Content Progressions & Clustering Across Instructional Materials:

Viability for Supporting the Design of a Through-Year Assessment Model

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Table of Contents

1 Introduction

Over the past few years, several states have begun to explore or pilot different through-year assessments to serve as replacements to the traditional end-of-year summative assessments that are currently the predominant source of information used by states to meet federal accountability requirements. While there are several different assessment models that could be considered as part of a through-year design, the purpose of this paper is to examine what it might look like to administer the end-of-year computer adaptive test (CAT) in a through-year model that more closely resembles the current Smarter Balanced interim assessment blocks (IABs), with a specific emphasis on content considerations.[1]

Content considerations are an important aspect of the through-year design, but they differ among models that are using the same blueprint design versus a differing blueprint design (Dadey & Gong, 2017). In models that use the same blueprint design, students are assessed on the breadth of content standards at each time point for administration, including on content which they would not yet have had the opportunity to formally learn as part of instruction. This paper focuses solely on the differing blueprint model and a design that more closely resembles the IABs. A differing blueprint model requires that a subset of the grade level content standards be selected for measurement during each assessment administration throughout the year. As Dadey and Gong (2017) describe,

> …the standards are generally agnostic about when during the academic year students should be able to demonstrate such knowledge and abilities. Tying interim assessments to specific subsets of standards requires consideration of when students should demonstrate what they know and can do, or at bare minimum, how standards should be grouped together into specific assessments (p. 6).

This paper is therefore guided by the following questions:

- To what degree do some of the most widely used mathematics and English language arts/literacy curricula support a reasonable structure for clustering standards for a through-year model?
- To what degree can the existing Smarter Balanced interim assessment system, with some adaptations, be used to support the design and development of a high-quality through-year assessment model?

[1] Note: This paper is one in a series being commissioned by Smarter Balanced as part of its exploration of through-year assessment options.

Snapshot of Some Existing Through-Year Assessment Models

The idea of administering through-year assessments in lieu of a single end-of-year summative assessment is not new. In 2010, the Race to the Top grant program allowed for a through-year assessment model, which the federally-funded state assessment consortium Partnership for Readiness for College and Careers spent a significant amount of time exploring before landing on a more traditional summative measure after concerns were expressed over the influence of the assessment on local curriculum scope and sequence (Thomas B. Fordham Institute, 2011). There have also been additional signals from the United States Department of Education that states can and should explore innovative assessment models, some of which have been backed by funding (US Department of Education, 2016).

The Center for Assessment recently supported states and other stakeholders in the exploration of through-year assessment models in a series of events designed to understand some of the issues surrounding through-year assessment. Marion (2021) includes this definition of through-year assessments from Nathan Dadey and Brian Gong:

> *Those assessments administered multiple, distinct times across a school year, designed to support both annual summative determinations of proficiency and at least one additional goal.*

Through this work, the Center for Assessment also outlines the importance of identifying the "problem" that education officials are hoping to address with the use of through-year assessment systems as a crucial starting point to the design process. Therefore, an important starting point for Smarter Balanced states to consider in their own exploration is whether states that are interested in the idea of a through-year model have common or divergent reasons for wanting to make such a shift. The following examples provide insight into reasons that some states have already elected to do some pilot work in this space.

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One version of a through-year approach proposes questions based on several brief English Language Arts (ELA) assessments grounded in the content of books and passages that students are expected to read as part of their instruction as a way of attempting to provide a more coherent student experience between the assessment and teaching and learning. Another example of a through-year model aims to assess students in the fall and spring to provide measures of proficiency and growth consistent with data that were otherwise provided by a set of locally required assessments.

In the first approach, the primary goal was to make the student experience more coherent; in the second approach, the local education agency wanted to create efficiencies in the system and to have an earlier data point for examining student performance. These two examples are included to give insight into some of the reasons that states and/or districts are experimenting with through-year assessment models. Due to the recency of efforts to implement these assessments, there is little information available on whether either has been successful in meeting the goals set by the programs. Further, the prospect of successfully achieving the goals of these (and other through-year) models must be considered in the specific context of a state's educational programs and its potential challenges in implementing a through-year model.

Curriculum Materials as a Proxy for Through-Year Model Viability

States may be considering a through-year model either as a way of obtaining instructionally actionable information earlier in the school year or as a way of reducing the current burden of testing time at the end of the school year. While the current Smarter Balanced system is already designed to achieve the former goal through its interim assessment system and its Tools for Teachers, these features are currently in addition to the summative computer adaptive test and performance assessment that are used to fulfill federal accountability requirements. Is there a way to leverage the design of the interim assessment system to inform a through-year model that might also generate the necessary data for federal accountability? As noted earlier, this question is framed here in the context of a differing blueprint design similar to the existing Smarter Balanced IABs.

While the current Smarter Balanced system is already designed to achieve the former goal through its interim assessment system and its Tools for Teachers, these features are currently in addition to the summative computer adaptive test and performance assessment that are used to fulfill federal accountability requirements.

Because a differing blueprint design requires some agreement on content to be assessed at different timepoints, or, at a minimum, a way to cluster grade level content in ways that could accommodate variations in curricular scope and sequence, it is important to examine how feasible it is to do this content clustering. The scope and sequence documentation available from some widely-used mathematics and English language arts curricular materials were examined to determine similarities and differences in content coverage at different time intervals within the school year. Curricular materials for this analysis were selected based on those that are widely used (Kaufman, 2019), as well as those that represent a range in common pedagogical approaches.

While curricular materials can serve as a proxy for how content progresses within the school year, there is significant variability in the curricular adoption processes that districts and/or schools use as well as in how the materials ultimately get implemented. While the analysis of instructional materials can provide some information generally about content progressions and clustering, the following scenarios are fairly common in the ways that materials are taken up by districts and/or schools:

1. Some states support districts in adopting commercially published, aligned materials, often by providing lists on their websites or by directing their districts to resources such as EdReports. Others leave the selection process completely up to districts/schools;
2. Some districts/schools do not use commercially published materials at all; and
3. Districts/schools that do use commercially published materials often create pacing or other guidance documents that ask educators to deviate from the scope and sequence created by the publisher; these guidance documents often include supplemental materials.

So, while instructional materials are used as a proxy here for this initial analysis, local district and/or school considerations should also be taken into account in any through-year model that relies on state-dictated content clustering as part of its design.

2 Analysis of Instructional Materials—Mathematics

Selection of Materials

In mathematics, instructional materials from three curriculum developers for Grades 3 and 4 were used as the basis for the analysis. For a through-year model to be a feasible consideration for Smarter Balanced states, it must be feasible at all currently assessed grades, so starting with an analysis of just a couple of grade levels is a reasonable approach to provide a baseline understanding for how viable a through-year model is from a content progression or clustering standpoint. The materials used for this analysis were (1) *Engage NY* (the first widely adopted open educational resource (OER), often packaged now by Eureka), (2) *Illustrative Mathematics* (a newer OER), and (3) *Bridges for Mathematics* (published by the Math Learning Center). These materials were selected based on the number of districts that report using them, and/or because they are considered aligned by the independent curriculum review organization, Ed Reports. A summary of the instructional scope and sequence suggested by each of the three programs at the two different grade levels is provided in the next section.

Mathematics Grade 3 Overview[2]

The early Grade 3 units in *Engage NY* introduce multiplication and division and complete the bulk of work on these operations within the first three units. However, the materials also have ongoing fluency practice for multiplication and division as the Common Core Grade 3 standard (3.OA.C.7) articulates that students should have acquired this fluency "by the end of Grade 3." The required work in the domain for Number and Operations in Base Ten is also earlier in the suggested scope and sequence. The concept of multiplication is extended to include work with the area of geometric figures in Unit 4. The critical work on Grade 3 fractions is in the fifth unit; the suggested scope and sequence places work on data, geometry, and measurement at the end of the school year. It should be noted that the Grade 3 Measurement and Data standards are also intended to reinforce concepts of multiplication and division, as well as fractions, so that students have new opportunities at the end of the school year to secure some of the earlier content.

The *Illustrative Mathematics* Grade 3 units begin the year with multiplication, bringing division in a bit later than in the *Engage NY* scope and sequence. In the language of the standards, multiplication and division are typically found together within the same standard (with the exception of 3.OA.A.1 and 3.OA.A.2) so this nuanced difference in how curricula unpack these is important. This curriculum also does the Number and Operations in

[2] See Appendix A

Base Ten standards early in the school year. Similar to Engage NY, the fractions work appears as a single unit in the middle-late portion of the school year, followed by work in the Measurement and Data domain. The last two units extend concepts of area to higher complexity problems than students encountered earlier in the year. The final unit intentionally re-elevates major takeaways of the grade level, providing an additional opportunity for students to secure their understanding of the most critical grade-level content.

The Grade 3 *Bridges for Mathematics* curriculum begins with multiplication, connecting it back to Grade 2 work with addition and subtraction. The curriculum then introduces the Number and Operations in Base Ten standards, followed by measurement and fractions. Division is introduced later in *Bridges for Mathematics* than in the other curricula examined. Similar to *Illustrative Mathematics*, the final unit appears to reinforce some of the earlier work and most critical content of the grade level.

Mathematics Grade 4 Overview[3]

The Grade 4 units in *Engage NY* begin with work on multi-digit number operations, and include some work in Unit 2 with measurement conversions. This is followed by a standalone unit on angle measure. The year then proceeds with a substantial amount of time on Grade 4 fraction content, including decimal fractions, and wraps up with the work on multiplication (multiplicative comparison).

The *Illustrative Mathematics* Grade 4 curriculum begins the year with the multiplication and fraction content. This same content appeared in the final three units of *Engage NY*. Multi-digit operations appear in the suggested scope and sequence later in the year. The suggested content for the end of the year is angle measure. Similar to this publisher's approach in Grade 3, the final unit offers opportunities to reinforce major content takeaways from the grade level.

Similar to *Illustrative Mathematics*, *Bridges in Mathematics* begins the year with work on multiplication but while *Illustrative Mathematics* reserves the multiplicative comparison component of these standards for Unit 5, *Bridges in Mathematics* has this in Unit 2. The fraction and decimal fraction content in *Bridges in Mathematics* appears in Unit 3, followed by angle measure and then multi-digit number operations. The suggested scope and sequence includes some additional work with fractions late in the school year and a final project-based unit that reinforces critical content of the grade level.

[3] See Appendix B

Summary

The mathematics standards are designed for coherence, suggesting that their structure and the specific language chosen helps users of the standards connect earlier mathematical ideas with later ones and intentionally includes opportunities to reinforce major work of the grade through supporting standards. Because of this design, high-quality instructional materials will often use opportunities later in the year to reinforce earlier mathematical concepts. As an example of this design principle in action, although fraction instruction is compact within each of the Grade 3 sets of materials, there are Measurement and Data standards that reinforce those concepts using linear measurement with a standard ruler and displaying data with line plots that use fractional measurements. Therefore, it would be critically important in the design of a through-year model to understand the meaning of scores derived earlier in the school year and carefully consider how these get used to report on student performance.

High-quality instructional materials will often use opportunities later in the year to reinforce earlier mathematical concepts.

It is possible to conceptualize a through-year assessment design for Grade 3 mathematics that takes into account opportunities that students have had to learn the content. Table 1 provides a potential way to cluster the content of Grade 3 and also prioritizes major work of the grade[4] as a way of ensuring that students have access to and have demonstrated proficiency with the content that is most critical within the overall grade-to-grade progression.

Table 1: Potential Grade 3 Through-Year Model

First Assessment	Second Assessment	Third Assessment
Early Multiplication and Division Concepts*	Understand a Fraction as a Number	Higher Complexity Multiplication and Division Concepts

*eligible for reassessment at later time point

[4] https://achievethecore.org/content/upload/SAP_Focus_Math_3.pdf

While this table provides a way of conceptualizing a through-year design for Grade 3 mathematics, it also reinforces one of the major takeaways from the series of events that the Center for Assessment hosted. Marion (2021) writes:

> However, many participants prioritized instructional uses while trying to make the accountability fit within the constraints imposed by the learning goals. It turns out that *many (not all) of the designs presented at the convening got around the accountability issue by placing essentially all of the summative determination weight on the end-of-year assessment* [italics added for emphasis]. Some were using the through-year components to provide some prior information to hopefully make the last test more efficient. These approaches get around some of the thorny issues of dealing with knowledge and skills that develop over time, as well as the practical issue of dealing with missing values from students who do not participate in all of the test administrations throughout the year. Of course, we need to ask then, how different is this approach from the current system?

The asterisk used in the table indicates that earlier content should be re-assessed later in the school year. This reflects a challenge that many states were confronting as they pursued through-year assessment models. That is, in a system where a summative determination is defined by what is expected by the end of the school year, earlier results are challenging to justify as "summative" in nature. If it is decided that the final assessment should carry most of the weight, as noted by Marion (2021), how different is this approach from the system that Smarter Balanced already has in place?

The Grade 4 curriculum materials had much more variability in how content standards were clustered and when in the school year it was suggested that content be taught. Therefore, a state-dictated solution would likely require much more flexibility to allow districts and/or schools to make decisions about which assessment to administer at which time point. There is no comparable table that could be created for Grade 4 given the variability across the three sets of instructional materials; this variability would only increase if materials from additional publishers were examined. Table 2 provides a summary of the findings across the two grade levels.

Table 2: Summary of Findings in Mathematics

Grade Level	Summary of Findings
Grade 3	There is a viable way to cluster the Grade 3 content to support the design of a differing blueprint through-year model that takes into account opportunity to learn based on the materials analyzed. The current Smarter Balanced IAB and FIAB blueprints are not adequate for this purpose because they are built based on end-of-year expectations (i.e., the standards).
Grade 4	The variability in content progressions and clustering of standards in the Grade 4 materials do not support a viable design of a differing blueprint through-year model that takes into account opportunity to learn.

3 Analysis of Instructional Materials—English Language Arts/Literacy

Selection of Materials

In English language arts/Literacy (ELA), instructional materials from three curriculum developers for Grades 3 and 6 were used as the basis for the analysis. The selection of Grade 6 (as opposed to a consecutive grade, as done with mathematics) was based on two factors. One, it is common for publishers in ELA/literacy to distinguish between common elementary grade bands (K-5) and middle school grade bands (6-8) in materials development. Additionally, the Common Core State Standards distinguish between K-5 and 6-12, so determining the consistency of results found across grade bands allows for reasonable confidence that the analysis is applicable across grade levels. An important consideration in analyzing ELA/literacy materials, unlike mathematics, is the varied pedagogical approaches to instruction have a large instructional impact. Some materials consider not just the ELA/literacy skills and standards but the role of the content or topic within texts and tasks, while others are agnostic in regards to the topic under study. This was a consideration addressed by attending to a range of materials and instructional approaches.

The materials used for this analysis in Grade 3 were (1) *EL Education* (an OER resource offered through *Engage NY*, Open Up Resources, and EL Education); (2) *Units of Study in Reading & Writing* (a curriculum written by Lucy Calkins and Teachers College Reading and Writing Project, and sold by Heinemann), and *Wonders* (a K-5 textbook offered by McGraw Hill). In Grade 6, *EL Education* and *Units of Study in Reading & Writing* were explored, and Houghton Mifflin Harcourt's *Collections* curriculum served as the textbook option. These programs were selected because they represent the variation in approach and product found in ELA core curricula. *EL Education* is a knowledge rich ELA curriculum organized by content modules, *Wonders* is known as a basal reader (a textbook with anchor texts and supporting materials), and *Units of Study in Reading & Writing* are a well known "balanced literacy" curriculum. *Wonders*, *Collections* and *EL Education* were deemed aligned by Ed Reports and *Wonders* and *Units of Study* are identified by the Rand Corporation as highly used by teachers (Kaufman, J. H., 2019). A summary of the instructional scope and sequence suggested by each of the three programs at the two different grade levels can be found below.

It is common for publishers in ELA to distinguish between common elementary grade bands (K-5) and middle school grade bands (6-8) in materials development.

ELA Grade 3 Overview[5]

EL Education organizes content into four topic-based modules across the course of the year, named as Overcoming Learning Challenges; Adaptations and the Wide World of Frogs; Exploring Literary Classics (Peter Pan); and Water Around the World. Literacy skills are organized within these modules, with focal points such as close reading, writing an on demand paragraph and revising an essay in Module 1, research skills and informational text writing in Module 2, reading a fairy tale in a play format and writing a book review and revised scene in Module 3, and identifying an issue and writing a related Public Service Announcement (PSA) in Module 4. Throughout the module there are opportunities to assess in a range of formats, including discussion, constructed response, selected response, reading aloud, on demand writing, and revision.

In *Units of Study in Reading & Writing*, the content for the year is arranged in four units for reading and four units for writing. These units are organized by genre and reading behaviors. In writing, students progress through units on personal narratives, informational texts, persuasive speeches, petitions and editorials, and adapting and writing fairy tales. In reading, they start with a focus on reading behaviors ("Living a Readerly Life"), then narrative nonfiction, character studies, and research clubs. A scope and sequence is suggested but not required—and teachers or schools are encouraged to adjust the units taught, replace or fill in units with other teacher-created units or supplemental resources as needed—making the sequence of instruction likely to vary from classroom to classroom even within a school.

In *Wonders*, the content is set up in six-week units. There is a content-based theme in the form of an essential question, a genre focus, and week-by-week skills. Skills are bucketed in the following categories: Read Aloud, Shared Read, Literacy Anthology, Leveled Readers, Vocabulary, Phonics and Spelling, Fluency, Writing, and Grammar. Writing spirals across genres every two weeks. Reading comprehension foci are noted as a range of skills or focus points, such as "Ask and Answer Questions; Headings and Maps; Text Structure-Chronology; Author's Purpose." These focus points vary every two weeks. The same is true for the reading genre. For example, in Unit 1, the first two weeks are spent on narrative nonfiction, Weeks 3-4 are spent on realistic fiction, Week 5 on argumentative text, and Week 6 is focused on connecting the three. For each unit, there are a variety of tasks, activities, and assessments.

Table 3: Grade 3 ELA Curriculum Focal Points

Unit 1 High Level Reading and Writing Foci Across Programs- Grade 3	
EL Education	Close Reading, Informational Texts; Writing an On Demand Paragraph; Revising an Essay
Units of Study in Reading & Writing	Reading Behaviors with Fiction Texts; Writing a Personal Narrative
Wonders	Reading: Narrative Nonfiction, Realistic Fiction, and Argumentative Text; Writing: Personal Narrative and Opinion Writing

[5] See Appendix C

ELA Grade 6 Overview[6]

The goal of the Grade 6 comparison is to see if the trends in Grade 3 hold when moving across grade level bands. The structure and pedagogical approach of the programs, where materials continued through Grades 6-8, was similar between third and sixth grade, but the content foci varied, making consistency limited from grade to grade.

For example, in *EL Education* for Grade 6 content is also structured into four topic-based modules. Similar to Grade 3, the second module focuses on research (critical problems through design), and the fourth module attends to the nonfiction topic (accomplishments in space) through both informational text and writing a children's picture book. Module 1 focuses on Greek Mythology (within a novel study) and Module 3 focuses on historical fiction (within the topic American Indian Boarding Schools). In *Units of Study*, similar to Grade 3, the suggested scope for writing progresses across units from personal narrative to literary essay to research-based informational writing, to personal essay. Reading differs completely, starting with a unit on character, followed by social issues book clubs, the power of nonfiction, and civically engaged classrooms or test prep, then fantasy book clubs.

The third program examined, *Collections*, includes six topic/theme-based units. To further understand the approach, one unit was explored in depth, which consisted of reading in a wide range of genres around theme of facing fear (short story, article, poem, informational text, novel). The unit ends in a response to literacy performance task, an informative essay and a "benchmark assessment" in multiple choice format. Similar to the approach of the Grade 3 textbook, there is a spiraling of text genre and of skills-based objectives in reading and writing.

As noted in these examples, there are very few commonalities in program design or approach towards literacy instruction. The few commonalities identified are noted in Table 4.

Table 4: Commonalities across ELA programs

Content	Commonalities
Writing and genre conventions	Some effort towards student produced writing following genre conventions can be found in all three programs, though as illustrated in the table, the order in which genre is approached across the year in the curriculum varies.
Reading and genre	There is also an effort to distinguish between genres in text specific reading instruction, either broadly (literary versus informational text) or more specifically (focusing on fairy tales and play through Peter Pan in *EL Education*, for example).
Text Complexity	In two of the three programs (*Wonders* and *EL Education*) attention is given to text complexity throughout the school year. These programs pace the complexity of the texts students are reading accordingly.

[6] See Appendix D

Summary

These sample ELA/literacy curriculum materials illustrate the fact that there is no common progression of ELA/literacy content throughout a school year or grade level, and that many of the day to day instructional decisions made by teachers are greatly influenced by the curricular approach of the instructional materials in places where purchased curriculum exists in classrooms. The ELA/literacy standards for Reading and Writing encompass year end goals, and they are broken out by genre within each category (literary and informational text in reading; narrative, opinion, and explanatory texts in writing). With this in mind, the variation by program means that school by school, grade by grade, very different decisions are made about the order in which to attend to this content. Some alignment is offered in the Focused IABs and writing, with options to write and revise Opinion Texts, Informational Texts, and Narratives. However, determining time of year for administration would need to be localized in order to match the curricular scope and sequence. IABs that focus on reading claims are currently split into literary and informational. All programs progress through literary and informational text throughout the year, which would limit the instructional utility of these data. As with mathematics, the significant variability in approaches to content in ELA/literacy would likely mean much more local customization, with districts and/or schools requiring considerable flexibility in deciding which assessment to administer and at which time point.

Table 5: Summary of Findings in ELA

Grade Level	Summary of Findings
Grade 3	The variability in content progressions and clustering of standards in the Grade 3 materials minimally supports a viable design of a differing blueprint through-year model that takes into account opportunity to learn.
Grade 6	The variability in content progressions and clustering of standards in the Grade 6 materials minimally supports a viable design of a differing blueprint through-year model that takes into account opportunity to learn.

4 Overall Recommendations

While the scope and sequence and pedagogical approaches of commonly used mathematics and ELA/literacy instructional materials highlight different issues when considering how they might support the design of a through-year assessment model, the conclusions drawn across the two content areas are similar given the specific focus of this paper. The differences across programs and grade levels are greater than the similarities and, therefore, do not provide a strong foundation for a through-year model that uses a state-dictated differing blueprint approach dependent on clustering content. A centralized approach above the school or district level is unlikely to be authentically integrated into the system, and would create challenges for interpreting evidence due to significant gaps between what students are learning and what is being measured at any given time point. While the Smarter Balanced interim system can be leveraged in flexible ways by districts and schools based on the curricular materials and scope and sequence they choose to use, this close examination of curricular materials gave us more insight into some of the ways that the consortium might consider strengthening the interim and formative resources available to educators. More specifically, the following recommendations are worth consideration:

A centralized approach above the school or district level is unlikely to be authentically integrated into the system, and would create challenges for interpreting evidence due to significant gaps between what students are learning and what is being measured at any given time point.

1 Consider what can be learned from innovative models and alternatives to traditional summative assessments that are currently being piloted. For example, the Louisiana ELA/literacy pilot allows for attention to the knowledge transfer of the topic or content under study in the classroom to be reflected in warm (previously read) and cold (new to the reader) reads on the interim assessment, resulting in greater alignment between assessment and instruction. What can be learned about the different ways that students are accessing information and demonstrating evidence of their learning? Which supports are worth considering in the Smarter Balanced system that might not be there already?

2 Continue to evaluate the extent to which the interim system can be leveraged by districts or schools in ways that can be authentically integrated with the day-to-day instruction. Smarter Balanced may want to do a more extensive review of commonly used instructional materials to inform changes to the interim system, including examining evidence statements that were originally written using a summative lens to determine if there are "through-year expectations" that might drive the content of the interim blocks closer to the instruction that students experience throughout the year. For example, the Grade 3 math analysis revealed that curricula unpack multiplication and division in ways that allow students to learn "easier" multiplication facts earlier in the year and then leverage properties of operations as a way to derive "harder" multiplication facts later in the year. This level of specificity could inform FIAB content limits that better take into account how learning unfolds within standards, not just across standards.

3 Consider partnerships with OER curriculum providers and district users to generate more specific guidance on ways that educators can leverage consortium resources to ensure that the student experience over the course of a school year has coherence between teaching, learning and assessment. As more districts move toward an asset framing of students' academic successes, support from the publisher and assessment community that aligns with that work could be game changing.

As states continue to explore the area of through-year assessment or other innovative ways of understanding and supporting student learning, it is important that they consider all of the ways that traditional assessment and reporting practices have contributed to systemic inequities in the educational system. The starting point for this work should always be the children.

5 Appendix A: Scopes and Sequences for Three Grade 3 Math Curricula

Engage NY/Eureka: **Grade 3**	
Module 1	Properties of Multiplication and Division and Solving Problems with Units of 2-5 and 10
Module 2	Place Value and Problem Solving with Units of Measure
Module 3	Multiplication and Division with Units of 0, 1, 6-9 and Multiples of 10
Module 4	Multiplication and Area
Module 5	Fractions as Numbers on the Number Line
Module 6	Collecting and Displaying Data
Module 7	Geometry and Measurement Word Problems

Illustrative Mathematics: **Grade 3**		
Unit 1	Introducing Multiplication	• Interpret and Represent Data on Scaled Graphs • From Graphs to Multiplication • Represent Multiplication with Arrays and the Commutative Property
Unit 2	Area and Multiplication	• Concepts of Area Measurement • Relate Area to Multiplication • Find Area of Figures Composed of Rectangles
Unit 3	Wrapping up Addition and Subtraction Within 1,000	• Add Within 1,000 • Subtract Within 1,000 • Round Within 1,000 • Solve Two-Step Problems
Unit 4	Relating Multiplication to Division	• What is Division • Relate Multiplication and Division • Multiplying Larger Numbers • Dividing Larger Numbers
Unit 5	Fractions as Numbers	• Introductions to Fractions • Fractions on the Number Line • Equivalent Fractions • Fraction Comparisons
Unit 6	Measuring Length, Time, Liquid Volume and Weight	• Measurement Data on Line Plots • Weight and Liquid Volume • Problems Involving Time • Measurement Problems in Context
Unit 7	Two-Dimensional Shapes and Perimeter	• Reason with Shapes • What is Perimeter? • Expanding on Perimeter • Design with Perimeter and Area
Unit 8	Putting It All Together	• Fraction Fun • Measurement and Data • Multiplication and Division Games • Create and Design

Bridges In Mathematics: **Grade 3**	
Unit 1	Addition and Subtraction Patterns
Unit 2	Introduction to Multiplication
Unit 3	Multi-digit Addition and Subtraction
Unit 4	Measurement and Fractions
Unit 5	Multiplication, Division and Area
Unit 6	Geometry
Unit 7	Extending Multiplication and Fractions

6 Appendix B: Scopes and Sequences for Three Grade 4 Mathematics Curricula

Engage NY/Eureka: **Grade 4**	
Module 1	Place Value, Rounding, and Algorithms for Addition and Subtraction
Module 2	Unit Conversions and Problem Solving with Metric Measurement
Module 3	Multi-Digit Multiplication and Division
Module 4	Angle Measure and Plane Figures
Module 5	Fraction Equivalence, Ordering, and Operations
Module 6	Decimal Fractions
Module 7	Exploring Multiplication

Illustrative Mathematics: **Grade 4**		
Unit 1	Factors and Multiples	• Understand Factors and Multiples • Find Factor Pairs and Multiples
Unit 2	Fraction Equivalent and Comparison	• Size and Location of Fractions • Equivalent Fractions • Fraction Comparison
Unit 3	Extending Operations to Fractions	• Equal Groups of Fractions • Addition and Subtraction of Fractions • Addition of Tenths and Hundredths
Unit 4	From Hundredths to Hundred-thousands	• Decimals with Tenths and Hundredths • Place-value Relationships Through 1,000,000 • Compare, Order and Round • Add and Subtract
Unit 5	Multiplicative Comparison and Measurement	• Multiplicative Comparison • Measurement Conversion • Let's Put It to Work
Unit 6	Multiplying and Dividing Multi-digit Numbers	• Features of Patterns • Multi-digit Numbers • Multi-digit Division • Let's Put It to Work: Problem Solving with Large Numbers
Unit 7	Angles and Angle Measurement	• Points, Lines, Segments, Rays, and Angles • The Size of Angles • Angle Analysis
Unit 8	Properties of Two-dimensional Shapes	• Side Lengths, Angles, and Lines of Symmetry • Reason about Attributes to Solve Problems
Unit 9	Putting It All Together	• Reason with Fractions • Whole-number Operations • Solve Problems with Multiplication and Division • Creation and Design

Bridges In Mathematics: **Grade 4**	
Unit 1	Multiplicative Thinking
Unit 2	Multi-digit Multiplication & Early Division
Unit 3	Fractions & Decimals
Unit 4	Addition, Subtraction & Measurement
Unit 5	Geometry & Measurement
Unit 6	Multiplication & Division, Data & Fractions
Unit 7	Reviewing & Extending Fractions, Decimals & Multi-Digit Multiplication
Unit 8	Playground Design

7 Appendix C: Scopes and Sequences for Four Grade 3 ELA/Literacy Curriculum

EL Education: **Grade 3**				
	Module 1	Module 2	Module 3	Module 4
Focus	Reading Closely and Writing to Learn	Researching to Build Knowledge and Teach Others	Considering Perspectives and Supporting Opinions	Gathering Evidence and Speaking to Others
Title	Overcoming Learning Challenges Near and Far	Adaptations and the Wide World of Frogs	Exploring Literacy Classics	Water around the world
Performance Task	**Product:** Reading Strategies Bookmark **Format:** bookmark **CCSS:** W.3.4, W.3.5	**Product:** Freaky Frog Book and Trading Cards **Format:** compiled book, including pourquoi narratives (from Unit 1) and informative writing (from Units 2 and 3); trading card **CCSS:** RI.3.7, W.3.2, W.3.4, W.3.6, W.3.8, W.3.10, L.3.6	**Product:** Presenting a Revised Scene from *Peter Pan* **Format:** presentation **CCSS:** RF.3.4b, SL.3.4, SL.3.6	**Product:** Water PSA Live Launch **Format:** presentation **CCSS:** SL.3.4, SL.3.6, L3.3b

Units of Study in Reading & Writing: **Grade 3**		
Month(s)	Reading	Writing
September / October	Building a Reading Life (Book 1) or Series	Crafting True Stories (Book 1) or Writing Series Fiction* (Rising Gr 3 Ramp Up Unit)
October / November	Reading to Learn (Book 2)	Art of Information Writing (Book 2)
November / December	Mystery: Foundational Skills in Disguise (Stand-Alone Book) or Series	Changing the World (Book 3)
January / February	Character Studies (Book 3)	Baby Literary Essay
February / March	Test Prep (You'll schedule this unit as needed. We also encourage you to do an alternate unit.) or Design Your Own Unit	Test Prep (You'll schedule this unit as needed. We also encourage you to do an alternate unit.) or Design Your Own Unit
March / April	Research Clubs: Elephants, Penguins, and Frogs, Oh My! (Book 4)	Writing about Research
May / June	Social Issues Book Clubs or Mystery: Foundational Skills in Disguise (Stand-Alone Book)	Once Upon a Time: Adapting and Writing Fairy Tales (Book 4) or Poetry: Big Thoughts in Small Packages (Gr 2, Book 4)

McGraw Hill - *Wonders*: Grade 3, Unit 1[7]						
Text Set Focus	**Read Aloud**	**Shared Read**	**Literature Anthology**	**Comprehension**	**Writing and Grammar**	**Research and Inquiry**
Weeks 1 and 2 Essential Question: How do people from different cultures contribute to a community? Genre: Narrative Nonfiction	Interactive Read Aloud: "Faith Ringold, Telling Stories Through Art"	"Room to Grow" Genre: Narrative Nonfiction Lexile: 490 L	Anchor Text: *Gary the Dreamer* Genre: Narrative Nonfiction Lexile: 500L Paired Text: "Sharing Cultures" Genre: Expository Text Lexile: 500L	Ask and Answer Questions Headings and Maps Text Structure-Chronology Author's Purpose	Respond to Reading Writing Process: Personal Narrative Grammar and Mechanics	Project: Culture and Your Community Product: Map
Weeks 3 and 4 Essential Question: What can traditions tell you about cultures? Genre: Realistic Fiction	Interactive Read Aloud: "Ready for Aloha"	"The Dreamcatcher" Genre: Realistic Fiction Lexile: 470L	Anchor Text: *Yoon and the Jade Bracelet* Genre: Realistic Fiction Lexile: 480L Paired Text: "Family Traditions" Genre: Expository Text Lexile: 480L	Visualize Character Perspective Plot: Character Development Author's Purpose	Respond to Reading Writing Process: Personal Narrative Grammar and Mechanics	Project: Cultural Traditions Product: Quilt
Week 5 Essential Question: How do landmarks help us understand our country's story? Genre: Argumentative Text	Interactive Read Aloud: "America's Landmarks and Memorials"	Preserve and Protect Genre: Argumentative Text Lexile: 660L	Anchor Text: *Protecting Our Parks* Genre: Argumentative Text Lexile: 690 L Paired Selection: "5 Questions for George McDonald" Lexile: 860L	Ask and Answer Questions Captions, Maps and Sidebars Central Ideas and Relevant Details Author's Craft	Respond to Reading Writing Process: Opinion Essay Grammar and Mechanics	Project: Landmarks in Your State Product: Postcard
Extend, Connect, and Assess	Reading Digitally: "Soccer is America's Game"	Connect to Content: Science: Expository Text ("Saving Desert Treasures" and "Protecting the Pronghorn") Connect to Content: Social Studies: Expository Text ("Steel Drums of the Caribbean") and Realistic Fiction ("Career Day")			Writing Process: Opinion Essay	Presentation Options: Reader's Theater Inquiry Space Writing

[7] Note: this chart includes selections from the overall unit plan, which also included content for Leveled Readers, Vocabulary, Phonics and Spelling, and Fluency.

8 Appendix D: Scopes and Sequences for Three Grade 6 ELA/Literacy Curriculum

EL Education: **Grade 6**				
	Module 1	Module 2	Module 3	Module 4
Focus	Reading, Writing and Speaking Grounded in Evidence	Researching to Build and Present Knowledge (Science)	Analyzing, Interpreting and Evaluating Text	Researching to Write and Present Arguments
Title	Greek Mythology	Critical Problems and Design Solutions	American Indian Boarding Schools	Remarkable Accomplishments in Space and Science
Performance Task	**Product:** Revised Scene from *The Lightning Thief* **Format:** multimedia presentation to a live audience **CCSS:** SL.6.4, SL.6.5, SL.6.5	**Product:** Solution Symposium **Format:** Interactive presentation **CCSS:** RI.6.7, RI.6.10, W.6.7, W.6.8, SL.6.1, SL.6.2, SL.6.4, SL.6.5, SL.6.6	**Product:** Voices of American Indian Boarding Schools Audio Museum **Format:** audio recording presentation **CCSS:** W.6.10, SL.6.1d, SL.6.2, SL.6.4, SL.6.5, SL.6.6	**Product:** Hidden Figures in Space Science Picture Book **Format:** children's picture book **CCSS:** RI.6.1, W.6.3, W.6.4, W.6.7, W.6.10, SL6.3, SL.6.4, SL.6.5, SL.6.6, L.6.3, L.6.6

Collections:		
Collection 1: Facing Fear; *Lupita Mañana*	**Collection 2:** Animal Intelligence	**Collection 3:** Dealing with Disaster
Collection 4: Making Your Voice Heard	**Collection 5:** Decisions That Matter; *Novel: The Yearling*	**Collection 6:** What Tales Tell

Expanded Look at Collection 1	
Genre/Text	Literature (Short Story): *The Jumping Tree; The Ravine; Fine?* Article: *Face Your Fears: Choking Under Pressure is Every Athlete's Worst Nightmare; Face Your Fears and Scare the Phobias out of Your Brain; Fear and Phobias* Poem: *Life Doesn't Frighten Me* Media (Online Science Exhibit): *Wired for Fear* Novel: L*upita Mañana* Informational Text: *In the Spotlight*
Performance Tasks	Writing Activity: Informative Essay, Narrative, Summary, Letter Speaking Activity: Response to Literature Media Activity: Podcast
Key Learning Objectives	The student will be able to: • describe characters and setting and make inferences in the context of a short story • describe plot elements and analyze point of view in a short story. • describe the structure of a lyric poem and identify repetition and rhyme scheme. • cite textual evidence to analyze text features and structure. • determine central ideas and supporting details in informational text. • analyze the purpose of a video and understand the visual and sound elements used in it.

Teachers College Units of Study:

Grade 6 for schools with 5-7 periods of ELA/literacy per week*		
Month(s)	Reading	Writing
Aug	Time for independent reading	*Personal Narrative* (Book 1)
Sept	*A Deep Study of Character* (Stand-Alone Book)	Time for independent writing
Oct / Nov	*Social Issues Book Clubs* (Stand-Alone Book)	Time for independent writing
Nov / Dec	Time for independent reading	*The Literary Essay* (Book 2)
Jan	*Tapping the Power of Nonfiction* (Stand-Alone Book)	Time for independent writing
Feb	*Civically-Engaged Classroom Micro-Unit* or Test Prep Micro-Unit	*Civically-Engaged Classroom Micro-Unit* or Test Prep Micro-Unit (Personal Essay)

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