

High School: Critical Questions for Use with the Progressions Documents for the Mathematics K–12 Learning Standards

The Mathematics K–12 Learning Standards (formerly the Common Core State Standards, also referred to as “the Standards”) were built on learning progressions, informed both by research on children's cognitive development and by the logical structure of mathematics. [These progression documents](#) describe the cognitive development and structure of mathematics in several important areas of the standards. These documents note key connections among standards, point out cognitive difficulties and pedagogical solutions, and give more detail on particularly knotty areas of the mathematics. These documents are intended to inform teacher preparation programs and professional development, curriculum organization, and textbook content. Thus, their audience includes teachers and anyone involved with schools, teacher education, test development, or curriculum development.

Critical Questions

For each progression document, including the Front Matter document, OSPI staff have developed several critical questions to guide discussions as you read through the documents. This document focuses on progression documents relevant for high school. These questions are not meant to be a “scavenger hunt” of the document, but rather an opportunity to engage in deeper conversation and consideration of the ideas and thoughts presented in the document. We encourage educators to use these questions to guide department, PLC, or staff meeting engagement with and conversations about the Progressions Documents for the Mathematics K–12 Learning Standards. Feedback and clarifying questions on these critical questions are welcome; please send your thoughts to asi@k12.wa.us.

Draft Front Matter

1. Why is each audience identified as an important audience for discussions on learning progressions and these progression documents?
2. How can focusing on a small collection of general mathematical properties help students gain a better understanding and facility with mathematics than a large collection of specialized procedures?
3. Since well documented progressions for all of K–12 mathematics do not exist, what process can educators use to inform a learning progression in content for which a progression document does not exist?
4. Why is the inclusion of the Standards for Mathematical Practice important to a learning progression?



5. As the Standards call for educators to approach mathematical concepts differently than many adults experienced them when they were in school, parents and non-educator stakeholders in particular often question the need for and value in a different approach. How can educators communicate the importance of this new approach, including changes such as described in the *Reconceptualized topics; changed notation and terminology* section, to parents and non-educator stakeholders?

Draft High School Progression on Statistics and Probability

1. What approaches will help students distinguish between correlation and causation?
2. How can students use statistical tools to construct and defend logical arguments based on data?
3. What are the key aspects of survey design and sampling that students should understand and be able to apply?

Draft High School Progression on Algebra

1. How are the Standards for Mathematical Practice 7, "Look for and make use of structure," and 8, "Look for and express regularity in repeated reasoning," utilized when building understanding of expressions and equations?
2. How can you develop student understanding of the uses and properties of equivalent forms of expressions?
3. What are strategies to help students develop the skills of solving equations as a process of reasoning?

Draft 8, High School Progression on Functions

1. How does the idea of functions build from pattern standards in the early grades to using functions to model relationships between quantities in high school?
2. How is function notation used to interpret meaning of contexts?
3. How can educators use function families to develop understanding of varying parameters and the effects on graphs and key features of functions?

Draft High School Progression on Modeling

1. How are units utilized in communicating the results of a model in a real-world context?
2. What are some important aspects to keep in mind when building a mathematical model?
3. How are models used to deduce additional information about a real-world situations?



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