Mathematics Academic Content Standards Crosswalk

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

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	**High School**
Grade	Conceptual Category
Domain	Domain
Cluster	Cluster
Standard (Statements)	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.

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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 High School			Ohio 2001 Academic Content Standards
Conceptual Category	**Domain**	**Cluster**	**Benchmark**
Number and Quantity	**Real Number System**	Extend the properties of exponents to rational exponents.	OH.11-12.N.C
		Use properties of rational and irrational numbers.	OH.11-12.P.E
	Quantities	Reason quantitatively and use units to solve problems.	OH.8-10.M.A OH.11-12.M.A OH.11-12.M.B OH.11-12.M.D
	Complex Number System	Perform arithmetic operations with complex numbers.	OH.11-12.N.E OH.11-12.A.B
		(+) Perform arithmetic operations with complex numbers.	OH.11-12.N.E
		(+) Represent complex numbers and their operations on the complex plane.	OH.11-12.N.E
		Use complex numbers in polynomial identities and equations.	OH.11-12.A.B
	Vector and Matrix Quantities	(+) Represent and model with vector quantities.	OH.11-12.A.D
		(+) Perform operations on vectors.	OH.11-12.N.D
		(+) Perform operations on matrices and use matrices in applications.	OH.11-12.A.D OH.11-12.G.B OH.11-12.N.A OH.11-12.N.B OH.11-12.N.D
Algebra	**Seeing Structure in Expressions**	Interpret the structure of expressions	OH.11-12.A.C
		Write expressions in equivalent forms to solve problems.	OH.8-10.A.G
		Write expressions in equivalent forms to solve problems.	OH.11-12.A.C
	Arithmetic with Polynomials and Rational Expressions	Perform arithmetic operations on polynomials.	OH.8-10.N.C
		Understand the relationship between zeros and factors of polynomials.	OH.11-12.A.A
		(+) Use polynomial identities to solve problems.	OH.11-12.N.C OH.11-12.A.A
		Rewrite rational expressions	No Aligned Benchmarks
	Creating Equations	Create equations that describe numbers or relationship.	OH.8-10.A.D
	Reasoning with Equations and Inequalities	Understand solving equations as a process of reasoning and explain the reasoning.	OH.5-7.A.I OH.8-10.A.F
		Solve equations and inequalities in one variable.	OH.5-7.A.H OH.8-10.A.F OH.8-10.A.G OH.11-12.A.B
		Solve systems of equations.	OH.8-10.A.H
		(+) Solve systems of equations.	OH.11-12.A.D
		Represent and solve equations and inequalities graphically.	OH.5-7.A.F OH.8-10.A.C OH.8-10.A.F OH.8-10.A.H

Common Core State Standards High School			Ohio 2001 Academic Content Standards
Conceptual Category	**Domain**	**Cluster**	**Benchmark**
Functions	**Interpreting Functions**	Understand the concept of a function and use function notation.	OH.8-10.A.A OH.11-12.A.C
		Interpret functions that arise in applications in terms of the context.	OH.8-10.A.C OH.8-10.A.E OH.8-10.A.J OH.11-12.A.A
		Analyze functions using different representations.	OH.5-7.A.K OH.8-10.A.B OH.8-10.A.C OH.8-10.A.E OH.8-10.A.F OH.11-12.A.A
	Building Functions	Build a function that models a relationship between two quantities.	OH.8-10.A.A OH.11-12.A.C
		Build new functions from existing functions.	OH.8-10.A.E
	Linear, Quadratic, and Exponential Models	Construct and compare linear, quadratic, and exponential models and solve problems.	OH.8-10.A.D
		Interpret expressions for functions in terms of the situation they model.	No Aligned Benchmarks
	Trigonometric Functions	(+) Extend the domain of trigonometric functions using the unit circle.	OH.11-12.A.A
		Model periodic phenomena with trigonometric functions.	OH.11-12.A.A
		(+) Prove and apply trigonometric identities.	OH.11-12.G.A
Geometry	**Congruence**	Experiment with transformations in the plane.	OH.5-7.G.H OH.8-10.G.A OH.8-10.G.F
		Understand congruence in terms of rigid motions.	OH.8-10.G.H
		Prove geometric theorems.	OH.8-10.G.C OH.8-10.G.G OH.8-10.G.H
		Make geometric constructions.	OH.8-10.G.E
	Similarity, Right Triangles, and Trigonometry	Understand similarity in terms of similarity transformations.	OH.5-7.G.H OH.8-10.G.B
		Prove theorems involving similarity.	OH.5-7.G.F OH.5-7.G.J OH.8-10.G.B OH.8-10.G.H
		Define trigonometric ratios and solve problems involving right triangles.	OH.8-10.G.I OH.8-10.M.D OH.11-12.G.A
		(+) Apply trigonometry to general triangles.	OH.11-12.G.A
	Circles	Understand and apply theorems about circles.	OH.8-10.M.A OH.8-10.G.A OH.8-10.M.D
		Find arc lengths and areas of sectors of circles.	OH.8-10.G.A OH.8-10.M.D OH.8-10.N.G

Common Core State Standards High School			Ohio 2001 Academic Content Standards
Conceptual Category	**Domain**	**Cluster**	**Benchmark**
Geometry	**Expressing Geometric Properties with Equations**	Translate between the geometric description and the equation for a conic section.	OH.8-10.A.G OH.11-12.A.A OH.11-12.P.H
		Use coordinates to prove simple geometric theorems algebraically.	OH.8-10.G.D OH.8-10.G.G OH.8-10.G.H
	Geometric Measurement and Dimension	Explain volume formulas and use them to solve problems.	OH.8-10.M.B OH.8-10.M.C OH.8-10.M.E OH.11-12.M.C
		Visualize relationships between two-dimensional and three-dimensional objects.	No Aligned Benchmarks
	Modeling with Geometry	Apply geometric concepts in modeling situations.	OH.11-12.M.D OH.11-12.P.J
Statistics and Probability	**Interpreting Categorical and Quantitative Data**	Summarize, represent, and interpret data on a single count or measurement variable.	OH.5-7.D.A OH.5-7.D.F OH.8-10.D.B OH.8-10.D.D
		Summarize, represent, and interpret data on two categorical and quantitative variables.	OH.8-10.D.A
		Interpret linear models.	OH.8-10.D.F OH.11-12.D.B
	Making Inferences and Justifying Conclusions	Understand and evaluate random processes underlying statistical experiments.	OH.8-10.D.G
		Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	OH.8-10.D.E OH.8-10.D.F
	Conditional Probability and the Rules of Probability	Understand independence and conditional probability and use them to interpret data.	OH.8-10.D.J OH.11-12.D.A OH.11-12.D.C
		Use the rules of probability to compute probabilities of compound events in a uniform probability model.	OH.8-10.D.J
		(+) Use the rules of probability to compute probabilities of compound events in a uniform probability model.	OH.8-10.D.H OH.8-10.D.J
	Using Probability to Make Decisions	(+) Calculate expected values and use them to solve problems.	OH.8-10.D.K OH.11-12.D.A
		(+) Use probability to evaluate outcomes of decisions.	OH.8-10.D.I

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