

Introduction

This alignment summarizes the relationship between the 2001 Ohio Academic Content Standards (Ohio ACS) for Mathematics and the 2010 Common Core State Standards (CCSS) adopted by Ohio on June 7, 2010. The Crosswalk lists all of the kindergarten through high school domains and clusters and their corresponding benchmarks from the 2001 standards. This document is provided to assist curriculum specialists and teachers in reviewing their current curricula and instruction in preparation for the transition to the CCSS. The CCSS can be found at www.corestandards.org.

The structure and organization of the standards has changed. The frameworks for the 2001 and 2010 sets of standards are not parallel. While there are clear connections between both sets of standards, there also are significant differences.

2001 Academic Content Standards for Mathematics

Standards
Benchmarks (by grade band)
Indicators (by grade)

2010 Common Core State Standards for Mathematics

Grades K-8

Grade
Domain
Cluster
Standard (Statements)

High School

Conceptual Category
Domain
Cluster
Standard (Statements)

Each grade also identifies “critical areas” of focus.

This document connects the 2010 CCSS clusters and standard statements with the 2001 Ohio benchmarks.

Alignments are not exact. The intent and level of expectation for each of these sets of standards varies, making it difficult to say that the connections made show full alignment.

Process

A committee of teachers, teacher educators, ESC consultants, and other mathematics professionals were brought together to assist the Ohio Department of Education in the process of identifying the connections between the 2010 CCSS and the 2001 Ohio ACS for Mathematics. This task included aligning the 2001 benchmarks to the 2010 CCSS standard statements, which are grouped by clusters.

Benchmarks may be aligned to one or several of the standard statements within a cluster. Benchmarks identified as prerequisite skills or concepts are not included as connections. Additionally, the number of benchmarks connected to a cluster does not imply any level of alignment or coverage. Finally, users of this crosswalk are cautioned that alignment of a benchmark to a 2010 cluster does not necessarily imply that 2001 indicators associated with the benchmark align to the same cluster.

Comparison of the Common Core State Standards and the 2001 Academic Content Standards for Mathematics

How to Use This Document

The first three columns identify the grade level, domain and cluster from the 2010 Common Core State Standards for Mathematics. The fourth column identifies corresponding benchmarks from 2001 Ohio ACS for Mathematics that are aligned to the 2010 CCSS.

Common Core State Standards K-12			Ohio 2001 Academic Content Standards
Grade	Domain	Cluster	Benchmark
K	Counting and Cardinality	Know number names and the count sequence.	OH.K-2.N.F
		Count to tell the number of objects.	OH.K-2.N.F
		Compare numbers.	OH.K-2.N.B

Reading the Ohio codes used for benchmarks: Ohio, Grade Band, Standard, Benchmark.

The standards in the benchmark code are identified by the following notations:

- N. – Number, Number Sense and Operations
- M. – Measurement
- G. – Geometry and Spatial Sense
- A. – Patterns, Functions and Algebra
- D. – Data Analysis and Probability

As mentioned above, the alignment between the two sets of standards is not perfect and should not be used to re-purpose curriculum and instructional materials for teaching the 2010 CCSS. This document should be used to begin the conversation and the analyses of these two sets of standards.

The transition from the current Ohio ACS to the newly adopted CCSS needs to be a thoughtful process involving professional development about the CCSS, local district analysis of what needs to be changed and the creation and implementation of a sensible plan that gradually moves toward the CCSS by 2014. It is recommended that districts begin this process after the State Board of Education adopts the model curriculum in March 2011.

Common Core State Standards K-8			Ohio 2001 Academic Content Standards
Grade	Domain	Cluster	Benchmark
K	Counting and Cardinality	Know number names and the count sequence.	OH.K-2.N.F
		Count to tell the number of objects.	OH.K-2.N.F
		Compare numbers.	OH.K-2.N.B
	Operations and Algebraic Thinking	Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.	OH.K-2.N.G OH.K-2.N.K OH.K-2.A.D
	Number and Operations–Base Ten	Work with numbers 11-19 to gain foundations for place value.	OH.K-2.N.A
	Measurement and Data	Describe and compare measurable attributes.	OH.K-2.A.A OH.K-2.A.G OH.K-2.G.C OH.K-2.D.B
		Classify objects and count the number of objects in each category.	OH.K-2.N.F OH.K-2.A.A OH.K-2.D.A OH.K-2.D.B
	Geometry	Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).	OH.K-2.G.A OH.K-2.G.B OH.K-2.G.C OH.K-2.G.E OH.K-2.G.F
		Analyze, compare, create, and compose shapes.	OH.K-2.G.A OH.K-2.G.B OH.K-2.G.C OH.K-2.G.D OH.K-2.G.E

Common Core State Standards K-8			Ohio 2001 Academic Content Standards
Grade	Domain	Cluster	Benchmark
1	Operations and Algebraic Thinking	Represent and solve problems involving addition and subtraction.	OH.K-2.P.F OH.K-2.P.H
		Understand and apply properties of operations and the relationship between addition and subtraction.	OH.K-2.N.M OH.K-2.N.K
		Add and subtract within 20.	OH.K-2.N.G OH.K-2.N.H OH.K-2.N.K OH.K-2.N.L
		Work with addition and subtraction equations.	OH.K-2.A.E
	Number and Operations – Base Ten	Extend the counting sequence.	No Aligned Benchmarks
		Understand place value.	No Aligned Benchmarks
		Use place value understanding and properties of operations to add and subtract.	OH.K-2.P.A OH.K-2.P.E OH.K-2.P.I OH.K-2.P.F
	Measurement and Data	Measure lengths indirectly and by iterating length units.	OH.K-2.P.F
		Tell and write time.	OH.K-2.M.C
		Represent and interpret data.	OH.K-2.A.G
	Geometry	Reason with shapes and their attributes.	OH.K-2.D.C OH.K-2.P.F

Common Core State Standards K-8			Ohio 2001 Academic Content Standards
Grade	Domain	Cluster	Benchmark
2	Operations and Algebraic Thinking	Represent and solve problems involving addition and subtraction.	OH.K-2.N.M OH.K-2.P.G OH.K-2.A.F OH.K-2.P.F OH.K-2.N.G OH.K-2.N.H OH.K-2.A.D
		Add and subtract within 20.	OH.K-2.N.K
		Work with equal groups of objects to gain foundations for multiplication.	OH.K-2.P.G OH.K-2.N.B OH.K-2.N.I OH.K-2.A.D
	Number and Operations – Base Ten	Understand place value.	OH.K-2.N.B OH.K-2.N.F OH.K-2.N.A OH.3-4.N.A
		Use place value understanding and properties of operations to add and subtract.	OH.K-2.N.L OH.K-2.N.M OH.K-2.P.E OH.K-2.P.F OH.K-2.P.I OH.3-4.N.G OH.3-4.N.H OH.3-4.N.L OH.3-4.P.K
	Measurement and Data	Measure and estimate lengths in standard units.	OH.3-4.M.B OH.K-2.M.C OH.K-2.M.D OH.K-2.M.E
		Relate addition and subtraction to length.	OH.K-2.A.E OH.K-2.A.F OH.K-2.P.G OH.K-2.P.F
		Work with time and money.	OH.K-2.P.H OH.K-2.N.D OH.K-2.N.E OH.3-4.N.F
		Represent and interpret data.	OH.K-2.D.B OH.K-2.D.C OH.3-4.D.B OH.3-4.D.C
	Geometry	Reason with shapes and their attributes.	OH.K-2.N.C OH.K-2.G.A OH.K-2.G.B OH.K-2.G.E OH.K-2.P.F OH.K-2.P.H OH.3-4.M.D OH.3-4.P.E

Common Core State Standards K-8			Ohio 2001 Academic Content Standards
Grade	Domain	Cluster	Benchmark
3	Operations and Algebraic Thinking	Represent and solve problems involving multiplication and division.	OH.K-2.N.I OH.K-2.N.J OH.3-4.A.C OH.3-4.A.D OH.3-4.A.E OH.3-4.N.I OH.3-4.N.K
		Understand properties of multiplication and the relationship between multiplication and division.	OH.3-4.N.G OH.3-4.N.H
		Multiply and divide within 100.	OH.3-4.N.I
		Solve problems involving the four operations, and identify and explain patterns in arithmetic.	OH.3-4.N.J OH.3-4.N.K OH.3-4.A.A OH.3-4.A.C OH.3-4.A.D OH.3-4.A.E
	Number and Operations – Base Ten	Use place value understanding and properties of operations to perform multi-digit arithmetic.	OH.3-4.N.A OH.3-4.N.G OH.3-4.N.H OH.3-4.N.L
	Number and Operations – Fractions	Develop understanding of fractions as numbers.	OH.3-4.N.B OH.3-4.N.C OH.3-4.N.D
	Measurement and Data	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.	OH.K-2.M.D OH.3-4.M.A OH.3-4.M.C OH.3-4.M.E
		Represent and interpret data.	OH.K-2.M.D OH.3-4.D.A OH.3-4.D.B OH.3-4.D.D
		Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	OH.3-4.M.A OH.3-4.M.D
		Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.	OH.5-7.M.G
	Geometry	Reason with shapes and their attributes.	OH.3-4.G.A OH.3-4.G.E OH.3-4.G.F OH.3-4.N.C OH.3-4.N.D

Common Core State Standards K-8			Ohio 2001 Academic Content Standards
Grade	Domain	Cluster	Benchmark
4	Operations and Algebraic Thinking	Use the four operations with whole numbers to solve problems.	OH.3-4.A.C OH.3-4.A.D OH.3-4.A.E OH.3-4.N.G OH.3-4.N.J OH.3-4.N.K OH.3-4.P.B OH.3-4.P.C OH.3-4.P.G
		Gain familiarity with factors and multiples.	OH.3-4.N.E OH.5-7.N.G
		Generate and analyze patterns.	OH.3-4.A.A OH.3-4.A.B OH.3-4.A.F OH.5-7.A.A
	Number and Operations – Base Ten	Generalize place value understanding for multi-digit whole numbers.	OH.3-4.N.A
		Use place value understanding and properties of operations to perform multi-digit arithmetic.	OH.K-2.N.M OH.3-4.A.C OH.3-4.N.L
	Number and Operations – Fractions	Extend understanding of fraction equivalence and ordering.	OH.3-4.N.B OH.3-4.N.D
		Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	OH.3-4.N.M OH.5-7.N.I
		Understand decimal notation for fractions, and compare decimal fractions.	OH.3-4.N.B OH.5-7.N.B OH.5-7.N.H OH.5-7.N.I
	Measurement and Data	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	OH.3-4.M.D OH.3-4.M.B OH.3-4.M.E OH.5-7.M.E OH.5-7.M.B
		Represent and interpret data.	OH.3-4.D.C
		Geometric measurement: understand concepts of angle and measure angles.	OH.5-7.M.C OH.5-7.G.A
	Geometry	Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	OH.3-4.G.B OH.3-4.G.C OH.3-4.G.D OH.3-4.G.E OH.3-4.G.F OH.3-4.G.H

Common Core State Standards K-8			Ohio 2001 Academic Content Standards
Grade	Domain	Cluster	Benchmark
5	Operations and Algebraic Thinking	Write and interpret numerical expressions.	OH.5-7.N.E OH.5-7.A.G
		Analyze patterns and relationships.	OH.3-4.A.B OH.5-7.G.C OH.5-7.A.E OH.5-7.A.A
	Number and Operations – Base Ten	Understand the place value system.	OH.3-4.N.A OH.5-7.N.A OH.5-7.N.B OH.5-7.A.A OH.5-7.P.F
		Perform operations with multi-digit whole numbers and with decimals to hundredths.	OH.3-4.N.H OH.3-4.N.L OH.3-4.N.M OH.5-7.N.F OH.5-7.N.H OH.5-7.N.I
	Number and Operations – Fractions	Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	OH.5-7.N.H OH.5-7.N.I
		Use equivalent fractions as a strategy to add and subtract fractions.	OH.5-7.N.H OH.5-7.N.I
	Measurement and Data	Convert like measurement units within a given measurement system.	OH.5-7.M.B
		Represent and interpret data.	OH.3-4.D.C
		Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.	OH.3-4.M.D OH.5-7.M.C OH.5-7.M.E OH.5-7.M.G OH.5-7.A.J
	Geometry	Graph points on the coordinate plane to solve real-world and mathematical problems.	OH.3-4.G.G OH.5-7.G.C
		Classify two-dimensional figures into categories based on their properties.	OH.3-4.G.E OH.3-4.G.F OH.5-7.G.D

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Common Core State Standards K-8			Ohio 2001 Academic Content Standards
Grade	Domain	Cluster	Benchmark
6	Ratio and Proportionality Relationships	Understand ratio concepts and use ratio reasoning to solve problems.	OH.5-7.N.D OH.5-7.M.B OH.5-7.G.B
	The Number System	Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	OH.5-7.N.H
		Compute fluently with multi-digit numbers and find common factors and multiples.	OH.5-7.N.F OH.5-7.N.H
		Apply and extend previous understandings of numbers to the system of rational numbers.	OH.5-7.G.C OH.5-7.G.H OH.5-7.N.A OH.5-7.N.B
	Expressions and Equations	Apply and extend previous understandings of arithmetic to algebraic expressions.	OH.5-7.N.E OH.5-7.A.G OH.5-7.A.J
		Reason about and solve one-variable equations and inequalities.	OH.5-7.A.C OH.5-7.A.D OH.5-7.A.H
		Represent and analyze quantitative relationships between dependent and independent variables.	OH.5-7.A.B OH.5-7.A.F
	Geometry	Solve real-world and mathematical problems involving area, surface area, and volume.	OH.5-7.M.C OH.5-7.A.J
	Statistics and Probability	Develop understanding of statistical variability.	OH.5-7.D.B
		Summarize and describe distributions.	OH.5-7.D.A OH.8-10.D.C

Common Core State Standards K-8			Ohio 2001 Academic Content Standards
Grade	Domain	Cluster	Benchmark
7	Ratio and Proportionality Relationships	Analyze proportional relationships and use them to solve real-world and mathematical problems.	OH.5-7.A.L OH.5-7.N.I OH.8-10.M.F
	The Number System	Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.	OH.5-7.N.F OH.5-7.N.H OH.8-10.M.A OH.8-10.M.F OH.8-10.N.E
	Expressions and Equations	Use properties of operations to generate equivalent expressions.	OH.5-7.A.D OH.5-7.A.G
		Solve real-life and mathematical problems using numerical and algebraic expressions and equations.	OH.8-10.N.E
	Geometry	Draw, construct, and describe geometrical figures and describe the relationships between them.	OH.5-7.G.I OH.5-7.G.J OH.5-7.M.F OH.8-10.G.E
	Statistics and Probability	Use random sampling to draw inferences about a population.	OH.5-7.D.G OH.8-10.D.G
		Draw informal comparative inferences about two populations.	OH.3-4.D.E OH.5-7.D.F OH.5-7.D.G OH.8-10.D.A OH.8-10.D.C OH.11-12.D.B
		Investigate chance processes and develop, use, and evaluate probability models.	OH.3-4.D.F OH.3-4.D.G OH.3-4.D.H OH.5-7.D.C OH.5-7.D.D OH.5-7.D.E OH.5-7.D.H OH.5-7.D.J OH.5-7.D.K OH.8-10.D.J

Common Core State Standards K-8			Ohio 2001 Academic Content Standards
Grade	Domain	Cluster	Benchmark
8	Number System	Know that there are numbers that are not rational, and approximate them by rational numbers.	OH.8-10.N.D OH.8-10.N.E
	Expressions and Equations	Work with radicals and integer exponents.	OH.8-10.N.A OH.8-10.N.H OH.8-10.N.I
		Understand the connections between proportional relationships, lines, and linear equations.	OH.5-7.M.A OH.5-7.A.M
		Analyze and solve linear equations and pairs of simultaneous linear equations.	OH.8-10.A.F OH.8-10.A.H
	Functions	Define, evaluate, and compare functions.	OH.8-10.A.B OH.8-10.A.C
		Use functions to model relationships between quantities.	OH.5-7.A.F OH.8-10.A.B OH.8-10.A.D
	Geometry	Understand congruence and similarity using physical models, transparencies, or geometry software.	OH.3-4.G.J OH.8-10.G.B OH.8-10.G.C OH.8-10.G.F
		Understand and apply the Pythagorean Theorem.	OH.8-10.G.H
		Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.	OH.8-10.M.B
	Statistics and Probability	Investigate patterns of association in bivariate data.	OH.8-10.D.A

Common Core State Standards K-12			Ohio 2001 Academic Content Standards
Grade	Domain	Cluster	Benchmark
K-12	Mathematical Practices	Make sense of problems and persevere in solving them.	OH.K-2.N.A OH.K-2.P.A OH.K-2.P.B OH.K-2.P.C OH.K-2.P.D OH.K-2.P.E OH.K-2.P.F OH.K-2.P.G OH.K-2.P.H OH.3-4.P.A OH.3-4.P.B OH.3-4.P.D OH.3-4.P.H OH.3-4.P.I OH.3-4.P.J OH.3-4.P.K OH.5-7.P.B OH.5-7.P.C OH.5-7.P.J OH.5-7.P.K OH.8-10.P.A OH.8-10.P.B OH.8-10.P.D OH.11-12.P.B OH.11-12.P.C
K-12	Mathematical Practices	Reason abstractly and quantitatively.	OH.3-4.P.G OH.3-4.P.J OH.5-7.P.A OH.5-7.P.B OH.5-7.P.C OH.5-7.P.F OH.5-7.P.I OH.8-10.P.C OH.8-10.P.E OH.11-12.P.C
K-12	Mathematical Practices	Construct viable arguments and critique the reasoning of others.	OH.3-4.P.H OH.3-4.P.J OH.3-4.P.K OH.5-7.P.E OH.5-7.P.F OH.5-7.P.G OH.8-10.D.F OH.8-10.P.G OH.8-10.P.H OH.8-10.P.D OH.11-12.P.D OH.11-12.P.E OH.11-12.P.F

Common Core State Standards K-12			Ohio 2001 Academic Content Standards
Grade	Domain	Cluster	Benchmark
K-12	Mathematical Practices	Model with mathematics.	OH.K-2.P.A OH.K-2.P.C OH.K-2.P.F OH.K-2.P.G OH.3-4.P.A OH.3-4.P.B OH.3-4.P.D OH.3-4.P.F OH.3-4.P.I OH.5-7.P.B OH.5-7.P.C OH.5-7.P.H OH.5-7.P.K OH.11-12.P.J
K-12	Mathematical Practices	Use appropriate tools strategically.	OH.K-2.P.B OH.K-2.P.D OH.3-4.P.A
K-12	Mathematical Practices	Attend to precision.	OH.K-2.P.G OH.K-2.P.H OH.K-2.P.I OH.3-4.P.C OH.3-4.P.J OH.5-7.P.D OH.5-7.P.H OH.5-7.P.J OH.5-7.P.K OH.8-10.P.F OH.8-10.P.G OH.11-12.P.F OH.11-12.P.H OH.11-12.P.I
K-12	Mathematical Practices	Look for and make use of structure.	OH.3-4.P.E OH.5-7.P.F OH.5-7.P.G OH.11-12.P.G
K-12	Mathematical Practices	Look for and express regularity in repeated reasoning.	OH.5-7.P.F OH.5-7.P.G OH.11-12.P.A OH.11-12.P.B