

This paper explains the background, principles, and detailed recommendations for the assessment changes to *Everyday Mathematics 4*. These recommendations were made only after a long process of proposing, evaluating, and revising recommended changes to assessment. Please note that these recommendations were made prior to the commencement of the formal writing process of *Everyday Mathematics 4*. As authors worked to enact these, and other recommendations, they often found that they needed to make changes based on what they found as they wrote and field-tested lessons. As a result, you may notice slight differences between these recommendations and the actual content of *Everyday Mathematics 4*. It is reasonable to assume that these differences are the results of decisions made during the formal writing and field-testing process, and were enacted after consulting with the authors of these recommendations. For more information about the writing process, please see the paper, “*Everyday Mathematics and the Writing Process*”.

## **BACKGROUND**

Three important resources have influenced our thinking and recommendations in this paper: information from current *EM* users, key pieces of research about assessment, and the work of the Common Core State Standards assessment consortia, PARCC and Smarter Balanced.

### ***Information from Everyday Mathematics Third Edition Users***

In preparing to begin revisions to the assessment strand for *EM4*, we talked with various groups about their assessment needs and wants. These information-gathering sessions included:

- a focused discussion with our District Advisory Panel (math leaders from schools and districts using *EM*);
- a focus-group style assessment seminar with *EM* authors and editors, other CEMSE staff, and interested guests;
- an open discussion with the *EM* Summer Fellows (teachers and consultants who worked with us during the summer of 2011); and
- a small focus group of local *EM* teachers who have demonstrated particular interest and expertise in issues related to assessment and differentiation.

In addition to these more formal and targeted discussions, the authors of this paper have spent considerable time in classrooms helping teachers implement and manage the assessment structures in the third edition of *EM* and gathering informal feedback. We have also closely monitored the assessment wants, needs, and challenges of current *EM* users through the *EM* Center and listserv that CEMSE moderates, through professional development sessions, through ongoing discussions with McGraw-Hill about feedback they receive, and through various other interactions with users.

Across all of these sources of information, we have noted substantial consensus on a significant number of topics. The list below describes things that we have heard from many users, loosely organized by topic. This collection of ideas was one very important influence on our current thinking about assessment for *EM4*.

### ***In-Lesson Assessment***

- Users want an assessment structure—such as the Recognizing Student Achievement (RSA) notes from *Everyday Mathematics Third Edition*—linked to Part 1 of every lesson. Some users suggested that there should/could be multiple RSAs, one in each of the parts of a given lesson, but if there has to be just one, they reported that having one that links to Part 1 lesson content is the most important.
- Users want assessments they can use to help them group children for small-group instruction/centers/workshop models, at least some of the time.
- Related to the above, users want some intervention suggestions to be linked to these in-lesson assessment suggestions. For example, “If children do \_\_\_\_\_, then you might do \_\_\_\_\_.”

### ***End-of-Unit Assessment***

- Users would like there to be more items on Progress Check (PC) lessons (the end-of-unit assessments) that connect to the content in Part 1 of the lessons in the unit.
- Users weren’t opposed to also having items in the end-of-unit assessment that assessed long-term retention and application, but felt strongly that the purposes for these different types of items should be made very clear to teachers, parents, and even students.
- Our intended purpose of Part B of the *Everyday Mathematics Third Edition* PC lessons (written as formative assessment) is confusing for parents, students, and some teachers. There was not opposition to including items like those currently on Part B, but the purpose needs to be made more clear, perhaps by having this as a separate assessment.
- Users seem to want more data on each skill and concept, specifically in PC lessons where they thought that there should be multiple items on the same skill or concept. Some suggested that these multiple items should increase in difficulty.
- Users see the PC lessons as serving purposes beyond what we may have envisioned in prior editions of *EM*. For example, they see them as tools for informing parents about what is expected and also as tools for helping children learn to study for tests. In addition, users see the PC lessons as a venue for practicing certain test-taking skills
- Users often spend more than one class session preparing for and administering the PC lessons.
- Almost no one reports using the Oral and Slate assessments in the PC lessons, mostly due to logistical constraints. But, they do think that we should offer interview formats, especially for ELL students and students who are otherwise unable to show all they know through written assessments. Peer assessment was mentioned as an additional possibility.
- Users think the format and layout of the PC assessments are not very kid-friendly and are particularly challenging for non- or early-readers.

### ***Open-Response Tasks***

- Users value the Open-Response (OR) tasks. Everyone we talked to would like more *instruction* related to the OR tasks, and most suggested that these tasks would do well as lessons in and of themselves – especially as a way for students to learn strategies for solving problems and as opportunities to communicate solutions both within groups and in writing before the PC lessons.

- Users suggest that the OR tasks are valuable contexts by which to assess the Standards for Mathematical Practice from the Common Core State Standards. Users would like a rubric or rubrics for such assessment.
- Users express reservations about evaluating work when students work in groups on such problems. Many are not comfortable assigning grades on tasks that are not done independently.

### ***Clarifying the Spiral***

- Users would definitely like to know at what point instruction for a given topic “tops out” in the program. Most would also value identifying lessons as introductory/exploratory vs. practice vs. mastery.
- Users would like more clarity about: 1) when EM expects children to know or master certain things, and 2) how to use the assessment system to monitor students’ progress/growth toward these expectations. They report that the EM “spiral” and the current assessment system make both of these things confusing for teachers and parents.

### ***Response to Intervention***

- Users did not specifically mention Response to Intervention (RtI) much, or perhaps even at all.
- There was talk of “progress monitoring,” which is an RtI term, but none of “screening” or “diagnostic testing,” which are other types of RtI assessments.

### ***Miscellaneous***

- Users want more help with scoring and grading. Rubrics were mentioned on several occasions.
- Users seem quite willing to mix and match and create from a variety of assessment tools to create a system that works for them and their context. It is unclear whether this is because we didn’t create something in the third edition that they found useful or whether it is because they want or need to make their own, no matter what we provide.
- Users want game masters for all games, in part because the masters can be used for assessment.

### ***Information from Research***

We have been influenced by the work of Dylan Wiliam and Paul Black; James Pellegrino; Robert Bjork, Doug Rohrer, and Hal Pashler; and Hugh Burkhardt, Alan Schoenfeld, and MARS / Balanced Assessment / SVMi / Shell Centre. The documents we studied are listed at the end of this paper.

Several features of the assessment tools and structures we have in mind for EM4 are based on our reading of these and related documents. For example, our reading of Bjork, Rohrer, Pashler, et alia reinforced our belief in a distributed approach to instruction, practice, and assessment and led us to distinguish between “short-term performance” and “long-term learning” in *EM4* and to target different assessment structures at each of these.

The work that Pellegrino and others have done on learning trajectories (LTs) has provided a metaphor that we have found useful for designing assessments of concepts and skills. But the LT approach is problematic. One problem with LTs is choosing the right “grain size.” Too fine a grain size will atomize the curriculum, but too coarse a grain size will not provide information that is “actionable.” Another problem with LTs is that for many topics, the learning science does not provide sufficient guidance, so that substantial professional judgment is required, judgment that may at times conflict with that of the CCSS writers. A third problem is that LTs depend on the instructional history of the learner, so that it is impossible to delineate LTs without also delineating a curriculum.

In theory, the LT metaphor could be useful for assessing CCSS’s Standards for Mathematical Practice (SMPs), but the necessary learning trajectories do not exist even in rough form. So we are instead considering trying to measure “growth” on the SMPs, though exactly how we define growth without LTs is not clear.

William and Black and others have emphasized the importance of formative assessment and providing “actionable” information to teachers. While we have found some suggestions, such as using “hinge point” questions, difficult to implement, we have made formative assessment the principal purpose of the assessment tools and structures we are designing for *EM4*.

Shavelson and many others have been exploring the use of technology to gather and analyze assessment data from students’ daily work. While such technology is not likely to be widely available in elementary classrooms by 2014, we believe we need to lay the groundwork now so that we will be ready when the technology does become available. So, for example, using “preview” and “prerequisite” Math Boxes for assessment will be much easier once the children’s Math Journals are running on networked tablet computers.

### ***The Influence of PARCC and SBAC***

Our Assessment Working Group has been following the work of the two assessment consortia, PARCC and SBAC, with interest. Although the timeline of the development of the consortia’s standardized assessments overlaps the development of EM4, we will continue to follow the consortia’s work and take it into account throughout our own development process.

### **Principles**

Based on the information we collected from EM users, from internal and external experts, and from our research, we believe that assessment in EM4 should be based on the following principles:

1. Assessments in EM4 must be linked to CCSS.
2. Assessments embedded in EM should be manageable for teachers.
  - Designing in-lesson assessments to inform instruction and focusing them on current instructional emphases will make ongoing assessment more manageable. Information from such assessments can be informally aggregated in teachers’ heads and used to inform decisions about near-term instruction.

- Relying more on episodic assessments in the Progress Check lessons for data for grading will also make teachers' work easier.
  - We need the assessment system to be as simple as possible.
  - Digital technology for collecting, storing, and analyzing assessment data will be necessary to get the full benefit from the assessment tools we intend for EM4, but we must also provide a workable system for teachers who are implementing the assessment system without such technology.
3. Assessments in EM should be worthwhile learning experiences.
    - Concerns about assessment taking time away from instruction can be alleviated if assessments are instructionally valuable.
    - The flip side is that many tasks designed primarily as learning experiences can also provide useful assessment data.
  4. Assessments in EM should be primarily aimed at informing instruction.
    - Assessments should help teachers judge whether children are making adequate progress towards mastery of the Common Core State Standards.
    - Assessments should provide information that is instructionally actionable. We should provide specific "If \_\_\_\_, then \_\_\_\_" statements whenever possible.
    - Assessments should serve basic RtI functions, including screening, diagnosis, and progress monitoring. (But the assessments in EM need not be adequate for RtI Tier 3 or SPED purposes.)
    - Assessments should help teachers know when to consider intervening and when "watchful waiting" is appropriate.
  5. Assessments in EM should provide information for grading.
    - Users differ about which tasks and structures are "fair to grade." We should identify a minimal list of "fair to grade" tasks and structures.
    - Teachers may also use other tasks and structures for grading. We should provide guidance about which structures would be more or less suitable for such purposes.
  6. We do not plan to use the terms *formative* and *summative* in the TLG.
    - These terms most properly refer to the uses to which data from assessment tasks is put, not to the tasks themselves. Since we don't know how teachers will use data from our assessment tasks, we will not label tasks (or structures) as *formative* or *summative*.
    - Further, as noted above, we don't agree about which tasks are properly used to generate data for grading, which is the most urgent summative purpose most teachers have.
    - Finally, just about every assessment task embedded in EM can provide data that can be used formatively. To label them all *formative* would be annoying.
  7. Assessments should help clarify the spiral approach to mastery in EM.
    - A key element of EM's spiral is that it aims at long-term learning rather than simply short-term performance. We need to clarify this for teachers, parents, and others.
    - Rather than using terms such as *long-term*, *short-term*, *learning*, and *performance*, which are unfamiliar or contested, we think it better to use terms such as *Unit-Based Assessment*, *Lesson Check-In*, and *Cumulative Assessment*. The "unit" and "lesson"

assessments will focus largely on content that has recently been a focus of instruction, whereas the “cumulative” assessments will include content that has not recently been a focus of instruction or practice.

8. Assessment in EM must strive to assess the entire range of intended outcomes, including both content and processes (SMPs and GMPs).
9. Assessments in EM must be coordinated with the work of the two assessment consortia, PARCC and SBAC.
10. Assessing the SMPs and GMPs is a high priority and will be a focus of continuing work.
11. Developing digital tools for assessment is also a high priority for EM4 and will be another focus for continuing work.

## EM4 Assessment System and Structures

The table below lists the several assessment structures we are planning for EM4 and provides our current thinking about which provide data that may be useful for grading and when each might be released. Note that all structures will provide data that can be useful for informing instruction. The information that follows the table explains each of the structures in more detail.

	<b>Structure</b>	<b>Fair to Grade?</b>
1	Part 1 Check-Ins	Often
2	Preview Math Boxes	
3a	Rubrics for assessing the GMPs	n/a
3b	In-Unit Open Response & Reengagement Lessons	
4a	PC: Self Assessment	
4b	PC: Unit-based Assessment	Always
4c	PC: Cumulative Assessment (in alternate units)	Always
4d	PC: Open Response (in alternate units)	Always
5	Beginning of Year Assessment	
6	Interim Assessments	Always

### 1. *Check-Ins (every lesson except Explorations and Progress Checks)*

As detailed previously, we have received information from many users who told us that they want an assessment structure linked to Part 1 of every lesson. Our understanding was that these teachers wanted a quick, embedded assessment to check in on how students fared with the most important objective(s) in the lesson, and that they would use this feature primarily to make formative decisions related to grouping students, using differentiation activities, and so on.

To address this need, we propose what we have been calling “Part 1 Check-Ins”. Our current conception of these Check-Ins adheres to the following format and guidelines (in brackets):

- *[To check in on how children fared with Part 1 (or “the Teaching portion”) of this lesson...] Do/look at...*

We should identify the most important content from the focus/”Teaching”/Part 1 section of the lesson that teachers would want to check in on; we should aim for this to be something the students will be doing anyway as part of the lesson. This will almost always include mathematical content work; if the Check-In opportunity also embeds

Standards or Goals for Mathematical Practice (SMP/GMP) work, we would include that in the Check-In. Occasionally, the Check-Ins may only address SMP/GMPs, and no content. This is acceptable, but we expect it will be rare. We should link the Check-Ins to whatever standards and, when applicable, SMP/GMPs they address.

- ***Expect that most ...; Don't expect... ; Some may...; Watch for...***

These types of stems can be used alone or in combination to convey information about reasonable expectations based on where the lesson falls in the spiral; often they will sound very much like 3<sup>rd</sup> edition adequate progress statements; more rarely they will convey that expectations are very limited at this point due to limited exposure or experiences.

- ***For students who struggle or excel with... you may wish to...***

If (and only if) warranted, provide possible follow-up information, in brief, for students who did **not** meet expectations as stated. This will be most likely when there is an adequate progress-type statement, as opposed to when the expectations are more limited, as in early-exposure lessons. The follow-up information should be as specific as possible and may include a brief teaching or activity suggestion (e.g., an existing Adjusting the Activity note) or a pointer to a Readiness activity from this lesson or another lesson, a Common Misconception note, or some other differentiation suggestion. In some cases, it may be appropriate to suggest that they do one of these suggestions prior to a specific upcoming related lesson. When appropriate and as space permits, the Check-Ins should also provide follow-up suggestions (e.g., “enrichment” activities, advanced versions of games) for students who exceed expectations.

Below are a few examples of Check-Ins that are representative of what we envision for this assessment structure in terms of substance, format, and length.

#### ***Grade K, Activity 4-4***

*Note whether children can model and solve joining stories with counters. Ask children how the counters and stories are related. Expect that most children will be able to model and solve addition number stories with counters and understand that the counters represent objects or characters in the stories. But since this their first formal exposure to the “+” symbol, do not expect them to fully understand it yet. If children struggle, observe their strategies to see whether the difficulty is in counting or organizing their counters or in understanding the story or the joining/addition action. You may wish to revisit the activities and strategies from Activity 2-14 with these children. For children who exceed expectations, encourage them to solve the stories without counters and to explain their strategies. [OC1, GMP2.1 and 2.2]*

#### ***Grade 1, Lesson 5-12***

*Expect that most children will successfully find the rules for Problems 1 and 2 and use the rules to complete the tables on Math Journal 1, p. X. Don't expect that all children will be able to explain how they found the rule in Problem 3. For children who struggle with "What's My Rule?" problems, have them use counters to explore the relationship between the input and*



*output numbers as suggested in Accommodating Diverse Learners on page Y of this lesson. You might pair children who are proficient with all of the problems on the journal page with a similar-level partner and ask them to make “challenge” “What’s My Rule?” problems for one another using Math Masters, page 323. Post or compile the challenge problems for others to try! [PFA2; GMP8.1]*

### **Grade 3, Lesson 4-5**

*Have students answer the following questions as they play Beat the Calculator or on an Exit Slip: What multiplication shortcuts do you know? Give examples. How could these shortcuts help you when you are the Brain in Beat the Calculator? Expect that students will explain and give examples of at least two multiplication shortcuts taught in the lesson. Expect students to give a reasonable response to the second question, such as: The shortcuts help me answer more quickly; they help me build fact power; or they help me check whether my answer makes sense. To support students as they build fact power, post or have children record these shortcuts on self-stick notes, and continue to refer them frequently as children play Beat the Calculator and solve multiplication problems more generally. [PFA4, GMP8.2]*

### **Grade 5, Lesson 4-7**

*Collect students’ First to 100 Record Sheets and look at how they used number models or responses to help them solve the problems on the problem cards. Expect that students may struggle to write succinct number models or responses to show how they solved the problems, as this is an early exposure to substituting for variables and finding the values of algebraic expressions. They will continue to play First to 100 and encounter algebraic expressions in future units. [PFA2]*

Although the examples above are linked to CCSS-edition Grade-Level Goals and GMPs, we think that they should ultimately be linked to the Common Core State Standards and, when applicable, to SMPs and GMPs. Our goal in linking these to standards is to help teachers understand the learning trajectories in *Everyday Mathematics* and “think” in terms of the relevant content and practice goals as they teach the lessons and reflect on how students experienced the lessons; it is not toward generating a quota of assessment “hits” on each standard. That said, we think that the number of standards that are listed in the Check-Ins across a grade level will mirror the frequency and proportion of these standards in the grade level as a whole. We think this approach is consistent with the formative emphasis of these assessments.

As indicated above, we think it important for the SMPs and GMPs to be reflected in the Check-Ins whenever possible. This seems very important for helping teachers recognize, draw out, and attend to these practices in the context of their everyday teaching. That said, we are wary of adding new SMP/GMP questions to the Check-Ins that aren’t already embedded in the activity that is the basis for the Check-In (e.g., journal page, game master, etc.). But, we are expecting that as part of the 4<sup>th</sup> edition revisions, these types of SMP/GMP questions and tasks will be embedded more explicitly and frequently in the focus/”Teaching”/Part 1 activities, in which case we can and should include them in the Check-Ins.

## ***2. Preview Math Boxes***

Another assessment structure we are proposing is what we are calling Preview Math Boxes. These Math Boxes will essentially be revisions of the current preview math box problems that are embedded in Math Boxes pages. These Math Boxes require students to demonstrate their knowledge of the prerequisite skills and understandings needed to be successful in the upcoming unit. In EM3, each Math Box page included one (or sometimes two) preview problems. In the fourth edition, these problems will be collected into two pages of Preview Math Boxes, which should be more convenient for teachers who want to make use of the data for formative purposes. One page will appear approximately halfway to two-thirds of the way through each unit and the other will appear in the Progress Check of each unit.

The Math Boxes that appear in Unit N will be labeled “Preview Math Boxes for Unit N+1,” thus making clearer their function as Math Boxes designed to gauge students’ readiness for the upcoming unit. There will be one pair of Preview Math Boxes per unit and will be no intervening instruction between each set in the pair. The Preview Math Boxes will not be listed specifically as assessment structures in the fourth edition. Although they will provide useful, targeted data for teachers, calling them out as assessments seems to suggest that they are more powerful or weighty data than the data provided by other Math Boxes. It is important that the data from Preview Math Boxes are used in conjunction with other information teachers have about student understanding, including information from other Math Boxes, so they will not be listed as formal assessment structures. Instead, we will encourage teachers to use data from Math Boxes in a variety of ways.

### ***3a. Rubrics for assessing the GMPs***

We are proposing the use of rubrics to help teachers evaluate student work and assess the SMPs and GMPS through open response tasks and other appropriate assessment structures throughout the curriculum. These rubrics would also communicate expectations to students and parents about performance on mathematical practices.

The current thinking is to use one generic rubric to address all GMPs that can be used on check-ins and other classroom activities. (See mock-up on next page). Another thought is to provide teachers with the option to work with students to develop their own task-specific rubrics during the Re-engagement Lesson.

### Generic GMP Rubric

	<b>Not Making Adequate Progress</b>		<b>Making Adequate Progress</b>	
GMP x.x [Insert text of GMP]	Not Meeting Expectations	Partially Meeting Expectations	Meeting Expectations	Exceeding Expectations

We made a few tentative decisions about this single, generic rubric for all GMPs:

- The rubric should have four levels to make a clear distinction between levels for students who are meeting expectations for their grade levels (meeting and exceeding) and students who are not meeting expectations (not meeting and partially meeting). This allows teachers to clearly define who needs help and who does not.
- The levels can be grouped into “Making Adequate Progress” and “Not Making Adequate Progress”. The two-level system makes reporting out more manageable for teachers and also discourages the notion that a student must be “exceeding” to be on grade level. This language will also be used to describe student progress on the content, providing a common language for teachers when assessing content and practices within EM.
- The descriptors we chose (Not Meeting Expectations, Partially Meeting Expectations, etc.) are not firm, but we do feel the words we select should describe student performance, not the progression of instruction related to the GMP or other practices.
- Include shading in the “Meeting Expectations” column to emphasize that this column means the student is meeting expectations appropriate for the grade-level and time of year.

We will develop analytic, task-specific rubrics for scoring open response tasks using the same format as the generic rubric based on sample student work from field-tested tasks. A draft task-specific rubric for GMP 6.1 follows. It is based on sample student work from a Grade 5 open response task.

	Not making adequate progress		Making adequate progress	
<b>GMP 6.1</b>  Communicate your mathematical thinking clearly and precisely	<b>Not meeting expectations</b>  Explanations are incomplete and unclear.	<b>Partially meeting expectations</b>  Gives a partially clear explanation how he or she found the fraction for Region F. Gives a partial explanation for how he or she determined what combination of parts is worth about $2/3$ .	<b>Meeting Expectations</b>  First explanation clearly describes the steps in the problem-solving process, including how the student reasoned about the relative size of the fractional parts and how he or she used that information to find the fraction for Region F. Clearly explains how he or she determined what combination of parts is worth about $2/3$ .	<b>Exceeding Expectations</b>  First explanation clearly describes the problem-solving process, including how the student began, including how the student reasoned about the relative size of the fractional parts, any missteps and corrections, and any check on the reasonableness of the answer. Explanation on estimating a combination of parts is clear. Multiple combinations are provided.

### 3b. Open Response and Re-engagement Lessons

We are also proposing Open Response Lessons followed by Re-engagement Lessons within units along with continued use of open response tasks in PC lessons.

Specifically, we are proposing the following:

- The cumulative section of the PC lessons for half the units in each grade (likely the odd-numbered units) will consist of an open response task. (See Section 4c for a description of the cumulative section of the PC lessons.)
- Include an Open Response Lesson in each unit followed by a Re-engagement Lesson later in that unit. The tasks in these lessons would involve mathematical content related to other lessons in the unit and address two to three GMPs that were highlighted in the unit.

The placement of the lessons within the unit will be at the discretion of the grade-level leaders, so that the lessons can be used as advantageously as possible. For example, the Open Response Lesson may serve as an exploration of the content of the unit and the Re-engagement Lesson could allow for deepening the students' understanding of the content later in the unit. Many other configurations are possible based on the grade level and content. In any case, the Re-engagement Lesson will need to be placed within the unit so teachers have enough time to review the students' responses to the task and prepare for the Re-engagement Lesson. We recommend that the Re-engagement Lesson follow the Open Response Lesson by three to five lessons.

### ***Structure and Guidelines for the Open Response and Re-engagement Lessons***

We drafted lessons at various grade levels using open response tasks from the current PC lessons or MARS tasks. Through discussion and revision, we agreed on a set of structures that are summarized below.

#### ***Open Response Lesson***

The Open Response Lesson contains recommendations for advance preparation<sup>1</sup> that include solving the problem to identify possible student strategies, anticipating misconceptions, developing discussion questions, and preparing materials. Students begin the lesson with an activity (in the Math Message) that previews the problem and provides an opportunity for teachers to identify students who may need support to be successful with the problem. In the sample Open Response Lesson, the Math Message serves as the basis for the lesson Check-In. (See Section 1 above for a discussion of this assessment structure.)

After a brief introduction, students solve the problem in pairs or groups and explain their solutions. In the Summary portion of the lesson, the teacher poses reflection questions that connect and highlight the mathematical practices.

At the end of the lesson, a section entitled Evaluating the Task provides information to help teachers prepare for the Re-engagement Lesson. This section offers suggestions for selecting and analyzing student work that will form the basis of the discussions in the upcoming lesson. An Open Response Task Reflection Form is included as a tool for organizing the analysis. The section also has pointers to the *Assessment Handbook*, which will include sample student work scored using a rubric, a sample Open Response Task Reflection Form completed based on the sample student work, and suggestions for discussions in the Re-engagement Lesson.

#### ***Re-engagement Lesson***

The Re-engagement Lesson is based on the work of the Silicon Valley Mathematics Initiative (SVMI), which uses this type of lesson to “re-engage students in learning the mathematics, revisit student thinking, address conceptual understanding, examine the task from a different perspective, critique student approaches/solutions to make connections” (Foster, 2011). As a group, we worked to build these ideas into the EM lesson structure and provide teachers with the necessary information to develop and facilitate a Re-engagement Lesson without the benefit of professional development.

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<sup>1</sup> The current lesson format does not include a location for advance preparation outside of materials preparation. We will need to find a way to include this information for teachers in these types of lessons.

The Re-engagement Lesson will be located in the unit so that teachers have several days to review student work and prepare the lesson. The Teacher’s Lesson Guide for the Re-engagement Lesson begins with a short summary of the information in the Evaluating the Task section of the Open Response Lesson

The class then “re-engages” with the content of the task through analysis and critique of student work in small and whole group discussions. These discussions are organized by the teacher based on his or her analysis of the students’ work on the task. Possible discussions may include comparing a correct and incorrect response, comparing two different strategies that both resulted in correct responses, comparing two incorrect responses, completing a partially completed solution, or analyzing explanations for clarity and completeness.

Students revise their work based on the class discussion and a self-assessment using the rubric. The Check-In directs teachers to collect and evaluate the revised work using the task-specific rubric. In the Summary portion of the lesson, students respond to reflection questions that address the GMPs.

#### **4. Progress Check (PC) Lesson**

The Grades 1 through 6 end-of-unit Progress Check lessons remain very important assessment structures for EM4. But, the Assessment Working Group is recommending many changes to the PC lesson in response to user feedback from the 3<sup>rd</sup> edition and other factors, many of which were described above. We propose a two-day, end-of-unit PC lesson for every unit in Grades 1-6 with the following overall composition:

- 4a. Student Self Assessment (all units)
- 4b. Unit-based Assessment (all units)
- 4c. Cumulative Assessment (alternate units)
- 4d. Open Response (alternate units)

The sections that follow will describe our current thinking about each of the above components of the EM4 PC lesson.

#### **4a. PC Lesson: Self Assessment (all units)**

We think we should retain the self-assessment component from the 3<sup>rd</sup> edition with the following modifications, which we will flesh out in the coming months:

- Make the format more kid friendly.
- Include the content “big ideas” from the unit. Use wording that is similar to the wording of the standards (so teachers see the linkage), but more kid friendly.
- Include some treatment of Standards and Goals for Mathematical Practice (SMPs and GMPs). This may overlap or otherwise connect to the SMP and GMP rubrics that are being developed for students and were discussed in Section 3a above.
- For each item on the Self Assessment, include relevant examples from the journal pages in the unit that would encourage students to look back and reflect as they complete the Self Assessment.

#### **4b. PC Lesson: Unit-Based Assessment (all units)**

We recommend a Unit-based Assessment that would replace the existing “Part A” of the PC lesson. This new section of the PC lesson will include content that was the focus of the just-completed unit. The unit-based section of the PC lesson will target the “Big Ideas” of the unit, which will be described in terms of the CCSS that have been the focus of the unit. If there are multiple lessons in a unit that all work toward a skill or concept, we may not include items for each individual lesson, but might rather include an item or items that assess the skill or concept at the level expected at the conclusion of the series of lessons. Relatedly, we will not include unit-based items for lessons that do not work toward the Big Ideas of the unit. In sum, all of the Big Ideas in a given unit will be included in the Unit-based Assessment, but not *every* skill from the unit will necessarily be included. Items on the Unit-based Assessment can be tagged as assessing multiple standards (as well as SMPs/GMPs—more on this below).

All of the items in this section will be “fair to grade.” So, for early exposure lessons that work toward the Big Ideas, the associated items on the Unit-based Assessment will be “easy”—either only assessing a very small part or early understanding of the standard or even assessing a closely-linked precursor skill. Concepts and skills from other lessons will be assessed at the level that reflects “adequate progress” at that time of year. We believe that this approach addresses teachers’ requests that the end-of-unit PC lesson more clearly and closely reflect the content of the just-completed unit. But it does not address their desire for items of varying levels of difficulty on the same skill or concept, because that conflicts with the “fair to grade” expectation (which **also** stems from teachers’ requests).

To address this desire for items of varying difficulty, we propose the inclusion of challenge questions (questions that go beyond the “fair to grade” expectation) related to the Big Ideas of the unit, which could be used in conjunction with the PC lesson. Guidelines for these questions include

- The “challenge problems will be clearly labeled as “Progress Check Lesson X.Y: Extra Credit” (or something similarly clear that conveys that they are not “fair to grade” in the same way that the other PC items are).
- They will be included as blackline masters in the *Assessment Handbook*, but on a separate page from the Progress Check masters.

We have also discussed whether and how to incorporate SMPs/GMPs in the Unit-based Assessment. We believe that if we are able to thematize a unit around one or more SMPs or GMPs—which is something that the SMP working group is discussing—those SMPs or GMPs can and should probably be included in the unit-based section of the PC lesson by embedding SMP/GMP assessment opportunities in short answer, writing/reasoning-type items. As was described in Section 3a, we intend to develop specific tools, such as rubrics, that can help teachers describe or evaluate students’ performance with SMPs/GMPs on these unit-based items. We also envision creating record sheets for the PC lessons that list each item and allow teachers to describe and document how students did on the content, as well as how they did with the SMPs/GMPs when applicable.

#### **4c. PC Lesson: Cumulative Assessment (alternate units) and Interim Assessments**

We also propose a cumulative section of the PC lesson that will occur in alternate units. (The units without a cumulative section will include an open response task, as described in Section 4d below.) As described in the previous white paper, this Cumulative Assessment will have the following characteristics:

- It will include items on topics that are *not* in the unit-based section, but that students have done before: items that assess standards that students have had some experience with at this point in the grade.
- Items in this section will be written such that they reflect adequate progress on whatever standard they are assessing at this point in time, thereby making them “fair to grade.”
- This section can also be used formatively, which is consistent with how we’d like people to be thinking about these items.

#### **4d. Progress Check: Open Response Tasks (in alternate units)**

Our work on the Open response tasks for the Progress Check lessons is not complete. We have discussed the possibility that the tasks will involve content from prior grades or from earlier units in the grade to allow students to concentrate on the problem solving process and access the mathematics. In this case, the tasks will be used primarily to assess the practices and not the content. We plan to provide supports to teachers similar to the supports that currently accompany the tasks in the *Assessment Handbook*, including rubrics and scored samples of student work.

#### **5. Beginning-of-Year Assessment**

We expect to retain, with content revisions as needed, the CCSS-edition Beginning-of-Year assessments, which are relatively short assessments designed to be administered very early in the year to provide teachers with information about students’ knowledge and skills related to the topics that are covered in the first two or three units. (The Beginning-of-Year assessments can also be useful for screening in an RtI framework.)

#### **6. Interim Assessments**

The Mid-Year and End-of-Year Assessments (also called Interim Assessments) in EM4 will exist as long-form versions of the Progress Check Cumulative Assessments for the middle and final units of the year. These Interim Assessments will aim to offer teachers a “snapshot” of students’ performance on a reasonably representative sample of skills and concepts covered to-date.



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