**Two-Year Implementation Plan for New Alaska Mathematics Standards**

**Grades 3-8**

Alaska adopted new [Mathematics Standards](https://education.alaska.gov/akstandards/) in June 2012. In the spring of 2014, the Standards Based Assessments will continue to assess [Grade Level Expectations](https://education.alaska.gov/akstandards/standards/standards.pdf). In the spring of 2015, new assessments, developed by the SMARTER Balanced Assessment Consortium, will be administered based on the new standards. This document provides optional guidance for districts on how to transition curriculum and instruction to the new standards while ensuring that students receive instruction on content covered in the 2013-14 Standards Based Assessments.

The Alaska Department of Education & Early Development strongly recommends fully implementing the new mathematics standards for kindergarten-grade 2.

The Standards for Mathematical Practice should be implemented in conjunction with the content standards in *all* grades. These replace the Process Skills in the Grade Level Expectations.

In the 2014-2015 school year, all GLEs must be replaced with the new Alaska Mathematics Standards.

Comparison Transition Tools for Standards Transition at <http://education.alaska.gov/tls/assessment/2012comparison.html> were used when developing this document.

Comparison Tools show Numeration and Estimation and Computation GLEs are generally closely aligned with

* + Number and Operations in Base Ten and Number and Operations—Fractions domains for grades 3-5
	+ Ratios and Proportional Relationships and Number System domains for grades 6-7
	+ Number System and Expressions and Equations domains for grade 8

The implementation plan for the first year replaces the Numeration and Estimation and Computation GLEs in grades 3-8 with two domains in the new standards as shown in the implementation table. Teaching these new domains increases the rigor of instruction because they address skills taught at higher grade levels in the GLEs. They also introduce teachers to the focus of these domains in the new standards.

Students continue to learn the Measurement, Functions and Relationships, Geometry, and Statistics and Probabilities GLEs in the 2013-2014 school year. These GLE strands will be assessed in the Alaska Standards Based Assessments in the spring of 2014.

Replacing closely aligned standards in the first year of transition allows districts to move to the new standards by emphasizing areas that overlap between the two sets of standards and preparing the way for the overall higher rigor in the second year. Replacing some of the standards (but not all) the first year assures that students will also be learning the skills assessed on the SBAs but not included in the new standards.

An accompanying PowerPoint on how to use this implementation plan is at <https://education.alaska.gov/akstandards/> under Resources for Math Standards Implementation in the Math tab.

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|  | **Grade 3** | **Grade 4** | **Grade 5** | **Grade 6** | **Grade 7** | **Grade 8** |
| **2013-2014:****New****standards to****implement** | **Number and Operations in Base Ten (a/s)****Number and Operations—Fractions (m)** (replace Numeration and Estimation and Computation GLEs) | **Number and Operations in Base Ten (m)****Number and Operations—Fractions (m) (**replace Numeration and Estimation and Computation GLEs) | **Number and Operations in Base Ten (m)****Number and Operations—Fractions (m)** (replace Numeration and Estimation and Computation GLEs) | **Ratios and Proportional Relationships (m)****Number System (m and a/s)** (replace Numeration and Estimation and Computation GLEs) | **Ratios and Proportional Relationships (m)****Number System (m)** (replace Numeration and Estimation and Computation GLEs) | **Number System (a/s)****Expressions and Equations (m)** (replace Numeration and Estimation and Computation GLEs) |
| **Concepts addressed in new standards:** | Students will learn to add and subtract with numbers up to 1,000. Students will understand fractions as numbers. | Students will learn to generalize place value understandings for multi-digit whole numbers; and use properties of operations to perform multi-digit arithmetic. They will extend understanding of fraction equivalence and ordering; and understand decimal notation for fractions.  | Students will learn to perform operations with multi-digit whole numbers and with decimals to hundredths. They will use equivalent fractions as a strategy to add and subtract fractions and multiply and divide fractions. | Students will learn to understand ratio concepts and use ratio reasoning to solve problems. Students will divide fractions by fractions; compute fluently with multi-digit numbers and find common factors and multiples; and apply and extend previous understandings of numbers to the system of rational numbers. | Students will learn to analyze proportional relationships and use them to solve real-world and mathematics problems. They will add, subtract, multiply, and divide rational numbers. | Students will learn to approximate irrational numbers by rational numbers. Students will work with radicals and integer exponents; understand the connections between proportional relationships, lines, and linear equations; and analyze and solve linear equations and pairs of simultaneous linear equations. |
| **2014-2015:****Remaining****standards to****implement (replace all GLEs)** | **Operations and Algebraic Thinking (m)****Measurement and Data (m and a/s)** **Geometry (a/s)**  | **Operations and Algebraic Thinking (m and a/s)****Measurement and Data (a/s)****Geometry (a/s)** | **Operations and Algebraic Thinking (a/s)****Measurement and Data (m and a/s)** **Geometry (a/s)** | **Expressions and Equations (m)****Geometry (a/s)****Statistics and Probability (a/s)** | **Expressions and Equations (m)****Geometry (a/s)****Statistics and Probability (a/s)** | **Functions (m)****Geometry (m and a/s)****Statistics and Probability (a/s)** |
| **Year Two Readiness:** | Students in grade 2 were taught using the new standards and are prepared for full implementation of the standards in grade 3.  | Students gained fluency with addition and subtraction in grade 3. They are prepared to learn to use the four operations to solve problems, gain familiarity with factors and multiples, and generate and analyze patterns for Operations and Algebraic Thinking. They are also prepared to learn the skills for Measurement and Data and Geometry.\* | Students gained fluency with the four operations in grade 4. They are prepared to learn to write and interpret numerical expressions and analyze patterns and relationships for Operations and Algebraic Thinking. They are also prepared to learn the skills for Measurement and Data and Geometry.\* | Students gained fluency with performing operations with multi-digit whole numbers and decimals in grade 5. They are prepared to learn to apply and extend previous understandings of arithmetic to algebraic expressions, reason about and solve one-variable equations and inequalities, and represent and analyze quantitative relationships between dependent and independent variables for Expressions and Equations. They are also prepared to learn the skills for Geometry and Statistics and Probability.\* | Students learned how to apply the four operations to rational numbers in grade 6. They are prepared to learn to use properties of operations to generate equivalent expressions and solve real-life and mathematical problems using numerical and algebraic expressions and equations for Expression and Equations. They are also prepared to learn the skills for Geometry and Statistics and Probability.\* | Students learned to work with rational numbers in grade 7. They are prepared to learn to define, evaluate, and compare functions; and use functions to model relationships between quantities for Functions. They are also prepared to learn the skills for Geometry and Statistics and Probability.\* |

\*See the grade overview for each grade level in Alaska’s [Mathematics Standards](https://education.alaska.gov/akstandards/) for the complete overview of the standards.

Smarter Balanced Assessment Consortium has classified, for [assessment purposes](http://www.smarterbalanced.org/wordpress/wp-content/uploads/2011/12/Math-Content-Specifications.pdf), domains into major and additional/supporting clusters m=major clusters a/s=additional/supporting clusters

Additional resources:

* Alaska Standards material at <http://education.alaska.gov/>
* Alaska Comparison Transition Tools at <http://education.alaska.gov/tls/assessment/2012comparison.html>
* Smarter Balanced Assessment Consortium (SBAC) at [https://education.alaska.gov/akassessments/#c3gtabs-sbac](https://education.alaska.gov/akassessments/%23c3gtabs-sbac)
* SBAC Content Specifications for Mathematics at <http://www.smarterbalanced.org/wordpress/wp-content/uploads/2011/12/Math-Content-Specifications.pdf>
* SBAC practice tests at <http://www.smarterbalanced.org/pilot-test/>