College and Career Readiness Standards-in-Action

ADVANCED UNIT

1

FACILITATOR GUIDE FOR MATHEMATICS

ALIGNING CURRICULUM RESOURCES WITH STANDARDS

2016

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BACKGROUND AND PURPOSE

States around the nation are integrating college and career readiness (CCR) demands into their adult education programming. Raising the academic bar reflects a willingness on the part of states to act on the empirical evidence of what colleges and employers require of prospective students and employees.

The U.S. Department of Education's Office of Career, Technical, and Adult Education (OCTAE) has been supporting states' efforts, for over a decade, through its program of national leadership activities. A technical assistance report was produced for states to voluntarily employ when strengthening their academic programs.[1] OCTAE then initiated the Implementing CCR Standards in Adult Education project, more commonly known as CCR Standards-in-Action (CCR SIA). Since 2014, the CCR SIA project has developed several professional development units.

The CCR SIA project initially developed four foundational professional development units to ensure that instructors clearly understand the intent and meaning of CCR standards. At their heart is a focus on the most critical content and processes for developing the kind of mathematics mastery needed for college and careers. Through Foundational Units 1–4, adult educators learn how important it is to concentrate mathematics instruction on three key instructional advances:

- Focusing deeply on the major work of each level;
- Designing learning based on coherent progressions from level to level; and
- Pursuing conceptual understanding, procedural skill and fluency, and application—all with equal intensity.

States that are deeply involved in implementing CCR standards report that the training embedded in Foundational Units 1–4 has been an essential first step in helping adult educators become comfortable with the instructional, curricular, and leadership demands of the three key advances.

Once instructors clearly understand the intent and meaning of CCR standards, the next step is to work through how, over time, they will support students in meeting them. This work is at the heart of Advanced Unit 1. It builds on and extends the content of the foundational units.

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[1] The CCR Standards for Adult Education report is available at:
http://lincs.ed.gov/publications/pdf/CCRStandardsAdultEd.pdf. (2013)

Advanced Unit 1 increases the level of engagement with the key instructional advances in the areas of application, experimentation, advocacy, and innovation. The training embedded in Advanced Unit 1 not only deepens adult educators' understanding of the intent and meaning of the standards; it introduces teacher-friendly tools to facilitate effective standards-based instruction. Advanced Unit 1 materials and methods:

- Delve into the instructional and institutional implications of level-specific CCR standards; and
- Help shape the approach adult educators will take in teaching the standards and in sustainably implementing standards-based reforms.

Curriculum resources—often purchased by a program—play a central role in how most instructors organize content and set learning tasks. Research shows that resources like textbooks and workbooks greatly influence how teachers make the leap from intentions and plans to tangible classroom activities.[2] In recognition of our reliance on curriculum resources as guides for instruction, Advanced Unit 1 focuses on how to analyze and then adapt curricula to align with CCR standards. The specific objectives of this unit are twofold:

- To teach adult educators how to analyze the degree of alignment between adult education curriculum resources and the expectations of CCR standards; and
- To teach adult educators how to modify curriculum resources so that they tightly align with these standards.

Checking for alignment ensures that instructors will provide instruction centered on what CCR standards demand—not simply on what the current curriculum focuses. Learning how to evaluate curriculum resources builds instructors' capacity to align their teaching with the standards. It also provides instructors with opportunities to work together to define what CCR standards-based instruction should look like.

> Checking for alignment ensures that instructors will not simply teach what the current curriculum focuses on, but rather provide instruction centered on what the new standards demand.

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[2] Association for Supervision and Curriculum Development. (1997). Education Update, Vol. 39, No. 1.; Schmidt, W. H., McKnight, C. C., & Raizen, S. A. (1997). A Splintered Vision: An Investigation of U.S. Science and Mathematics Education. Boston/Dordrecht/London: Kluwer Academic Publishers.

Achieving both objectives of Advanced Unit 1 requires an understanding of both the standards and the curriculum. Research shows that instructors who know what standards they are adopting are the individuals best positioned to evaluate and rewrite curriculum resources currently in use.[3] Immediately addressing the gaps they identify in the analysis of curriculum resources increases the buy-in that is so vital for effective curriculum reform. The process of identifying and filling gaps in curricula also provides instructors with readily available resources aligned with the standards.

By taking these actions, instructors will increase their understanding and ownership of the standards. They will also gain the skills needed to align curriculum resources and put the resources to use in implementing instruction that fully addresses the standards. Records of these evaluations and subsequent revisions will also serve as valuable resources for staff who were not involved in the original evaluation and revision processes.

Share the results across programs! Sharing provides a practical way to disseminate important information about the demands of the standards and how well certain curriculum resources align with them.

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[3] Judy A. Johnson, EdD. Principles of Effective Change: Curriculum Revision That Works.

OVERVIEW

The method outlined below will empower adult educators in your state to answer two crucial questions:

- Are the curriculum resources we are using tightly aligned with CCR standards?
- How can we modify curriculum resources currently in use to more tightly align with CCR standards?

PART 1 of the advanced unit begins with teaching adult educators how to discern what curriculum resources aligned with CCR standards look like. First, they will review the alignment and utility of a sample set of lessons from an adult education curriculum resource you choose using the Mathematics Resource Alignment Tool. That tool is organized around the key advances and level-specific demands of CCR standards.

PART 2 of the advanced unit teaches adult educators how to begin to fill alignment gaps in the curriculum resource by selecting one lesson to improve using the Mathematics Resource Revision and Lesson Revision Templates. The result will be a lesson that exemplifies both the key advances and level-specific demands of the standards and can be seamlessly integrated into instructors' existing curriculum.
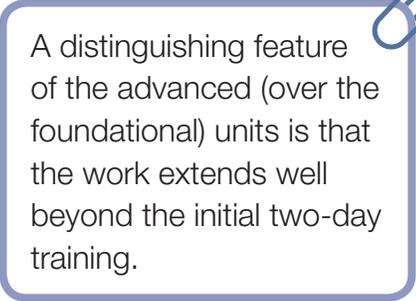
> A distinguishing feature of the advanced (over the foundational) units is that the work extends well beyond the initial two-day training.

PART 3 of the advanced unit focuses on organizing production teams who can continue the work subsequent to **PART 1** and **PART 2** training. A distinguishing feature of the advanced (over the foundational) units is that the work extends well beyond the initial two-day training. Teams, made up of trained adult educators, will be asked to revise additional lessons in the curriculum resource over several months. You will want to set expectations for how many lessons in the curriculum resource(s) will be modified, over what period of time, and how the work will get done (e.g., in person or virtually, in small or larger teams, using different levels of review).

WORKSHOP MATERIALS

- Resource Alignment Tool for Mathematics

- Mathematics Resource Revision Template

- Lesson Revision Template for Mathematics

- Support documents
    - CCR Content Progressions
    - Standards for Mathematical Practice

- PowerPoint slide presentation

- Reference copies of the state's mathematics CCR standards (one per table)

- Curriculum resource of your choice to review

TIME FRAME

The initial process of evaluating a curriculum resource for its alignment with CCR standards **(PART 1)** will take 5 to 7 hours.

The time needed to revise one lesson **(PART 2)** in the curriculum resource will vary depending on how much modification is required to bring it into alignment. The initial training to modify a lesson could take 6 to 8 hours.

Once reviewers have been trained and are familiar with the process, adult educators should be able to revise subsequent lessons in the curriculum resource **(PART 3)** in less time, about 2 to 3 hours.

PREPARATIONS

Determine which curriculum resource will be analyzed. Organize each training session by common curriculum resource and level of learning. This way, all participants in the room can share their findings and insights. If you are able to choose a curriculum resource that most people are currently using, ask them to bring copies to the training session.

Get acquainted with the curriculum resource that training participants will evaluate. Doing so will provide you with insight into the content and sequencing of the lessons so you can select a representative sample for participants to evaluate. Ways to understand how a curriculum resource is organized and to gain a sense of its content include:

- Examining the table of contents;
- Looking through the introduction, glossary, index, appendices, and any accompanying digital curriculum resources; and
- Scanning assessments (e.g., pre-, post-, self-, summative, formative) for information about the goals and expectations of the lessons.

Select a representative sample of the lessons from the curriculum resource for participants to inspect. Select between 20% and 25% of the lessons in the curriculum resource. Because materials in a curriculum resource commonly are written by the same author(s), participants can gain a sense of its strengths and weaknesses by reviewing a representative sample. (Note: A curriculum resource from the same publisher, but written for another level of learning will need to be evaluated separately. The findings from one level of learning cannot be extrapolated to another level of learning.)

Familiarize yourself with the PowerPoint presentation and participant materials (tools and templates, support documents). Detailed notes in the PowerPoint presentation will help you prepare for the training. Notes for each slide include the identification of the Big Idea, Facilitator Talking Points, and Facilitator Notes. These will help you frame your presentation and provide important context. The slides, coupled with the information in this Facilitator Guide, should give you the support and guidance necessary to lead a successful training. Consider rehearsing before the training so you master the material. With practice, you will be able to put ideas in your own words rather than read the slides word-for-word, as well as answer questions from training participants as they come up.

Prepare the training materials. If possible, provide digital copies of the materials to participants before the training (on USB flash drives or through email). Then staff members can evaluate and align curriculum resources electronically—an efficient way for them to complete the work. If materials cannot be made available electronically, make copies of the materials listed on page 4.

Create small groups of participants, ideally four to eight at each table. The maximum size of a group for this training depends on your space, need, and comfort level. Make the group small enough so that you can interact with each table of participants. This way you can make sure participants understand the concepts and are fully engaged.

Select table leaders in advance, or ask each table to choose a leader. Table leaders should keep track of time and make sure activities are moving along. Table leaders can also share information with the table and notify you when there are questions or if the group needs more support. (If you choose table leaders in advance, provide them with copies of the PowerPoint presentation, agenda, and all participant materials, including the tools and templates and the support documents.)

IMPLEMENTATION DIRECTIONS

PART 1—EVALUATE THE ALIGNMENT OF AN ADULT EDUCATION CURRICULUM RESOURCE WITH CCR STANDARDS

Introduce the purpose of Part 1 and review the evaluation process (Slide 3).
Explain that the process performed in Part 1 helps determine the degree of alignment of curriculum resources with CCR standards. Organized by the key instructional advances of the standards, the Mathematics Resource Alignment Tool is a guide to highlight a curriculum resource's strengths and gaps in alignment. The tool prioritizes actions needed to modify the curriculum resource to achieve closer alignment with the standards. The tool, once filled in, also provides documentation for other instructors to follow when determining whether and how the curriculum resource will benefit them.

Introduce the Mathematics Resource Alignment Tool (Slides 4-5). Go over the tool with participants. The criteria in the Mathematics Resource Alignment Tool reflect the most significant advances in instruction that CCR standards require. They detail what it means for curriculum resources to be aligned with those criteria. Review the directions as well as the three key evaluation criteria:

Criterion 1 **Focus:** Does the curriculum resource focus strongly where the standards focus, including the relevant Standards for Mathematical Practice?
> *Rationale: Focusing instruction on concepts and skills that are deemed the highest priority for each level will ensure that students have a strong educational foundation. They will then possess the knowledge and skills they need to be prepared for college and careers.*

Criterion 2 **Coherence:** Does the curriculum resource design learning around coherent progressions between and within levels?
> *Rationale: Carefully connecting learning within and across levels allows students to build on their understanding of concepts learned previously. Mathematics is not a set of disconnected topics or algorithms; it is a coherent body of knowledge made up of interconnected concepts. Instruction needs to reflect this.*

Criterion 3 **Rigor:** Does the curriculum resource pursue conceptual understanding, procedural skill and fluency, and application with equal intensity?
> *Rationale: The CCR standards call for students to acquire: 1) a deep, authentic command of critical mathematical concepts; 2) speed and accuracy in making core calculations; and 3) the ability to use those skills and knowledge flexibly in real-world and mathematical applications.*

Scan the contents of the sample curriculum resource (Slide 6). Once you have introduced the Mathematics Resource Alignment Tool, give participants about 15 minutes to get acquainted with the sample curriculum resource they will be evaluating. The table of contents is a good place to start. It will tell participants what pieces of content are included and how the curriculum resource is organized. (Lesson titles typically indicate lesson content.)

Next to each lesson title, ask participants to jot down the possible standard and/or level that the curriculum resource appears to address. Resources often address multiple levels. As a group, determine the predominant level that the curriculum resource addresses; lessons within the curriculum resource will be evaluated against that level.

After reviewing the table of contents, ask participants to skim the assessments, glossary, index, appendices, teacher notes, and other materials, if they are included. This way participants will know where to look for certain information as they evaluate the alignment of lessons within the curriculum resource with each criterion.

While the criteria and dimensions differ in substance, the evaluation steps are the same from criterion to criterion.

Address Criterion 1 Focus:

Take the following steps to show participants how to evaluate the alignment of the curriculum resource to this criterion.

Provide a brief presentation on Dimension 1.1 from the Resource Alignment Tool: Major Work of the Level (MWOTL) (Slides 7–10). Provide a rationale and the impact this dimension should have on what participants find in the curriculum resource. Explain that this first dimension stresses the need to narrow the scope of content so that students and instructors can better focus their time and energy. Point out that research shows that concentrating on too many topics at once has a negative impact on student performance; focusing gives students a strong foundation and uses instructional time productively.[4] Therefore, participants should expect that most lessons in the curriculum resource focus on the most critical concepts for that level. Introduce the support materials that can be used to assist with the evaluation process. Instruct participants to use the CCR Content Progressions and CCR standards for mathematics as they analyze the degree of alignment. These materials will help participants determine if the curriculum resource targets standards that address the critical concepts of the level associated with the resource.

> Explain that this first dimension stresses the need to narrow the scope of content so that students and instructors can better focus their time and energy.

Review the guiding questions related to Dimension 1.1. Then ask participants to work at their tables to look for evidence in the curriculum resource to support their answers (Slide 11). Walk participants through the guiding questions for this dimension. Ask them to examine the table of contents, looking for content tied to the MWOTL as identified by the CCR Content Progressions.

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[4] Trends in International Mathematics and Science Study (TIMSS), 2007; Schmidt, W.H., and Houang, R.T., "Lack of Focus in the Intended Mathematics Curriculum: Symptom or Cause?" in Loveless (ed.), *Lessons Learned: What International Assessments Tell Us About Math Achievement.* Washington, DC: Brookings Institution Press, 2007; and Schmidt, W.H., H.A. Wang, and C.C. McKnight, (2005) "Curriculum Coherence: An Examination of US Mathematics and Science Content Standards From An International Perspective," Journal of Curriculum Studies, 37(5).

Ask participants to complete the evaluation of Dimension 1.1 with others at their table (Slide 12). Give participants about 15 minutes to review the selected lessons in the curriculum resource. They need to record the strengths and weaknesses of the curriculum resource, and rate the dimension as:

- **Meets:** There is evidence in the resource to indicate that this dimension is met;
- **Partially Meets:** There is evidence in the resource to indicate that the dimension can be met with some revision; or
- **Does Not Meet:** There is little or no evidence in the resource to indicate that the dimension is being met. Substantial revision is needed for alignment.

Provide a brief presentation on Dimension 1.2 from the Resource Alignment Tool: Standards for Mathematical Practice (Slides 13–17). Provide a rationale and the impact this dimension should have on what participants find in the curriculum resource. Explain that this second dimension explores the important role that the Mathematical Practices play in understanding content and developing effective habits of mind. In your presentation, point out that research shows that employing the Mathematical Practices leads to deeper understanding of concepts and procedures.[5] This deeper understanding enables students to extend their thinking to new situations both in and outside of the classroom. Therefore, participants should expect that each lesson in the curriculum resource meaningfully connects mathematical content to one or more of the Standards for Mathematical Practice. Introduce the support materials that can be used to assist with the evaluation process. Instruct participants to use the Standards for Mathematical Practice to determine if the curriculum resource is targeting practices that are meaningfully connected to the content of each lesson.

> Explain that this second dimension explores the important role that the Mathematical Practices play in understanding content and developing effective habits of mind.

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[5] National Council of Teachers of Mathematics. Curriculum and Evaluation Standards for School Mathematics (1989) and Principles and Standards for School Mathematics (2000); Adding it Up: Helping Children Learn Mathematics. National Research Council, Mathematics Learning Study Committee, 2001; and, Ready or Not: Creating a High School Diploma That Counts. American Diploma Project, 2004; 2009 ACT National Curriculum Survey.

Review the guiding questions related to Dimension 1.2. Then ask participants to work at their tables to look for evidence in the curriculum resource to support the answers (Slide 18). Walk participants through the guiding questions for this dimension. Ask them to determine whether at least one (and no more than four) of the Standards for Mathematical Practice is targeted in a selected lesson. If so, determine whether the selected Standards for Mathematical Practice are central to the goals of the lesson. Participants should determine whether meaningful connections have been drawn between the content of the lessons and the targeted Standards for Mathematical Practice.

Ask participants to complete the evaluation of Dimension 1.2 with others at their table (Slide 19). Give participants about 15 minutes to review the rest of the lessons, record the strengths and weaknesses of the curriculum resource, and rate the dimension.

Conduct a group debrief of Criterion 1 (Slide 20). See which concepts participants found in the lessons that qualify as the MWOTL and whether the supporting concepts are linked directly to major concepts. Also check that they found the Standards for Mathematical Practice that are central to the lesson and listed them as targets, and whether they suggested others.

Consider what high-value actions (listed in the Mathematics Resource Alignment Tool) to take to improve the alignment of the curriculum resource with Criterion 1 (Slide 21).

Address Criterion ② Coherence:

Take the following steps to show participants how to evaluate the alignment of the curriculum resource to this criterion.

✏️ **Provide a brief presentation on Dimensions 2.1. and 2.2 from the Resource Alignment Tool: Coherence Across Levels and Coherence Within a Level (Slides 22-24).** Provide a rationale and the impact this dimension should have on what participants find in the curriculum resource. Explain that these two dimensions emphasize the importance of coherently developing students' skills—not only within individual lessons but also across the levels. Point out that research shows that extending and building on previous learning allows students to successfully deepen their understanding and apply it in new situations.[6] Therefore, participants should expect that the curriculum resource lessons regularly and explicitly connect on-level concepts to prior knowledge and to future learning.

> Point out that research shows that extending and building on previous learning allows students to successfully deepen their understanding and apply it in new situations.

✏️ **Review the guiding questions related to both dimensions (2.1 and 2.2). Then ask participants to work at their tables to look for evidence in the curriculum resource to support their answers (Slides 25-26).** Ask participants to look for evidence in the sample resource of a coherent sequence of learning, both within and across lessons, using the CCR Content Progressions. To expedite the review, ask some of the participants at each table to review about half of the selected lessons and the rest of the participants to review close to the other half, with a small overlap in the number of lessons that all members at each table review. Then ask participants to talk about their findings with others at the table.

✏️ **Ask participants to complete the evaluation of both dimensions (2.1 and 2.2) with others at their table (Slide 27).** Give participants about 10 minutes to work so they can both record the strengths and weaknesses of the curriculum resource and rate the dimensions.

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[6] Schmidt, W.H., H.A. Wang, and C.C. McKnight, (2005) "Curriculum Coherence: An Examination of US Mathematics and Science Content Standards From An International Perspective," Journal of Curriculum Studies, 37(5); Schmidt, W.H., and Houang, R.T., "Lack of Focus in the Intended Mathematics Curriculum: Symptom or Cause?" in Loveless (ed.), *Lessons Learned: What International Assessments Tell Us About Math Achievement.* Washington, DC.

Conduct a group debrief of Criterion 2 (Slide 28). Get a sense of what participants think about the curriculum resource's degree of coherence both within and across the lessons, and, to the extent possible, across levels. Ask what questions they still have about the role of coherence in a resource.

Consider what high-value actions (listed in the Mathematics Resource Alignment Tool) need to be taken to improve the alignment of the curriculum resource with Criterion 2 (Slide 29).

Address Criterion 3 Rigor:

Take the following steps to show participants how to evaluate the alignment of the curriculum resource with this criterion.

✏️ **Provide a brief presentation on Dimensions 3.1 and 3.2 from the Resource Alignment Tool: Conceptual Understanding, Procedural Skill and Fluency, and Application (Slides 30–32).** Provide a rationale and the impact this dimension should have on what participants find in the curriculum resource. These dimensions focus on the importance of rigorous instruction. Explain to participants that students who come from classrooms with rigorous instruction will gain important skills and knowledge. This includes conceptual understanding that they can generalize and apply to new scenarios as well as the ability to perform calculations fluently when solving problems. Therefore, participants should expect that the curriculum resource regularly:

- Helps develop students' conceptual understanding through tasks, problems, questions, multiple representations, and opportunities for them to write and speak about their understanding;
- Asks students to perform calculations and use mathematical procedures quickly and accurately; and
- Requires students to engage in rigorous applications of mathematics in real-world and mathematical contexts.

✏️ **Review the guiding questions related to these three dimensions (3.1, 3.2, and 3.3). Then ask participants to work at their tables to look for evidence in the curriculum resource to support the answers (Slides 33–35).** Ask participants to skim the curriculum resource to see if an appropriate balance among the three components of rigor has been achieved. (You can divide the workload and save time by assigning one dimension of rigor to each group of participants.) While all three dimensions of rigor should be apparent in a representative sample of lessons, not all three dimensions must be stressed in every lesson. For example, if the targeted standards for a set of lessons address fluency, little time should be spent on conceptual understanding.

> While all three dimensions of rigor should be apparent in a representative sample of lessons, not all three dimensions must be stressed in every lesson.

Ask participants to complete the evaluation of these dimensions with others at their table (Slide 36). Give participants about 20 minutes at their tables so they can both record the strengths and weaknesses of the curriculum resource and rate the dimensions.

Conduct a group debrief of Criterion 3 (Slide 37). Get a sense of how well participants thought the curriculum resource maintained rigor across the three different dimensions. Check on the level of consensus in the group and find out what questions they still have about the role of rigor in mathematical resources.

Consider what high-value actions (listed in the Mathematics Resource Alignment Tool) need to be taken to improve the alignment of the curriculum resource with Criterion 3 (Slide 38).

Direct participants to give the curriculum resource an overall score and review the evaluation process (Slide 39). Participants should determine if the curriculum resource is tightly, partially, or only weakly aligned with the standards. They should then summarize the curriculum resource's overall strengths and weaknesses with regard to the three criteria to decide on an overall score. Ask participants to note the extent to which each dimension is met based on the amount of evidence present:

- **Tight Alignment:** Most (four or more) of the dimensions are rated as *Meets*, with the remainder rated as *Partially Meets*. There are only a few minor revisions (or none at all) needed to improve alignment of the resource with the CCR standards..
- **Partial Alignment:** Most (four or more) of the dimensions are rated at least as *Partially Meets*. Moderate revisions are needed to improve alignment of the resource with the CCR standards.
- **Weak Alignment:** Most (four or more) of the dimensions are rated as *Does Not Meet*. Substantial revisions are needed to improve alignment of the resource with the CCR standards.

Once participants have scored the curriculum resource, briefly review the steps participants took to evaluate it. Point out that these steps not only identified the present degree of alignment with the standards, but now provide a road map for revising the curriculum resource in Part 2 of the training.

Review Part 1 process and provide time for questions and comments about Part 1 before continuing to Part 2 (Slides 40–41).

PART 2—FILL ALIGNMENT GAPS IN THE CURRICULUM RESOURCE

Introduce the purpose.	Address the focus of the resource as a whole.	Select one lesson to revise.	Fill in introductory information.	Address the three key advances.	Add explanatory notes to instructors.

Introduce the purpose of Part 2 and review the revision process (Slides 42–43). By now, participants have evaluated the alignment of an adult education curriculum resource with CCR standards and identified strengths and gaps. Now, it is time to determine how to strengthen the alignment of the resource to the standards. The curriculum resource revision process has six basic steps. They are shown in the diagram above.

Address the focus of the curriculum resource as a whole. Review each element of the Mathematics Resource Revision Template (Slides 44–45). Using the Mathematics Resource Revision Template, participants should list the lessons that address the MWOTL. This will leave a "trail" for instructors who use the curriculum resource later so that they know what content is focused on in the lessons. They should also identify content that is not covered in the curriculum resource and will need to be supplemented with other sources. If needed, rearrange the lessons so that the sequence of knowledge and skills learned in the curriculum resource has a natural and logical flow and supports student learning.

Begin the revision process by selecting one lesson from the curriculum resource being reviewed (Slide 46). Review each element of the Mathematics Lesson Revision Template. Review this lesson, keeping in mind the high-value actions identified in Part 1 of the training and captured in the Mathematics Resource Alignment Tool. Then systematically improve the lesson by adding content wherever a gap has been identified.

Fill in introductory information for the lesson that is being strengthened (Slide 47). Using items 1-5 in the Lesson Revision Template, instruct participants to identify the original source of the lesson: the name of the curriculum resource and publisher, the lesson title, and the page number. They should provide a brief description of how the lesson will be used. For example: Is it meant to replace the lesson in the curriculum resource? Add content to the original lesson? Fill specific gaps? Also identify the intended instructional level of the lesson. Participants should specify the learning goals by answering the question: What are the important concepts, topics, and skills students need to know and be able to do by the

end of the lesson? They should identify what, realistically, can be taught and learned in that time frame. They should then insert the number of learning sessions and estimated number of hours needed to teach the lesson.

Address focus (Slides 48–51). Using items 5-7 in the Lesson Revision Template, instruct participants to select a small set (three to four) of the key CCR standards that represent the MWOTL and that are connected to the learning goals and content of the lesson. They should also identify at least one (no more than four) of the Standards for Mathematical Practice that is central to the lesson goals. Finally they should draw meaningful connections between the Standards for Mathematical Practices and the content of the lesson. Gather reflections and questions participants have about addressing focus in lessons. (Participants should use the CCR Content Progressions and Standards for Mathematical Practice to help them.)

Address coherence (Slides 52–54). Using items 8-9 in the Lesson Revision Template, if missing in the original lesson, participants should add a description of how the highly relevant content of the lesson is related to other content taught at the lesson's level and how it fits into a sequence of learning. They should also identify the prerequisite or foundational understanding students need to succeed in this lesson. Gather reflections and questions participants have about addressing coherence in lessons. (Participants should use the CCR Content Progressions to help them.)

Address rigor in the lesson (Slides 55–59). Using item 10, instruct participants to add or revise tasks and/or activities to address the component(s) of rigor that were found to be missing in the lesson during Part 1. Ask participants to explain the addition(s)/revision(s). For example, if the lesson addresses conceptual understanding, participants should add a couple of high-level discussion questions. If the lesson addresses application, they should add challenging problems and show how to gradually move students toward independence. If it addresses procedural fluency, participants should add opportunities for students to practice using the required skills. Use the screen shots for the Illustrative Mathematics website as an example of a resource that can be used to enhance the rigor of lessons. Gather reflections and questions participants have about including rigor in lessons.

Add explanation notes to instructors who may use this lesson in the future (Slide 60). Address in item 11 of the Lesson Revision Template. These could include:

- Additional instructions to clarify connections to past or future lessons;
- Ways to observe or assess the relevant Standards for Mathematical Practice;
- Specific scaffolds to help students who are struggling with understanding the content; and
- Suggestions about how to rearrange the sequence of lessons to improve flow and understanding.

Once the lesson has been revised and additional lessons have been targeted for revision, briefly review the steps that participants took to align the curriculum resource with CCR standards.

Finally, ask participants to reflect on the training activities and on what they learned (Slide 61). Below are some discussion questions to consider:

- What worked well and what could be improved?
- How has participating in these activities changed your thinking about CCR standards?

PART 3—COMPLETE THE CURRICULUM RESOURCE FOR INSTRUCTIONAL USE

Introduce the purpose for continuing work beyond the initial training and organize production teams to revise additional lessons (Slides 62–63). You could organize a expert curriculum team to revise and adapt the lessons in curriculum resources that have been evaluated. Alternatively, you could form two- or three-person teams of trained participants who would work together to revise additional lessons, meeting either in person or virtually. If a resource is being used within a region or across a state, you could divide the revision work across several programs. Decide who will be responsible for keeping group members on task as they work to strengthen the alignment of lessons in their curriculum resource with CCR standards. Set a timeline for and check points during the revision process, including review of the adapted lessons.

Set expectations for how many lessons in the curriculum resource will be modified, over what period of time, and how the work will get done after the training (Slide 64). Here are some questions to guide your decision-making:

Q1: How many programs in your state are using this curriculum resource? Can you divide the revision work across several programs?

Q2: How much of the curriculum resource do you need to improve to provide instructors with enough guidance to continue revising it on their own?

Q3: Are there certain people who could take charge of the effort to align lessons for each curriculum resource?

Q4: Can you organize instructors in groups of two or three to revise lessons in a curriculum resource over time?

Q5: Can different sets of partners review each other's work?

Q6: What is the timeline (in months) for the revision approach you have selected?

Q7: Where could the revised lessons be stored so all educators in the state could access them?

Build a curriculum resource library (Slide 65). Gather the work of various teams to showcase:

- Evaluations that show the alignment of each curriculum resource with CCR standards; and
- Lessons (aligned with CCR standards) from the curriculum resources that were modified to fill identified gaps.

Sharing the results of the evaluation and revision of curriculum resources provides a practical method for disseminating information to those who were not originally involved in evaluating and revising them. This includes information about the demands of CCR standards, how well curriculum resources align, and how to continue to revise curriculum resources.

Provide time at the end of the session for questions and comments regarding the presentation (Slide 66).