<thead>
<tr>
<th>tens</th>
<th>ones</th>
<th>tens</th>
<th>ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 2</td>
<td>2 9</td>
<td>2 9</td>
<td>3 5</td>
</tr>
</tbody>
</table>

On assessment item 8, students are asked to draw and write about tens and ones. This writing and drawing might be tricky as most students have a strong conceptual understanding of quantities and will just know that 32 is greater than 19. The ‘writing’ portion will need to be explicitly taught.

8. Erik thinks 32 is greater than 19. Is he correct? Draw and write about tens and ones to explain your thinking.

3 tens 2 ones

The following assessment item (9) asks students to represent addition and subtraction using the ‘arrow way’. This is a new model for first grade students.

The following item (1c) is very similar to the above item (1a) and yet it is modeled using a subtraction equation, so it would be the problem type ‘take from, start unknown’. It could be tricky for students to differentiate the difference between item 1a and 1c.

All three application problems in assessment item 1 (1a, 1b, and 1c) connect to work with ‘Common Addition and Subtraction Situations’. Problem 1b (put together, total unknown) is a Kindergarten problem type, although Kindergarten standards only require problem solving with numbers within 10. Problems 1a and 1c are both first grade problem types. They are extended in second grade when problem solving is done with numbers within 100. The ‘Common Addition and Subtraction Situations’ can be found here.

On the following item (3a) students have to explain that 34 is the same quantity or total amount as 2 tens and 14 ones. Students are not sometime not used to referring to numbers as ‘ones’ if they are more than 9. This assesses students’ understanding of different ways to group and record numbers. In kindergarten, this work is done with teen numbers but without grouping into ‘tens’. Instead, kindergarteners say, ‘a group of tens and some more’.

This work relates to similar work that first graders will do in Module 2, but with numbers within 20. In second grade this work will be done as well, but extending it by using hundreds as well as tens and ones.

It says in the scoring rubric that students can explain their thinking by drawing quick tens, or a different pictorial representation. A way to support students in this learning as well as on the assessment would be to encourage students to draw a picture on this item to explain their thinking.
It should be noted that the ‘arrow way’ is used in 2nd grade modules so it will be built upon in the next school year.

I’m wondering where else the ‘arrow way’ is used?

Also on item 9, the language “____ is 10 more, 10 less, 1 more, 1 less than ____” can sometimes be confusing for students. It is important to relate this language to addition and subtraction in a conceptual way, not just procedural, so it reaches the depth of the standard and the correct aspect of Rigor (conceptual understanding).

9. Find the mystery numbers. Use the arrow way to explain how you know.

   a. 10 more than 19 is \[ 29 \]
      \[
      \begin{array}{c|c}
      \text{tens} & \text{ones} \\
      \hline
      1 & 9 \\
      \end{array}
      \quad +10
      \quad \begin{array}{c|c}
      \text{tens} & \text{ones} \\
      \hline
      2 & 9 \\
      \end{array}
      \]

   b. 10 less than 19 is \[ 9 \]
      \[
      \begin{array}{c|c}
      \text{tens} & \text{ones} \\
      \hline
      1 & 9 \\
      \end{array}
      \quad -10
      \quad \begin{array}{c|c}
      \text{tens} & \text{ones} \\
      \hline
      0 & 9 \\
      \end{array}
      \]

   c. 1 more than 19 is \[ 20 \]
      \[
      \begin{array}{c|c}
      \text{tens} & \text{ones} \\
      \hline
      1 & 9 \\
      \end{array}
      \quad +1
      \quad \begin{array}{c|c}
      \text{tens} & \text{ones} \\
      \hline
      2 & 0 \\
      \end{array}
      \]

   d. 1 less than 19 is \[ 18 \]
      \[
      \begin{array}{c|c}
      \text{tens} & \text{ones} \\
      \hline
      1 & 9 \\
      \end{array}
      \quad -1
      \quad \begin{array}{c|c}
      \text{tens} & \text{ones} \\
      \hline
      1 & 8 \\
      \end{array}
      \]

The following assessment item (10) asks students to explain their thinking that these two expressions are the same. A possible misconception is around the two expressions being different because the numbers are represented differently. If students recognize that the expressions are the same, it may be difficult to explain the reasoning.

10. Beth said 30 - 20 is the same as 3 tens - 2 tens. Is she correct? Explain your thinking. Beth is right. It's another way to write the same amount. 30 is the same as 3 tens. 20 is the same as 2 tens. The same.
Step Two: The Module Overview

Read the Module Overview.
• Record any new misconceptions, questions, or connections that arise.

Module 4 builds on and extends learning with place value of numbers within 20 in Module 2. Module 4 focuses on the role of place value on addition and subtraction within 40. The learning in this Module will be extended in Module 6 when students’ work with place value and operations of addition and subtraction of numbers within 100.

• Record any new understandings or clarifications you gain.
• Answer the following:
  • How does this module build students’ understanding of the Major Work of the Grade over time?
    ▪ The major work of first grade is addition and subtraction operations as well as place value of numbers within 100. The work of this module is building students’ understanding of both addition and subtraction and the role place value has on these operations with numbers within 40. This work will continue in First Grade Module 6 when students work with place value, comparison, addition and subtraction to 100.
  • What are the “Foundational Standards” listed that make up students’ prior knowledge, and where in the past modules or years are those standards taught?
  • What are the concrete, pictorial, and abstract models required in this module for students to show their conceptual understanding of the content?

Step Three: The Lessons

Read the lesson titles and lesson objectives.
• Answer the following:
  • How does each new lesson build on and reinforce the concepts of the lesson(s) previous to it?
## Module Information

<table>
<thead>
<tr>
<th>Module</th>
<th>5</th>
</tr>
</thead>
</table>
| Length | 24 Days  
Date Range:  
Jan. 9th - Feb. 14th |
| Assessment Date(s) | Mid-Module:  
Jan. 23rd – 24th  
End of Module:  
Feb. 13th – 14th |

## Standards Covered

- **Use place value understanding and properties of operations to add and subtract.**  
  (The balance of this cluster is taught in Modules 1 and 4.)

- **2.NBT.7** Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

- **2.NBT.8** Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.

- **2.NBT.9** Explain why addition and subtraction strategies work, using place value and the properties of operations. (Explanations may be supported by drawings or objects.)

## Pre-Requisite Standards

- **2.NBT.1** Understand that the three digits of a three-digit number represent amounts of...
hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases:
a. 100 can be thought of as a bundle of ten tens—called a “hundred.”
b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

2.NBT.2 Count within 1000; skip-count by 5s, 10s, and 100s.

2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.

<table>
<thead>
<tr>
<th>Step One: Mid-Module Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete and correct the Mid-Module Assessment.</td>
</tr>
<tr>
<td>● Record your misconceptions, questions, and connections to other content.</td>
</tr>
</tbody>
</table>

On this mid-module assessment, students can choose to use a variety of strategies to solve 18 addition and subtraction problems within 1000. Some of the possible strategies are a tape diagram, a number bond, the arrow way, the vertical form, and chips on a place value chart.

There are 6 problems within Item 2 that specifically require the arrow way to solve and there are 2 problems within Item 3 that specifically require students to draw a model of a place value chart with chips using the vertical form.

<table>
<thead>
<tr>
<th>Step One: End-of-Module Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete and correct the End-Of-Module Assessment.</td>
</tr>
<tr>
<td>● Record your misconceptions, questions, and connections to other content.</td>
</tr>
</tbody>
</table>

Many of the problems in the end-of-module assessment are the same or very similar to the problems on the mid-module assessment. If teachers do not begin with the mid-module, it is important to read all of that content as it applies here.

In addition to the mid-module content, students are asked on 3 problems in Item 3 to check their work on addition problems by using a related subtraction strategy and to check their work on a subtraction problem by using a related addition strategy.

Also, on the end-of-module assessment, students are asked to apply a variety of strategies to solve addition and subtraction problems with the unknown in all
Within Item 3, there are 4 problems where students have to solve 2 expressions and determine equality and then say whether or not the equation in true or false. Students are not required to use a strategy; however, they are asked to explain their thinking using pictures words or numbers.

The last 4 problems in Item 4 require students to solve each with 2 written strategies.

Prior to this mid-module assessment, students will work through topic A and B in the module. In topic A students practice the simplifying strategies they learned in module 4, but with numbers us to 1000. They are asked to consider which strategy is most efficient for each problem they encounter. It will be important to note when looking at student work, whether or not students choose the most efficient strategies when solving problems.

Topic B extends the work of module 4, topic B. In module 4, students compose tens while adding and subtracting within 200. Module 5 expands upon this work as students compose tens and hundreds within 1000. In topic B, students move from concrete to pictorial representations as they draw chip models to represent addition within 1000. On this mid-module assessment, it will be important to note students who have moved successfully to a pictorial representation.

There may be 2 different types of errors on this assessment. One would be errors in calculations which might mean students are lacking conceptual understanding of the content. The other would be the inability to use strategies effectively or accurately to solve problems. This type of error might signify misconceptions.

One very important misconception to watch for would be a foundational understanding of place value. A prerequisite standard for this Module is Understanding that the three digits of a three-digit number represent amounts of hundreds, tens and ones (2.NBT.1).

- Answer the following:
  - What was challenging about this assessment?
  - What questions would you want to answer before teaching this module?
<table>
<thead>
<tr>
<th>Step Two: The Module Overview</th>
<th>Step Three: The Lessons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read the Module Overview.</td>
<td>Read the lesson titles and lesson objectives.</td>
</tr>
<tr>
<td>● Record any new misconceptions, questions, or connections that arise.</td>
<td>● Answer the following:</td>
</tr>
<tr>
<td>● Record any new understandings or clarifications you gain.</td>
<td>○ How does each new lesson build on and reinforce the concepts of the lesson(s) previous to it?</td>
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<td>● Answer the following:</td>
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<td>○ How does this module build students’ understanding of the Major Work of the Grade over time?</td>
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<td>○ What are the concrete, pictorial, and abstract models required in this module for students to show their conceptual understanding of the content?</td>
<td></td>
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</table>
Module 3: Planning and Facilitating Engaging Eureka Lessons

Annotating and Planning a Lesson

Introduction

How do I annotate and prepare to teach a Eureka lesson so I am meeting the key mathematics of the standards?

| Content Area | Math K-2 | Length in Minutes | 90 |

Overview: Seminars 2-5 are a series of four seminars in which teachers take a deep dive into key mathematics by utilizing the Steps to Planning a Purposeful Eureka Lesson and Lesson Preparation Guide to prepare to math lessons. The purpose of using this structure is to allow for teachers to collaborate with one another as they learn more about the standards and how to teach them using Eureka. In this seminar, teachers are first introduced to the Steps to Plan a Purposeful Eureka Lesson, including the Lesson Preparation Guide as a part of the lesson internalization process.

The Lesson Preparation Guide and Steps to Planning a Purposeful Eureka Lesson were designed in collaboration with DCPS teachers and teams from the Office of Teaching and Learning and Office of Instructional Practice. These processes are summarized in a streamlined, easy-to-use, double-sided resource that is designed to be a bookmark for teachers to keep with their math planning materials. By using the Lesson Preparation Guide as a part of the Steps to Planning a Purposeful Lesson with Eureka, teachers can plan Eureka lessons more efficiently and effectively while also growing in their knowledge of mathematics.

LEAP Math Module 3, Seminars 3-5 are designed to be flexible in implementation, according to teacher needs. Additional framing around how to structure seminars 3-5 according to teacher needs is provided in the overview section of the seminar 3-5 plan.

To assist LEAP Leaders in facilitation, exemplar lesson annotations (completed versions of the Lesson Preparation guide) have been provided on Canvas for each grade level. These exemplars are intended to be shared with teachers as an example or resource, but they should not be used as a replacement for teachers completing the Lesson Preparation Guide process themselves.

It is important to note that LEAP Leaders have flexibility when sequencing LEAP Seminars 2-5 in Math Module 3. These four seminars focus on lesson internalization using the Lesson Preparation Guide. LEAP Leaders should decide how to sequence LEAP Module 3, Seminar 1 (Eureka Module Internalization) and LEAP Module 3, Seminar 6 (Looking at Student Work) in relationship to LEAP Module 3, Seminars 2-5 (Lesson Internalization and Annotation) in an order that best matches each LEAP Team’s pacing. In other words, the seminars in LEAP Module 3 do not need to be facilitated in order from seminar 1 to seminar 6. For example, if the majority of the teachers on a LEAP team will not begin a new Eureka module for several weeks, it might make sense to begin with seminars 2-5 (lesson internalization using the Lesson Preparation Guide) and facilitate seminar 1 (module internalization) and seminar 6 (looking at student work) during
Subsequent LEAP Seminars. Lastly, an optional Lesson Practice Protocol can be found for this seminar. This practice protocol is designed to assist LEAP teams with rehearsing upcoming Eureka lessons together.

<table>
<thead>
<tr>
<th>Objective(s)</th>
<th>Outcome(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers will be able to...</td>
<td>The task(s) that teachers will complete...</td>
</tr>
<tr>
<td>• Leverage tools to dive deep into the standards and content covered in an upcoming Eureka lesson.</td>
<td>• Teachers will prepare for an upcoming lesson through lesson annotations on the standards, lesson content, and by customizing the lesson.</td>
</tr>
<tr>
<td>• Identify or create opportunities for student thinking that allow learners to access the mathematical practices in an upcoming Eureka lesson.</td>
<td>• OPTIONAL: Teachers will be able to practice and reflect upon a prioritized piece of an upcoming lesson. (If using the Lesson Practice Protocol.)</td>
</tr>
<tr>
<td>• OPTIONAL: Identify at least one concrete strategy to improve their instruction based on their lesson practice and feedback. (If using the Lesson Practice Protocol.)</td>
<td></td>
</tr>
</tbody>
</table>

### Essential Practices Connection

#### Essentials Practice 2: Challenge Students with Rigorous Content

In seminars 2-5, teachers will dive deep into the CCSS for Mathematics. In order to ensure that the content provided during instruction is rigorous for students, teachers must first internalize the standards and deepen their own understanding of mathematical concepts. Through lesson annotation and the use of the Lesson Preparation Guide, teachers will consider the three Shifts required by the CCSS for Mathematics as they plan for each Eureka lesson.

#### Essential Practice 3: Leading a Well-Planned, Purposeful Learning Experience

In seminars 2-5, teachers will work to internalize, customize, and enhance Eureka lesson plans in order to meet the needs of all learners. As a part of the Lesson Preparation Guide, teachers are asked to consider common misconceptions and how to respond to them, opportunities to check for understanding, how to foster the Standards for Mathematical Practice, and what gaps in learning currently exist in order to address them and ensure all students are able to access the content of the lesson.

---

**Mathematics**

This practice aligns with Instructional Practice Guide (IPG) Core Action 1: Ensure the work of the lesson reflects the shifts required by the CCSS for Mathematics.

**For example, mathematics content:**

- Extends previous learning by making connections with mathematics content, methods, and models from previous grades.
- Intentionally targets the aspect(s) of rigor (conceptual understanding, procedural skill and fluency, application(s)) called for by the standard(s) being addressed.
- Focuses on and promotes a depth of understanding of content in these domains (grades):
  - Numbers and operations in base 10 (1-5)
  - Numbers and operations – Fractions (3-6)
  - The number system (K-8)
  - Ratios and proportional relationships (6-8)
  - Measurement and data (1-8)
  - Geometry (1-8)
  - Statistics and probability (6-8)

**Mathematics**

This practice aligns with Instructional Practice Guide (IPG) Core Action 2: Employ instructional practices that allow all students to learn the content of the lesson.

**For example, the learning experience:**

- Includes explanations, representations, and/or examples to make the content of the lesson explicit.
- Includes opportunities for students to share, discuss, and justify their mathematical reasoning through discourse.
- Supports and promotes variation in solution methods to strengthen students' understanding of the content and mathematical structures.

**For example, grade 1-5 learning experiences include tasks and activities that:**

- Develop students' number sense and fluency with basic operations.
- Develop students' conceptual understanding of foundational mathematics concepts.
- Orient students to understanding and manipulating data.
- Help students apply understanding of geometric properties.
- Familiarize students with the structural elements of equations.

**For example, grade 6-12 learning experiences include tasks and activities that:**

- Have students apply previous understandings of basic operations to increasingly complex mathematical scenarios.
- Require solving real-world problems using, or by developing, expressions, equations, or functions.
- Demonstrate the integration of algebraic and geometric concepts.
- Have students manipulate both irrational and rational numbers.
- Leverage mathematical reasoning to build statistical models and evaluate probability.
### Criteria for Success

The criteria by which we know the seminar learning/activities are successful...

**Standards:**
- Identify the portion of the grade level standard(s) targeted by the lesson.
- Identify the correct aspect(s) of rigor targeted in the lesson.
- Make connections to prior lessons, future lessons, and PARCC (if applicable).

**Mathematics of the Lesson:**
- Identify the key mathematical idea or concept.
- Analyze grade level problems.
- Identify key mathematical vocabulary.
- Anticipate common student misconceptions.

**Bridge to Practice - Customizing the Lesson:**
- Identify in Eureka or create strong opportunities to develop student mathematical practices aligned to the lesson.
- Identify in Eureka or create checks for understanding and discussion questions.
- Adjust pacing to meet the needs of students.
- Select “must-do” and “could-do” problems.

### Pre-Work

#### LEAP Leader:
- Thoroughly read through the Lesson Preparation Guide and practice it on one of your upcoming lessons.
- Compare your annotations with the exemplar for your grade level.
- Decide which section(s) of the Lesson Preparation Guide to focus on based on prior seminar content and the needs of your LEAP Team.
- Identify a teacher to highlight that is changing his/her practice due to the support of LEAP Leaders in order to recognize him/her in the shout-out part of the seminar.
- Decide which content resource you will use with your LEAP Team during the content portion of the seminar. These resources might change each week, depending on the focus of that week’s seminar. Suggested content resources include:
  1. Search and preview possible Great Minds Videos aligned to upcoming lesson(s).
  2. Watch Graham Fletcher video.
  3. Read through UnboundEd CC/OA guides for Grades KG, 1, and 2.
  4. Read the content Progressions start on page 22.

#### LEAP Participants:
- Bring an upcoming Eureka Lesson Plan.
- Bring the Lesson Preparation Guide.
- Special Education Teachers should bring both the general Lesson Preparation Guide and the Lesson Preparation Guide for Special Education Teachers.
**Time** | **Facilitator Notes** | **Materials** |
--- | --- | --- |
5 min | **Norms:** “Let’s check in on the norms we established. Turn to a partner and discuss which norm you would like to focus on during our meeting today. Share how they can help to hold you accountable.”
|  | Clearly set expectations that participants should bring their next upcoming Eureka lesson plan to annotate for the next ___ seminars. (Note that the number depends on the order of the seminars that have been decide by the LEAP leader). |
| (slide 2) | **Objectives and Agenda**
Share the objectives and agenda for today with participants
Objectives:
- Leverage tools to take a deep dive into the standards and content covered in an upcoming Eureka lesson.
- Identify or create opportunities for student engagement that allow learners to access the mathematical practices in an upcoming Eureka lesson.
- **OPTIONAL** (If using the Lesson Practice Protocol): Identify at least one concrete strategy to improve their instruction based on their lesson practice and feedback.
|  | **Sample Agenda:**
- Review norms and **SHOUT-OUTS**
- Agenda and objectives
- Upcoming Content Exploration
- Steps to Planning a Purposeful Lesson with Eureka and Lesson Preparation Guide Introduction
- **Lesson Preparation Guide Phase One:** Standards
- **Lesson Preparation Guide Phase Two:** Mathematics of the Lesson
- **Lesson Preparation Guide Phase Three:** Bridge to Practice - Customizing the Lesson
- Summary of learning
|  | **Shout-out:** Highlight a teacher on the LEAP Team who has truly changed his/her instructional practice this school year. Perhaps, you choose him/her because of his/her commitment to reflection and refinement, noticeable improvement in classroom practice, or ability to use the resources and tools provided during LEAP Seminars to increase student learning. Be sure to highlight the specific impact on student learning. After sharing your shout-out, invite anyone else to share a shout-out for someone present.
|  | **Example:** “I would like to give a SHOUT-OUT to (teacher’s name) for digging into the mathematics last seminar and giving specific feedback on my annotated lesson plan. She also and gave me example discussion questions that I could ask my students to move their learning forward. Thank you for |
| (slide 3) |  | Table Tent Norms |
| (slide 4) |  |  |
being such an asset to this team! Would anyone else like to shout out someone on our LEAP Team today?”

**Alternative Activity to Shout-Outs:** Revisit commitments and action items from the last LEAP Seminar. Give each teacher a moment to share how they applied their commitments from the last seminar. Offer teachers and opportunities to share shout-outs for each other or make requests for help and thought partnership from the team.

**(Optional) Essential Practices Connection**

“Today’s seminar connects to Essential Practices 2 and 3.” Show the slide that has the EP connections on it, and allow teachers to read.

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### 10 min

**Upcoming Content Exploration**

During each Lesson Annotation Seminar, LEAP teams will have an opportunity to build content knowledge aligned to the upcoming Eureka lessons. The activities below have been chosen based on the DCPS pacing guide and the lessons designated for K-2 LEAP Team. These are meant to be short (10 minute) activities that can be revisited each week to gradually deepen the content knowledge of teachers.

LEAP Leaders will need to make a choice on what activities to follow for the next four seminars. A suggested order for the resources has been given below; however, LEAP Leaders may decide to focus on one resource, such as the Great Minds Videos, over the span of the four week - depending on the needs of the LEAP Team.

**Option One: Leverage Great Minds Videos**

- Watch [Great Minds Videos](#).

*Why this option?* Using the videos provided by Great Minds, LEAP Leaders may choose to have their teachers watch video clips of upcoming lessons. This is particularly helpful for teachers who need to grow more confident in the content of their own lessons. LEAP teams can watch the same lessons and debrief the lesson content together or they can use headphones to watch differentiated lessons based on their upcoming instruction. This activity can be repeated for each mini lesson on mathematics for seminars 2-5.

**Option Two: Study New Content Resources**

- Watch [Graham Fletcher video](#).
- Read through [UnboundEd](#) Counting and Cardinality for KG and Operations and Algebraic Thinking for Grades 1 and 2.
- Read through the Common Core [Progressions](#) (K-5 Operations and Algebraic Thinking and/or K-5 Number and Operations in Base Ten) for specific grade levels K, 1, or 2.
**Why this option?** Each of these videos and articles will deepen teachers’ knowledge of the standards. These resources are powerful in building teachers’ understanding of coherence and how the mathematics connects across grade levels. This can help teams discuss vertical alignment and engage in shared conversations about the mathematics.

**Option Three: Revisit Content Resources from LEAP Module 1 and 2**

- Read the relevant pages on the standards from *The Common Core Companion* (Grades K-8 Only).
- Engage with the [Coherence Map](#) and [PARCC aligned assessment tasks](#).

**Why this option?** These tools will help teachers deepen their knowledge of grade level standards and problems. Teachers can use these tools to develop their understanding of what students and teachers should do in the teaching of the grade level standards and how these expectations are assessed. *The Common Core Companion* can also be a useful resource in helping teachers identify and plan for common student misconceptions for each standard.

Say: “Today we are going to start our seminar with a quick exploration of some of the upcoming content for our grade level. You will have the opportunity to engage in watching a video on the conceptual understanding of addition and subtraction through Graham Fletcher Making Sense Series or Great Minds video on array and area model. Or you will have the opportunity to read guidance documents like UnboundEd or the Progressions documents. Or you will have the opportunity to look at sample tasks aligned to the standards on Achieve the Core Coherence Map, PARCC aligned assessment tasks, or through the Common Core Companion Book.”

<table>
<thead>
<tr>
<th>10 min</th>
<th><strong>Steps to Planning a Purposeful Lesson with Eureka &amp; Lesson Prep Guide</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>3 min</td>
<td><strong>Introduction</strong></td>
</tr>
</tbody>
</table>
|        | “We have learned a lot together this year about how to teach the standards through Eureka. We have completed the module internalization process as well as the lesson internalization process. For Math Module 3, these processes have been streamlined into a new tool for you to use while planning. The tool is designed to be a bookmark that you can keep with your math planning materials.  

This tool has a series of questions to push us to dive deeper into math content in order to be prepared to teach Eureka lesson plans. The front of the tool, “Steps to Planning a Purposeful Lesson with Eureka,” summarizes the module internalization and lesson internalization process, as well as offers summary questions and a post lesson reflection opportunity.  

On the flip side of this tool, step 3 of the lesson internalization process is built out in greater detail. This is called the Lesson Preparation Guide. This Lesson Preparation Guide is where we’ll be focusing our time and energy over the
next 4 seminars. Each phase of the Lesson Preparation Guide provides questions to annotate as well as suggested tools and resources to use during that step of the process.

It’s likely that you’re already engaging in many of these processes and using many of these resources as you prepare to teach Eureka lessons. This tool is intended as a resource, formatted in a convenient way for your reference, that you should use to guide planning.

Lastly, there are two versions of the tool that both incorporate Universal Design for Learning principles. They are identical except the second tool includes additional prompts (which are highlighted) specifically for special education teachers."

<table>
<thead>
<tr>
<th>5 min</th>
<th>Pass out the tool, and allow teachers to read it over.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>After 5 minutes, call the group back together and ask, “What do you like about this tool? What questions do you have?”</td>
</tr>
<tr>
<td>2 min</td>
<td>Allow teachers to share what they like about the tool and ask any questions they might have.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>20 min</th>
<th>Lesson Internalization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Say “Today, we’re going to focus on lesson internalization. This is something that we have been working on together since Module 1 and today we will build on what we have done and add research-based questions from the Lesson Preparation Guide. This guide was developed based on tools created by Student Achievement Partners, the organization founded by the Common Core authors, as well as the experiences of DCPS teachers and staff. As we have always done, we’re going to begin by taking the exit ticket and the problem set in order to develop our own understanding of the lesson content. After that, we are going to read the topic overview and compare the student outcomes and the exit ticket.”</td>
</tr>
<tr>
<td></td>
<td>Say: “As we working with the Lesson Preparation Guide for the first time, I would like for you to work closely with other members of your grade level team. If you happen to be the only member of our grade level, please partner with another person and choose to focus on one of your upcoming lessons. You’ll have about twenty minutes to complete this portion of the lesson internalization process.”</td>
</tr>
<tr>
<td></td>
<td>Facilitation Note: For LEAP leaders that may wish to introduce these tools with more scaffolding, it may be helpful to focus all team members on the same Eureka lesson. Team members would then work on their own lessons in the future after they were comfortable with the process.</td>
</tr>
</tbody>
</table>
Lesson Preparation Guide

2 min

“After completing steps 1 and 2 of the Lesson Internalization process, we’re ready to move on to step 3 – which involves the Lesson Preparation Guide. Using the Lesson Preparation Guide on an upcoming Eureka lesson will provide planning time dedicated to understanding the concept development piece for students to access the key mathematics of the lesson.”

“We are going to engage in this process together in grade level teams, by thinking aloud, asking questions, and listening to one another for ideas.”

“This process is intended to flexible and helpful for you. To that end, consider what will be the most effective way for you to annotate your lessons. Some possible options include: creating a blank template to record your reflections, annotating directly on a hard copy version of the lesson plan, or using computer-based highlighting and comments to make annotations directly to the lesson file. Consider what will work best for you!”
“There is also an example of an annotated lesson plan for each grade level that we will reference as we complete this process. It is not the exact current lesson you are using, but a lesson that is most likely coming up. You can compare your completed annotations with these examples and see if you have any further noticings.”

Phase One: Standards
Say: “Please take 10 minutes to annotate Phase One: Standards. By beginning with the standards, we can get clearer on the depth of understanding that our students need to achieve. We can better understand whether we should teach in a way that emphasizes procedural skill or in a way that emphasizes conceptual understanding on application, and we have a stronger understanding for how the mathematics of this lesson connects to what came before and with what is yet to come. Helpful resources for this section include: the Eureka Topic Overview, Coherence Map, and any relevant PARCC items. Consider the following questions:”

• What standard(s) am I targeting in this lesson? (You can pull this information from the Module Overview)
• Based on the Foundational Standards, what are the pre-requisite skills and knowledge? How does this work connect to future work in the grade? (You can pull this information from the Topic Overview or the Coherence Map)
• Which aspect(s) of rigor do the targeted standards require? (Conceptual, procedural/skill fluency, application)
• Special Education Teachers (SETs): Which of my students’ IEP goals align with these standards and should be targeted during the lesson?

Please note the followings exemplar samples of annotated lessons have been provided and are located on Canvas:
• KG Module 4, Lesson 4
• Grade 1 Module 4, Lesson 4
• Grade 2 Module, Lesson 4.
• SPED Example – Grade 3 Module 3, Lesson 7
Information in the following grey box may provide additional information about the math content of these 3 Modules.

**Kindergarten:**
Targeted standards for the lessons in topics A, B and C are all from the Operations and Algebraic Thinking Domain. K.OA.1 and K.OA.3 require conceptual understanding standards and K.OA.5 calls for fluency. K.OA.5 connects to the work done in daily fluency activities throughout the entire school year. Fluency is developed when students have a solid conceptual understanding, which links to decomposing numbers first (K.OA.2). Kindergarten Module 4 links to addition and subtraction work that students will do in first grade in Grade 1, Modules 1 and 2. It could be helpful to read the overviews for these 2 first grade Modules to see coherence to upcoming work. All the work in this Module builds upon Grade 1, Module 2’s work with place value within 20, now focusing on the role of place value in the addition and subtraction of numbers to 40. It might be helpful to review the overview of Module 2 to see where the work links to Module 4.

**Grade 1:**
Targeted standards for the lessons in topics A, B and C are all from the Number and Operations in Base Ten Domain. 1.NBT.2, 1.NBT.3, 1.NBT.4 and 1.NBT.6 require conceptual understanding and 1.NBT.1 and 1.NBT.5 call for fluency. 1.NBT.1 requires counting, reading, and writing numbers to 120. The remaining parts of this cluster (extending the counting sequence) is addressed in Grade 1, Module 2. Fluency with counting is developed when students have a solid conceptual understanding of cardinality. In Kindergarten, students developing an understanding of the relationship between numbers and quantities, connecting counting to cardinality (K.CC.B.4). 1.NBT.5 requires mentally finding 10 more and 10 less.

**Grade 2:**
Targeted standards for the lessons in topics A and B are all from the Number and Operations in Base Ten Domain. 2.NBT.7 and 2.NBT.9 both call for conceptual understanding and 2.NBT.8 calls for fluency using mental math for adding (10 or 100 to a given number 100-900) and subtracting (10 or 100 from a given number 100-900). Students are able to develop this fluency when they have a solid conceptual understanding of place value, specifically that the three digits of a three-digit number represent amounts of hundreds, tens, and ones (2.NBT.1). The Grade 1, Module 6 links to work students did before the work in topics A and B. It could be helpful to read the overview to this first-grade Module to see what work students should have done previously to support this current work. The remaining standards in this cluster (Use place value understanding and properties of operations to add and subtract) is addressed in Grade 2, Modules 1 and 4.

“Now that you have finished annotating an upcoming lesson for Phase One on standards, turn and talk with your grade level group and discuss your noticings.

**Phase Two: Mathematics of the Lesson**
“Now we are going to engage in the key mathematics of the lesson annotation so we can see how the content is being taught to accomplish the depth of the standards addressed in this lesson. Helpful resources as you complete this section will be: lesson Exit Ticket, Common Core Companion, and the Progressions document.”

“Please take 15 minutes to annotate Phase Two of your lesson answering the following questions.”
• What did I learn about the math from the lesson by doing the exit ticket? (Eureka exit ticket)
• What is the key mathematical idea or concept from this lesson? (Eureka lesson, Coherence Map, or Common Core Companion book)
• What mathematical language should students use in this lesson? (Key terminology is in the Module Overview as well as bolded in the lesson)

What common misconceptions related to this topic do I anticipate will arise? (You can use your Common Core Companion book to find common misconceptions)
• SETs: What information/vocabulary do I need to front load so students can access the lesson?
• SETs: How can I explain this concept in more than one way (visually, auditory, and/or kinesthetically)?

General Guidance:
What teachers learn from doing the exit ticket will vary widely based on teachers’ previous content knowledge.

Key mathematical idea or concept from the lessons will also vary based on the lesson teachers are annotating.

Some common themes will be addition and subtraction or composing and decomposing numbers for kindergarten. It is very important to note that although students will be modeling math with story situations, number bonds, and equations, these are not the concepts and/or mathematical ideas.

For first and second grade, mathematical ideas or concepts will be about place value understanding, addition and subtraction, and possible comparing quantities.

Mathematical Language could include: addition, subtraction, minus, put together, number pairs, number bond, part, whole, subtraction, take apart, whole, addend, compose, decompose, difference, equation, number sentences, difference, greater than, less than, place value, tens, ones

Common misconception will also vary widely depending on the lesson being annotated. It will be important to use the Common Core Companion for misconceptions related to each lesson.

“Now that you have finished annotating an upcoming lesson for phase two on lesson content, turn and talk with your grade level group and discuss your noticings.”

Phase Three: Bridge to Practice – Customizing the Lesson
“The final annotation phase 3 on customizing the lesson is where you use your expertise to make this lesson engaging for all learners. Take the next 15 minutes to answer the following questions, thinking about how you will meet the needs of all your learners. Helpful resources for this section include: your colleagues, pacing calendars, student data, and your colleagues. You may also consider revisiting resources from Module 2, Seminars 5-8 on scaffolding the content of Eureka Lessons.”
• Which must-do question(s) and problems assess the key mathematics of this lesson?
• Which could-do question(s) and problem(s) can be used to extend students’ thinking?
• How will I adjust the pacing of the lesson?
• What strategies and opportunities will I use to check for understanding throughout the lesson?
• How will I develop student thinking aligned to the Standards for Mathematical Practice?
• What learning gaps do I anticipate and how will I teach those skills (e.g. mini lessons, stations, etc.)?
• What barriers to learning do I anticipate, and how will I provide multiple opportunities to learn (e.g. technology, cooperative learning, manipulatives, etc.)?
• SETs: What accommodations do students need to access this lesson?
• SETs: How will I support my students during this lesson? If am co-teaching, what co-teaching method will we use?

Teachers’ discussions will vary widely depending on the lessons being annotated. Some key places to look for support are in the concept development part of the lesson, are mathematical practices highlighted on the left of the scripting? Questions teachers will ask as well as problems they will choose to use should be highlighted. Suggestions for scaffolding should be highlighted and used if appropriate from the green boxes titled ‘Notes on Multiple Means’ on the right side of the concept development scripting.

“Now that you have finished annotating an upcoming lesson for phase three on customizing a lesson, turn and talk with your grade level group and discuss your noticings.”

**Summary of Learning:**
In the last five minutes of the meeting, have the group discusses the three Summary Questions.

**SUMMARY QUESTIONS**
Before teaching, ensure that you are clear on these three summary questions:

1. In your own words, what are the key mathematics that you want students to understand from this lesson?
2. How will you ensure that all learners will be able to access the mathematics (e.g. adjustments in pacing, grouping, and explanations to address potential misconceptions and learning gaps)?
3. How will you know that students have mastered the content?

**Seminar Feedback:**
• What went well today?
• What could have been even better?

(Optional) Commitments for the Next Seminar:
| | What action steps will each LEAP Leader take before the next Seminar? Publicly record these and follow up on these actions at the beginning of the next Seminar. |
| | In addition, all teachers should make sure to bring an upcoming Eureka lesson plan and your annotating supplies. |
Module 3, Seminar 2: Lesson Internalization & Annotation Introduction

How do I annotate and prepare to teach a Eureka lesson so I am meeting the key mathematics of the standards?

Grade Band: K-2
Revisiting Our Norms
Objectives:

- Leverage tools to take a deep dive into the standards and content covered in an upcoming Eureka lesson.
- Identify or create opportunities for student engagement that allow learners to access the mathematical practices in an upcoming Eureka lesson.
- OPTIONAL: Identify at least one concrete strategy to improve their instruction based on their lesson practice and feedback.

Agenda:

- Upcoming Content Exploration
- Steps to Planning a Purposeful Lesson with Eureka and Lesson Preparation Guide
- Introduction
- Lesson Preparation Guide Phase One: Standards
- Lesson Preparation Guide Phase Two: Mathematics of the Lesson
- Lesson Preparation Guide Phase Three: Bridge to Practice - Customizing the Lesson
- Summary of learning
GIVE YOUR TEACHER A
#TEACHERSHOUTOUT
Essential Practices Connection

Essentials Practice 2: Challenge Students with Rigorous Content

In seminars 2-5, teachers will dive deep into the CCSS for Mathematics. In order to ensure that the content provided during instruction is rigorous for students, teachers must first internalize the standards and deepen their own understanding of mathematical concepts. Through lesson annotation and the use of the Lesson Preparation Guide, teachers will consider the three Shifts required by the CCSS for Mathematics as they plan for each Eureka lesson.

Mathematics

This practice aligns with Instructional Practice Guide (IPG) Core Action 1: Ensure the work of the lesson reflects the Shifts required by the CCSS for Mathematics.

For example, mathematics content:
- Extends previous learning by making connections with mathematics content, methods, and models from previous grades
- Intentionally targets the aspect(s) of rigor (conceptual understanding, procedural skill and fluency, application) called for by the standard(s) being addressed
- Focuses on and promotes a depth of understanding of content in these domains (grades):
  - Numbers and operations in base 10 (1-5)
  - Numbers and operations – Fractions (3-5)
  - The number system (6-8)
  - Number and quantity (HS)
  - Measurement and data (1-HS)
  - Geometry (1-HS)
  - Statistics and probability (6-HS)
  - Operations and algebraic thinking (1-5)
  - Expressions and equations (6-8)
  - Ratios and proportional relationships (6-7)
  - Functions (8-HS)
  - Algebra (HS)
  - Modeling (HS)

Essential Practice 3: Leading a Well-Planned, Purposeful Learning Experience

In seminars 2-5, teachers will work to internalize, customize, and enhance Eureka lesson plans in order to meet the needs of all learners. As a part of the Lesson Preparation Guide, teachers are asked to consider common misconceptions and how to respond to them, opportunities to check for understanding, how to foster the Standards for Mathematical Practice, and what gaps in learning currently exist in order to address them and ensure all students are able to access the content of the lesson.

For example, the learning experience:
- Includes explanations, representations, and/or examples to make the content of the lesson explicit
- Includes opportunities for students to share, discuss, and justify their mathematical reasoning through discourse
- Supports and promotes variation in solution methods to strengthen students’ understanding of the content and mathematical structures

For example, grade 1-5 learning experiences include tasks and activities that:
- Develop students’ number sense and fluency with basic operations
- Develop students’ conceptual understanding of foundational mathematics concepts
- Orient students to understanding and manipulating data
- Have students apply understanding of geometric properties
- Familiarize students with the structural elements of equations

For example, grade 6-12 learning experiences include tasks and activities that:
- Have students apply previous understandings of basic operations to increasingly complex mathematical scenarios
- Require solving real world problems using, or by developing, expressions, equations, or functions
- Generate sophisticated inferences about and from data
- Feature the integration of algebraic and geometric concepts
- Have students manipulate both irrational and rational numbers
- Leverage mathematical reasoning to build statistical models and evaluate probability
Mini-lesson Concept Development
Steps to Planning a Purposeful Lesson with Eureka

**Steps to Planning**

**A Purposeful Lesson with Eureka**

**Module Internalization**

1. Complete and correct the Mid-Module and End-of-Module Assessments.
2. Read the Module Overview, Table of Contents, and Exit Tickets.
3. Read the lesson titles and lesson objectives.

**Lesson Internalization**

1. Complete and correct the Exit Ticket and Problem Set. Record your questions and connections to other content.
2. Read the Topic Overview and Student Outcome(s), and then compare the Student Outcome(s) to the Exit Ticket.
3. Read and annotate the lesson using the Lesson Preparation Guide located on the other side, accessing the following resources as needed:
   - Lesson Video Gallery from Great Minds
   - The Common Core Companion
   - PARCC Released Problems
   - Coherence Map on Achieve the Core

**Summary Questions**

Before teaching, ensure that you are clear on these three summary questions:

1. In your own words, what are the key mathematics that you want students to understand from this lesson?
2. How will you ensure that all learners will be able to access the mathematics (e.g., adjustments in pacing, grouping, and explanations to address potential misconceptions and learning gaps)?
3. How will you know that students have mastered the content?

**Post Lesson Reflection**

After you have taught the lesson, what notes will you make to yourself in preparation to teach the lesson next year?

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**Lesson Preparation Guide**

**Ensuring Mathematical Success for All**

**Standards**

- What part of the standard(s) am I targeting?
- Based on the Foundational Standards, what are the pre-requisite skills and knowledge? How does standard connect to future work?
- Which aspect(s) of rigor does the targeted standard require?
- How has this standard been assessed on PARCC (Grade 3-12 Only)?

**Mathematics of the Lesson**

**Tools:** Exit Ticket, Common Core Companion, Progressions Documents

- Key Mathematics
  - What did I learn about the math of the lesson by doing the exit ticket?
  - What is the key mathematical idea or concept from this lesson?
- Mathematical Language
  - What mathematical language should students use in this lesson?
- Mathematical Explanations
  - What common misconceptions related to this topic do I anticipate will arise?

**Bridge to Practice: Customizing the Lesson**

**Tools:** LEAP Team Conversations

- Grade Level Problems
  - Which must-do question(s) and problem(s) assess the key mathematics of this lesson?
  - Which could-do question(s) and problem(s) can be used to extend students’ thinking?
- Pacing
  - How will I adjust the pacing of the lesson?
- Checks for Understanding
  - What strategies and opportunities will I use to check for understanding throughout the lesson?
- Student Thinking
  - How will I develop student thinking aligned to the Standards for Mathematical Practice?
- Student Scaffolding
  - What learning gaps do I anticipate and how will I teach those skills (e.g., mini lesson, stations, etc.)?
  - What barriers to learning do I anticipate, and how will I provide multiple opportunities to learn (e.g., technology, cooperative learning, manipulatives, etc.)?

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[Images of Leap and DC Public Schools logos]
Lesson Internalization

**LESSON INTERNALIZATION**

1. Complete and correct the Exit Ticket and Problem Set. Record your questions and connections to other content.

2. Read the Topic Overview and Student Outcome(s), and then compare the Student Outcome(s) to the Exit Ticket.

3. Read and annotate the lesson using the Lesson Preparation Guide located on the other side, accessing the following resources as needed:
   - Lesson Video Gallery from Great Minds
   - The Common Core Companion
   - PARCC Released Problems
   - Coherence Map on Achieve the Core
LESSON INTERNALIZATION

1. Complete and correct the Exit Ticket and Problem Set. Record your questions and connections to other content.

2. Read the Topic Overview and Student Outcome(s), and then compare the Student Outcome(s) to the Exit Ticket.

3. Read and annotate the lesson using the Lesson Preparation Guide located on the other side, accessing the following resources as needed:
   - Lesson Video Gallery from Great Minds
   - The Common Core Companion
   - PARCC Released Problems
   - Coherence Map on Achieve the Core
Lesson Preparation Guide, Topic Overview, and Coherence Map
Now that you have finished annotating an upcoming lesson for phase one on standards, turn and talk with your grade level group and discuss your noticings.
**MATHEMATICS OF THE LESSON**

**TOOLS: EXIT TICKET, COMMON CORE COMPANION, PROGRESSIONS DOCUMENTS**

**Key Mathematics**
- What did I learn about the math of the lesson by doing the exit ticket?
- What is the key mathematical idea or concept from this lesson?

**Mathematical Language**
- What mathematical language should students use in this lesson?

**Mathematical Explanations**
- What common misconceptions related to this topic do I anticipate will arise?

*Exit ticket, Common Core Companion, Progressions Document*
Now that you have finished annotating an upcoming lesson for phase two on the mathematics of the lesson, turn and talk with your grade level group and discuss your noticings.
BRIDGE TO PRACTICE: CUSTOMIZING THE LESSON
TOOLS: LEAP TEAM CONVERSATIONS

Grade Level Problems
• Which must-do question(s) and problem(s) assess the key mathematics of this lesson?
• Which could-do question(s) and problem(s) can be used to extend students' thinking?

Pacing
• How will I adjust the pacing of the lesson?

Checks for Understanding
• What strategies and opportunities will I use to check for understanding throughout the lesson?

Student Thinking
• How will I develop student thinking aligned to the Standards for Mathematical Practice?

Student Scaffolds
• What learning gaps do I anticipate and how will I teach those skills (e.g. mini lesson, stations, etc.)?
• What barriers to learning do I anticipate, and how will I provide multiple opportunities to learn (e.g. technology, cooperative learning, manipulatives, etc.)?
Now that you have finished annotating an upcoming lesson for **phase three** on customizing the lesson, turn and talk with your grade level group and discuss your noticings.
Summary of Learning

SUMMARY QUESTIONS

Before teaching, ensure that you are clear on these three summary questions:

1. In your own words, what are the key mathematics that you want students to understand from this lesson?

2. How will you ensure that all learners will be able to access the mathematics (e.g. adjustments in pacing, grouping, and explanations to address potential misconceptions and learning gaps)?

3. How will you know that students have mastered the content?

Seminar Feedback:

• What went well today?
• What could have been even better?

Reflection
Lesson 4

Objective: Represent decomposition story situations with drawings using numeric number bonds.

Suggested Lesson Structure

- Fluency Practice (12 minutes)
- Application Problem (5 minutes)
- Concept Development (25 minutes)
- Student Debrief (8 minutes)
- Total Time (50 minutes)

Fluency Practice (12 minutes)

- Comparing Towers K.MD.2 (5 minutes)
- Show Me Part or Whole K.OA.1 (3 minutes)
- Draw Lines to Make a Bond of 4 K.OA.1 (4 minutes)

Comparing Towers (5 minutes)

Materials: (S) Dice and 12 linking cubes per pair

Note: This fluency activity again relates length with number. It also encourages students to explore how many more cubes are needed to make the towers the same length and number.

Each partner rolls a die and creates a tower using the number shown on the die. Students compare towers and make a less than, more than, or same as statement. Then, students must add cubes to the shorter tower so it is the same height as the longer tower. Consider providing cubes of different colors so students can easily count how many more cubes they added to make the towers the same length.

Show Me Part or Whole (3 minutes)

Materials: (T) Familiar objects that exemplify the part–whole relationship such as a whole apple and an apple slice or a whole banana and a banana peel

Note: This activity prepares students for today's lesson by linking mathematical vocabulary to kinesthetic movement and associating part–whole relationships with familiar objects.

T: Show me the sign for whole. (Model two hands clasped together.)
S: (Hold two hands clasped together.)

*Aspect of Rigor is Conceptual Understanding

Previous Standards:
- K.OA.1
- K.OA.2
- PK.OA.1

Concept Development

*Standards
- K.OA.1 and K.OA.3

Previous Standards/Foundational Standard:
- K.OA.2

*Must Do

Mathematical Language
T: Let's use our math muscles and take it apart 
(exaggerate with facial expression as if straining 
to pull the two hands apart).

S: (Pull two hands apart.)
T: Show me whole.
S: (Hold two hands clasped together.)
T: Show me parts.
S: (Pull two hands apart.)
T: Whole, part, whole, part, part, part, whole, 
whole, part...
S: (Show hand gestures as indicated.)
T: Now, I'll show you some objects, and I want you 
to decide if it's the whole thing (reinforce with 
hand gestures) or just part of something 
(emphasize with gesture). (Hold up an apple 
slice.) Is this the whole apple or part of the 
apple? Think. (Pause.) Now, show me.
S: (Hold hands apart, as before.)
T: Now, tell me. Is it whole (gesture) or part 
gesture)?
S: Part!
T: Very good. Look at what I have now. (Show a whole apple.) Whole or part? Think. (Pause.) 
Now, show me.
S: (Clasp hands together to indicate whole.)
T: Raise your hand when you know the math word. (Wait for all hands to go up, and then signal.)
S: Whole!

Repeat with a few more objects, being careful to avoid a predictable pattern. Increase the pace, and reduce 
scaffolding as students demonstrate mastery.

**Draw Lines to Make a Bond of 4** (4 minutes)

Materials: (S) 4 beans, make a bond of 4 (Fluency Template) inserted into personal white board

Note: This fluency activity reinforces the part–total relationship represented by the number bond. It helps 
students understand that the lines of the number bond connect the two parts with the total and that the 
orientation of the parts and total do not affect the numerical relationship.

Conduct the activity as outlined in Lesson 2. As a variation, have students write the numerals into the parts 
and wholes (on top of the dots) and then state the decomposition (e.g., 4 is 2 and 2).
Application Problem (5 minutes)

Materials: (S) Small piece of clay, paper, pencil

Anthony had 5 bananas. Make the 5 bananas with your clay.
He wanted to share the bananas with one of his friends.
Draw two plates on your paper. Put the bananas on the plates
to show one way he could share the bananas with his friend.
Draw a number bond to show how he shared his 5 bananas.

Turn and talk with your partner. Did she do it the same way?
How many different ways can you find to share the bananas?
What if there were only 4 bananas?

Note: The Application Problem encourages students to explore
different configurations of 5 in preparation for today's lesson on
decomposition.

Concept Development (25 minutes)

Materials: (S) Number bond (Lesson 1 Template 2), two linking
cube 5-sticks (all of the same color), personal white board

Ensure that the student templates are oriented with the whole
on the top and the parts on the bottom.

T: Let's pretend today! Pretend that you have 5 apples.
Show me with your cubes how the group of 5 apples
would look on your mat.

T: I'm going to draw the linking cubes into this number
bond on the board, just like you put them in your
whole.

T: Now, pretend that 3 of your apples are red and 2 are
green. Show with your other set of cubes how that
would look on your mat.

T: Good! I'll draw those cubes in the number bond, too.
Look carefully at your groups of cubes. Let's show how
they would look in the number bond if we used
numbers instead. Take your cubes off, and write the
numbers with your marker as we have done before.
Who would like to tell me how to fill in our numbers?

S: The 5 is in this circle, in the whole. \rightarrow I put the 2 in this
part and the 3 in the other part.
T: Great job! You separated the 5 cubes as a set of 2 cubes and a set of 3 cubes. 5 is the same as 2 and 3 together. Did anyone do it a different way? (Allow time for discussion.)

T: Put your cubes away. Let's make a different number bond. This time, I want to pretend I have 4 balls. 1 is blue, and 3 are orange. How could I show this in my number bond picture? (Allow students to guide you in creating the pictorial number bond.) Make this number bond picture on your mat, too.

T: Now, erase the pictures in your number bond and write the numbers instead. Did we change our story?

S: No! We just wrote it in a different way.

T: Let's make another story about 3 things. Let's draw 3 circles for 3 things in the place for our whole. Does anyone have an idea for a story that could give us the parts of a number bond for this 3?

S: I have 3 toy cars. 1 is red, and 2 are blue.

T: Hmmm... 1 red car and 2 blue cars. How would I show that in the number bond? (Allow time for discussion and creation of the new pictorial number bond.) Now, show me how it would look with numbers instead. Hold up your board.

Repeat the exercise several times with wholes of 3, 4, and 5. This time, encourage students to use only numbers in the bonds.

Sample further decomposition stories:

- 4 rabbits were hopping through the forest. When they heard a noise, 1 went under a tree, and 3 found a little cave to hide in.

- Marta's father bought 5 bananas. 2 were eaten on Monday, and 3 were eaten on Tuesday.

- Mama robin had 3 eggs. 2 eggs hatched in the morning. 1 egg hatched in the afternoon.

T: Let's do some more of this in our Problem Sets.

**Problem Set (10 minutes)**

Students should do their personal best to complete the Problem Set within the allotted time.
Student Debrief (8 minutes)

Lesson Objective: Represent decomposition story situations with drawings using numeric number bonds.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. 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 Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson. Any combination of the questions below may be used to lead the discussion.

- Share with your neighbor the number bond you drew on your Problem Set. How are they the same? How are they different?
- Yesterday, we started with the parts and found the whole. When we started with the parts, could we figure out what the whole had to be?
- Today, we started with the whole and found the parts. When we start with the whole, can we figure out what the parts have to be, or do we need to be told more of the story? If we just know the whole, can we still figure out what the parts in our story might be?
- When we start with the whole, it makes sense to me to put the whole on top so it's as if the parts are falling down. When we start with the parts, I like to put them on top. Then, it's as if they are falling down and landing in the same spot. It doesn't have to be like that, but do you understand my thinking? Can you explain my thinking to your partner? (It is also valid to think of the story progressing from left to right. Explaining this orientation supports the pattern of reading text from left to right.)
- When you drew your bananas in the number bond, did your number bond look exactly like your partner's? How were they different? (Focus in on orientation of the number bond.) Does it really matter where we put the parts and the whole?
- How do we know where to write each number in a number bond?

*There is no exit ticket for this lesson. The problem set could be used as an exit ticket or one could be created.
Lesson 4

Objective: Write and interpret two-digit numbers as addition sentences that combine tens and ones.

Suggested Lesson Structure

- Fluency Practice (12 minutes)
- Application Problem (5 minutes)
- Concept Development (33 minutes)
- Student Debrief (10 minutes)
- Total Time (60 minutes)

Fluency Practice (12 minutes)

- Subtraction with Cards 1.OA.6 (5 minutes)
- Dime Exchange 1.NBT.2 (5 minutes)
- 10 More 1.NBT.5 (2 minutes)

Subtraction with Cards (5 minutes)

Materials: (S) 1 pack of numeral cards 0–10 per set of partners (Fluency Template)

Note: This fluency activity strengthens students’ abilities to subtract within 10, which is a required core fluency for Grade 1.

Students sit in partnerships. Students shuffle or mix their numeral cards. Each partner places her deck of cards face down. Each partner flips over two cards and subtracts the smaller number from the larger one. The partner with the smallest difference keeps the cards played by both players that round. For example Player A draws 4 and 5 and gives the difference of 1. Player B draws 9 and 4 and gives the difference of 5. Since 1 < 5, Player A keeps the cards. If the differences are equal, the cards are set aside, and the winner of the next round keeps the cards from both rounds. At the end of the game, the players will each be left with 1 card. They each flip their last card over and the player with the highest card says the difference and collects the cards. Students continue to play as time allows.

Dime Exchange (5 minutes)

Materials: (S) 10 pennies and 2 dimes per pair

Note: This fluency activity is necessary to prepare students to utilize coins as abstract representations of tens and ones in Lesson 6. If there are not enough coins to do this activity in pairs, it may be done as a teacher-directed activity.
Students work in pairs. Partner A begins with 2 dimes. Partner B begins with 10 pennies. Partner A whisper-counts as she lays 2 dimes, “10 cents, 20 cents.” Partner B exchanges 1 dime for 10 pennies, lays them out in 5-groups, and says, “1 dime is equal to 10 pennies.” Students whisper-count as Partner A takes away 1 penny at a time (20 cents, 19 cents, etc.). When they get to 10, they exchange the dime for 10 pennies and whisper-count to 0. Partners A and B switch roles and repeat.

10 More (2 minutes)

Note: This fluency activity reviews adding 10 to a single-digit number, which prepares students for today’s lesson.

T: What’s 10 more than 5?
S: 15.

T: Say 15 the Say Ten way.
S: Ten 5.

T: Say it as an addition sentence, starting with 5.
S: 5 + 10 = 15.

T: Say the addition sentence, starting with 10.
S: 10 + 5 = 15.

Repeat, beginning with other numbers between 0 and 10.

Application Problem (5 minutes)

Lisa has 3 boxes of 10 crayons, as well as 5 extra crayons. Sally has 19 crayons. Sally says she has more crayons, but Lisa disagrees. Who is right?

Note: In this problem, students use what they learned in Lesson 3 about interpreting a two-digit number in terms of tens and ones and apply this to a problem involving a comparison of two quantities. To decide which is larger, students really only need to compare how many tens Lisa and Sally each have.* Be sure to note which students understand and which do not understand that Sally has a larger number of ones than Lisa does, but that Lisa still has a larger amount of crayons because she has more tens.*

Concept Development (33 minutes)

Materials: (T) 40 linking cubes, chart paper with a place value chart, Hide Zero cards (Lesson 2 Template 1), piece of blank paper to cover sections (S) Personal math toolkit of 4 ten-sticks, personal white board, place value chart (Lesson 2 Template 2), numeral cards (Fluency Template)

Students gather in the meeting area in a semicircle formation with their personal white boards. The toolkits of 4 ten-sticks are at their individual desks or tables.
T: (On the floor, lay out 3 ten-sticks and 7 individual cubes.) Say this number as tens and ones.
S: 3 tens 7 ones.
T: Which is the same as the number...?
S: 37.
T: (Fill in the place value chart.) 3 is the digit in the tens place. 7 is the digit in the ones place. (Point to each digit in the chart.)
T: On your personal white board, make a number bond that shows the tens and the ones.
S: (Take apart 37 into 30 and 7.)
T: (Record the number bond on the chart.) Write as many addition sentences as you can that use your number bond.
Circulate and ensure that students are only using the three numbers from this bond: 37, 30, and 7. If students begin writing subtraction sentences, remind them of the directions. Perhaps challenge some students to consider subtraction sentences, but these sentences are not addressed during the course of the lesson.
T: Say a number sentence that matches this number bond. Start with the part that represents the tens.
(Record on the chart as students answer.)
S: 30 + 7 = 37.
T: Start your number sentence with the ones. (Record on the chart.)
S: 7 + 30 = 37.
T: 37 is the same as...? (Write 37 = ..., and complete the number sentence as students answer.)
S: 30 plus 7.
T: This time, start with the ones. 37 is the same as...? (Write 37 = ..., and complete the number sentence.)
S: 7 plus 30.
T: Talk to your partner. What do you notice about the addends in all of these number sentences?
S: There is one that tells how many tens there are, and the other tells how many ones there are. You can switch the addends around, and the total is still the same. The larger number also tells how many ones are in the tens.
T: Great. (Point to 7.) 7 more than 30 is...? Say the whole sentence.
S: 7 more than 30 is 37. (Record on the chart.)
T: (Point to 30.) 30 more than 7 is...? Say the whole sentence.
S: 30 more than 7 is 37. (Record on the chart.)

**Scaffolds:**

NOTES ON
MULTIPLE MEANS
OF EXPRESSION:

Students may need additional support with the language of "__ is the same as __", "__ is __ more than __", etc. Insert a sentence frame into their personal white boards, and allow students to fill in the blanks. Pointing to each word and number as it is read can provide a bridge between the concrete and the abstract.
Repeat the process following the suggested sequence: 18, 28, 38, 12, 21, 23, 32, 30, and 40. When appropriate, switch to modeling with Hide Zero cards, and then have students write their responses on their personal white boards. **Use different language to elicit a variety of answers for each number (e.g., 18 is the same as...; 10 plus 8 is...; 8 more than 10 is...; 10 more than 8 is...).**

For the remainder of time, have partners play Combine Tens and Ones using the directions below. **Leave the chart for 37 up on the board as a reference to support students.**

1. Prepare two decks by combining numeral cards 0–9 from both players. The first deck comprises one set of digits 1–3. The rest of the cards are in the second deck.
2. Pick a card from the first deck. This number is placed in the tens place on the place value chart (e.g., 2 is drawn and placed in the tens place).
3. Pick a card from the second deck. This number is placed in the ones place on the place value chart (e.g., 7 is drawn and placed in the ones place).
4. Partners A and B make a number bond decomposing the number into tens and ones.
5. Partner A writes two addition number sentences (e.g., 20 + 7 = 27, 7 + 20 = 27, 27 = 20 + 7, 27 = 7 + 20).
6. Partner B writes a more than statement that combines tens and ones (e.g., 20 more than 7 is 27; 7 more than 20 is 27; 27 is 7 more than 20; 27 is 20 more than 7).
7. Switch roles for the next set of cards drawn.

**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.

**Student Debrief (10 minutes)**

**Lesson Objective:** Write and interpret two-digit numbers as addition sentences that combine tens and ones.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.
Invite students to review their solutions for the Problem Set. 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 Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

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

- How can solving Problem 1 help you solve Problem 2?
- How did you solve Problem 5? Is it easier to start with the ones first or the tens first?
- Look at Problem 15. Explain why the answer is not 23. Write the number in a place value chart. Which digit is in the tens place? Which digit is in the ones place?
- Based on our work today, what do you think the word *digit* means? (Digits are the symbols 0–9 that can be used to create any number. 32 is a two-digit number. The numeral 3 is the digit in the tens place, and the numeral 2 is the digit in the ones place.)
- When you played Combine Tens and Ones, did you ever pick a 0 card? What did you write for your number sentences and number bond?

Look at your Application Problem. Share your thinking with a partner. How many crayons does Lisa have? Write the number of crayons Lisa has using two number sentences, as we did during today’s lesson.

**Exit Ticket (3 minutes) **

*Must Do*

After the Student Debrief, instruct students to complete the Exit Ticket. A review of their work helps 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.

*Could do the Exit Ticket in place of the Problem set if pacing is an issue.*
Lesson 4

Objective: Add and subtract multiples of 10 and some ones within 100.

Suggested Lesson Structure

- Fluency Practice (10 minutes)
- Concept Development (32 minutes)
- Application Problem (8 minutes)
- Student Debrief (10 minutes)
- Total Time (60 minutes)

Fluency Practice (10 minutes)

- Place Value 2.NBT.1 (3 minutes)
- Making a Ten Drill 2.NBT.5 (2 minutes)
- Making the Next Ten to Add 2.NBT.5 (5 minutes)

Place Value (3 minutes)

Note: Reviewing and practicing place value skills in isolation prepares students for success with adding and subtracting tens and ones.

T: (Write 174.) Say the number.
S: 174.
T: What digit is in the tens place?
S: 7.
T: (Underline 7.) What’s the value of the 7?
S: 70.
T: State the value of the 1.
S: 100.
T: State the place of the 4.
S: Ones place.

Repeat for the following possible sequence: 258, 734, 860, and 902.

Making a Ten Drill (2 minutes) **Must Do**

Note: This fluency activity reviews foundations that lead into today’s lesson.

T: (Post 6 + ___ = 10 on the board.) Let’s find the missing part to make ten. If I say 6, you say 4.
S: 4.
T: Number sentence.
S: \(6 + 4 = 10\).
T: Ready? 16.
S: 4.
T: Number sentence.
S: \(16 + 4 = 20\).

Continue with the following possible sequence: 7, 17, 13, 23, 27, 42, 48, and 58.

**Making the Next Ten to Add (5 minutes)**

*MUST DO*

Note: This fluency activity reviews foundations that lead into today’s lesson.

T: When I say \(9 + 4\), you say \(10 + 3\). Ready? \(9 + 4\).
S: \(10 + 3\).
T: Answer.
S: 13.

Continue with the following possible sequence: 19 + 4, 29 + 4, 49 + 4, 79 + 4, 9 + 6, 19 + 6, 29 + 6, 59 + 6, 8 + 3, 18 + 3, 48 + 3, 8 + 5, 18 + 5, 88 + 5, 7 + 6, 17 + 6, 27 + 6, 7 + 4, 17 + 4, and 67 + 4.

**Concept Development (32 minutes)**

Materials: (T) Linking cubes in three colors (S) Personal white board

Show two rows of 5 linking cubes in one color (shown in yellow). Add 3 linking cubes of another color to one row (shown in red).

T: There are 5 yellow cubes. How many linking cubes am I holding in this stick? (Hold up a stick of 8.)
S: 8.
T: How many in this stick? (Show 5.)
S: 5.
T: What is the difference between 8 and 5? (Break off the 3 cubes that represent the difference.)
S: 3.
T: What number sentence could I use to represent the difference between 8 and 5?
S: \(8 - 5 = 3\).
T: (Add one green cube to each stick.)

\[\begin{array}{c}
8 - 5 = 9 - 6 \\
\hline
8 \quad 5 \\
\hline
4 - 1 \quad 8 \\
\hline
\end{array}\]

\[\begin{array}{c}
8 - 5 = ? \\
\hline
5 \quad ? \\
\hline
\end{array}\]
T: Has the difference changed?
S: No. \(\text{Break off the difference again.}\)
T: But what new number sentence can I use to represent the difference between my two sticks?
S: \(9 - 6 = 3.\)
T: The difference is still \(3.\)
S: Yes!
T: \(\text{Draw a two-bar tape diagram to represent the two sets of cubes.}\)
T: I add one more to each bar. \(\text{(Model as shown on the previous page.)}\) Did the difference change?
S: No!
T: Let’s test this idea. When we add the same amount to each number in a subtraction sentence, the difference stays the same.
T: Now let’s try this with a new problem. \(\text{(Write 34 – 28 on the board.)} \)Now that is challenging!
T: Try this one first. \(36 - 30.\)
S: 6.
T: How did you know the answer so fast?
S: Just take away 3 tens \(\rightarrow 3 \text{ tens} - 3 \text{ tens} = 0 \text{ tens, so you know you only have 6 ones left.}\)
T: Yes! Is it easier to subtract just tens!

**Mathematical Language:**

- **Big math idea:** Discussion
- **Notes on multiple means of representation:**
  - Use a ruler to remind students that the length of an object, for example, a pencil, remains the same regardless of where it starts on the ruler.
  - Use a number line to show that age differences do not change when people age. (For example, Mark and Robert are 8 and 6 years old now. How old will they be in 3 years? What will be the difference in their ages?)

**Scaffold:**

Mathematical Language

- **Equivalent and easier:**

**Lesson 4:** Add and subtract multiples of 10 and some ones within 100.
There are 6 red cubes on one end and 4 red on the other end. How many yellows are in the middle?

The total number of cubes is ___?

Let's make 2 different addition sentences. Join the 1 yellow with 4 red. (Point.) What is the addition sentence for the total number of cubes?

6 + 5 = 11.

Now, instead join the 1 yellow with the 6 red.

7 + 4 = 11.

How do you know this is true: 6 + 5 = 7 + 4? (Draw the model.)

Both equal eleven. → It's just the 1 yellow cube moved from one number to the other number. → You can see that the number of cubes didn't change.

Let's use that same idea with larger numbers to make tens.

Let's solve 28 + 36.

(Add another chunk of 2 to the right end of the bar of 28.)

What is 2 less than 36?

(Add the second bar to show the 34.)

Because you used 2 to make 28 into 30. → Because it's easy to add tens, so we put 2 more on 28 to have 3 tens.

How do you know this is true: 28 + 36 = 30 + 34?

The two can go with the 28 or the 34. → It was easy to make 28 to 30 because it is close to the next ten.

We can also show 2 more for 28 with our number bond.

Write the number bond pictured to the right, working interactively with students.

Repeat with the following possible sequence: 19 + 35, 36 + 29, 78 + 24, and 37 + 46.
**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.

If you find that students need additional practice with tape diagrams or number bonds, provide more practice with those models. For example, if students struggle to complete Problem 1, give them more problems where they will add on to the subtrahend to make a multiple of 10.

**Application Problem (8 minutes)**

Carlos bought 61 t-shirts. He gave 29 of them to his friends. How many t-shirts does Carlos have left?

Note: This Application Problem comes after the Concept Development so that students can apply what they have learned about making easy numbers (i.e., a multiple of 10) to subtract. You may choose to lead students through the RDW process or have students work independently and then share their work.

**Student Debrief (10 minutes)**

**Lesson Objective:** Add and subtract multiples of 10 and some ones within 100.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. 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 Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

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

- How did you label your tape diagram in Problem 1, Part (b)? Why?
- Share your tape diagram for Problem 2, Part (b) with a partner. How did you label it to add tens?
- Look at Problem 2, Part (c): 61 + 29 = 60 + 30. Is this true? How do you know?
What other special strategy could you use to solve Parts (a)-(d) of Problem 1? How could you use the arrow way to solve these problems?

What do you notice about the numbers in the Problem Set today?

When is the best time to use the tape diagram to solve? What is the goal in using the tape diagram as a simplifying strategy? **MP.5**

**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.

Could choose to do this exit ticket based on pacing needs.

*In order to meet the depth of the standard students have to decompose a number and make a ten before subtracting.

*In this lesson students are adding the same amount to 2 quantities in order to make an equivalent subtraction expression that is simpler to solve. A common misconception could be that the equivalent expression does not have the same difference or that by changing the expression, the difference changes. This has to be modeled with concrete manipulatives and pictorially.
Co-teaching: Consider using parallel teaching so the students receive the same instruction, but one group uses graph paper and pre-drawn grids while the other uses white boards and draws their own grids.

**Lesson 7**

**Objective:** Interpret area models to form rectangular arrays.

**Suggested Lesson Structure**
- Fluency Practice (12 minutes)
- Application Problem (8 minutes)
- Concept Development (30 minutes)
- Student Debrief (10 minutes)
- Total Time (60 minutes)

**Fluency Practice (12 minutes)**
- Group Counting 3.OA.1 (4 minutes)
- Draw Rectangles 3.MD.5 (4 minutes)
- Draw Rectangular Arrays 3.MD.5 (4 minutes)

**Group Counting (4 minutes)**
Note: Group counting reviews interpreting multiplication as repeated addition.

Instruct students to count forward and backward, occasionally changing the direction of the count.

- Sixes to 60
- Sevens to 70
- Eights to 80
- Nines to 90

**Materials:** (5) Grid paper

**Draw Rectangles (4 minutes)**

Note: This fluency activity reviews drawing a rectangle from a known area. Show student work that is correct but looks different (e.g., a 6 × 2 unit rectangle juxtaposed with a 4 × 3 unit rectangle).

<table>
<thead>
<tr>
<th>T:</th>
<th>Draw a rectangle that has an area of 6 square units.</th>
</tr>
</thead>
<tbody>
<tr>
<td>S:</td>
<td>(Draw a 6-square unit rectangle.)</td>
</tr>
</tbody>
</table>

Continue with the following possible sequence: 10 square units, 12 square units, 16 square units, 24 square units, and 35 square units.

---

**Foundational Skills to Target**
- If students are not able to multiply, I can provide calculation tools so they can still access the content.

Provided exemplar

Could do for additional examples
Draw Rectangular Arrays (4 minutes)

Materials: (S) Grid paper

Note: This fluency activity reviews finding area using side lengths.

T: Draw a 4 x 2 rectangular array using the squares on your grid paper.
T: How many square units are in your array?
S: 8 square units.

Continue with the following possible sequence of rectangular arrays: 6 x 2, 4 x 3, 6 x 3, 9 x 2, 6 x 4, and 3 x 8.

Application Problem (8 minutes)

Lori wants to replace the square tiles on her wall. The square tiles are sold in boxes of 8 square tiles. Lori buys 6 boxes of tiles. Does she have enough to replace all of the tiles, including the tiles under the painting? Explain your answer.

\[ 8 \times 6 = 48 \]
She bought 48 square tiles.

\[ 5 \times 8 = 40 \]
The area of the wall is 40 square tiles.

Yes, Lori will have enough tiles because she only needs 40 tiles, but she bought 48 tiles.

Note: This problem reviews multi-step word problems in the context of using square tiles to measure area. It also reviews finding the area of an incomplete array from Lesson 6.

Concept Development (30 minutes)

Materials: (T) Meter stick, 12-inch ruler, pad of square sticky notes (S) 1 set of square centimeter and square inch tiles per pair (from Lesson 2), personal white board, ruler, area model (Template)

Part 1: Explore the relationship between units and area.

T: One partner will use square inches, and the other will use square centimeters. Work together to decide how to arrange your tiles to make the same shape rectangle. Then, create that rectangle with your pieces.
S: (Decide on a rectangle and represent it using square inches and square centimeters.)

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Lesson 7

Interpret area models to form rectangular arrays.

Students may make the mistake of units and the ability to compare them correctly.

T: You and your partner each made the same shape rectangle. Is the area also the same?
S: We used the same number of pieces, but my pieces are smaller than yours. They are square centimeters, and look, my shape takes up less space on the table. The area of the shape with square inches is bigger because inches are bigger than centimeters.
T: Turn your personal white board horizontally and write the area of your rectangle.
S: (Write either 12 square inches or 12 square centimeters.)
T: (Draw 1 square meter on the board.) This is 1 square meter. Suppose you used 12 square meter tiles to make your rectangle instead. Would this rectangle have a bigger area or a smaller area compared to your original rectangle?
S: It would be much larger!
T: (Draw 1 square foot on the board.) How would your rectangle compare if you made it from 12 square feet?
S: It would be bigger than 12 square inches or centimeters but smaller than 12 square meters.
T: (Hold up a pad of square sticky notes.) How about if you had used 12 sticky notes?
S: Still bigger than 12 square inches or centimeters but smaller than 12 square feet or meters.
T: Why is it important to label the unit when you are talking about area?
S: Because how much area there is changes if the unit is small or big. If you do not know the unit, then you do not really know what the area means. It is just like with length. Twelve of a shorter unit is shorter than 12 of a longer unit.

Part 2: Relate area to multiplication to draw rectangular arrays.

T: Let us draw a rectangular array with an area of 18 square centimeters. How might we find the side lengths?
S: We could use our tiles to make the array and see. If you multiply side lengths, you get area, so we can think about what numbers you can multiply to make 18.
T: Work with your partner to make a list of multiplication facts that equal 18.
S: (Possible list is as follows: $1 \times 18$, $18 \times 1$, $2 \times 9$, $9 \times 2$, $3 \times 6$, and $6 \times 3$.)
T: Let us draw a 3 cm by 6 cm rectangular array. Use a ruler to measure the side lengths on your personal white board. Mark each centimeter with a point and connect the points to draw the square centimeters.
T: After drawing your squares, check your work by skip-counting the rows to find the total number of tiles you drew.
S: (Draw, label, and skip-count tiles in array.)
T: Turn your personal white board so that it is vertical. Does the rectangle still have the same area?
S: Yes.
T: However, the side lengths switched places. Tell your partner how you know the area is the same.
S: The side lengths didn’t change; they just moved. It is the commutative property. We learned before that you can turn an array and it does not change how much is in it. The rows just turn into columns and columns turn into rows.

Provide graph paper for fine motor support
Provide multiplication chart
Vocabulary

Great opportunity to listen for misconceptions

Students may also not be ready to make the transfer from actually creating the array to an area model.
Part 3: Interpret area models to find area.

T: The grid you drew inside of your 3 cm by 6 cm rectangle shows a picture of all the tiles that make up the area. Carefully erase the grid lines in your rectangle. (Pause.) The empty rectangle with labeled side lengths left is called an area model. How can you find the total area just using the labeled side lengths?

S: I can multiply! \( \rightarrow \) I can multiply the side lengths, 3 cm and 6 cm, to get the area, 18 square cm.

T: (Project or draw the area model on the right.) What is the total area of my pictured rectangle?

S: 18 square cm.

T: Tell your partner how you figured out the area.

S: It is easy. One side length is 18 and the other is 1. \( 18 \times 1 = 18 \). The labels tell you the unit is centimeters, so the area is square centimeters.

T: (Pass out the area model template.) Slip the area model into your personal white board. Use your ruler to measure the side lengths of one of the squares on the grid. (Allow students time to measure.) What unit makes up this grid?

S: Square inches!

T: The side lengths of this area model are not labeled. Let us draw a grid inside it to help find the side lengths. Earlier, we drew a grid inside a rectangle by marking each unit with a point and using a ruler to connect the points. Do we need to draw points on the area model to draw a grid inside of it?

S: No, we can just use the grid lines. \( \rightarrow \) No, the lines on the grid can act as points because the area model is lined up with the grid.

T: Use your ruler and the lines on the grid to draw squares inside of the area model. (Allow students time to work.) What size are the units inside the area model?

S: Square inches. \( \rightarrow \) They are square inches because we used the square inch grid paper to help draw the squares.

T: Find and label the side lengths, and then write an equation to find the area.

S: (Label the side lengths as 4 in and 2 in, and write \( 2 \times 4 = 8 \) or \( 4 \times 2 = 8 \).)

T: What is the area?

S: 8 square inches

Could Do - focuses more on determining units
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.

Student Debrief (10 minutes)

Lesson Objective: Interpret area models to form rectangular arrays.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. 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 Debrief. Guide students in a conversation to de brief the Problem Set and process the lesson.

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

- What was your strategy for finding the total number of squares in Problem 2(c)?
- Invite students who drew arrays that demonstrate commutativity for Problem 4(a) (possibly 4 x 6 and 6 x 4) to share their work. Guide students to articulate understanding that commutativity still applies in the context of area.
- For Problem 4(b), most students answered that Mrs. Barnes' array probably had 24 squares. Is there another answer that makes sense? (For example, 12, 48, 72.)
- Compare the area model to the array. How are they the same and different? (Guide discussion to include the commutativity of both models.)

NOTES ON
MULTIPLE MEANS
FOR ACTION AND
EXPRESSION:
Consider offering the following adaptations to the Problem Set:
- Prompt students to approach Rectangle E first. Offer practice with 1 by n rectangles to build fluency and confidence.
- Remove side lengths to encourage closer investigation.
- Challenge students to devise an alternate method for finding the area of Benjamin's bedroom floor.

Students can cover graph paper with tiles or cubes to make this 3D

Data Collection- Focus on collecting work samples from students with area/geometry/multiplication IEP goals

If students use counting, reiterate that, while that strategy is not wrong, it is not the most efficient strategy.

Edit the problem set using the Word document of the lesson from engageny.com (see exemplar on Canvas).
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.

**Problem Set**

The problem set is designed so that students are able to conceptually see the area of the bedroom or mural so that if they need to fall back on counting rows and columns that support is there. Although question #4 truly allows students to actually construct and model their thinking so that the teacher knows if they are able to apply the math to a real world problem.

**Lesson 7:** Interpret area models to form rectangular arrays.

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G-MG-1(3): 13.0.03.2011
Lesson 7
Interpret area models to form rectangular arrays.

1. Find and label the side lengths. Then, multiply the side lengths to find the area.

   a. Area F: __2__ units \times __4__ units = _8_ square units
   b. Area E: ___ unit \times ____ units = ____ square units
   c. Area A: ____ units \times ____ units = ____ square units
   d. Area B: ____ units \times ____ units = ____ square units

Commented [WM(1)]:
- Reduce the number of shapes
- Eliminate the need to draw a grid for students with fine motor challenges

Commented [WM(2)]:
- Provide an exemplar
- These 4 problems could be Must Dos and the rest in this section could be Could Dos
- Have students start with problem E
Lesson 7 Exit Ticket

2. The area of Benjamin’s bedroom floor is shown on the grid to the right in red. Each □ represents 1 square foot. How many total square feet is Benjamin’s floor?
   a. Label the side lengths.
   b. Find the total number of squares.

3. Mrs. Young’s art class needs to create a mural that covers exactly 35 square feet. Mrs. Young marks the area in red for the mural as shown on the grid. Each □ represents 1 square foot. Did she mark the area correctly? Explain your answer.
   Ms. Young was right/wrong because ________________________________________________________________
   ____________________________________________________________________________________________
   ____________________________________________________________________________________________

   Commented [WM(3)]:
   - Provide lines where students can write the labels
   - Eliminate the need to draw a grid for students with fine motor challenges

   Commented [WM(4)]:
   - Eliminate the need to draw a grid for students with fine motor challenges

   Commented [WM(5)]:
   - Provide a sentence stem and lines for students to write their answer

   Name ___________________________________________ Date __________________________

1. Label the side lengths of Rectangle A on the grid below. Use a straight edge to draw a grid of equal size squares within Rectangle A. Find the total area of Rectangle A.

   Commented [WM]:
   - Provide lines where students can write the labels
   - Eliminate the need to draw a grid for students with fine motor challenges

   Area: ________ square units
Lesson 7 Exit Ticket

Lesson 7: Interpret area models to form rectangular arrays.
Lesson 7 Homework

1. Find the area of each rectangular array. Label the side lengths of the matching area model, and write a multiplication equation for each area model.

<table>
<thead>
<tr>
<th>Rectangular Arrays</th>
<th>Area Models</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Array A" /></td>
<td>2 units</td>
</tr>
<tr>
<td><img src="image" alt="Array B" /></td>
<td>3 units × _____ units = _____ square units</td>
</tr>
<tr>
<td><img src="image" alt="Array C" /></td>
<td>_____ units × _____ units = _____ square units</td>
</tr>
<tr>
<td><img src="image" alt="Array D" /></td>
<td>_____ units × _____ units = _____ square units</td>
</tr>
</tbody>
</table>

Name __________________________ Date __________________

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This file derived from G3-M4-TE-1.3.0-06.2015

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Lesson 7: Interpret area models to form rectangular arrays.
LEAP Math Module 3, Seminars 3-5 are designed to be flexible in implementation, according to teacher needs. Consider the following scenarios:

- If teachers in a particular grade level have a series of multiple lessons covering the same set of standards, it might not make sense for them to continue to annotate **Phase One: Standards.** More time should be spent on the other phases on the lesson preparation guide.

- If teachers are less familiar with CCSS standards, it may make more sense for them to just work on **Phase One: Standards** and **Phase Two: Mathematics of the Lesson**, and as the LEAP Leader, you could adjust the seminar time accordingly.

LEAP Teams most often consist of teachers of various experience and comfort levels with CCSS mathematics. Keep this in mind when deciding which phases to focus on as a team and in what order, and consider the option to have small groups of teachers focused on various parts of the Lesson Preparation Guide during the planning and application time. There are multiple options for all teachers’ needs to be met depending on the readiness of your LEAP Team. Over time, all teachers should consider all three phases of the Lesson Preparation Guide as they are preparing to teach each lesson, as these are all necessary components of ensuring a well-planned lesson.

As a reminder, to assist LEAP Leaders in facilitation, exemplar lesson annotations (completed versions of the Lesson Preparation guide) have been provided on Canvas for each grade level. These exemplars are intended to be shared with teachers as an example or resource, but they should not be used as a replacement for teachers completing the Lesson Preparation Guide process themselves. In Canvas you will also find a companion Lesson Preparation Guide that has been specifically developed for special education teachers. This version is identical to the original guide but includes additional questions that have been differentiated to meet the needs of special education teachers. Furthermore, there are three exemplar lesson annotations (for the 3rd grade, 8th grade, and geometry lessons) that contain additional annotations specifically for special education teachers.
It is important to note that LEAP Leaders have flexibility when sequencing LEAP Seminars 2-5 in Math Module 3. These four seminars focus on lesson internalization using the Lesson Preparation Guide. LEAP Leaders should decide how to sequence LEAP Module 3, Seminar 1 (Eureka Module Internalization) and LEAP Module 3, Seminar 6 (Looking at Student Work) in relationship to LEAP Module 3, Seminars 2-5 (Lesson Internalization and Annotation) in an order that best matches each LEAP Team’s pacing. In other words, the seminars in LEAP Module 3 do not need to be facilitated in order from seminar 1 to seminar 6. For example, if the majority of the teachers on a LEAP team will not begin a new Eureka module for several weeks, it might make sense to begin with seminars 2-5 (lesson internalization using the Lesson Preparation Guide) and facilitate seminar 1 (module internalization) and seminar 6 (looking at student work) during subsequent LEAP Seminars. Lastly, an optional Lesson Practice Protocol can be found for this seminar. This practice protocol is designed to assist LEAP teams with rehearsing upcoming Eureka lessons together.

<table>
<thead>
<tr>
<th>Objective(s)</th>
<th>Outcome(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers will be able to...</td>
<td>The task(s) that teachers will complete...</td>
</tr>
<tr>
<td>• Leverage tools to dive deep into the standards and content covered in an upcoming Eureka lesson.</td>
<td>• Teachers will prepare for an upcoming lesson through lesson annotations on the standards, lesson content, and by customizing the lesson.</td>
</tr>
<tr>
<td>• Identify or create opportunities for student thinking that allow learners to access the mathematical practices in an upcoming Eureka lesson.</td>
<td>• OPTIONAL: Teachers will be able to practice and reflect upon a prioritized piece of an upcoming lesson. (If using the Lesson Practice Protocol.)</td>
</tr>
<tr>
<td>• OPTIONAL: Identify at least one concrete strategy to improve their instruction based on their lesson practice and feedback. (If using the Lesson Practice Protocol.)</td>
<td></td>
</tr>
</tbody>
</table>

### Essential Practices Connection

**Essentials Practice 2: Challenge Students with Rigorous Content**

In seminars 2-5, teachers will dive deep into the CCSS for Mathematics. In order to ensure that the content provided during instruction is rigorous for students, teachers must first internalize the standards and deepen their own understanding of mathematical concepts. Through lesson annotation and the use of the Lesson Preparation Guide, teachers will consider the three Shifts required by the CCSS for Mathematics as they plan for each Eureka lesson.

#### Mathematics

This practice aligns with Instructional Practice Guide (IPG) Core Action 1: Ensure the work of the lesson reflects the Shifts required by the CCSS for Mathematics.

For example, mathematics content:

- Extends previous learning by making connections with mathematics content, methods, and models from previous grades
- Intentionally targets the aspect(s) of rigor (conceptual understanding, procedural skill and fluency, applications) called for by the standard(s) being addressed
- Focuses on and promotes a depth of understanding of content in these domains (grades):
  - Numbers and operations (in base 10 (1-5))
  - Numbers and operations – Fractions (3-6)
  - The number system (6-8)
  - Number and quantity (HS)
  - Measurement and data (1-8)
  - Geometry (1-8)
  - Statistics and probability (6-8)
  - Operations and algebraic thinking (1-5)
  - Expressions and equations (6-8)
  - Ratios and proportional relationships (6-7)
  - Functions (9-12)
  - Algebra (HS)
  - Modeling (HS)
Essential Practice 3: Leading a Well-Planned, Purposeful Learning Experience

In seminars 2-5, teachers will work to internalize, customize, and enhance Eureka lesson plans in order to meet the needs of all learners. As a part of the Lesson Preparation Guide, teachers are asked to consider common misconceptions and how to respond to them, opportunities to check for understanding, how to foster the Standards for Mathematical Practice, and what gaps in learning currently exist in order to address them and ensure all students are able to access the content of the lesson.

Mathematics

This practice aligns with Instructional Practice Guide (IPG) Core Action 2: Employ instructional practices that allow all students to learn the content of the lesson.

Criteria for Success

The criteria by which we know the seminar learning/activities are successful...

Standards:
- Identify the portion of the grade level standard(s) targeted by the lesson.
- Identify the correct aspect(s) of rigor targeted in the lesson.
- Make connections to prior lessons, future lessons, and PARCC (if applicable).

Mathematics of the Lesson:
- Identify the key mathematical idea or concept.
- Analyze grade level problems.
- Identify key mathematical vocabulary.
- Anticipate common student misconceptions.

Bridge to Practice - Customizing the Lesson:
- Identify in Eureka or create strong opportunities to develop student mathematical practices aligned to the lesson.
- Identify in Eureka or create checks for understanding and discussion questions.
- Adjust pacing to meet the needs of students.
- Select “must-do” and “could-do” problems.

Pre-Work

LEAP Leader:
- Thoroughly read through the Lesson Preparation Guide and practice it on one of your upcoming lessons.
- Compare your annotations with the exemplar for your grade level.

LEAP Participants:
- Bring an upcoming Eureka Lesson Plan.
- Bring the Lesson Preparation Guide.
- Special Education Teachers should bring both the general Lesson Preparation Guide and the Lesson Preparation Guide for Special Education Teachers.
• Decide which section(s) of the Lesson Preparation Guide to focus on based on prior seminar content and the needs of your LEAP Team.
• Identify a teacher to highlight that is changing his/her practice due to the support of LEAP Leaders in order to recognize him/her in the shout-out part of the seminar.
• Decide which content resource you will use with your LEAP Team during the content portion of the seminar. These resources might change each week, depending on the focus of that week’s seminar. Suggested content resources include:
  1) Search and preview possible Great Minds Videos aligned to upcoming lesson(s).
  2) Watch Graham Fletcher video.
  3) Read through UnboundEd CC/OA guides for Grades KG, 1, and 2.
  4) Read the content Progressions start on page 22.

Collaborating for Equity & Opportunities for Differentiation: LEAP Seminars are an opportunity for all educators, across all specialization areas (literacy, language acquisition, special education, etc.) to plan instruction that raises the achievement for all learners. We encourage collaborative planning and shared ownership of student outcomes. Seminar plans will provide prompts with specific opportunities to differentiate instruction using Universal Design for Learning and Co-teaching Models based on content goals and anticipated student needs.

Universal Design for Learning (UDL): UDL is a research-based framework that addresses learner diversity and provides educators with instructional practices to ensure all individuals are provided equal opportunities to learn. The UDL framework is grounded in three principles: Multiple means of representation – using a variety of methods to present information, provide a range of means to support; Multiple means of action and expression – providing learners with alternative ways to act skillfully and demonstrate what they know; Multiple means of engagement – tapping into learners’ interests by offering choices of content and tools; motivating learners by offering adjustable levels of challenge.

Co-teaching for Student Success (COT): Co-teaching is two or more professionals delivering substantive instruction to a diverse group of students in a single physical space (Friend, 2016). Both educators on the co-teaching team are responsible for differentiating the instructional planning and delivery, assessment of student achievement, and classroom management. Five collaborative teaching approaches have proven to be successful to guide educators who work together in co-teaching partnerships to differentiate instruction; One-Lead/One-Support; Teaming; Alternative Teaching; Station Teaching, and Parallel Teaching.

<table>
<thead>
<tr>
<th>Time</th>
<th>Facilitator Notes</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 min (slide 2)</td>
<td>Norms: “Let’s check in on the norms we established. Turn to a partner and discuss which norm you would like to focus on during our meeting today. Share how they can help to hold you accountable.” Clearly set expectations that participants should bring their next upcoming Eureka lesson plan to annotate for the next ___ seminars. (Note that the</td>
<td>Table Tent Norms</td>
</tr>
</tbody>
</table>
number depends on the order of the seminars that have been decided by the LEAP leader).

Objectives and Agenda
Share the objectives and agenda for today with participants.

Objectives:
- Leverage tools to take a deep dive into the standards and content covered in an upcoming Eureka lesson.
- Identify or create opportunities for student engagement that allow learners to access the mathematical practices in an upcoming Eureka lesson.
- OPTIONAL (If using the Lesson Practice Protocol): Identify at least one concrete strategy to improve their instruction based on their lesson practice and feedback.

Sample Agenda:
- Review norms and SHOUT-OUTS
- Agenda and objectives
- Upcoming Content Exploration
- Lesson Internalization Process
- Lesson Preparation Guide Phase One: Standards
- Lesson Preparation Guide Phase Two: Mathematics of the Lesson
- Lesson Preparation Guide Phase Three: Bridge to Practice - Customizing the Lesson
- Summary of learning

Shout-out: Highlight a teacher on the LEAP Team who has truly changed his/her instructional practice this school year. Perhaps, you choose him/her because of his/her commitment to reflection and refinement, noticeable improvement in classroom practice, or ability to use the resources and tools provided during LEAP Seminars to increase student learning. Be sure to highlight the specific impact on student learning. After sharing your shout-out, invite anyone else to share a shout-out for someone present.

Example: “I would like to give a SHOUT-OUT to (teacher’s name) for digging into the mathematics last seminar and giving specific feedback on my annotated lesson plan. She also and gave me example discussion questions that I could ask my students to move their learning forward. Thank you for being such an asset to this team! Would anyone else like to shout out someone on our LEAP Team today?”

Alternative Activity to Shout-Outs: Revisit commitments and action items from the last LEAP Seminar. Give each teacher a moment to share how they applied their commitments from the last seminar. Offer teachers and opportunities to share shout-outs for each other or make requests for help and thought partnership from the team.

(Optional) Essential Practices Connection
<table>
<thead>
<tr>
<th>(slide 5)</th>
<th>“Today’s seminar connects to Essential Practices 2 and 3.” Show the slide that has the EP connections on it, and allow teachers to read.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10 min</strong></td>
<td><strong>Upcoming Content Exploration</strong></td>
</tr>
<tr>
<td>(slide 6)</td>
<td>During each Lesson Annotation Seminar, LEAP teams will have an opportunity to build content knowledge aligned to the upcoming Eureka lessons. The activities below have been chosen based on the DCPS pacing guide and the lessons designated for K-2 LEAP Team. These are meant to be short (10 minute) activities that can be revisited each week to gradually deepen the content knowledge of teachers.</td>
</tr>
<tr>
<td></td>
<td>LEAP Leaders will need to make a choice on what activities to follow for the next four seminars. A suggested order for the resources has been given below; however, LEAP Leaders may decide to focus on one resource, such as the Great Minds Videos, over the span of the four week - depending on the needs of the LEAP Team.</td>
</tr>
<tr>
<td></td>
<td><strong>Option One: Leverage Great Minds Videos</strong></td>
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<tr>
<td></td>
<td>• Watch Great Minds Videos.</td>
</tr>
<tr>
<td></td>
<td><em>Why this option?</em> Using the videos provided by Great Minds, LEAP Leaders may choose to have their teachers watch video clips of upcoming lessons. This is particularly helpful for teachers who need to grow more confident in the content of their own lessons. LEAP teams can watch the same lessons and debrief the lesson content together or they can use headphones to watch differentiated lessons based on their upcoming instruction. This activity can be repeated for each mini lesson on mathematics for seminars 2-5.</td>
</tr>
<tr>
<td></td>
<td><strong>Option Two: Study New Content Resources</strong></td>
</tr>
<tr>
<td></td>
<td>• Watch Graham Fletcher video.</td>
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<td></td>
<td>• Read through UnboundEd Counting and Cardinality for KG and Operations and Algebraic Thinking for Grades 1 and 2.</td>
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<tr>
<td></td>
<td>• Read through the Common Core Progressions (K-5 Operations and Algebraic Thinking and/or K-5 Number and Operations in Base Ten) for specific grade levels K, 1, or 2.</td>
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<tr>
<td></td>
<td><em>Why this option?</em> Each of these videos and articles will deepen teachers’ knowledge of the standards. These resources are powerful in building teachers’ understanding of coherence and how the mathematics connects across grade levels. This can help teams discuss vertical alignment and engage in shared conversations about the mathematics.</td>
</tr>
<tr>
<td></td>
<td><strong>Option Three: Revisit Content Resources from LEAP Module 1 and 2</strong></td>
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<tr>
<td></td>
<td>• Read the relevant pages on the standards from The Common Core Companion (Grades K-8 Only).</td>
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<tr>
<td></td>
<td>• Engage with the Coherence Map and PARCC aligned assessment tasks.</td>
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</tbody>
</table>
**Why this option?** These tools will help teachers deepen their knowledge of grade level standards and problems. Teachers can use these tools to develop their understanding of what students and teachers should do in the teaching of the grade level standards and how these expectations are assessed. *The Common Core Companion* can also be a useful resource in helping teachers identify and plan for common student misconceptions for each standard.

Say: “Today we are going to start our seminar with a quick exploration of some of the upcoming content for our grade level. You will have the opportunity to engage in watching a video on the conceptual understanding of addition and subtraction through the Graham Fletcher Making Sense Series or Great Minds video on array and area model. Or you will have the opportunity to read guidance documents like UnboundEd or the Progressions documents. Or you will have the opportunity to look at sample tasks aligned to the standards on Achieve the Core Coherence Map, PARCC aligned assessment tasks, or through the Common Core Companion Book.”

**Lesson Internalization**

**Facilitator note:** This framing is similar as the framing included in seminar 2 as a reminder for teachers as they continue to engage in this process.

Say “As in seminar 2, today we’re going to focus on lesson internalization. We are repeating this process to build our habits for planning and lesson internalization. This will also allow us each to do real planning and preparation during our time together. Once again, we will use the Lesson Preparation Guide. This guide was developed based on tools created by Student Achievement Partners, the organization founded by the Common Core authors, as well as the experiences of DCPS teachers and staff. As we have always done, we’re going to begin by taking the exit ticket and the problem set in order to develop our own understanding of the lesson content. After that, we are going to read the topic overview and compare the student outcomes and the exit ticket.”

**Facilitator note:** LEAP leaders should circulate during this time and check with grade level teams as complete these steps. If there are important
realizations, LEAP leaders should pause for a whole group discussion. Due to pacing, it is not always necessary to facilitate a whole group discussion, particularly if the grade levels are annotating different lessons whose content is not connected.

<table>
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<th>50 min</th>
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**Lesson Preparation Guide**

**Facilitator note:** This framing is the same as the framing included in seminar 2 as a reminder for teachers as they continue to engage in this process. Depending on which phase you decided to focus on with your LEAP Team, adjust the times accordingly.

“After completing steps 1 and 2 of the Lesson Internalization process, we’re ready to move on to step 3 – which involves the Lesson Preparation Guide. Using the Lesson Preparation Guide on an upcoming Eureka lesson will provide planning time dedicated to understanding the concept development piece for students to access the key mathematics of the lesson.”

“We are going to engage in this process together in grade level teams, by thinking aloud, asking questions, and listening to one another for ideas.”

**LESSON INTERNALIZATION**

1. Complete and correct the Exit Ticket and Problem Set. Record your questions and connections to other content.
2. Read the Topic Overview and Student Outcome(s), and then compare the Student Outcome(s) to the Exit Ticket.
3. Read and annotate the lesson using the Lesson Preparation Guide located on the other side, accessing the following resources as needed:
   - Lesson Video Gallery from Great Minds
   - The Common Core Companion
   - PARCC Released Problems
   - Coherence Map on Achieve the Core

“This process is intended to be flexible and helpful for you. To that end, consider what will be the most effective way for you to annotate your lessons. Some possible options include: creating a blank template to record your reflections, annotating directly on a hard copy version of the lesson plan, or using computer-based highlighting and comments to make annotations directly to the lesson file. Consider what will work best for you!”

“There is also an example of an annotated lesson plan for each grade level, as well as a special education lesson annotation example, that we will reference as we complete this process on Canvas. It is not the exact current lesson you are using, but a lesson that is most likely coming up. You can compare your completed annotations with these examples and see if you have any further noticings.”
Phase One: Standards

Say: “Please take 10 minutes to annotate Phase One: Standards. By beginning with the standards, we can determine the depth of understanding that our students need to achieve. We can better understand whether we should teach in a way that emphasizes procedural skill or in a way that emphasizes conceptual understanding on application, and we have a stronger understanding of how the mathematics of this lesson connects to what came before and with is yet to come. Helpful resources for this section include: the Eureka Topic Overview, Coherence Map, and any relevant PARCC items. Consider the following questions:”

- What standard(s) am I targeting in this lesson? (You can pull this information from the Module Overview)
- Based on the Foundational Standards, what are the pre-requisite skills and knowledge? How does this work connect to future work in the grade? (You can pull this information from the Topic Overview or the Coherence Map)
- Which aspect(s) of rigor do the targeted standards require? (Conceptual, procedural/skill fluency, application)
- Special Education Teachers (SETs): Which of my students’ IEP goals align with these standards and should be targeted during the lesson?

Please note the followings exemplar samples of annotated lessons have been provided and are located on Canvas:

- KG Module 4, Lesson 4
- Grade 1 Module 4, Lesson 4
- Grade 2 Module, Lesson 4
- Companion version with special education exemplar annotations – Grade 3 Module 4, Lesson 7
Information in the following grey box may provide additional information about the math content of these 3 Modules.

**Kindergarten:**
Targeted standards for the lessons in topics A, B and C are all from the Operations and Algebraic Thinking Domain. K.OA.1 and K.OA.3 require conceptual understanding standards and K.OA.5 calls for fluency. K.OA.5 connects to the work done in daily fluency activities throughout the entire school year. Fluency is developed when students have a solid conceptual understanding, which links to decomposing numbers first (K.OA.2).
Kindergarten Module 4 links to addition and subtraction work that students will do in first grade in Grade 1, Modules 1 and 2. It could be helpful to read the overviews for these 2 first grade Modules to see coherence to upcoming work. All the work in this Module builds upon Grade 1, Module 2’s work with place value within 20, now focusing on the role of place value in the addition and subtraction of numbers to 40. It might be helpful to review the overview of Module 2 to see where the work links to Module 4.

**Grade 1:**
Targeted standards for the lessons in topics A, B and C are all from the Number and Operations in Base Ten Domain. 1.NBT.2, 1.NBT.3, 1.NBT.4 and 1.NBT.6 require conceptual understanding and 1.NBT.1 and 1.NBT.5 call for fluency. 1.NBT.1 requires counting, reading, and writing numbers to 120. The remaining parts of this cluster (extending the counting sequence) is addressed in Grade 1, Module 2. Fluency with counting is developed when students have a solid conceptual understanding of cardinality. In Kindergarten, students developing an understanding of the relationship between numbers and quantities, connecting counting to cardinality (K.CC.B.4). 1.NBT.5 requires mentally finding 10 more and 10 less.

**Grade 2:**
Targeted standards for the lessons in topics A and B are all from the Number and Operations in Base Ten Domain. 2.NBT.7 and 2.NBT.9 both call for conceptual understanding and 2.NBT.8 calls for fluency using mental math for adding (10 or 100 to a given number 100-900) and subtracting (10 or 100 from a given number 100-900). Students are able to develop this fluency when they have a solid conceptual understanding of place value, specifically that the three digits of a three-digit number represent amounts of hundreds, tens, and ones (2.NBT.1). The Grade 1, Module 6 links to work students did before the work in topics A and B. It could be helpful to read the overview to this first-grade Module to see what work students should have done previously to support this current work. The remaining standards in this cluster (Use place value understanding and properties of operations to add and subtract) is addressed in Grade 2, Modules 1 and 4.

“Now that you have finished annotating an upcoming lesson for **Phase One** on standards, turn and talk with your grade level group and discuss your noticings.”

**Phase Two: Mathematics of the Lesson**
“**Now we are going to engage in the key mathematics of the lesson annotation so we can see how the content is being taught to accomplish the depth of the standards addressed in this lesson. Helpful resources as you complete this section will be: lesson Exit Ticket, Common Core Companion, and the Progressions document.**”

“Please take 20 minutes to annotate **Phase Two** of your lesson answering the following questions.”
• What did I learn about the math from the lesson by doing the exit ticket? *(Eureka exit ticket)*
• What is the key mathematical idea or concept from this lesson? *(Eureka lesson, Coherence Map, or Common Core Companion book)*
• What mathematical language should students use in this lesson? *(Key terminology is in the Module Overview as well as bolded in the lesson)*

What common misconceptions related to this topic do I anticipate will arise? *(You can use your Common Core Companion book to find common misconceptions)*
• **SETs:** What information/vocabulary do I need to front load so my students can access the lesson?
• **SETs:** How can I explain this concept in more than one way (visually, auditorily, and/or kinesthetically)?

**General Guidance:**
What teachers learn from doing the exit ticket will vary widely based on teachers’ previous content knowledge.

Key mathematical idea or concept from the lessons will also vary based on the lesson teachers are annotating.

Some common themes will be addition and subtraction or composing and decomposing numbers for kindergarten. It is very important to note that although students will be modeling math with story situations, number bonds, and equations, these are not the concepts and/or mathematical ideas.

For first and second grade, mathematical ideas or concepts will be about place value understanding, addition and subtraction, and possible comparing quantities.

Mathematical Language could include: addition, subtraction, minus, put together, number pairs, number bond, part, whole, subtraction, take apart, whole, addend, compose, decompose, difference, equation, number sentences, difference, greater than, less than, place value, tens, ones

Common misconception will also vary widely depending on the lesson being annotated. It will be important to use the Common Core Companion for misconceptions related to each individual standard.

“Now that you have finished annotating an upcoming lesson for phase two on lesson content, turn and talk with your grade level group and discuss your noticings.”

**Phase Three: Bridge to Practice – Customizing the Lesson**
“The final annotation phase 3 on customizing the lesson is where you use your expertise to make this lesson engaging for all learners. Take the next 20 minutes to answer the following questions, thinking about how you will meet the needs of all your learners. Helpful resources for this section include: your colleagues, pacing calendars, and student data. You may also consider revisiting resources from Module 2, Seminars 5-8 on scaffolding the content of Eureka Lessons.”
- Which must-do question(s) and problems assess the key mathematics of this lesson?
- Which could-do question(s) and problem(s) can be used to extend students’ thinking?
- How will I adjust the pacing of the lesson?
- What strategies and opportunities will I use to check for understanding throughout the lesson?
- How will I develop student thinking aligned to the Standards for Mathematical Practice?
- What learning gaps do I anticipate and how will I teach those skills (e.g. mini lessons, stations, etc.)?
- What barriers to learning do I anticipate, and how will I provide multiple opportunities to learn (e.g. technology, cooperative learning, manipulatives, etc.)?
- **SETs**: What accommodations do my students need to access this lesson?
- **SETs**: How will I support my students during this lesson? If am co-teaching, what co-teaching method will we use?

Teachers’ discussions will vary widely depending on the lessons being annotated. Some key places to look for support are in the concept development part of the lesson, are mathematical practices highlighted on the left of the scripting? Questions teachers will ask as well as problems they will choose to use should be highlighted. Suggestions for scaffolding should be highlighted and used if appropriate from the green boxes titled ‘Notes on Multiple Means’ on the right side of the concept development scripting.

“Now that you have finished annotating an upcoming lesson for phase three on customizing a lesson, turn and talk with your grade level group and discuss your noticings.”

**Summary of Learning:**
In the last five minutes of the meeting, have the group discusses the three Summary Questions.

<table>
<thead>
<tr>
<th>SUMMARY QUESTIONS</th>
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<tbody>
<tr>
<td>Before teaching, ensure that you are clear on these three summary questions.</td>
</tr>
<tr>
<td>In your own words, what are the key mathematics that you want students to understand from this lesson?</td>
</tr>
<tr>
<td>How will you ensure that all learners will be able to access the mathematics (e.g. adjustments in pacing, grouping, and explanations to address potential misconceptions and learning gaps)?</td>
</tr>
<tr>
<td>How will you know that students have mastered the content?</td>
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</tbody>
</table>

You should be able to answer these questions after the lesson internalization process. They are the forest rather than the trees. They help us check to see if we are really ready to teach.

**Seminar Feedback:**
- What went well today?
- What could have been even better?
**Optional) Commitments for the Next Seminar:**

- What action steps will each LEAP Leader take before the next Seminar? Publicly record these and follow up on these actions at the beginning of the next Seminar.
- In addition, **all teachers should make sure to bring an upcoming Eureka lesson plan and your annotating supplies.**
Module 3, Seminars 3-5: Lesson Internalization & Annotation

How do I annotate and prepare to teach a Eureka lesson so I am meeting the key mathematics of the standards?

Grade Band: K-2
Revisiting Our Norms
Objectives:

- Leverage tools to take a deep dive into the standards and content covered in an upcoming Eureka lesson.
- Identify or create opportunities for student engagement that allow learners to access the mathematical practices in an upcoming Eureka lesson.
- OPTIONAL: Identify at least one concrete strategy to improve their instruction based on their lesson practice and feedback.

Agenda:

- Upcoming Content Exploration
- Lesson Internalization Process
- Lesson Preparation Guide Phase One: Standards
- Lesson Preparation Guide Phase Two: Mathematics of the Lesson
- Lesson Preparation Guide Phase Three: Bridge to Practice - Customizing the Lesson
- Summary of learning
GIVE YOUR TEACHER A
#TEACHERSHOUTOUT
Essential Practices Connection

Essentials Practice 2: Challenge Students with Rigorous Content

In seminars 2-5, teachers will dive deep into the CCSS for Mathematics. In order to ensure that the content provided during instruction is rigorous for students, teachers must first internalize the standards and deepen their own understanding of mathematical concepts. Through lesson annotation and the use of the Lesson Preparation Guide, teachers will consider the three Shifts required by the CCSS for Mathematics as they plan for each Eureka lesson.

Mathematics

This practice aligns with Instructional Practice Guide (IPG) Core Action 1: Ensure the work of the lesson reflects the Shifts required by the CCSS for Mathematics.

For example, mathematics content:

- Extends previous learning by making connections with mathematics content, methods, and models from previous grades
- Intentionally targets the aspect(s) of rigor (conceptual understanding, procedural skill and fluency, application) called for by the standard(s) being addressed
- Focuses on and promotes a depth of understanding of content in these domains (grades):
  - Numbers and operations in base 10 (1-5)
  - Numbers and operations – Fractions (3-5)
  - The number system (6-8)
  - Number and quantity (HS)
  - Measurement and data (1-HS)
  - Geometry (1-HS)
  - Statistics and probability (6-HS)
  - Operations and algebraic thinking (1-5)
  - Expressions and equations (6-8)
  - Ratios and proportional relationships (6-7)
  - Functions (8-HS)
  - Algebra (HS)
  - Modeling (HS)

For example, the learning experience:

- Includes explanations, representations, and/or examples to make the content of the lesson explicit
- Includes opportunities for students to share, discuss, and justify their mathematical reasoning through discourse
- Supports and promotes variation in solution methods to strengthen students’ understanding of the content and mathematical structures

For example, grade 1-5 learning experiences include tasks and activities that:

- Develop students’ number sense and fluency with basic operations
- Build foundational algebraic thinking skills
- Develop students’ conceptual understanding of foundational mathematics concepts
- Orient students to understanding and manipulating data
- Have students apply understanding of geometric properties
- Familiarize students with the structural elements of equations

For example, grade 6-12 learning experiences include tasks and activities that:

- Have students apply previous understandings of basic operations to increasingly complex mathematical scenarios
- Require solving real world problems using, or by developing, expressions, equations, or functions
- Generate sophisticated inferences about, and from, data
- Feature the Integration of algebraic and geometric concepts
- Have students manipulate both irrational and rational numbers
- Leverage mathematical reasoning to build statistical models and evaluate probability

Essential Practice 3: Leading a Well-Planned, Purposeful Learning Experience

In seminars 2-5, teachers will work to internalize, customize, and enhance Eureka lesson plans in order to meet the needs of all learners. As a part of the Lesson Preparation Guide, teachers are asked to consider common misconceptions and how to respond to them, opportunities to check for understanding, how to foster the Standards for Mathematical Practice, and what gaps in learning currently exist in order to address them and ensure all students are able to access the content of the lesson.
Mini-lesson Concept Development
Lesson Internalization

**LESSON INTERNALIZATION**

1. Complete and correct the Exit Ticket and Problem Set. Record your questions and connections to other content.

2. Read the Topic Overview and Student Outcome(s), and then compare the Student Outcome(s) to the Exit Ticket.

3. Read and annotate the lesson using the Lesson Preparation Guide located on the other side, accessing the following resources as needed:
   - Lesson Video Gallery from Great Minds
   - The Common Core Companion
   - PARCC Released Problems
   - Coherence Map on Achieve the Core
**LESSON INTERNALIZATION**

1. Complete and correct the Exit Ticket and Problem Set. Record your questions and connections to other content.

2. Read the Topic Overview and Student Outcome(s), and then compare the Student Outcome(s) to the Exit Ticket.

3. Read and annotate the lesson using the Lesson Preparation Guide located on the other side, accessing the following resources as needed:
   - Lesson Video Gallery from Great Minds
   - The Common Core Companion
   - PARCC Released Problems
   - Coherence Map on Achieve the Core
STANDARDS

TOOLS: TOPIC OVERVIEW, COHERENCE MAP, PARCC

Standards

• What part of the standard(s) am I targeting?
• Based on the Foundational Standards, what are the pre-requisite skills and knowledge? How does standard connect to future work?
• Which aspect(s) of rigor does the targeted standard require?
• How has this standard been assessed on PARCC (Grade 3-12 Only)?
Now that you have finished annotating an upcoming lesson for **phase one** on standards, turn and talk with your grade level group and discuss your noticings.
MATHMATICS OF THE LESSON
TOOLS: EXIT TICKET, COMMON CORE COMPANION, PROGRESSIONS DOCUMENTS

Key Mathematics
• What did I learn about the math of the lesson by doing the exit ticket?
• What is the key mathematical idea or concept from this lesson?

Mathematical Language
• What mathematical language should students use in this lesson?

Mathematical Explanations
• What common misconceptions related to this topic do I anticipate will arise?

Exit ticket, Common Core Companion, Progressions Document
Now that you have finished annotating an upcoming lesson for **phase two** on the mathematics of the lesson, turn and talk with your **grade level group** and discuss your noticings.
BRIDGE TO PRACTICE: CUSTOMIZING THE LESSON
TOOLS: LEAP TEAM CONVERSATIONS

Grade Level Problems
- Which must-do question(s) and problem(s) assess the key mathematics of this lesson?
- Which could-do question(s) and problem(s) can be used to extend students' thinking?

Pacing
- How will I adjust the pacing of the lesson?

Checks for Understanding
- What strategies and opportunities will I use to check for understanding throughout the lesson?

Student Thinking
- How will I develop student thinking aligned to the Standards for Mathematical Practice?

Student Scaffolds
- What learning gaps do I anticipate and how will I teach those skills (e.g. mini lesson, stations, etc.)?
- What barriers to learning do I anticipate, and how will I provide multiple opportunities to learn (e.g. technology, cooperative learning, manipulatives, etc.)?
Now that you have finished annotating an upcoming lesson for **phase three** on customizing the lesson, turn and talk with your grade level group and discuss your noticings.
SUMMARY QUESTIONS

Before teaching, ensure that you are clear on these three summary questions:

1. In your own words, what are the key mathematics that you want students to understand from this lesson?

2. How will you ensure that all learners will be able to access the mathematics (e.g. adjustments in pacing, grouping, and explanations to address potential misconceptions and learning gaps)?

3. How will you know that students have mastered the content?

Seminar Feedback:
- What went well today?
- What could have been even better?
Module 3: Planning and Facilitating Engaging Eureka Lessons

Seminar 6: Looking at Student Work

How can student work drive our instruction? How can calibration help us understand the expectations of the standards?

| Content Area | Math K-2 | Length in Minutes | 90 |

**Overview:** During this seminar, teachers will engage in collective analysis of and reflection on student work to determine next steps in instruction. Teachers have engaged in this protocol previously in LEAP Modules 1 and 2. As a result of using this protocol repeatedly, teachers will begin to internalize that components of the protocol, and begin to complete a similar process whenever looking at student work – not just when using the protocol.

LEAP Teams will closely examine a set of student work in order to identify strengths and gaps in student understanding, reflect on this information, and then plan next instructional steps. The focus of the student work protocol will be on calibrating on student work using rubrics. In the process of examining student work, teachers can begin to understand what is common and uncommon among the students they work with. As a result, instruction and support can be more focused to close the achievement gap while nurturing the unique gifts of each student.

**Objective(s)**
- Analyze strengths and gaps in student work to determine next steps in instruction.
- Evaluate effectiveness of planning and instruction and identify implications for practice.
- Norm on student work quality in relation to the standards.

**Outcome(s)**
- Teachers will determine student misconceptions and use the misconceptions to help plan upcoming lessons.
- Teachers will know percentage of students on grade level, above grade level, and having a gap.
- Teachers will have student data to use when planning next lessons.

**Essential Practices Connection**

**Essential Practice 3: Lead a Well-Planned, Purposeful Learning Experience**

In seminar six of module 3, teachers will analyze student work in order to identify trends in student data. Using this information, teachers will be able to tailor lesson plans so that all students are able to engage with rigorous, standards-aligned content. Through consistent analysis and reflection on student work, teachers will be able to facilitate more meaningful lessons for students.

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**Mathematics**

This practice aligns with Instructional Practice Guide (IPG) Core Action 2: Employ instructional practices that allow all students to learn the content of the lesson.

For example, the learning experience:
- Includes explorations, representations, and/or examples to make the content of the lesson explicit.
- Includes opportunities for students to share, discuss, and justify their mathematical reasoning through discourse.
- Supports and promotes variation in solution methods to strengthen students’ understanding of the content and mathematical structures.

For example, grade 1-5 learning experiences include tasks and activities that:
- Develop students’ number sense and fluency with basic operations.
- Build foundational algebraic thinking skills.
- Develop students’ conceptual understanding of foundational mathematics concepts.
- Orient students to understanding and manipulating data.
- Have students apply understanding of geometric properties.
- Familiarize students with the structural elements of equations.

For example, grade 6-12 learning experiences include tasks and activities that:
- Have students apply previous understandings of basic operations to increasingly complex mathematical scenarios.
- Require solving real-world problems using, or by developing, expressions, equations, or functions.
- Generate sophisticated inferences about and from data.
- Feature the integration of algebraic and geometric concepts.
- Have students manipulate both irrational and rational numbers.
- Leverage mathematical reasoning to build statistical models and evaluate probability.

---

**Criteria for Success**
- Teachers can explain the differences between the scores (for example between a 2 and 3) on the rubric using student work.
- Evidence is specific, descriptive, free of judgment, and aligned to CCSS.
- Utilize Illustrative Math tasks aligned to applicable standards to help define proficiency levels of student work.
- Teachers will have clear defined buckets or groups into which student work has been divided.
- Teachers are able to articulate why student work has been placed into a bucket/group with evidence.
- Teachers are able to determine next steps in instruction.
- High-leverage instructional strategies are aligned to patterns and trends in the student work.

<table>
<thead>
<tr>
<th>Pre-Work</th>
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</thead>
<tbody>
<tr>
<td><strong>LEAP Leader</strong></td>
</tr>
<tr>
<td>Make copies of:</td>
</tr>
<tr>
<td>Quick Sort Protocols</td>
</tr>
<tr>
<td>Looking at Student Work Notes Template</td>
</tr>
<tr>
<td>Adapted Student Work Analysis Template</td>
</tr>
<tr>
<td>Post-Quick Sort Template for Identifying Next Steps</td>
</tr>
<tr>
<td><strong>Pre-Reading/Notes for Seminar</strong></td>
</tr>
<tr>
<td><em>Facilitation note</em>: Teachers will need to be grouped in triads (or quads) by grade level for this exercise. If teachers do not have grade-level or subject level partners but instead are singletons, do a Quick Sort protocol for one question and one standard together in small groups. Then break out and do the Quick Sort for their grade and content area individually.</td>
</tr>
<tr>
<td><strong>Success of this seminar depends upon teachers bringing student work. Follow-up with participants to ensure they bring the completed pre-assessments with them to the seminar. ELS/SLS/BES teachers should bring their own work samples. Inclusion/resource teachers should share work samples with one of their collaborative general education teachers.</strong></td>
</tr>
<tr>
<td>Note: You will be using the same Quicksort Protocol you used in Seminars 6 and 7 from Module 1. Study the rubrics for Mid-Module and End-of-Module Assessments for the following Modules:</td>
</tr>
<tr>
<td>Kindergarten: Module 4</td>
</tr>
<tr>
<td>Grade 1: Module 4</td>
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<tr>
<td>Grade 2: Module 5</td>
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<tr>
<td>Read through exemplars to help think about how the teachers might use and respond to the collected data.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>LEAP Participants</th>
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</thead>
<tbody>
<tr>
<td>Teachers will have given the Mid-Module, or End-of-Module Assessment.</td>
</tr>
<tr>
<td>Teachers will bring the completed Mid-Module, or End-of Module Assessment with them to the Seminar.</td>
</tr>
</tbody>
</table>
**Collaborating for Equity & Opportunities for Differentiation:** LEAP Seminars are an opportunity for all educators, across all specialization areas (literacy, language acquisition, special education, etc.) to plan instruction that raises the achievement for all learners. We encourage collaborative planning and shared ownership of student outcomes. Seminar plans will provide prompts with specific opportunities to differentiate instruction using Universal Design for Learning and Co-teaching Models based on content goals and anticipated student needs.

**Universal Design for Learning (UDL):** UDL is a research-based framework that addresses learner diversity and provides educators with instructional practices to ensure all individuals are provided equal opportunities to learn. The UDL framework is grounded in three principles: Multiple means of representation – using a variety of methods to present information, provide a range of means to support; Multiple means of action and expression – providing learners with alternative ways to act skillfully and demonstrate what they know; Multiple means of engagement – tapping into learners’ interests by offering choices of content and tools; motivating learners by offering adjustable levels of challenge.

**Co-teaching for Student Success (COT):** Co-teaching is two or more professionals delivering substantive instruction to a diverse group of students in a single physical space (Friend, 2016). Both educators on the co-teaching team are responsible for differentiating the instructional planning and delivery, assessment of student achievement, and classroom management. Five collaborative teaching approaches have proven to be successful to guide educators who work together in co-teaching partnerships to differentiate instruction; One-Lead/One-Support; Teaming; Alternative Teaching; Station Teaching, and Parallel Teaching.

<table>
<thead>
<tr>
<th>Time</th>
<th>Facilitator Notes</th>
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</thead>
</table>
| 2 min | **Objectives and Agenda**  
Share the objectives and agenda for your time together today with educators. If you have two 45-minute sessions remind your participants you will only achieve half the agenda and the objectives will not be met until the end of the second Seminar.  
**Objectives:**  
- Analyze strengths and gaps in student work to determine next steps in instruction.  
- Evaluate effectiveness of planning and instruction and identify implications for practice.  
- Norm on student work quality in relation to the standards.  
**Agenda:**  
- Reflection on Practice/Review of Norms  
- Review Quick Sort Protocol and The Looking at Student Work Notes Template  
- Quick Sort Protocol  
- Planning next lesson with information from Quick Sort Protocol  
- Reflection | Materials |
| 5 mins | **Revisit Commitments from Previous Seminar**  
Have teachers reflect on commitments from last week. |
Ask them: “What commitments did you make? Take 3 min to review the commitments and select one to share with the group. Be prepared to share the commitment you made and how you honored the commitment. If you didn’t reach the commitment, what support or partnership might you need from the team?”

**Review of Norms**

“Let’s check in on the norms we established. Turn to a partner and discuss which norm you would like to focus on during our meeting today. Share how they can help to hold you accountable.”

Clearly set expectations that participants should include bringing work from prior Seminars to each Seminar for the current Module.

Note: If teachers did not administer the pre-assessment or did not bring their student work, have the teacher(s) group with someone who did bring student work.

<table>
<thead>
<tr>
<th>Time</th>
<th>Facilitator Notes</th>
<th>Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 min</td>
<td><strong>Quick Sort Protocol</strong></td>
<td><strong>Quick Sort Protocol</strong></td>
</tr>
<tr>
<td></td>
<td>• “Last time we used the quick sort protocol to analyze an assessment to determine student needs based on mastery of the foundational standards. This time we are using the protocol to plan for our next lesson. What might be the benefits of doing this?” For example, honoring what students already know and can do, planning for gaps, or planning for proper pacing.</td>
<td><strong>Looking at Student Work Notes Template</strong></td>
</tr>
<tr>
<td></td>
<td>• “At this point, we’ll review the Quick Sort protocol that will guide our work for this Seminar. You used this protocol in Seminars 6 and 7 from Module 1 and Seminar 3 in Module 2. The Quick Sort protocol is simple, but it enables us to analyze the alignment of an assessment to the standards, identify strengths and gaps in student learning, including misconceptions. From there we will plan for the instructional needs of students for the next lesson. All our special education teachers will participate in the Quick Sort protocol. Inclusion/resource teachers will pair up with (one of) their general education counterparts to conduct the sort, while ELS/SLS/BES teachers will do so individually. Special education teachers will benefit from analyzing work samples of students who reach proficiency to better understand the grade-level expectations; however, during the sort they should take note in particular of the work of the students with disabilities.”</td>
<td><strong>Adapted Student Work Analysis Template</strong></td>
</tr>
<tr>
<td></td>
<td>• Reread the Quick Sort Protocol. Say, “As you read, annotate key points, aspects of the protocol where you had a difficulty previously or where you still need more clarification.”</td>
<td><strong>Kindergarten Mid-Module Assessment Task</strong></td>
</tr>
<tr>
<td></td>
<td>• Whole Group: Discuss any clarifying questions.</td>
<td><strong>First Grade Mid-Module Assessment Task</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Student Work Notes Template</strong></td>
<td><strong>Second Grade Mid-Module Assessment Task</strong></td>
</tr>
</tbody>
</table>
Read the Looking at Student Work Notes Template. Say: “As you read, annotate key points and places where you need clarification.”

Whole Group: Discuss any clarifying questions.

Possible Follow Up Questions(s):
- How will the protocol help you understand the progression of the standards?
- How will the protocol help you understand where to go in the next lesson?
- What questions do you still have?

Key Point(s):
- Impactful instruction is responsive to demonstrated student understanding and misunderstanding of the standards. Student learning should drive our next steps.
- Analyzing student work provides opportunity to strategize how to support all learners.
- Collectively analyzing student work provides space for us to norm on intended outcomes.

Specific Standards:
- Kindergarten: KOA.1, K.OA.2, K.OA.3, K.OA.4, K.OA.5, K.OA.6
- Grade 1: 1.OA.1, 1.NBT.1, 1.NBT.2, 1.NBT.2, 1.NBT.3, 1.NBT.4, 1.NBT.5, 1.NBT.6
- Grade 2: 2.NBT.7, 2.NBT.8, 2.NBT.9

Quick Sort Protocol:

Facilitation Note: Each grade level is engaging in the Quick Sort for their grade level assessment. Since the Quick Sort has been used in the previous modules, the teachers will not be walking through it together. If teachers do not have grade-level or subject level partners but instead are singletons, do a Quick Sort protocol for one question and one standard together in small groups. Then break out and do the Quick Sort for their grade and content area individually.

Frame the use of the Quick Sort for this Seminar.
“We’ve used the Quick Sort Protocol in other Modules to sort student work. This time we will use the protocol to sort our completed Mid-Module, or End-of-Module Assessments. Let’s get ourselves organized to engage in the work. Sit with your grade level team.”

For teachers who may be the only teacher that teach a subject say: “If you do not have a grade-level team, please create small groups of three or four. We will first do a Quick Sort for one question and one standard off an assessment for your group.”

Have the Common Core Companion available for teachers who may need more information on the standard.

Say: “Today we will begin with step A and dig into the rubrics provided for the Mid-Module or End-of-Module Assessments. First, pull out the rubric from your
We will begin by using the first problem and first standard on the rubric. Begin by reading the rubrics for your assessment.”

Grade Level Discussion on Quick Sort Step A
LEAP Leaders may use these questions to deepen the conversation of the different grade level teams. You may also use these for whole group facilitation if the team is analyzing a problem together. The questions are aligned to the first question of the Mid-Module Assessments from the following modules: Kindergarten: Module 4, Grade 1: Module 4, Grade 2: Module 5.

Questions for the Kindergarten Assessment:
- For the first question on the Mid-Module Assessment, what is the progression towards mastery on the rubric from Step 1 to Step 4 for K.OA.1, K.OA.3, and K.OA.5?
- What will students exhibit who are not able to tell a decomposition story and model it with a number bond?
- What will students exhibit who are able to tell a decomposition story, but misses an integral part of the standard? (For example, doesn’t model the story correctly with a number bond, or the story doesn’t use numbers)

Questions for the Grade 1 Assessment:
- For the questions 4 and 5 on the Mid-Module Assessment, what is the progression towards mastery on the rubric from Step 1 to Step 4 for 1.NBT.2?
- What will students exhibit who are unable to demonstrate understanding of the equivalent representations of tens and ones?
- What will students exhibit who are unable to demonstrate understanding of the equivalent representations of tens and ones?
- What conceptual misunderstanding might students have who answer incorrectly?

Questions for the Grade 2 Assessment:
- For the first question on the Mid-Module Assessment, what is the progression towards mastery on the rubric from Step 1 to Step 4 for 2.NBT.7 and 2.NBT.8?
- What will students exhibit who are not able to correctly show a strategy to accurately solve the problems?
- What will students exhibit who show a strategy but don’t accurately solve the problems?

Quick Sort Step B: Diagnose student strengths and needs.
Say: “Next we need to diagnose student strengths and needs. Read your student work and without scoring, do a “quick sort” of student’s work by the
general degree of the objectives met, partially met, and not met. Start with one question and one standard, if the question assesses multiple standards.”

“You may need a ‘not sure’ pile. Student names should be recorded in the columns to monitor progress over time. The misconception sheet will help you think about possible answers you may find.”

Grade Level Specific Guidance
LEAP leaders may choose to use this as they check in on the work in grade level teams or as whole group examples to clarify directions for the team.

Grade 1:
For example, teachers may sort work into one pile if students can demonstrate understanding of the equivalent representations of tens and compare numbers accurately, but are not able to add and subtract these same quantities. Another pile might be made for students who can understand equivalent representations of tens and ones, compare 2-digit numbers and different representations of them, and can add and subtract accurately.

Grade 2:
For example, teachers may sort work into one pile where students can show more than one strategy and does not solve all the problems accurately, showing limited understanding. Another pile might be for students who can solve problems using more than one strategy and solves accurately.

45 min (total)
7 min
Quick Sort Step C: Allow the grade level teams time to diagnose student work.
Say: “Now we will dig into a few samples of student work. Choose a few from each level to analyze. Discuss and write the knowledge students demonstrated they knew in the appropriate column (Step C). Refer to the misconceptions document and the Common Core Companion to help determine student knowledge.”

Quick Sort Step D: Student Misunderstanding and the Standards
Say: “Let’s move onto identifying student misunderstandings about the standards. As you analyze misconceptions, keep in mind this key criterion for success: Evidence is specific, descriptive, free of judgement, and aligned to CCSS (Step D). Refer to the misconceptions document and the Common Core Companion to help determine student misconceptions.” LEAP leaders should post this criterion for success as teachers work.

Quick Sort Step E: Planning the Next Steps in Instruction with the Lesson Preparation Guide.
Say: “Now using Step E of the Quick Sort Protocol, plan the next lesson based on the data from the Quick Sort. When planning the next lesson, you should continue to use Lesson Preparation Guide. In particular, focus on the following questions which connect to the understandings from the student data:
● **How does this work connect to previous or future work of the grade?**

● **What is the key mathematical idea or concept from this lesson?**

● **How will I adjust the pacing of this lesson?**

● **How will I re-teach those students who did meet proficiency (i.e. through the warm up, a mini-lesson, small group instruction, stations, etc.)?**

● **What will I do differently to improve student outcomes?**

● **What scaffolding will be used for students who need extra support or extension?**

● **Special Education Teachers: How will I specialize instruction and provide accommodations so students can access the upcoming lessons while still working toward mastery in the previous concepts?**

**Facilitator Note:** Utilize the [Post- Quick Sort Template for Identifying Next Steps](#) for teachers to intentionally plan how they will adjust their instruction based on the knowledge they gained from the Quick Sort. This organizer will especially support teachers in designing instruction for those students who did not demonstrate proficiency.

**Grade Level Follow Up Questions:**

If time allows, engage in a whole group discussion with these follow-up questions. LEAP Leaders can also use these as questions to check in with individuals or small groups as they are planning.

### Kindergarten:

- Discuss students’ abilities to use counting abilities, and knowledge of the value of numbers, to solve addition and subtraction expressions and equations. What are the implications for the next topics, where students will parallel the first half of this Module to work with numbers 9 and 10?

- How did this analysis validate some of your assumptions about students’ ability to work with embedded numbers to reason about and solve addition and subtraction problems?

- How did this analysis challenge some of your assumptions about students’ ability to decompose and compose numbers 5 - 8?

### Grade 1:

- Discuss strategies for comparing quantities.

- What are the implications of adding and subtraction multiples of ten on the upcoming topic where students use a level 2 strategy for adding?

- How did this analysis challenge some of your assumptions about students’ ability to focus on the role of place value in the addition and subtraction of numbers to 40?

### Grade 2:

- Discuss the different strategies used for adding and subtracting within 1000.

- What are the implications of using manipulative representations and relating them to the algorithm before transitioning to creating math drawings in place of the manipulatives?

- How did this analysis validate some of your assumptions about students’ ability to efficiently solve addition and subtraction problems within 1000?
<table>
<thead>
<tr>
<th>10 min</th>
<th><strong>How did this analysis challenge some of your assumptions about students’ ability to use all the different strategies in this Module?</strong></th>
</tr>
</thead>
</table>

**Closing Reflection**  
**Whole Group Discussion**  
Pose the following questions to the group:  
- *Why is it important to plan this way?*  
- *What did we learn about the standards?*  
- *How does this help us respond to students?*  

Possible answers include:  
- This will help me see where students are in relation to the rubric and help me plan using student misconceptions.  
- I learned more about my standards because I was forced to dig into them and look at the misconceptions. For example, I realized that students who do not solve problems correctly may have made a simple error or they may not conceptually understand important mathematical ideas like place value and/or addition and subtraction.  
- By planning like this I can better meet the needs of my students because I am taking time to truly understand where they are in the process and where they are in their thinking.  

**Individual Reflection**  
Say: “*Please answer the following questions:*  
- *Based on your analysis of student work, what actions steps are you committing to do this week?*  
- *What will you report back at our next LEAP meeting?*  
- *What support do you need moving forward?*”
Module 3, Seminar 6: Looking At Student Work
How can student work drive our instruction? How can calibration help us understand the expectations of the standards?
Grade Level: Kindergarten – 2nd Grade
Objectives

• Analyze strengths and gaps in student work to determine next steps in instruction.
• Evaluate effectiveness of planning and instruction and identify implications for practice.
• Norm on student work quality.

Agenda

• Reflection on Practice/Commitments
• Review of Norms
• Review Quick Sort Protocol and The Looking at Student Work Notes Template
• Quick Sort Protocol Steps A-D
• Planning next lesson with information from Quick Sort Protocol Step E
• Reflection
Commitment

sincere and steadfast

obligation, promise,

binding yourself into

what is thought...
Review of Norms
Quick Sort Review and Student Work Notes Template

• Read and annotate the protocol where you still need clarification.
• Read and annotate the Looking at Student Work Notes Template.
• Then, ask any clarifying questions.

Quick Sort Protocol

This protocol can be used by a coach to analyze student work either with one teacher or in a larger group. The coach and teacher might choose to focus on a particular part of the protocol rather than go through all of the steps.

1. The work: Discuss the formative work that you have chosen. a. What is the purpose of this formative work? How does it relate to grade-level goals or standards? b. Did students work together or individually? c. What type of scaffolding did the teacher provide? Was the assignment differentiated for certain students? If so, how?

2. Criteria: The teacher should describe how the work will be evaluated. a. What evidence of learning did you hope to see in this work? b. How will you evaluate student work? (rubric, checklist, exemplar, previous work done by students, other)

3. Quick sort: Sort the work. a. The coach and teacher should discuss how to examine the work. What can you look for quickly when analyzing the work? b. Take a brief amount of time to examine the work and make three piles. For example, you might make piles based on students whose work seems below standard, on-target, and above standard for that grade level.

4. Analyze: What do students have in common in this group? a. What are strengths that you see in this group? Identify examples. b. What are areas that are challenging for them? Identify examples.

5. Reflect: Reflect on your formative evaluation. a. Is this formative assessment a good way of evaluating their knowledge or skills? b. Do the students understand the purpose of this assignment? c. Do students know how their learning is being evaluated? Do they know what good work looks like?

6. Plan: Based on your discussion, what type of instruction does this group of students need?

7. Repeat steps 4-6 for other groups of learners that have not been...
Quick Sort: Pull out the rubric for the Mid-Module or End-of-Module Assessment. Begin by reading the rubric.
Quick Sort: Step A: Read the rubric for one standard and one problem. What is the progression from step 1 to step 4? What might students exhibit at each step? What instruction might each step need to move to the next step?
Quick Sort: Step B: Diagnose student strengths and needs. Do a quick sort of the student work, begin with one question and one standard. Sort by degree of standard met, partially met, and not met. You may also have a “not sure pile”. Record student names in the correct columns. The misconception sheet will help you think about possible answers you may find.
Quick Sort: Step C: Choose a few students from each level to analyze. Discuss and write the foundational knowledge students demonstrated. Use the misconceptions document and the Common Core Companion to help you.
Quick Sort: Step D: Identifying student misconceptions. Refer to the misconceptions document and the Common Core Companion to help you.
Lesson Annotation: Step E: Plan the next lesson based on data from the Quick Sort. You may want to refer to the coherence map to help determine next steps. Focus on the following questions:

• How does this work connect to previous or future work of the grade?
• What is the key mathematical idea or concept from this lesson?
• How will I adjust the pacing of this lesson?
• What scaffolding will be used for students who need extra support or extension?
Reflecting on our Learning

10 Minutes
Quick Sort Protocol

Author, Title and Affiliation
Gabrielle Nidus & Maya Sadder;
Lead Consultants, Formative Coaching Consulting: formativecoaching.com

From

Audience(s) and School Level(s) the tool is designed for
K-12th Grade – Literacy/Curriculum Coaches, Grade Level Meetings

Purpose of the Tool
Many teachers, new and experienced, feel overwhelmed at the process of making sense of student learning. The quick sort protocol is a tool to help teachers analyze begin the process of analyzing student work in order to inform their instruction. This protocol and graphic organizer helps teachers and coaches discuss differentiation, student learning goals, and effective teaching strategies.

Use of the Tool
The coach and teacher(s) should review the tool prior to meeting and discuss the type of work that they will analyze and the goal of the coaching session. During the meeting, the coach and teacher use the protocol to help make sense of the student work and structure the meeting so that it is focused and forward moving. The graphic organizer assists teachers in noting their observations and tracking data about student learning. One of the first steps a coach must do when introducing this protocol to explain not only the purpose of analyzing student work but the point of a following a protocol. The first steps of the Quick Sort Protocol lead teachers to discuss the purpose and context of the assignment. How did students produce this work? What type of support were they offered? What were the goals of this assignment? How were these goals chosen? Next, the coach and teacher begin the quick sort by spending a short amount of time separating the work into three piles. For example, you might make piles based on students whose work seems below standard, on-target, and above standard for that grade level. Once the work has been sorted, the coach and teacher choose one of the piles to start analyzing and begin noting trends in this group. Lastly, the coach and teacher use the strengths and challenges they have noted to design future lessons based on the needs of students.

Insights - that you have gained from using the tool
This tool is a great way to start conversation with teachers about planning instruction based on student work. The process of sorting helps teachers engage in a reflective process that encourages them to investigate the assignment they have given students, share observations about student learning and think critically about how they are judging student work. Adhering to the protocol, keeps both coach and teacher focused on making evaluations that are based on evidence from students’ work and is helpful in preventing either party from getting sidetracked into other conversations that lead away from the goals of analyzing student learning.
Quick Sort Protocol

Goal

This protocol can be used by a coach to analyze student work either with one teacher or in a larger group. The coach and teacher might choose to focus on a particular part of the protocol rather than go through all of the steps.

1. The work: Discuss the formative work that you have chosen.
   a. What is the purpose of this formative work? How does it relate to grade-level goals or standards?
   b. Did students work together or individually?
   c. What type of scaffolding did the teacher provide? Was the assignment differentiated for certain students? If so, how?

2. Criteria: The teacher should describe how the work will be evaluated.
   a. What evidence of learning did you hope to see in this work?
   b. How will you evaluate student work? (rubric, checklist, exemplar, previous work done by students, other)

3. Quick sort: Sort the work.
   a. The coach and teacher should discuss how to examine the work. What can you look for quickly when analyzing the work?
   b. Take a brief amount of time to examine the work and make three piles. For example, you might make piles based on students whose work seems below standard, on-target, and above standard for that grade level.

4. Analyze: What do students have in common in this group?
   a. What are strengths that you see in this group? Identify examples.
   b. What are areas that are challenging for them? Identify examples.

5. Reflect: Reflect on your formative evaluation.
   a. Is this formative assessment a good way of evaluating their knowledge or skills?
   b. Do the students understand the purpose of this assignment?
   c. Do students know how their learning is being evaluated? Do they know what good work looks like?

6. Plan: Based on your discussion, what type of instruction does this group of students need?

7. Repeat steps 4-6 for other groups of learners that have not been analyzed.
<table>
<thead>
<tr>
<th>Names of Students</th>
<th>Trends among group (Strengths/challenges)</th>
<th>Implications for instruction</th>
<th>Notes on group progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members of Group 1</td>
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<tr>
<td>Members of Group 2</td>
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<td></td>
<td></td>
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<tr>
<td>Members of Group 3</td>
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</table>
**EQuIP Rubric**

Educators Evaluating Quality Instructional Products (EQuIP) is a collaborative of states working with Achieve to increase the supply of quality instructional materials that are aligned to the CCSS and build the capacity of educators to evaluate and improve the quality of instructional materials for use in their classrooms and schools. The EQuIP Rubrics are a set of quality review tools to evaluate the alignment of lessons, units and modules to the CCSS. There are three EQuIP Rubrics, one each for Mathematics, K–2 English Language Arts/Literacy, and a combined rubric for 3–5 English Language Arts/Literacy and 6–12 English Language Arts. EQuIP builds on a collaborative effort of education leaders from Massachusetts, New York and Rhode Island that Achieve facilitated.

The EQuIP Rubrics should be used for:
- Guiding the development of lessons and units;
- Evaluating existing lessons and units to identify improvements needed to align with the CCSS;
- Building the capacity of teachers to gain a deeper understanding of the instructional demands of the CCSS; and,
- Informing publishers of the criteria that will be applied in the evaluation of proposals and final products.

**a) Where to find online:**
To view and download the rubrics and related training materials, please visit: [www.achieve.org/equip](http://www.achieve.org/equip)

**b) Who uses:**
The EQuIP Rubrics are designed for use by educators and administrators responsible for developing, reviewing or making determinations about materials for use in classrooms. This includes classroom teachers, instructional coaches, instructional leaders and administrators at the school, district or state level.

**c) Target materials:**
The EQuIP Rubrics are designed to evaluate lessons that include instructional activities and assessments aligned to the CCSS that may extend over a few class periods or days as well as units that include integrated and focused lessons aligned to the CCSS that extend over a period of several weeks. The rubrics are not designed to evaluate a single task or activity or portion of a lesson. The rubrics intentionally do not require a specific template for lesson or unit design.

**d) How to use:**
The EQuIP Rubrics can guide the development of lessons and units as well as examine and evaluate existing lessons and units to identify improvements necessary to align with the CCSS. They can be used by individuals or groups, integrated into formal review panels/processes and professional learning communities, and/or used more informally to guide discussions and decision making.

The criteria in the EQuIP Rubrics are separated into four dimensions: Alignment to the Depth of the CCSS, Key Shifts in the CCSS, Instructional Supports, and Assessment.

**Getting Started**
It is helpful to first orient yourself to all of the materials necessary to complete an EQuIP Quality Review. These materials will include the lesson or unit being evaluated, including any texts or rubrics utilized by teachers or students, a copy of the Common Core State Standards, and an EQuIP Rubric Feedback form. As this is a collegial process, reviewers working together should introduce themselves to one another.
Principles & Agreements
Adhering to the EQuIP principles and agreements creates a collegial environment in which reviewers can develop criterion-based suggestions for improving the alignment and quality of instructional materials. It is vital to the process to create a collegial environment, recognizing both that it is challenging to create high-quality instructional materials and that it is necessary to receive quality feedback in order to improve these materials.

1. CCSS: Before beginning a review, all members are confident in their knowledge of the CCSS.
2. Inquiry: Review processes emphasize inquiry and are organized in steps around a set of guiding questions.
3. Respect & Commitment: Each member of a review team is respected as a valued colleague and contributor who makes a commitment to the EQuIP process.
4. Criteria & Evidence: All observations, judgments, discussions, and recommendations are criterion- and evidence-based.
5. Constructive: Lessons/units to be reviewed are seen as “works in progress.” Reviewers are respectful of contributors’ work and make constructive observations and suggestions based on evidence from the work.
6. Individual to Collective: Each member of a review team independently records his/her observations prior to discussion. Discussions focus on understanding all reviewers’ interpretations of the criteria and the evidence they have found.
7. Understanding & Agreement: The goal of the process is to compare and eventually calibrate judgments to move toward agreement about quality with respect to the CCSS.

Giving Feedback
The goal of EQuIP is to support the education community in the development of exemplary curriculum; constructive feedback and comments are fundamental to improving the materials. Reviewers should consider their audience and purposes when crafting the tone and content of their comments. It is critical to read every page of a lesson or unit. Writing effective feedback is vital to the EQuIP Quality Review Process. Below are the four qualities of effective feedback.

• Criteria-based: Written comments are based on the criteria used for review in each dimension. No extraneous or personal comments are included.
• Evidence Cited: Written comments suggest that the reviewer looked for evidence in the lesson or unit that address each criterion of a given dimension. Examples are provided that cite where and how the criteria are met or not met.
• Improvement Suggested: When improvements are identified to meet criteria or strengthen the lesson or unit, specific information is provided about how and where such improvement should be added to the material.
• Clear Communication: Written comments are constructed in a manner keeping with basic grammar, spelling, sentence structure and conventions.
**EQuIP Quality Review Steps**

**Step 1. Review Materials**
- Record the grade and title of the lesson/unit on the Quality Review Rubric PDF.
- Scan to see what the lesson/unit contains and how it is organized.
- Read key materials related to instruction, assessment and teacher guidance.
- In ELA, study and measure the text(s) that serves as the centerpiece for the lesson/unit, analyzing text complexity, quality, scope, and relationship to instruction.
- In math, study and work the task that serves as the centerpiece for the lesson/unit, analyzing the content and mathematics practices the tasks require.

**Guidance for facilitators:** During Step 1, reviewers should not try to read every word of the lesson/unit from start to finish, but rather get an overall sense of what is contained in the instructional materials. It is particularly important that reviewers read the text(s) and look for the quantitative and qualitative measures of text(s) complexity or study and work the tasks that are central to instruction.

Explain that reviewers should not use the EQuIP Rubric during Step 1. Reviewers will have ample opportunity to think deeply about the criteria in each dimension during subsequent steps of the review process.

If the materials are not clearly labeled, it is necessary to determine if the materials should be reviewed as a lesson or unit. EQuIP generally defines a lesson as one to ten days of instruction and a unit as two to ten weeks of instruction; however, reviewers should use their professional judgment when making this determination. Please consider if it would be appropriate to apply the additional criteria given the purpose of instruction and the standard(s) the materials target.

**Step 2. Apply Criteria in Dimension I: Alignment to the Depth of the CCSS**
- Identify the grade-level CCSS that the lesson/unit targets.
- Closely examine the materials through the “lens” of each criterion.
- Indicate each criterion for which clear and substantial evidence is found.
- Record evidence and specific improvements needed to meet criteria or strengthen alignment.
- Compare observations and suggestions for improvement.

**Guidance for facilitators:** The criteria may only be checked if there is clear and substantial evidence of the criterion (there are no “half-checks”). There may be instances when reviewers find clear and substantial evidence of a criterion and there are still constructive suggestions that can be made. In such cases, reviewers may provide feedback related to criteria that have been checked.

**Step 3. Apply Criteria in Dimensions II–IV**
- Examine the lesson/unit through the “lens” of each criterion.
- Indicate each criterion met and record observations and feedback.
Step 4. Apply an Overall Rating and Provide Summary Comments

• Individually review comments for Dimensions I–IV, adding/clarifying comments as needed.
• Individually write summary comments on the Quality Review Rubric PDF.

Guidance for facilitators: If reviewers are going to stop a review at Dimension I, take time to make sure the criteria are absent.

There may be instances when reviewers find clear and substantial evidence of a criterion and there are still constructive suggestions that can be made. In such cases, reviewers should provide feedback related to criteria that have been checked.

It’s acceptable to give a “3” rating without having all of the criteria checked within a dimension. It’s about supporting with evidence regardless of the rating a reviewer gives. If recommendations for improvement are too significant, then the rating should be less than a “3.” There should be a relationship between the number of checks and the overall rating. There shouldn’t be huge misalignment, but it comes down to professional judgment. Reviewers should stand back and look at the review in its totality.

Step 5. Compare Overall Ratings and Determine Next Steps

• Note the evidence cited to arrive at summary comments and similarities and differences among reviewers. Recommend next steps for the lesson/unit and provide recommendations for improvement to developers/teachers.
<table>
<thead>
<tr>
<th>I. Alignment to the Depth of the CCSS</th>
<th>II. Key Shifts in the CCSS</th>
<th>III. Instructional Supports</th>
<th>IV. Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>The lesson/unit aligns with the letter and spirit of the CCSS:</td>
<td>The lesson/unit reflects evidence of key shifts that are reflected in the CCSS:</td>
<td>The lesson/unit is responsive to varied student learning needs:</td>
<td>The lesson/unit regularly assesses whether students are mastering standards-based content and skills:</td>
</tr>
<tr>
<td>o Targets a set of grade-level CCSS mathematics standard(s) to the full depth of the standards for teaching and learning.</td>
<td>o Focus: Lessons and units targeting the major work of the grade provide an especially in-depth treatment, with especially high expectations. Lessons and units targeting supporting work of the grade have visible connection to the major work of the grade and are sufficiently brief. Lessons and units do not hold students responsible for material from later grades.</td>
<td>o Includes clear and sufficient guidance to support teaching and learning of the targeted standards, including, when appropriate, the use of technology and media.</td>
<td>o Is designed to elicit direct, observable evidence of the degree to which a student can independently demonstrate the targeted CCSS.</td>
</tr>
<tr>
<td>o Standards for Mathematical Practice that are central to the lesson are identified, handled in a grade-appropriate way, and well connected to the content being addressed.</td>
<td>o Coherence: The content develops through reasoning about the new concepts on the basis of previous understandings. Where appropriate, provides opportunities for students to connect knowledge and skills within or across clusters, domains and learning progressions.</td>
<td>o Uses and encourages precise and accurate mathematics, academic language, terminology and concrete or abstract representations (e.g., pictures, symbols, expressions, equations, graphics, models) in the discipline.</td>
<td>o Assesses student proficiency using methods that are accessible and unbiased, including the use of grade-level language in student prompts.</td>
</tr>
<tr>
<td>o Presents a balance of mathematical procedures and deeper conceptual understanding inherent in the CCSS.</td>
<td>o Rigor: Requires students to engage with and demonstrate challenging mathematics with appropriate balance among the following:</td>
<td>o Engages students in productive struggle through relevant, thought-provoking questions, problems and tasks that stimulate interest and elicit mathematical thinking.</td>
<td>o Includes aligned rubrics, answer keys and scoring guidelines that provide sufficient guidance for interpreting student performance.</td>
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<tr>
<td></td>
<td>- Application: Provides opportunities for students to independently apply mathematical concepts in real-world situations and solve challenging problems with persistence, choosing and applying an appropriate model or strategy to new situations.</td>
<td></td>
<td>o Use varied modes of curriculum-embedded assessments that may include pre-, formative, summative and self-assessment measures.</td>
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<tr>
<td></td>
<td>- Conceptual Understanding: Develops students’ conceptual understanding through tasks, brief problems, questions, multiple representations and opportunities for students to write and speak about their understanding.</td>
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<tr>
<td></td>
<td>- Procedural Skill and Fluency: Expects, supports and provides guidelines for procedural skill and fluency with core calculations and mathematical procedures (when called for in the standards for the grade) to be performed quickly and accurately.</td>
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<tr>
<td>Rating: 3 2 1 0</td>
<td>Rating: 3 2 1 0</td>
<td>Rating: 3 2 1 0</td>
<td>Rating: 3 2 1 0</td>
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</tbody>
</table>

The EQuIP rubric is derived from the Tri-State Rubric and the collaborative development process led by Massachusetts, New York, and Rhode Island and facilitated by Achieve. This version of the EQuIP rubric is current as of 06-15-13. View Creative Commons Attribution 3.0 Unported License at http://creativecommons.org/licenses/by/3.0/. Educators may use or adapt. If modified, please attribute EQuIP and re-title.
EQiP Rubric for Lessons & Units: Mathematics

Directions: The Quality Review Rubric provides criteria to determine the quality and alignment of lessons and units to the Common Core State Standards (CCSS) in order to: (1) Identify exemplars/models for teachers’ use within and across states; (2) provide constructive criteria-based feedback to developers; and (3) review existing instructional materials to determine what revisions are needed.

Step 1 – Review Materials
- Record the grade and title of the lesson/unit on the recording form.
- Scan to see what the lesson/unit contains and how it is organized.
- Read key materials related to instruction, assessment and teacher guidance.
- Study and work the task that serves as the centerpiece for the lesson/unit, analyzing the content and mathematical practices the tasks require.

Step 2 – Apply Criteria in Dimension I: Alignment
- Identify the grade-level CCSS that the lesson/unit targets.
- Closely examine the materials through the “lens” of each criterion.
- Individually check each criterion for which clear and substantial evidence is found.
- Identify and record input on specific improvements that might be made to meet criteria or strengthen alignment.
- Enter your rating 0 – 3 for Dimension I: Alignment.

Note: Dimension I is non-negotiable. In order for the review to continue, a rating of 2 or 3 is required. If the review is discontinued, consider general feedback that might be given to developers/teachers regarding next steps.

Step 3 – Apply Criteria in Dimensions II – IV
- Closely examine the lesson/unit through the “lens” of each criterion.
- Record comments on criteria met, improvements needed and then rate 0 – 3.

When working in a group, individuals may choose to compare ratings after each dimension or delay conversation until each person has rated and recorded their input for the remaining Dimensions II – IV.

Step 4 – Apply an Overall Rating and Provide Summary Comments
- Review ratings for Dimensions I – IV adding/clarifying comments as needed.
- Write summary comments for your overall rating on your recording sheet.
- Total dimension ratings and record overall rating E, E/I, R, N – adjust as necessary.

If working in a group, individuals should record their overall rating prior to conversation.

Step 5 – Compare Overall Ratings and Determine Next Steps
- Note the evidence cited to arrive at final ratings, summary comments and similarities and differences among raters. Recommend next steps for the lesson/unit and provide recommendations for improvement and/or ratings to developers/teachers.

Additional Guidance on Dimension II: Shifts
- When considering Focus it is important that lessons or units targeting additional and supporting clusters are sufficiently brief – this ensures that students will spend the strong majority of the year on major work of the grade. See the K-8 Publishers Criteria for the Common Core State Standards in Mathematics, particularly pages 8-9 for further information on the focus criterion with respect to major work of the grade at www.corestandards.org/assets/Math_Publishers_Criteria_K-8_Summer%202012_FINAL.pdf. With respect to Coherence it is important that the learning objectives are linked to CCSS cluster headings (see www.corestandards.org/Math).

Rating Scales
Rating for Dimension I: Alignment is non-negotiable and requires a rating of 2 or 3. If rating is 0 or 1 then the review does not continue.

Rating Scale for Dimensions I, II, III, IV:
3: Meets most to all of the criteria in the dimension
2: Meets many of the criteria in the dimension
1: Meets some of the criteria in the dimension
0: Does not meet the criteria in the dimension

Descriptive Terms:
1: Developing toward CCSS Quality - needs significant revision, as suggested in criterion-based observations.
0: Not representing CCSS Quality - does not address the criteria in the dimension.

Overall Rating for the Lesson/Unit:
E: Exemplar – Aligned and meets most to all of the criteria in dimensions II, III, IV (total 11 – 12)
E/I: Exemplar if Improved – Aligned and needs some improvement in one or more dimensions (total 8 – 10)
R: Revision Needed – Aligned partially and needs significant revision in one or more dimensions (total 3 – 7)
N: Not Ready to Review – Not aligned and does not meet criteria (total 0 – 2)

Descriptor for Overall Ratings:
E: Exemplifies CCSS Quality – Aligned and exemplifies the quality standard and exemplifies most of the criteria across Dimensions II, III, IV of the rubric.
E/I: Approaching CCSS Quality – Aligned and exemplifies the quality standard in some dimensions but will benefit from some revision in others.
R: Developing toward CCSS Quality – Aligned partially and approaches the quality standard in some dimensions and needs significant revision in others.
N: Not representing CCSS Quality – Not aligned and does not address criteria.
Purpose(s):
- Analyze strengths and gaps in students’ work aligned to the foundational standards
- Create a plan for future instruction that targets gaps
- Inform revision to improve the assignment/task

1) CONTEXT  
*Teacher completes prior to analysis*

<table>
<thead>
<tr>
<th>Teacher</th>
<th>Grade/Content</th>
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</thead>
<tbody>
<tr>
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</table>

Lesson, Unit, Task

Standards Addressed

2) ANALYSIS PROTOCOL(S)

<table>
<thead>
<tr>
<th>EQuIP Student Work Protocol</th>
<th>Quick Sort Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Directions:</strong></td>
<td><strong>Directions:</strong></td>
</tr>
<tr>
<td>1. 10 min: Analyze task and/or text</td>
<td>1. 10 min: Analyze task (and text in ELA)</td>
</tr>
<tr>
<td>2. 10 min: Examine alignment</td>
<td>2. 15 min: Complete task and set criteria</td>
</tr>
<tr>
<td>3. 10 min: Analyze individual student work</td>
<td>3. 5 min: Sort student work into buckets</td>
</tr>
<tr>
<td>4. 10 min: Analyze collection of work</td>
<td>4. 10 min: Review trends in each bucket</td>
</tr>
<tr>
<td>5. 5 min: Suggestions for improving task</td>
<td>5. 10 min: Create plan for each bucket</td>
</tr>
<tr>
<td>6. 15 min: Debrief learnings and action steps for teaching/learning</td>
<td>6. 10 min: Debrief learnings and action steps for teaching/learning</td>
</tr>
</tbody>
</table>

Debrief and Prioritization Conversation Notes
**Criteria for Success**

*Conversations follow ACE norms:*
- Shared commitment to Action, Assessment, and Adjustment
- Intentional Collaboration
- Relentless focus on Evidence

*Effective Evidence is:*
- Specific
- Descriptive
- Judgment-free
- Aligned to CCSS

*Effective wonderings are:*
- Aligned to or in support of the focus question/CPL goal
- Brief and to the point
- Open-ended, genuine questions without obvious answers (i.e. we aren't leading or suggesting)
- Future-focused (i.e. avoid “detective questions”)
- Aimed at helping the teacher deepen awareness or create new insight
Looking at Student Work (LASW) Notes Template
Adapted from the EQuIP Student Work and Quick Sort protocols

3) LEARNING & ACTION STEPS: All complete during and after prioritization conversation

<table>
<thead>
<tr>
<th>Name</th>
<th>Learning(s)</th>
<th>Action Step(s)</th>
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</thead>
<tbody>
<tr>
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**Criteria for Success**

To prioritize an action step, ask if it is:
- Aligned: Is it connected to the LEAP goal and rigorous standards?
- Impactful: Is it directly connected to student learning?
- Efficient: Is it the quickest and most effective way to make this change?
- Foundational: Does it address a root cause?
- Cascading: Does it positively change multiple areas and/or is it a necessary first step for further improvements to come afterward?

**Criteria for writing action steps:**
- Specific: Exactly what will we do to accomplish this step?
- Measurable: What evidence will we have to show we've learned how to do this?
- Bite-sized: Is this targeted enough to be accomplished within a week?
E. Identifying Instructional Next Steps

After diagnosing what students know and still need to learn, discuss as a team the learning needs for the students in each level, and how you will meet those needs considering the following questions:

<table>
<thead>
<tr>
<th>Questions</th>
<th>Objective Met</th>
<th>Objective Partially Met</th>
<th>Objective Not Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>What patterns or trends are noticed for your students?</td>
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<tr>
<td>Are there gaps in foundational skills that need to be addressed for students to reach proficiency on the grade-level standard?</td>
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<tr>
<td>How will you address missing foundational skills (i.e. mini-lesson, warm-up, small group instruction, stations, etc.)?</td>
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<tr>
<td>How will you re-teach the grade-level concept (i.e. mini-lesson, warm-up, small group instruction, stations, etc.) and what will you do differently?</td>
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<tr>
<td>Special Education Teacher: What co-teaching method will you use for re-teaching?</td>
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<tr>
<td>Are there IEP accommodations that need to be provided for students to have improved access to this grade level standard?</td>
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<td>What extensions will you provide to challenge students who mastered the concept?</td>
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