

Continuity of Learning: Selecting Priority Instructional Content - Mathematics

Purpose

The purpose of this document is to assist SU/SDs and schools in the process of selecting [Priority Instructional Content](#). Priority instructional content is the content identified to facilitate the teaching and learning of the [Critical Proficiencies](#) that schools in Vermont were asked to identify in their [Continuity of Learning Plans](#).

Introduction

“Teaching and learning is likely to move between in-person and remote settings throughout the coming school year. Identifying a common, high-quality curriculum that is used systemwide may or may not have been the practice in prior years; however, it will be critical to have a coherent curricular spine for every grade level and core content area to ensure continuity of learning for all students in the 2020-2021 school year. The learning disruption that will occur as students move in and out of learning scenarios could be significant, and it is likely to be a routine feature of 2020-2021 school year.

The goal of all instruction—even in this time of disruption—is to ensure each student learns grade-level content and is ready to progress to the next grade. Given that many students will start the school year further behind than typical and that disruptions are likely, focusing students on the most important content will be essential.” [\(CCSSO Restart & Recovery: Considerations for Teaching and Learning: Academics\)](#)

Selecting Priority Instructional Content

Identified Critical Proficiencies

Critical proficiencies are built upon explicit, measurable learning objectives based on standards, and measure a learner’s knowledge and skills demonstrated in a consistent manner in various settings over time. To support continuity of learning, new learning should center on high leverage concepts and skills that are identified as essential to readiness for future learning and grade promotion for the upcoming academic year. Critical proficiencies are those [Proficiency Based Graduation Requirements \(PBGRs\)](#) or standards that have been identified as non-negotiable -- the essential knowledge, skills and abilities that teachers will focus on throughout the school year. Priority instructional content is the material chosen to deliver the instruction to

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support the attainment of those critical proficiencies. In other words, the critical proficiencies determine the priority instructional content to be chosen.


Selecting the Content


Much of the work undertaken by schools to identify their PBGRs also serves as the basis for indicating those standards and skills that are essential at each grade level or cluster. There are other resources available to assist schools in identifying Priority Instructional Content in addition to their work in creating their PBGRs. Achieve The Core has authored [Mathematics: Focus by Grade Level](#) to identify those standards (by CCSS cluster) that show where a teacher should spend the majority of their time and instruction (see Figure 1 below). They have produced documents for every grade from Kindergarten through Grade 8.

Figure 1: CCSS Where to Focus Grade 3 Mathematics

**CCSS
WHERE TO FOCUS
GRADE 3
MATHEMATICS**


MATHEMATICS


GRADE 3


FOCUS

This document shows where students and teachers should spend the large majority of their time in order to meet the expectations of the Standards.

Not all content in a given grade is emphasized equally in the Standards. Some clusters require greater emphasis than others based on the depth of the ideas, the time that they take to master, and/or their importance to future mathematics or the demands of college and career readiness. More time in these areas is also necessary for students to meet the Standards for Mathematical Practice.

To say that some things have greater emphasis is not to say that anything in the Standards can safely be neglected in instruction. Neglecting material will leave gaps in student skill and understanding and may leave students unprepared for the challenges of a later grade.

Students should spend the large majority² of their time on the major work of the grade (■). Supporting work (□) and, where appropriate, additional work (○) can engage students in the major work of the grade.^{2,3}

MAJOR, SUPPORTING, AND ADDITIONAL CLUSTERS FOR GRADE 3
Emphases are given at the cluster level. Refer to the Common Core State Standards for Mathematics for the specific standards that fall within each cluster.

Key: ■ Major Clusters □ Supporting Clusters ○ Additional Clusters

- 3.OA.A ■ Represent and solve problems involving multiplication and division.
- 3.OA.B ■ Understand properties of multiplication and the relationship between multiplication and division.
- 3.OA.C ■ Multiply and divide within 100.
- 3.OA.D ■ Solve problems involving the four operations, and identify and explain patterns in arithmetic.
- 3.NBT.A ○ Use place value understanding and properties of operations to perform multi-digit arithmetic.
- 3.NF.A ■ Develop understanding of fractions as numbers.
- 3.MD.A ■ Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
- 3.MD.B □ Represent and interpret data.
- 3.MD.C ■ Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
- 3.MD.D ○ Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
- 3.G.A □ Reason with shapes and their attributes.

**HIGHLIGHTS OF MAJOR WORK
IN GRADES K–8**

K–2	Addition and subtraction – concepts, skills, and problem solving; place value
3–5	Multiplication and division of whole numbers and fractions – concepts, skills, and problem solving
6	Ratios and proportional relationships; early expressions and equations
7	Ratios and proportional relationships; arithmetic of rational numbers
8	Linear algebra and linear functions

REQUIRED FLUENCIES FOR GRADE 3


3.OA.C.7	Single-digit products and quotients (Products from memory by end of Grade 3)
3.NBT.A.2	Add/subtract within 1000

Not every grade-level standard is equal in importance, and these guides have been produced to highlight those standards that will best prepare students for future learning and ultimately to be college and career ready. The standards have been further separated into those that should represent the majority of a students’ learning time, those standards that are supportive and those that can be additional clusters to cover if time allows. Refer to the [Common Core State Standards for Mathematics](#) for the specific standards that fall within each cluster.

The standard clusters listed in each grade level directly match the concepts and procedures that compose the [Test Blueprints for the SBAC](#) summative assessments. Within the SBAC Blueprint, the same priority clusters have been identified; the SBAC Blueprint differs, however, from the Achieve the Core work since the "supporting" and "additional clusters" have been combined. The test blueprint for the high school summative assessment (listed as Grade 11) can be utilized to determine the focus areas for high school since Achieve the Core did not produce a Focus Area document for that grade level.

Utilizing the Test Blueprints and the Focus Areas by Grade Level to determine a SU/SD's critical proficiencies, and thus selecting the instructional content to support those concepts, ensures that students will be assessed on areas where they have received instruction.

Figure 2: All Learners Network High Leverage Concepts Grades 3-5

 ALL LEARNERS NETWORK <small>Math for Every Student</small>		High Leverage Concepts Grades 3-5
MULTIPLICATIVE REASONING		FRACTIONS
Grade Three	Grade Four	Grade Five
Multiply and divide numbers within 100 (in context and in equations)	Multiply and divide any two numbers within 1,000 (in context and in equations)	All four operations with fractions (in context and in equations) (NO standard algorithms – using modeling and/or decomposition approaches.
Models for Intervention		
Strong connections between grouping and area models. Use of area models for multiplication facts.	Area models to support decomposition for multiplication. Partitive (sharing) models for division.	Area models to build equivalence for add/sub. Parts/whole models for multiplication, with a focus on whole numbers x fractions. Measurement models for division of fractions.
Models for Instruction		
Grouping models (i.e. circles and stars, loops and groups, beans and cups), jumps on a number line, repeated addition, skip counting; area models for products to 100 (may start by using place value blocks) Experience with both partitive (sharing) models and quotative (partial quotients) models	Area models for products OR quotients to 1,000 The use of area models to develop decomposition strategies for multidigit computation Experience with both partitive (sharing) models and quotative (partial quotients) models both in equations and in context.	Area models for part/whole relationships, place value blocks, Cuizenaire rods, fraction bars, fraction pieces, geoboards, pattern blocks
Critical Strategies		
Decompose multiplication expressions into 2's, 5's, 10's Model Division as sharing among groups OR computing how many groups of a specific size are in the whole: 6÷2 can be 6 shared between 2 groups (3 in each group) OR 3 groups of 2 in 6 (2+2+2 or 3x2)		Identifying equivalents for benchmark fractions Decomposing benchmark fractions (and 1 whole) Showing position of benchmark fractions on the number line

Another organization, the [All Learners Network \(ALN\)](#), has crafted their version of "focus areas," which they have termed [High Leverage Concepts \(HLCs\)](#) (as seen in Figure 2 above). These HLCs are seen as the key mathematical understandings that students will need to be successful in the following year of school. In the strategies employed by the ALN, the HLCs are the focus of most/all remedial efforts at a particular grade level. So, at any particular grade level, it is imperative to know the HLCs of the prior year and to assess which students have deficits in those areas, and then to provide intervention to develop those much-needed skills.

The ALN has also created [High Leverage Assessments](#) to align to the HLCs for each grade. To be forward thinking, a teacher's current grade level instruction should prioritize the HLCs for

the current year to remove the need for remediation in subsequent grades to the best extent possible. The HLCs are closely aligned with the Focus Areas outlined by Achieve the Core.

Supporting Instruction Using Quantile Math Skills Database

A virtual tool that can be useful in the design of instruction is the [Quantile Math Skills Database](#). This is a free tool for Vermont educators that can be used to identify the skills that comprise a given mathematical standard. These skills can be organized according to an increase in the Quantile measure which also corresponds to an increase in the level of difficulty. Many skills are present within multiple individual standards, some research by standard “cluster” is beneficial to locate all skills within a particular CCSS Cluster.

Figure 3: Quantile Math Skills Database

The screenshot shows the Quantile Math Skills Database search interface. It includes a search bar with 'Standard Search' and 'Keyword Search' options. The search criteria are set to 'Vermont' for State or Common Core and 'Grade 3' for Grade or Course. The goal selected is '3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and me'. A 'Search' button is visible. Below the search results, it indicates 'Common Core State Standards 2010 | 6 skill(s) found'. A table lists the skills with columns for State Goal, QSC ID, QSC Description, Quantile Measure, and Strand.

STATE GOAL	QSC ID	QSC DESCRIPTION	QUANTILE MEASURE	STRAND
3.OA.A.3	QSC549	Find the value of an unknown in a number sentence.	150Q	Algebra and Algebraic Thinking
3.OA.A.3	QSC121	Use multiplication facts through 144.	180Q	Numerical Operations
3.OA.A.3	QSC118	Model multiplication in a variety of ways including grouping objects, repeated addition, rectangular arrays, skip counting, and area models.	240Q	Numerical Operations
3.OA.A.3	QSC120	Model division in a variety of ways including sharing equally, repeated subtraction, rectangular arrays, and the relationship with multiplication.	320Q	Numerical Operations
3.OA.A.3	QSC162	Know and use division facts related to multiplication facts through 144.	350Q	Numerical Operations
3.OA.A.3	QSC607	Write a multiplication or a division sentence to represent a number or word problem; solve.	390Q	Algebra and Algebraic Thinking

For example, the CCSS cluster [3.OA.A: Represent and solve problems involving multiplication and division](#), contains four individual standards which collectively comprise six different skills (see Figure 3 above). Upon inspecting each of the four standards you will notice that 3.OA.A.3 contains all six of the skills found in the entire cluster. This tool can be beneficial in determining the sequencing of instruction for a student and ascertaining their placement in the learning progression of the particular skill.

Conclusion

It is important to refine your curriculum in order to support the social emotional well-being of all students while still preparing them for future learning. Refining curriculum focuses what is taught and assessed to best prepare students in meeting a district’s PBGRs. This does not imply that some concepts are unimportant or dismissed, but it does help to differentiate that which is addressed versus assessed. When determining curriculum, take into consideration the following:

- A coherent curricular spine for every grade level is essential to ensure continuity of learning for all students in the 2020-2021 school year.
- Critical proficiencies are those PBGRs or standards that have been identified as non-negotiable and priority instructional content is the material chosen to deliver the instruction.
- Not every grade-level standard is equal in importance and resource guides have been produced to highlight those standards that will best prepare students for future learning.

The selection of priority instructional content allows students to learn the concepts identified by a district’s critical proficiencies, derived from the state-adopted Common Core State Standards – Mathematics, and is paramount for ensuring equitable access and outcomes for students.

Resources

CCSSO, [Restart & Recovery: Considerations for Teaching and Learning: Academics](#)

AOE, [Continuity of Learning: Identifying Critical Proficiencies](#)

AOE, [Continuity of Learning](#)

AOE, [Proficiency-Based Graduation Requirements](#)

Student Achievement Partners – Achieve the Core, [Mathematics: Focus by Grade Level](#)

CCSS Initiative, [Mathematics Standards](#)

Smarter Balanced, [SBAC Test Blueprints](#)

ALN, [All Learners Network](#)

ALN, [High Leverage Concepts](#)

ALN, [High Leverage Assessments](#)

MetaMetrics, [Quantile Math Skills Database](#)

CCSS Initiative, [3rd Grade: Operations and Algebraic Thinking](#)