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# 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 then 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

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# GRADE 2 FOCUS OF INSTRUCTION (2020-2021)

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| Focus Areas of Instruction | PA Academic Standards |
|---|---|
| **Numbers and Operations**<br>• **Place Value:** Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.<br>• **Properties of operations to add and subtract:** Add up to four two-digit numbers using strategies based on place value and properties of operations. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds. Explain why addition and subtraction strategies work, using place value and the properties of operations.<br>**Algebraic Concepts**<br>• **Represent and solve problems using addition and subtraction:** Fluently add and subtract within 20. Apply properties of operations as strategies to add and subtract. Use addition and subtraction within 100 to solve one- and two-step word problems. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20.<br>**Geometry**<br>• **Fractions:** Partition circles and rectangles into two, three, or four equal shares. Recognize that equal shares of identical wholes need not have the same shape.<br>**Measurement, Data and Probability**<br>• **Measurement and Estimate Lengths in Standard Units:** Measure the length of an object by selecting and using appropriate tools. Measure the same length with different-sized units then discuss the measurement made with the smaller unit is more than the measurement made with the larger unit and vice versa, Estimate lengths using units of inches, feet, centimeters, and meters. Measure to determine how much longer one object is than another.<br>• **Relate Addition and Subtraction to Length:** Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units. | **CC.2.1.2.B.1** *Use place-value concepts to represent amounts of tens and ones and to compare three-digit numbers.*<br><br>**CC.2.1.2.B.2** *Use place-value concepts to read, write, and skip count to 1000.*<br><br>**CC.2.1.2.B.3** *Use place-value understanding and properties of operations to add and subtract within 1000.*<br><br>**CC.2.2.2.A.1** *Represent and solve problems involving addition and subtraction within 100.*<br><br>**CC.2.2.2.A.2** *Use mental strategies to add and subtract within 20.*<br><br>**CC.2.3.2.A.2** *Use the understanding of fractions to partition shapes into halves, quarters, and thirds.*<br><br>**CC.2.4.2.A.1** *Measure and estimate lengths in standard units using appropriate tools.*<br><br>**CC.2.4.2.A.6** *Extend the concepts of addition and subtraction to problems involving length.*<br><br>**Standards for Mathematics Practices**<br><br>**MP1:** ***Make sense of problems and persevere in solving them.***<br>*Design question threads that prompt students to recognize frustration with a problem, manage the frustration without turning their back on the task, re-evaluate and look for an alternate pathway to a solution.*<br><br>**MP3:** ***Construct viable arguments and critique the reasoning of others.***<br>*Use discussion protocols to provide a safe environment for students to share their developing thinking and to allow for interactions where peers value multiple contributions.*<br><br>**MP8:** ***Look for and express regularity in repeated reasoning.***<br>*Empower students to self-monitor their individual progress as they use properties and patterns along the way toward knowing sums of two one-digit numbers from memory.* |