

PA Core Standards: Mathematics

Introduction

The 2020–21 school year presents a unique set of opportunities and challenges due to the disruption to instruction in spring 2020 as well as the uncertainty as the school year unfolds. Educators know that every school year there are students who require support in addressing unfinished learning from prior grades; a challenge that will be felt more prominently in the 2020–21 school year. It is vitally important that educators are supported to make deliberate instructional choices that allow all students to effectively engage with grade-level work.

The most effective and equitable way to support students in their learning is to ensure that the vast majority of time is spent engaging with grade-level content, remediating with precision and accelerating as needed. It is entirely possible to hold high expectations for all students while addressing unfinished learning in the context of grade-level work. Since time is a scarce commodity in classrooms — made more limited by anticipated closures and remote or hybrid learning models in the fall of 2020 — strategic instructional choices about which content to prioritize must be made.¹

Assessing students at the start of the year will identify learning gaps and provide data to inform grade level instruction — as well as incorporating both remediation and acceleration along the way. Diagnostic Assessments determine student strengths, weaknesses, knowledge, and skills. Administering diagnostic assessments permits the instructor to intervene at the point where students begin to struggle or when they are performing below grade level expectations (running record, informal reading assessments, surveys, initial writing prompts, Classroom Diagnostic Tests [CDT]). Diagnostic assessments allow teachers to adjust the curriculum to meet the unique needs of all students. While some concepts have greater emphasis in a particular year, all standards deserve a defined level of instruction. Neglecting concepts may result in learning gaps in student skill and understanding and may leave students unprepared for the challenges of a later grade.

This guidance document is designed to identify and define areas of high-level focus in Mathematics instruction supported by key PA Academic Standards. Note that while all standards deserve a defined level of instruction, neglecting key concepts may result in learning gaps in student skill and understanding and may leave students unprepared for the challenges of a later grade. Not all content in a given grade is emphasized equally in the standards. Some focus areas require greater emphasis than others based on the depth of the ideas, the time taken to master, and/or their importance to the future mathematics grade levels. More time in these areas is also necessary for students to meet the Standards for Mathematical Practice (MP).

¹ Adapted from 2020–21 Priority Instructional Content in English Language Arts/literacy and Mathematics, Student Achievement Partners/Achieve the Core. May 2020

GRADE 3 FOCUS OF INSTRUCTION (2020-2021)

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Focus Areas of Instruction	PA Academic Standards
<p>Numbers and Operations</p> <ul style="list-style-type: none"> • Place Value Properties of Operations: Perform multi-digit arithmetic, Demonstrate fluency of addition and subtraction. Round whole numbers to the nearest ten or hundred. • Fractions: Develop an understanding of fractions as numbers. Represent fractions on a number line. Represent and generate equivalent fractions, Compare fractions with the same numerator or same denominator. 	<p>CC.2.1.3.B.1 Apply place-value understanding and properties of operations to perform multi-digit arithmetic.</p> <p>CC.2.1.3.C.1 Explore and develop an understanding of fractions as numbers.</p> <p>CC.2.2.3.A.1 Represent and solve problems involving multiplication and division.</p> <p>CC.2.2.3.A.2 Understand properties of multiplication and the relationship between multiplication and division.</p> <p>CC.2.2.3.A.3 Demonstrate multiplication and division fluency.</p> <p>CC.2.2.3.A.4 Solve problems involving the four operations and identify and explain patterns in arithmetic.</p> <p>CC.2.3.3.A.2 Use the understanding of fractions to partition shapes into parts with equal areas and express the area of each part as a unit fraction of the whole.</p> <p>CC.2.4.3.A.1 Solve problems involving measurement and estimation of temperature, liquid volume, mass, and length.</p> <p>CC.2.4.3.A.2 Tell and write time to the nearest minute and solve problems by calculating time intervals.</p> <p>CC.2.4.3.A.4 Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs.</p> <p>CC.2.4.3.A.5 Determine the area of a rectangle and apply the concept to multiplication and to addition.</p>
<p>Algebraic Concepts</p> <ul style="list-style-type: none"> • Multiplication, Division, Patterns: Represent and solve problems. Demonstrate an understanding of properties of multiplication. Demonstrate an understanding of the relationship between multiplication and division. Demonstrate fluency. Identify and explain patterns in arithmetic. 	<p>Standards of Mathematics Practices</p> <p>MP2: Reason abstractly and quantitatively. <i>Draw on knowledge and experiences that students bring to mathematics by using multiple representations and contexts, for example when working with multiplication and division situations.</i></p> <p>MP3: Construct viable arguments and critique the reasoning of others. <i>Attend to the ways in which students position one another as capable or not capable of doing mathematics and provide opportunities for sharing student work, student thinking and solutions.</i></p> <p>MP6: Attend to precision. <i>Establish discussion protocols to facilitate students' engagement in peer-to-peer mathematical discourse that supports active listening, values diverse perspectives and insights.</i></p>
<p>Geometry</p> <ul style="list-style-type: none"> • Two- and Three-dimensional Figures: Partition two-dimensional shapes into equal parts. Express the area of a partition as a unit fraction of the whole. 	
<p>Measurement, Data and Probability</p> <ul style="list-style-type: none"> • Measurement, Data Displays, Time, Money: Tell and write time to nearest minute. Calculate time intervals. Represent and interpret data using various displays. Determine the area of a rectangle as it relates to multiplication and addition. Solve problems involving measurement and estimation of temperature, liquid volume, mass, and length. 	