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).

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

GRADE Algebra 1 (Keystone) FOCUS OF INSTRUCTION (2020-2021)

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Focus Areas of Instruction	PA Academic Standards
Numbers and Operations • **Operations with Real Numbers and Expressions:** Represent and/or use numbers in equivalent forms (e.g., integers, fractions, decimals, percents, square roots, and exponents). Apply number theory concepts to show relationships between real numbers in problem solving settings. Use exponents, roots, and/or absolute values to solve problems. Use estimation strategies in problem-solving situations. Simplify expressions involving polynomials. **Linear Equations and Inequalities** • **Linear Equations:** Write, solve, and/or graph linear equations using various methods. Write, solve, and/or graph systems of linear equations using various methods. • **Linear Inequalities:** Write, solve, and/or graph linear inequalities using various methods. Write, solve, and/or graph systems of linear inequalities using various methods. **Functions and Coordinate Geometry** • **Functions:** Analyze and/or use patterns or relations. Interpret and/or use linear functions and their equations, graphs, or tables. • **Coordinate Geometry:** Describe, compute, and/or use the rate of change (slope) of a line. Analyze and/or interpret data on a scatter plot. **Data Analysis** • **Data Analysis:** Use measures of dispersion to describe a set of data. Use data displays in problem solving settings and/or to make predictions. Apply probability to practical situations.	**CC.2.1.HS.F.1** *Apply and extend the properties of exponents to solve problems with rational exponents.* **CC.2.1.HS.F.2** *Apply properties of rational and irrational numbers to solve real-world or mathematical problems.* **CC.2.1.HS.F.3** *Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.* **CC.2.1.HS.F.4** *Use units as a way to understand problems and to guide the solution of multi-step problems.* **CC.2.2.HS.C.1** *Use the concept and notation of functions to interpret and apply them in terms of their context.* **CC.2.2.HS.C.2** *Graph and analyze functions and use their properties to make connections between the different representations.* **CC.2.2.HS.C.3** *Write functions or sequences that model relationships between two quantities.* **CC.2.2.HS.C.5** *Construct and compare linear, quadratic, and exponential models to solve problems.* **CC.2.2.HS.C.6** *Interpret functions in terms of the situations they model.* **CC.2.2.HS.D.1** *Interpret the structure of expressions to represent a quantity in terms of its context.* **CC.2.2.HS.D.2** *Write expressions in equivalent forms to solve problems.* **CC.2.2.HS.D.3** *Extend the knowledge of arithmetic operations and apply to polynomials.* **CC.2.2.HS.D.5** *Use polynomial identities to solve problems.* **CC.2.2.HS.D.7** *Create and graph equations or inequalities to describe numbers or relationships.* **CC.2.2.HS.D.9** *Use reasoning to solve equations and justify the solution method.* **CC.2.2.HS.D.10** *Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.* **CC.2.4.HS.B.1** *Summarize, represent, and interpret data on a single count or measurement variable.* **CC.2.4.HS.B.2** *Summarize, represent, and interpret data on two categorical and quantitative variables.* **CC.2.4.HS.B.3** *Analyze linear models to make interpretations based on the data.* **Standards for Mathematics Practices** **MP3:** *Construct viable arguments and critique the reasoning of others.* *Justify their conclusions, communicate them to others, and respond to the arguments of others.* **MP4:** *Model with mathematics.* *Apply the mathematics they know to solve problems arising in everyday life, society, and the workplace.* **MP5:** *Use appropriate tools strategically.* *Be familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations.*