

Appendix D.2: Mathematics Standards Review Committee Member Rubrics

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

Each committee created in division (I)(1) of this section shall review the academic content standards for its respective subject area to ensure that such standards are **clear, concise, and appropriate for each grade level** and **promote higher student performance, learning, subject matter comprehension, and improved student achievement**. Each committee also shall review whether the standards for its respective subject area **promote essential knowledge in the subject, lifelong learning, the liberal arts tradition, and college and career readiness** and whether the standards **reduce remediation**.

Definitions

Clear – Easily understood; free from doubt or confusion¹

College and Career Readiness – remediation-free status; prepared to enroll in non-remedial, credit-bearing college courses leading to a postsecondary degree or other credential²

Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning –the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

¹ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/clear>

² Ohio Uniform Statewide Standards for Remediation-Free Status:
https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/data/reports/hs-to-college/2012_UNIFORM_STATEWIDE_REMEDIATION_FREE_STANDARDS%28010913%29.pdf

³ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/concise>

⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

⁵ Vocabulary.com: <http://www.vocabulary.com/dictionary/grade-appropriate>

⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

⁸ Ohio Revised Code 333.041: <http://codes.ohio.gov/orc/3333.041>

⁹ Education Portal: <http://education-portal.com/academy/lesson/student-achievement-definition-factors-research.html>

¹⁰ United States Department of Education: <http://www.ed.gov/race-top/district-competition/definitions>

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	Name: Mindy Bettinger Date: 08/21/2015
Element Under Review (Cluster)	<p>ALGEBRA</p> <p><i>SEEING STRUCTURE IN EXPRESSIONS</i></p> <p>A. Interpret the structure of expressions B. Write expressions in equivalent forms to solve problems</p> <p><i>ARITHMETIC WITH POLYNOMIALS AND RATIONAL EXPRESSIONS</i></p> <p>C. Perform arithmetic operations on polynomials D. Understand the relationship between zeros and factors of polynomials E. Use polynomial identities to solve problems F. Rewrite rational expressions</p> <p><i>CREATING EQUATIONS</i></p> <p>G. Create equations that describe numbers or relationships</p> <p><i>REASONING WITH EQUATIONS AND INEQUALITIES</i></p> <p>H. Understand solving equations as a process of reasoning and explain the reasoning I. Solve equations and inequalities in one variable J. Solve systems of equations K. Represent and solve equations and inequalities graphically</p>
Grade Level(s) Under Review	High School

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Yes	
	B Yes	
	C Yes	
	D Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E No	A.APR.E.4 has an example of an obscure polynomial identity. A.APR.E.5 has a typo as $(x + y)n$ should be $(x + y)^n$.
	F Yes	
	G Yes	
	H Yes	
	I Partially	Variables should be italicized in A.REI.I.4a.
	J Yes	
	K Partially	Variables should be italicized in A.REI.K.11.
Is the element grade level appropriate?	A No	A.SSE.A.2 requires students to use the structure of an expression in ways that are too advanced for all students.
	B Partially	Asking students to complete the square and derive the formula for the sum of a finite geometric series would be appropriate for the second year of studying algebra but not the first. Many students have not yet developed the abstract thought necessary for these tasks as freshmen.
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I No	Not all students can derive the quadratic formula when in high school. They develop the capacity for such abstract thought at different times. This should be an additional (plus) standard.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	J Yes	
	K Partially	Not all students should have to analyze and solve logarithmic functions.
Does the element promote higher student performance, learning and improved student achievement?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
	K Yes	
Does the element support subject matter comprehension?	A Yes	
	B Yes	
	C Yes	
	D Partially	In A.APR.D.2, the Zero Product Propert should be taught alongside the Remainder Theorem to aid in student comprehension.
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
	K Yes	
Does the element promote essential knowledge in the subject?	A Yes	
	B Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C Yes	Requiring students to recognize that polynomials form a system similar to the integers and have the same properties will aid in further student understanding.
	D Yes	
	E Yes	
	F Yes	
	G Yes	A.CED.G.4 asks students to rearrange formulas, a skill that will carry over to science courses.
	H Yes	
	I Yes	Asking students to use a variety of means to solve quadratic equations will aid in student comprehension.
	J Yes	Both of these elements require students to use various means to solve problems and then analyze them. This will lead to greater student comprehension of the subject.
	K Yes	
Does the element promote lifelong learning?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
	K Yes	
	Does the element promote	A Yes

Standards Committee Review Form

Review Criteria	Review Level	Notes
the liberal arts tradition?	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
	K Yes	
	Does the element promote college and career readiness?	A Yes
B Yes		
C Yes		
D Yes		
E Yes		
F Yes		
G Yes		
H Yes		
I Yes		
J Yes		
K Yes		
Does the element reduce the need for remediation?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	I No	The complexity of asking all students to derive the quadratic formula will confuse students and actually create the need for more remediation.
	J Yes	
	K Yes	
Does the element meet the definition of a standard?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
	K Yes	

Ohio Standards Committee Review Form

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Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>	
Committee Member Name/Date	Mindy Bettinger <small>Name</small>	08/21/2015 <small>Date</small>
Element Under Review (Cluster)	<p>FUNCTIONS</p> <p><i>INTERPRETING FUNCTIONS</i></p> <ul style="list-style-type: none"> A. Understand the concept of a function and use function notation B. Interpret functions that arise in applications in terms of the context C. Analyze functions using different representations <p><i>BUILDING FUNCTIONS</i></p> <ul style="list-style-type: none"> D. Build a function that models a relationship between two quantities E. Build new functions from existing functions <p><i>LINEAR, QUADRATIC, AND EXPONENTIAL MODELS</i></p> <ul style="list-style-type: none"> F. Construct and compare linear, quadratic, and exponential models and solve problems G. Interpret expressions for functions in terms of the situation they model <p><i>TRIGONOMETRIC FUNCTIONS</i></p> <ul style="list-style-type: none"> H. Extend the domain of trigonometric functions using the unit circle I. Model periodic phenomena with trigonometric functions J. Prove and apply trigonometric identities 	
Grade Level(s) Under Review	High School	

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Yes	
	B Yes	
	C Yes	
	D Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E No	F.BF.E.4a is unclear and confusing. Due to the inclusion of c to represent a function rather than a constant (as is typical), this standard does not make sense.
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
Is the element grade level appropriate?	A Yes	
	B Yes	
	C Yes	
	D No	Asking students to combine function types as described in F.BF.D.1b will be too difficult for all students in high school.
	E Yes	
	F Partially	Not all students are developmentally ready to comprehend that logarithms are the inverse of exponents as required in F.LE.F.4.
	G Yes	
	H Yes	
	I Yes	
	J No	Many students will not be able to prove the Pythagorean Identity given in F.TF.J.8. They will be able to calculate individual trigonometric ratios, though.
Does the element promote higher student performance, learning and improved student achievement?	A Yes	
	B Yes	
	C Yes	
	D Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
Does the element support subject matter comprehension?	A Yes	Understanding the idea of a function as stated in F.IF.A.1 is essential to further comprehension of functions.
	B Yes	
	C Yes	F.IF.C.7b includes piecewise-defined functions and are a good introduction for when they are studied in calculus.
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
Does the element promote essential knowledge in the subject?	A Yes	
	B Yes	
	C Yes	Piecewise functions are common to everyday situations in real life, and students can benefit from studying them.
	D Yes	
	E Yes	
	F Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G Yes	Interpreting parameters for specific situations will help students better understand the mathematics they are learning.
	H Yes	
	I Yes	
	J Yes	
Does the element promote lifelong learning?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
Does the element promote the liberal arts tradition?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
Does the element promote	A Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
college and career readiness?	B Yes	F.IF.B.4 asks students to interpret key features of graphs, a skill that is essential for the study of algebra and calculus in college. Asking students to calculate average rate of change in F.IF.B.6 leads to later study of calculus as well.
	C Yes	
	D Yes	
	E No	F.BF.E.4b-d are all additional (plus) standards but are actually needed for the study of trigonometry. Thus, this element does not promote college readiness.
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
	Does the element reduce the need for remediation?	A Yes
B Yes		
C Yes		
D Yes		
E Yes		
F Yes		
G Yes		
H Yes		
I Yes		
J Yes		
Does the element meet the definition of a standard?	A Yes	
	B Yes	
	C Yes	
	D Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>	
Committee Member Name/Date	Mindy Bettinger Name	08/21/2015 Date
Element Under Review (Cluster)	<p>GEOMETRY</p> <p><i>CONGRUENCE</i></p> <p>A. Experiment with transformations in the plane</p> <p>B. Understand congruence in terms of rigid motions</p> <p>C. Prove geometric theorems</p> <p>D. Make geometric constructions</p> <p><i>SIMILARITY, RIGHT TRIANGLES, AND TRIGONOMETRY</i></p> <p>E. Understand similarity in terms of similarity transformations</p> <p>F. Prove theorems involving similarity</p> <p>G. Define trigonometric ratios and solve problems involving right triangles</p> <p>H. Apply trigonometry to general triangles</p> <p><i>CIRCLES</i></p> <p>I. Understand and apply theorems about circles</p> <p>J. Find arc lengths and areas of sectors of circles</p> <p><i>EXPRESSING GEOMETRIC PROPERTIES WITH EQUATIONS</i></p> <p>K. Translate between the geometric description and the equation for a conic section</p> <p>L. Use coordinates to prove simple geometric theorems algebraically</p> <p><i>GEOMETRIC MEASUREMENT AND DIMENSION</i></p> <p>M. Explain volume formulas and use them to solve problems</p> <p>N. Visualize relationships between two-dimensional and three-dimensional objects</p> <p><i>MODELING WITH GEOMETRY</i></p> <p>O. Apply geometric concepts in modeling situations</p>	
Grade Level(s) Under Review	High School	

Review level

Yes it meets the review criteria

Partially meets the review criteria or **undetermined**

No it does not meet the review criteria

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Partially	The use of transparencies in G.CO.A.2 is archaic.
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
	K Yes	
	L Yes	
	M Yes	
	N Yes	
O Yes		
Is the element grade level appropriate ?	A Yes	
	B Yes	
	C Partially	I have reservations about the ability of all students to present abstract, formal proofs of the geometry theorems specified. In my experience, some students just cannot think at this abstract level.
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
I Yes		

Standards Committee Review Form

Review Criteria	Review Level	Notes
	J No	Many students will not be able to derive the relationship between the radius and the length of an intercepted arc.
	K No	Many students will not be capable of deriving the equation of a parabola given its focus and directrix. Their brains will not have developed the capacity for such abstract thought.
	L Partially	The second example described in G.GPE.L.4 asks students to algebraically decide whether or not a point lies on a circle. Not all students will be capable of this level of thought.
	M Partially	Not all students will be able to give arguments for the formulas described in G.GMD.M.1.
	N Yes	
	O Yes	
Does the element promote higher student performance, learning and improved student achievement?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
	K Yes	
	L Yes	
	M Yes	
	N Yes	
O Yes		

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element support subject matter comprehension?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	Knowing and using the relationship between sine and cosine is important to understanding triangles.
	H Yes	
	I Yes	
	J Yes	
	K Yes	
	L Yes	
	M Yes	
	N Yes	
	O Yes	
Does the element promote essential knowledge in the subject?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
	K Yes	
	L Yes	
	M Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	N Yes	
	O Yes	Applying geometry concepts in the situations described will help students connect their in-class learning to real life.
Does the element promote lifelong learning?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
	K Yes	
	L Yes	
	M Yes	
	N Yes	
	O Yes	
Does the element promote the liberal arts tradition?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
	K Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	L Yes	
	M Yes	
	N Yes	
	O Yes	
Does the element promote college and career readiness?	A Yes	
	B Yes	
	C Yes	
	D Yes	Having to physically make geometric constructions will be beneficial to those students going into various trades.
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	Constructing a tangent line to a circle from a point is included as an additional (plus) standard. This is appropriate since not all students can or need to do this, but it will aid those who continue on to study calculus.
	J Yes	
	K Partially	Only students planning to attend 4-year universities will need to know these elements.
	L Yes	
	M Yes	
N Yes		
O Yes		
Does the element reduce the need for remediation?	A Yes	
	B Yes	
	C Yes	
	D Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
	K Yes	
	L Yes	
	M Yes	
	N Yes	
	O Yes	
Does the element meet the definition of a standard?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>	
Committee Member Name/Date	Mindy Bettinger Name	08/21/2015 Date
Element Under Review (Cluster)	<p>NUMBER AND QUANTITY</p> <p><i>THE REAL NUMBER SYSTEM</i></p> <p>A. Extend the properties of exponents to rational exponents B. Use properties of rational and irrational numbers.</p> <p><i>QUANTITIES</i></p> <p>C. Reason quantitatively and use units to solve problems</p> <p><i>THE COMPLEX NUMBER SYSTEM</i></p> <p>D. Perform arithmetic operations with complex numbers E. Represent complex numbers and their operations on the complex plane F. Use complex numbers in polynomial identities and equations</p> <p><i>VECTOR AND MATRIX QUANTITIES</i></p> <p>G. Represent and model with vector quantities. H. Perform operations on vectors. I. Perform operations on matrices and use matrices in applications.</p>	
Grade Level(s) Under Review	High School	

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E No	The term modulus does not seem to be common or appropriate.
	F Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G Yes	
	H Yes	
	I Yes	
Is the element grade level appropriate?	A Yes	
	B Partially	Asking students to understand different operations performed with rational numbers and then analyze those results might go beyond the ability of some students.
	C Yes	
	D Yes	
	E Yes	These elements are appropriate for advanced high school math courses.
	F No	These elements are too abstract, especially N.CN.F.8.
	G Partially H Partially I Partially	These standards, which are considered additional mathematics, can easily be conveyed using graphing calculators and are comprehensible to students.
Does the element promote higher student performance, learning and improved student achievement?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
Does the element support subject matter comprehension?	A Yes	
	B Yes	
	C Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
Does the element promote essential knowledge in the subject?	A Yes	
	B Yes	
	C Yes	N.Q.C.1 requires students to perform dimensional analysis, a skill that is valuable in real life and carries over to science courses at the high school level.
	D Yes	
	E Yes	
	F Yes	
	G Partially	G – I: These elements relate directly to sports statistics and would be beneficial to students.
	H Partially	
Does the element promote lifelong learning?	I Partially	
	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
I Yes		
Does the element promote the liberal arts tradition?	A Yes	
	B Yes	
	C Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
Does the element promote college and career readiness ?	A Yes	
	B Yes	
	C Yes	
	D Partially	Students who are not going to a 4-year college do not need to know this content.
	E Partially	These elements prepare students for university study but are more advanced than is necessary for a trade school or the workforce.
	F Yes	
	G Partially	G – I: Some of these standards, which are all additional standards, might be part of a college placement exam. Not knowing these standards could harm students when beginning college.
	H Partially I Partially	
Does the element reduce the need for remediation ?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	Does the element meet the	A Yes

Standards Committee Review Form

Review Criteria	Review Level	Notes
definition of a standard?	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>	
Committee Member Name/Date	Mindy Bettinger <small>Name</small>	08/21/2015 <small>Date</small>
Element Under Review (Cluster)	<p>STATISTICS AND PROBABILITY <i>INTERPRETING CATEGORICAL AND QUANTITATIVE DATA</i></p> <ul style="list-style-type: none"> A. Summarize, represent, and interpret data on a single count or measurement variable B. Summarize, represent, and interpret data on two categorical and quantitative variables C. Interpret linear models <p><i>MAKING INFERENCES AND JUSTIFYING CONCLUSIONS</i></p> <ul style="list-style-type: none"> D. Understand and evaluate random processes underlying statistical experiments E. Make inferences and justify conclusions from sample surveys, experiments and observational studies <p><i>CONDITIONAL PROBABILITY AND THE RULES OF PROBABILITY</i></p> <ul style="list-style-type: none"> F. Understand independence and conditional probability and use them to interpret data G. Use the rules of probability to compute probabilities of compound events in a uniform probability model <p><i>USING PROBABILITY TO MAKE DECISIONS</i></p> <ul style="list-style-type: none"> H. Calculate expected values and use them to solve problems I. Use probability to evaluate outcomes of decisions 	
Grade Level(s) Under Review	High School	

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and	A Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
concise?	B Partially	S.ID.B.6c is unclear in describing what students are expected to do.
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
Is the element grade level appropriate?	A Undetermined	I am unsure how well all students will be able to comprehend how to fit a data set to a normal distribution as described in S.ID.A.4.
	B Undetermined	Students might have extreme difficulty calculating relative frequencies as described in S.ID.B.5.
	C Yes	
	D Yes	
	E Yes	
	F No	Not all students will be able to comprehend conditional probabilities and how to determine whether or not two events are independent.
	G Partially	The Addition Rule for compound events as described in S.CP.G.7 will be difficult for some students to understand, remember, and apply.
	H Undetermined I Undetermined	I do not have enough experience teaching statistics to determine how appropriate this is for the majority of high school students.
Does the element promote	A Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
higher student performance, learning and improved student achievement?	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
Does the element support subject matter comprehension?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
Does the element promote essential knowledge in the subject?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	Data sets such as that described in S.IC.E.5 appear in the media constantly and learning how to compare the results of two treatments is a valuable skill.
	F Yes	Conditional probability occurs on a daily basis and learning to understand it will only help students as they grow up.
	G Yes	
	H Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	I Yes	
Does the element promote lifelong learning?	A Yes	A – I: In my experience as a teacher, statistics is the easiest math content to apply to the real world and get students interested in learning. Statistical thinking readily applies to everyday situations and is constantly featured in the media and current scientific research.
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
Does the element promote the liberal arts tradition?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
Does the element promote college and career readiness?	A Undetermined	Whether or not these standards promote college and career readiness depends on the path a student chooses. Some students will not need statistics at all in their future careers whereas some will rely heavily on statistical thinking.
	B Undetermined	
	C Undetermined	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Undetermined	
	E Undetermined	
	F Undetermined	
	G Undetermined	
	H Undetermined	
	I Undetermined	
Does the element reduce	A Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
the need for remediation?	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	Does the element meet the definition of a standard?	A Yes
B Yes		
C Yes		
D Yes		
E Yes		
F Yes		
G Yes		
H Yes		
I Yes		

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Counting and Cardinality</p> <p>A. Know number names and the count sequence.</p> <p>B. Count to tell the number of objects.</p> <p>C. Compare numbers.</p>
Grade Level(s) Under Review	Kindergarten

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	Very clear and concise
	B. Yes	Provides simple wording with clear, brief, helpful examples
	C. Yes	Comparing numbers is presented in a clear, concise manner.
Is the element grade level appropriate ?	A. Yes	Counting and writing numbers is appropriate learning for kindergarten.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B. Yes	Counting to tell the number of objects is the next logical progression from learning to count for kindergarten children.
	C. Yes	Kindergarten students move from counting and writing numbers to comparing numbers, a logical progression of learning that promotes comprehension of numbers and what they represent.
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	This element serves as the basic foundation for building understanding of numeracy.
	B. Yes	This moves kindergarten students to the next level of learning and understanding of numbers and what they represent.
	C. Yes	Same as C above.
Does the element support subject matter comprehension?	A. Yes	Students are beginning to work with numbers and a number of objects associated with a number.
	B. Yes	This element suggests ways for students to see and manipulate objects to develop understanding of counting and cardinality.
	C. Yes	When students compare numbers, they are demonstrating comprehension of previously learned math concepts.
Does the element promote essential knowledge in the subject?	A. Yes	Counting and cardinality serve as basic building blocks for math content knowledge and understanding
	B. Yes	This element continues the progression of learning counting and cardinality
	C. Yes	Counting is at the lowest level of cognitive domain– <i>Knowledge</i> --on Blooms' Taxonomy scale. Comparing numbers requires <i>Comprehension and Analysis</i> , higher order of thinking skills than <i>Knowledge</i> .
Does the element promote lifelong learning?	A. Yes	Math is a build-on subject. Students need progressive math knowledge and skills to encourage lifelong learning and use of math.
	B. Yes	Students can use what they have learned previously about counting and cardinality and relate and apply it new learning. The ability to make connections between what students already know with new content promotes lifelong learning.
	C. Yes	Students are learning to move from basic knowledge to comprehending and using more complex thinking skills, example: moving from counting numbers to comparing numbers

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote the liberal arts tradition?	A. Yes	Math is a problem-solving subject that serves as a model for children at a young age to learn to think critically in other content areas in addition to math.
	B. Yes	Kindergarten students are also learning other content areas and can apply their counting skills in reading and other subjects.
	C. Yes	Higher order thinking skills are required in all content areas and should be applied across content areas, which is the liberal arts "way of thinking."
Does the element promote college and career readiness?	A. Yes	For some children, this element may be more difficult than for others. Helping children persist through difficult content helps them develop knowledge and perseverance to continue to learn, even when it is difficult.
	B. Yes	Same as above
	C.	Same as above
Does the element reduce the need for remediation?	A. NA	
	B. NA	
	C. NA	
Does the element meet the definition of a standard?	A. Yes	Kindergarten children are expected to know and be able to demonstrate their ability to use number names and count using 0-100.
	B. Yes	Kindergarten children are expected to be know and be able to count and tell the number of objects
	C. Yes	Kindergarten children are expected to be able to compare numbers between 1-10 written as numerals.

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p style="margin: 0;">Number and Operations in Base Ten</p> <p style="margin: 0;"><i>Kindergarten</i></p> <p style="margin: 0;">A. Work with numbers 11–19 to gain foundations for place value.</p> <p style="margin: 0;"><i>Grade 1</i></p> <p style="margin: 0;">B. Extend the counting sequence.</p> <p style="margin: 0;">C. Understand place value.</p> <p style="margin: 0;">D. Use place value understanding and properties of operations to add and subtract.</p> <p style="margin: 0;"><i>Grade 2</i></p> <p style="margin: 0;">E. Understand place value.</p> <p style="margin: 0;">F. Use place value understanding and properties of operations to add and subtract.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

- Review level**
- Yes** it meets the review criteria
 - Partially** meets the review criteria or **undetermined**
 - No** it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise?	A Yes	The standard is clear and includes a simple, explanation to ensure understanding
	B Yes	Same as above
	C Yes	Same as above
	D Par	Don't understand how a first grader, "relates the strategy to a written method." Example would be helpful.
	E Yes	Good examples and clear explanation
	F Par	Don't understand, "relate the strategy to a written method." Example would be helpful.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A Yes	This may be a more difficult math concept for some kindergartners. It is doable for them using manipulative objects
	B Yes	Adding from 101 – 120 in 1 st grade in counting. Students expand use of numbers above 20 – 120 from K to Grade 1.
	C Yes	
	D Partial	Don't understand the explanation of the element. Examples would help this reviewer's understanding. Can a first grader "relate the strategy to a written method?"
	E Yes	Children enjoy counting and using larger numbers, particularly when using objects. All of these elements are grade level appropriate.
	F P	Don't understand the explanation of the element
Does the element promote higher student performance, learning and improved student achievement ?	A Yes	Understanding place value, even with limited numbers 1-19, provides students with opportunities to perform more math concepts.
	B Yes	Helps children comprehend numbers up to 120 beginning with any number
	C Yes	Helps children comprehend numbers in sets of ten and use two-digit numbers with each ten consisting of ten ones.
	D P	Adding within 100 promotes higher student learning
	E Yes	This element requires children to use numbers up to 1000. Children enjoy counting and using large numbers, counting by 5s, 10s, etc.
	F P	
Does the element support subject matter comprehension ?	A Yes	Place value may be difficult for some kindergarten students to comprehend. Use of manipulative objects may help them comprehend this concept.
	B Yes	This element serves as a building block for place value and properties of operations in base ten.
	C Yes	
	D Part	
	E Yes	Good progressive learning connections from Grade 1 to grade 2 for comprehension.
	F Part	
Does the element promote essential knowledge in the subject ?	A Yes	Kindergarten place value concepts serve as the foundation for first grade place value learning. They provide a logical learning progression.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B Yes	Continues to extend place value learning for essential math knowledge
	C Yes	Continues to extend place value learning for essential math knowledge
	D P	Continues to extend place value learning and hone addition and subtraction skills
	E Yes	
	F P	
Does the element promote lifelong learning?	A	
	B Yes	Basic/fundamental numeracy learning from which to build for lifelong learning
	C Yes	Basic/fundamental numeracy learning from which to build for lifelong learning
	D P	Basic/fundamental numeracy learning from which to build for lifelong learning
	E Yes	Basic/fundamental numeracy learning from which to build for lifelong learning
	F P	Basic/fundamental numeracy learning from which to build for lifelong learning
Does the element promote the liberal arts tradition?	A Yes	A fundamental understanding and use of number and number operations in base ten are required in most content areas.
	B Yes	Same
	C Yes	Same
	D P	Same
	E Yes	Same
	F P	Same
Does the element promote college and career readiness?	A Yes	Fundamental understanding and use of math number and number operations in base ten are math “building blocks” for later math learning which promote college & career readiness
	B Yes	Same
	C Yes	Same
	D P	Same
	E Yes	Same
	F Part	Same
Does the element reduce the need for remediation?	A NA	Same
	B NA	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C NA	
	D NA	
	E NA	
	F NA	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element meet the definition of a standard?	A Yes	This standard introduces place value and operations in base ten concepts that will be reviewed and expanded in first and second grades. All students are to learn and be able to perform these operations and concepts.
	B Yes	Same
	C Yes	Same
	D Yes	Same
	E Yes	Same
	F Part	Same

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Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

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Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Operations and Algebraic Thinking</p> <p><i>Kindergarten</i></p> <p>A. Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.</p> <p><i>Grade 1</i></p> <p>B. Represent and solve problems involving addition and subtraction.</p> <p>C. Understand and apply properties of operations and the relationship between addition and subtraction.</p> <p>D. Add and subtract within 20.</p> <p>E. Work with addition and subtraction equations.</p> <p><i>Grade 2</i></p> <p>F. Represent and solve problems involving addition and subtraction.</p> <p>G. Add and subtract within 20.</p> <p>H. Work with equal groups of objects to gain foundations for multiplication.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level

Yes it meets the review criteria

Partially meets the review criteria or **undetermined**

No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Yes	Very clear and concise
	B Yes	Clear and not as concise with examples; examples provide clarity
	C Yes	Clear and concise. Good examples of properties of addition and subtraction to be learned/taught.
	D Part	Don't understand the example "e.g., by counting on 2 to add 2." The remainder of the element is understandable.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E Yes	Clear and concise with good examples for clarity
	F Part	An example would be helpful
	G Yes	Clearly stated and very concise
	H	Concise. Examples of equations would benefit teachers for clarity.
Is the element grade level appropriate?	A Yes	Basic addition and subtraction concepts—putting together and taking apart is grade appropriate.
	B Yes	Challenging for some children; doable with manipulative objects and other visuals.
	C Yes	The properties of operation—cumulative and associative—will help students with their addition and particularly with subtraction.
	D Yes	Challenging and doable.
	E Yes	Challenging and doable with work on addition and subtraction number fact fluency and comprehension of more, less and equal.
	F No	This reviewer questions whether all 2d grade students are ready to master two-step word problems using addition and subtraction within 100 with unknowns in all positions. <i>Research has demonstrated that literacy is crucial to abstract thought. Children who read become capable of specific kinds of conceptual and logical thought not available to others. Literacy and maturity are critical to abstract thinking. Children think concretely when they are young, and they become more capable of abstract thought later. Susan Engel, The Hungry Mind: The Origins of Curiosity in Childhood</i>
	G Yes	This is doable for all 2d graders—adding and subtracting within 20 fluently from memory. This requires short practice sessions on a daily basis and the use of these numbers in addition and subtraction frequently during math class.
H Yes	Visual of repeated addition to gain understanding of multiplication.	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote higher student performance, learning and improved student achievement?	A Yes	Students are moving from counting and grouping numbers to using numbers to add and subtract. The concepts of addition and subtraction provide new ways for students to think mathematically and use numbers in authentic, meaningful ways.
	B Yes	This progressive learning of addition and subtraction is measurable through both formative and summative assessment to measure student learning.
	C Yes	These properties will help students improve and achieve with addition and subtraction. “Tricks of the trade” of math.
	D Yes	Provides students with skills to work problems combining addition and subtraction using a variety of strategies including easier ways to solve problems
	E Yes	Working with equations promotes higher student performance and learning. Working with equations, which requires higher order thinking improves student achievement level.
	F No	These standards are for all students. Putting this many math concepts together makes it seem unlikely most 2d grade students will be able to solve problems at this level of complexity and difficulty. It does promote higher performance for students who are able to succeed. The concern is for students not ready for this level of complexity/difficulty who need more time to develop literacy skills, number fluency and strong numeracy comprehension.
	G Yes	Math fluency of number facts is extremely important in order for students to be able to progress to new math concepts that require confidence and accuracy of number facts.
	H Yes	Foundational intro for multiplication—repeated addition
Does the element support subject matter comprehension?	A Yes	The concepts of addition and subtraction support subject matter comprehension and application of basic math concepts.
	B Yes	This progression of addition and math is highly supportive of math comprehension and application.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C Yes	These two properties will support students improve their addition and subtraction understanding and speed in solving problems
	D	When students can solve problems using multiple ways, it increases their subject matter comprehension.
	E Yes	Algebra concepts are extremely important b/c algebra is one of the first building blocks to higher mathematics.
	F No	Combining this many math concepts in 2d grade may leave too many children behind in this math element. Brain development and cognitive maturation are critically important in readiness for learning.
	G	
	H	Very much so. This visually demonstrates repeated addition = multiplication to young students
Does the element promote essential knowledge in the subject?	A Yes	Addition and subtraction concepts are essential math building blocks. For some children this may be difficult as they may have trouble identifying numbers that are larger or smaller than other numbers. It is essential they have mastered this mathematical way of thinking by the end of the school year.
	B Yes	Promotes learning of essential math concepts.
	C Yes	Great intro to properties of operations using prior knowledge/skills learned and adding 2 new, helpful properties of operations for math problem solving
	D Yes	When students can explain how to solve a problem using several different solutions, it promotes essential knowledge in the subject.
	E	Algebra serves as the building block for higher mathematics.
	F Yes	The element promotes essential knowledge in the subject. It is the age appropriateness that this reviewer questions.
	G Yes	Ensuring all students are fluent in number facts and comprehend them promotes essential math knowledge.
	H Yes	Multiplication is an essential math operation

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote lifelong learning?	A Yes	Kindergarten children are expanding their learning and being challenged to use numbers in new more complex ways, which promotes the concept of lifelong learning.
	B Yes	Students are extending their knowledge of addition and subtraction and learning to use unknowns and equations in solving problems. This increases their critical thinking/problem solving ability.
	C Yes	Promotes logical thinking.
	D Yes	Students learn to solve problems using different solutions, a valuable lifelong skill.
	E	Algebra thinking provides the skills to handle simple formulas and unknowns.
	F Yes	
	G Yes	
	H Yes	
Does the element promote the liberal arts tradition?	A Yes	The concepts of addition and subtraction are used in all content areas and across all content areas.
	B Yes	Using unknown numbers and equations increases students' ability to problem solve, a skill needed in all content areas.
	C Yes	Doing things in different ways can result in the same conclusion.
	D Yes	The discipline of problem solving as applied to people and situations is important in all content areas.
	E Yes	
	F Yes	Word problems require students to develop reading skills that include, in this case, the understanding of math vocabulary and comprehension.
	G	
	H Yes	Multiplication is used in all content areas

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote college and career readiness?	A Yes	Kindergarten children are developing new ways of thinking—addition and subtraction--that they apply in new ways. This promotes mathematical thinking and a strong work ethic as students move from grade to grade.
	B Yes	Students are gaining strong math skills allowing them to move forward on a college track at a young age.
	C Yes	Learning there's more than one way to solve a problem.
	D Yes	Students are learning at a young age how to problem solve.
	E	Provides problem solving ability.
	F	The ability to use a variety of skills and previously learned knowledge simultaneously for problem solving promotes the skills needed for college and career readiness.
	G	
	H Yes	Multiplication is an Important math operation.
Does the element reduce the need for remediation?	A NA	
	B NA	
	C NA	
	D NA	
	E NA	
	F NA	
	G NA	
	H NA	
Does the element meet the definition of a standard?	A Yes	All kindergarten students should know and be able to perform basic concepts of addition and subtraction by the end of kindergarten.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B Yes	
	C Yes	
	D Yes	Students develop fluency skills in solving addition and subtraction problems using multiple solutions.
	E Yes	Working with equations and developing problem solving ability are skills all students need to master.
	F Yes	This reviewer feels this standard is better suited for 3d grade students, rather than second grade.
	G Yes	Goal of memorization of addition and subtraction number facts within 20 and memorization of all sums is a standard
	H Yes	

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Measurement and Data</p> <p><i>Kindergarten</i></p> <p>A. Describe and compare measurable attributes. B. Classify objects and count the number of objects in categories.</p> <p><i>Grade 1</i></p> <p>C. Measure lengths indirectly and by iterating length units. D. Tell and write time. E. Represent and interpret data.</p> <p><i>Grade 2</i></p> <p>F. Measure and estimate lengths in standard units. G. Relate addition and subtraction to length. H. Work with time and money. I. Represent and interpret data.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Yes	Clear with a short example to ensure understanding. Less concise but example is important for clarity
	B Yes	Clear and concise
	C Yes	Concise with helpful examples for clarity
	D Yes	Clear and concise
	E Yes	Clear and concise
	F Yes	Clear and concise
	G Yes	Clear and concise with helpful examples
	H Yes	Clear and concise
	I Yes	Clear and concise

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate?	A Yes	Children have been measured since birth. Using Height/length as a measurable attribute is a concept they already understand. They can compare length of objects or height of people.
	B Yes	The concept of describing, comparing and sorting objects for measurable attributes is grade level appropriate for K.
	C	Good scaffolding of measurement of length from K to Grade 1.
	D Yes	Children are so proud of themselves when they can tell time!
	E Yes	Data learning scaffolds from K to Grade 1
	F Yes	Scaffolds relevant learning from grade 1
	G Yes	Requires students to use previously learned skills/knowledge—addition and subtraction--and relate them to length.
	H Yes	Telling time to nearest five minutes using a.m. and p.m. scaffolds on first grade learning about time to the nearest hour and half-hour. Solving money problems is age/grade appropriate for 2d grade.
	I Yes	Reviews and builds on first grade data concepts
Does the element promote higher student performance, learning and improved student achievement?	A Yes	Comparing objects' measurable attributes requires higher thinking skills than simply describing an object's measurable attributes. Both are necessary in order for students to be able to make the comparison. Good progression of learning.
	B Yes	Introduction to data classification, categorizing, and counting. Use of data is a critically important 21 st Century "tool" in all content areas.
	C Yes	Students are increasing their comprehension and ability to measure.
	D Yes	Telling time is another way students use multiples of ten. Telling time is authentic, important learning that brings children into an aspect of the adult world.
	E Yes	Scaffolding data learning concepts promotes higher student learning.
	F Yes	Measuring provides opportunities for hands-on learning, which increases student achievement.
	G Yes	This promotes critical thinking skills to relate addition and subtraction to length.
	H Yes	Telling time and solving money problems promote higher student learning.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	I	
Does the element support subject matter comprehension ?	A Yes	Recognizing measurable attributes is necessary for basic math learning about measurement.
	B Yes	Measurement is used in many authentic contexts, which encourages comprehension and learning.
	C Yes	Students are practicing measuring length and expressing it as a whole number of length units, which promotes comprehension of the standard.
	D Yes	Students are using multiples of ten and ones in a new, authentic way when they can tell and write time for hours and half-hours.
	E Yes	Students are learning to represent and interpret data. Interpreting data requires higher level thinking skills and critical thinking
	F Yes	Measuring provides opportunities for hands-on learning, which increases student engagement, comprehension and retention.
	G Yes	Uses addition and subtraction in a new context—measurement--calculating lengths
	H Yes	Telling time and counting money and solving money problems provide authentic ways to support previously learned addition and subtraction comprehension.
	I Yes	Supports representing and interpreting data
Does the element promote essential knowledge in the subject ?	A Yes	Measurement is an important math concept.
	B Yes	Data collection and use is critically important in 21 st century learning.
	C Yes	This element promotes essential knowledge of measurement.
	D Yes	Being able to tell time in hours and half-hours and write it promotes essential knowledge of math and time.
	E Yes	Scaffolding data concepts promotes higher student learning.
	F Yes	Students are required to estimate lengths using units of inches, feet, centimeters and meters. This promotes essential measurement knowledge.
	G Yes	Scaffolds learning and combines new learning with previously learned concepts which promotes deeper learning.
	H Yes	Students use knowledge gained in new authentic ways—telling time and calculating money problems

Standards Committee Review Form

Review Criteria	Review Level	Notes
	I Yes	Students generate and use measurement data by creating graphs to represent data sets. This is essential math knowledge.
Does the element promote lifelong learning?	A Yes	
	B Yes	
	C Yes	
	D Yes	As we age, we become very aware of time—and value it more! Time seems to go faster and we learn we need to use time more effectively and efficiently. 😊
	E Yes	Data collection and interpretation is critically important in 21 st century learning.
	F Yes	All knowledge helps one learn and cumulatively promotes lifelong learning.
	G Yes	All knowledge helps one learn and cumulatively promotes lifelong learning.
	H Yes	
	I Yes	Students will continue to develop knowledge in generating and interpreting data in other content areas as well as in math—21 st Century knowledge/skill.
Does the element promote the liberal arts tradition?	A	
	B Yes	Data is collected and used as a research tool in all content areas.
	C Yes	
	D No	The linkage is tenuous
	E Yes	Data is collected and used as a research tool in all content areas.
	F Yes	Measurement is used in many content areas.
	G Yes	
	H Yes	The ability to tell time and accurately calculate money problems is used in many content areas.
	I Yes	Data is generated, represented and interpreted in all content areas for multiple purposes.
Does the element promote college and career readiness?	A NA	
	B Yes	This element provides early intro to data at a basic level.
	C	Each incremental step of math learning moves students closer to college and career readiness.
	D Yes	The ability to tell time is valuable to get college students to class—and later to work—on time! 😊
	E Yes	The ability to use data effectively is important for college and career success. This is one step toward that goal.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F Yes	Students are learning to combine multiple math concepts and operations to solve problems
	G Yes	Each incremental step of math learning moves students closer to college and career readiness.
	H	These basic knowledge/skills of learning to tell time and calculate money problems promote college and career readiness not only in math and other content areas but also in daily life.
	I Yes	The use and proper interpretation of data are 21 st Century college and career readiness skills.
Does the element reduce the need for remediation?	A NA	
	B NA	
	C NA	
	D NA	
	E NA	
	F NA	
	G NA	
	H NA	
	I NA	
Does the element meet the definition of a standard?	A Yes	All kindergarten students are expected to learn basic measurement and data concepts in kindergarten.
	B Yes	All 21 st Century children need to learn the ability and value of using data.
	C Yes	All students should comprehend measurement and be able to measure lengths.
	D Yes	Telling and writing time is a standard that children recognize as an important skill—and knowledge.
	E Yes	All 21 st Century children need to understand the value of using data and have the ability to collect and properly use data.
	F Yes	Essential content all students should know and be able to do
	G Yes	Essential content all students should know and be able to do
	H Yes	All children need to know how to tell time and solve money problems. These are essential skills.
	I Yes	All 21 st Century children need to know how to generate, show and interpret data.

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Geometry</p> <p><i>Kindergarten</i></p> <p>A. Identify and describe shapes. B. Analyze, compare, create, and compose shapes.</p> <p><i>Grade 1</i></p> <p>C. Reason with shapes and their attributes..</p> <p><i>Grade 2</i></p> <p>D. Reason with shapes and their attributes.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise?	A. Yes	
	B. Yes	Provides descriptive language for understanding and examples for clarity
	C. Yes	Clear and as concise as possible. Examples clarify but make the element less concise. Good explanations and examples make it worthwhile.
	D. Yes	Clear and concise with good examples
Is the element grade level appropriate?	A. Yes	Foundational learning. Visual for young learners.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B. Yes	Provides opportunities for students to observe and create objects in different shapes using multiple materials
	C. Yes	Builds on fundamental learning of shapes in kindergarten and moves to defining attributes and composition of shapes.
	D. Yes	Similar to first grade geometry standards with a few new areas of learning.
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	Foundational math learning to add more complex concepts as student matures
	B. Yes	Students create shapes using different materials and compose larger shapes from smaller component shapes. This promotes comprehension and higher achievement through hands on engagement.
	C. Yes	Logical, useful progression of geometry learning from K to Grade 1
	D. Yes	Logical, useful progression of geometry learning from K to Grade 2
Does the element support subject matter comprehension?	A. Yes	Supports geometry comprehension
	B. Yes	Provides young children with visual, tactile learning opportunities to develop math comprehension and creativity.
	C. Yes	Logical, useful progression of geometry comprehension from K to Grade 1
	D. Yes	Logical, useful progression of geometry comprehension from Grade 1 to Grade 2
Does the element promote essential knowledge in the subject?	A. Yes	Intro to geometry concepts
	B. Yes	Promotes fundamental knowledge of geometry

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. Yes	Promotes fundamental knowledge of geometry
	D. Yes	Promotes fundamental knowledge of geometry
Does the element promote lifelong learning ?	A. Yes	Encourages learners to understand shapes of objects and how these shapes “shape” the world around them.
	B. Yes	Encourages learners to understand and appreciate shapes of objects and how shapes “shape” the world around them.
	C. Yes	Same as above
	D. Yes	Same as above
Does the element promote the liberal arts tradition ?	A. Yes	Shapes of objects are important in many content and career areas, e.g. engineering, geology, architecture, art, graphic arts, etc.
	B. Yes	Provides students with hands-on learning experience in creating and understanding the attributes of different shapes.
	C. Yes	Same as above
	D. Yes	Same as above
Does the element promote college and career readiness ?	A. Yes	Promotes observation of objects and understanding of their attributes and composition
	B. Yes	Geometry promotes spatial understanding, visual ability and logical thinking. It is essential in technological, scientific, engineering and many other career fields. It's important these college/career connections are made for children beginning from a young age so they see relevance in achieving this math learning and connect it with their own futures.
	C. Yes	Same as above

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D. Yes	Same as above
Does the element reduce the need for remediation?	A. NA	
	B. NA	
	C. NA	
	D. NA	
Does the element meet the definition of a standard?	A. Yes	Intro to geometry -
	B. Yes	Essential content area—geometry--that all students are expected to know and be able to do
	C. Yes	Same as above
	D. Yes	Same as above

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Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Number and Operations in Base Ten</p> <p><i>Grade 3</i></p> <p>A. Use place value understanding and properties of operations to perform multi-digit arithmetic.</p> <p><i>Grade 4</i></p> <p>B. Generalize place value understanding for multi-digit whole numbers.</p> <p>C. Use place value understanding and properties of operations to perform multi-digit arithmetic.</p> <p><i>Grade 5</i></p> <p>D. Understand the place value system.</p> <p>E. Perform operations with multi-digit whole numbers and with decimals to hundredths.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Yes	Concise; examples are helpful; clear
	B Yes	Clear—helpful examples--and concise.
	C Yes	Clear and concise
	D Yes	Clear and concise
	E Yes	Clear and concise

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A Yes	This standard scaffolds up from K-2 place value learning to 3d grade place value understanding rounding whole numbers to the nearest 10 or 100, fluently adding and subtracting within 1000 and multiplying one- digit whole numbers by multiples of 10 in range of 10-90. Logical extension of learning.
	B Yes	In 4 th grade students build on number and operations in base ten from 3d grade.
	C Yes	Students review place value understanding and properties of operations to perform multi- digit arithmetic for retention and comprehension, reinforcement and extension of 3d grade learning. Good scaffolding of concepts.
	D Yes	Students continue to review and extend their learning of the place value system.
	E Yes	Students use their understanding of multiplication and division of whole numbers to apply to learning multiplication and division of fractions.
Does the element promote higher student performance, learning and improved student achievement ?	A Yes	Scaffolding the learning from earlier grades promotes higher student learning.
	B Yes	Students continue to build skills and comprehension of place value using numbers up to 1,000,000. Students generalize their understanding of place value.
	C Yes	
	D Yes	
	E Yes	Learning to multiply and divide fractions is a more difficult concept than multiplying and dividing whole numbers. This extension of learning promotes higher student learning and achievement in math.
Does the element support subject matter comprehension ?	A Yes	Review of concepts learned in earlier grades and extending the learning with new related concepts supports math retention and comprehension.
	B Yes	Helping students learn to generalize and demonstrate understanding of relative sizes of numbers in each place with value to 1,000,000 supports subject matter comprehension.
	C Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Yes	
	E Yes	
Does the element promote essential knowledge in the subject?	A Yes	Review of concepts learned in earlier grades and extending the learning with new related concepts reinforces the importance of earlier learning.
	B Yes	Students are learning to generalize place value, apply their understanding of models for multiplication, and discuss and use efficient, accurate methods to compute products of multi-digit whole numbers. These skills promote essential math knowledge.
	C Yes	
	D Yes	
	E Yes	The difficulty of math concepts continues to scaffold up through the grades based on prior learning and review and use of previously learned concepts.
Does the element promote lifelong learning?	A Yes	Demonstrating to students the importance of deep learning promotes lifelong learning.
	B Yes	This element promotes the development of high-level thinking skills that can be utilized for problem solving for a lifetime.
	C Yes	
	D Yes	
	E Yes	The standard promotes and challenges students to develop and use critical thinking, problem solving and higher-order thinking skills, all highly desirable lifelong learning "tools."
Does the element promote the liberal arts tradition?	A Yes	Arithmetic is used in many ways in other content areas.
	B Yes	This element promotes the development of high-level thinking skills that can be utilized for problem solving for a lifetime in any content area.
	C Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Yes	
	E Yes	
Does the element promote college and career readiness?	A Yes	Understanding arithmetic concepts and developing the ability to compute accurate calculations and mentally determine whether the answer is reasonable are important skills and knowledge for preparing for higher grade math that leads to college and a challenging career.
	B Yes	
	C Yes	
	D Yes	
	E Yes	The standard promotes and challenges students to develop and use critical thinking, problem solving and higher-order thinking skills, all highly desirable learning “tools” to prepare for challenging math in high school, college and a career.
Does the element reduce the need for remediation?	A NA	
	B NA	
	C NA	
	D NA	
	E NA	
Does the element meet the definition of a standard?	A Yes	All 3d grade students need to be able to use place value understanding and properties of operations to perform multi-digit arithmetic.
	B Yes	All 4 th grade students need to develop the ability to mentally calculate and generalize understanding of place value, demonstrate fluency in multiplication and accurately generalize procedures to find quotients using multi-digit dividends.
	C Yes	
	D Yes	
	E Yes	

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

Each committee created in division (I)(1) of this section shall review the academic content standards for its respective subject area to ensure that such standards are **clear, concise, and appropriate for each grade level** and **promote higher student performance, learning, subject matter comprehension, and improved student achievement**. Each committee also shall review whether the standards for its respective subject area **promote essential knowledge in the subject, lifelong learning, the liberal arts tradition, and college and career readiness** and whether the standards **reduce remediation**.

Definitions

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Operations and Algebraic Thinking</p> <p><i>Grade 3</i></p> <ul style="list-style-type: none"> A. Represent and solve problems involving multiplication and division. B. Understand properties of multiplication and the relationship between multiplication and division. C. Multiply and divide within 100. D. Solve problems involving the four operations, and identify and explain patterns in arithmetic. <p><i>Grade 4</i></p> <ul style="list-style-type: none"> E. Use the four operations with whole numbers to solve problems. F. Gain familiarity with factors and multiples. G. Generate and analyze patterns. <p><i>Grade 5</i></p> <ul style="list-style-type: none"> H. Write and interpret numerical expressions. I. Analyze patterns and relationships.
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Yes	Element provides explanations with concise examples for clarity.
	B Yes	Examples for clarity
	C Yes	Examples for clarity
	D Yes	Clear & Concise
	E P	Concise. Examples for clarity would be helpful.
	F P	Number pattern is clear. Example would be helpful of “shape pattern that follows a given rule.” Both parts of element are concise. One part is clear.
	G P	Reviewer didn’t understand the meaning of a “shape pattern.” Had to research online. Would all teachers know this or would they need an example? Once viewed, it was not difficult.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	H Yes	
	I Yes	
Is the element grade level appropriate?	A Yes	Multiplication and division are the next levels of mathematics presented/learned following addition and subtraction of whole numbers, a strong focus in grades K-2..
	B Yes	Builds on basic multiplication and division concepts and extends it to the relationship between them.
	C Yes	Builds on multiplication and division; requires students to know all products from memory, which increases their ability to compute math problems quickly without struggling. Very important.
	D No	Students with reading issues will struggle with this element. It is important for students to be learning math vocabulary and be fluent readers in order to be successful with word problems. Literacy is critical to abstract thinking. This reviewer is concerned about the maturity of all 3d grade students to be ready for this level of analyzing and abstract thinking.
	E P	Scaffolds up from 3d grade assuming students in 3d grade were ready for pre algebra concepts.
	F Yes	
	G Yes	
	H Yes	Builds on writing and interpreting numerical expressions from prior grades
	I Yes	Fifth grade students have developed readiness to learn analyzing patterns and relationships.
	Does the element promote higher student performance, learning and improved student achievement?	A Yes
B Yes		Learning and applying commutative, associative and distributive property extends math concepts to higher level of learning.
C Yes		Being able to perform multiplication and division of two one-digit numbers from memory is critical for higher student performance and learning.
D P		The element promotes higher student performance for students who have good reading skills and have reached maturation level to perform equation problems, which requires abstract thinking.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E P	Promotes higher students performance for students who were successful in this element in 3d grade. For those who were not ready in 3d grade, this element may leave them behind in 4 th grade.
	F Yes	
	G Yes	
	H Yes	
	I Yes	Math patterns and relationships provide students with a higher understanding of the relationship of numbers in patterns.
Does the element support subject matter comprehension?	A Yes	Multiplication, repeated addition, further helps students understand addition and division helps students understand how to separate objects into equal parts.
	B Yes	Element supports student understanding of relationship between multiplication and division.
	C Yes	Committing products of two one-digit numbers to memory helps support mathematics comprehension through memory and application of learning.
	D P	If students are capable readers, and can identify and analyze arithmetic patterns, this supports subject matter comprehension. Not sure all third grade students are prepared or mature enough to successfully perform D. 8 & 9.
	E P	For those 4 th grade students who grasped all of the requirements.
	F P	Same
	G Yes	Generating and analyzing math patterns promotes essential math knowledge.
	H Yes	When students can write and interpret numerical expressions, they are able to demonstrate their understanding and mastery in writing and interpreting simple expressions.
I Yes	This element requires students to generate two numerical patterns using two given rules. This demonstrates their comprehension of the rules.	
Does the element promote essential knowledge in the subject?	A Yes	Multiplication and division are essential knowledge in the subject of mathematics.
	B Yes	
	C Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Yes	This element promotes essential knowledge and application skills for students who are successful in their ability to solve two-step word problems using the four operations and identify arithmetic patterns.
	E P	Same
	F Yes	Knowledge of concepts of factors and multiples, prime or composite numbers promotes essential math knowledge.
	G Yes	Ability to generate and analyze math patterns using numbers or shapes promotes essential math knowledge.
	H Yes	
	I Yes	
Does the element promote lifelong learning?	A Yes	Multiplication and division provide foundation for math learning and use at all levels of math in school and in life.
	B Yes	Same
	C Yes	Same
	D Yes	All of the mathematics elements promote lifelong learning by teaching students to use prior knowledge, persevere through difficult problems and derive answers they can defend.
	E Yes	Same
	F Yes	Same
	G Yes	Same
	H Yes	Same
	I Yes	Same
Does the element promote the liberal arts tradition?	A	NA
	B	NA
	C	NA
	D	NA
	E	NA
	F	NA
	G Yes	Generating and analyzing patterns may be helpful in history, sociology, art and other liberal art subjects.
	H Yes	
	I Yes	Same as G
Does the element promote college and career readiness?	A Yes	All mathematics learning in early grades serve as foundation for higher mathematics in higher grades and college.
	B Yes	Same
	C Yes	Same

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D P	For students who are successful.
	E P	If students are prepared and successful with this element. Very difficult. Requires students to put many math concepts together and have reasoning ability to analyze whether answer is reasonable.
	F Yes	Same as A
	G	Same as A
	H	
	I	
Does the element reduce the need for remediation?	A NA	
	B NA	
	C NA	
	D NA	
	E NA	
	F NA	
	G NA	
	H NA	
	I NA	
Does the element meet the definition of a standard?	A Yes	All 3d grade students need to be proficient in multiplication and division.
	B Yes	All 3d grade students need to understand properties of multiplication and the relationship between multiplication and division.
	C Yes	All 3d grade students should know and be able to demonstrate all products of two one-digit numbers from memory.
	D P	Meets definition. Reviewer is concerned about maturation level of 3d grade students to perform this element.
	E Yes	Meets definition of a standard. May be too difficult for some 4 th grade students. Their maturity level may not be developed for this kind of analyzing.
	F Yes	All 4 th students should be able to find factor pairs for a whole number in the range 1-100 and determine whether those numbers are prime or composite.
	G Yes	All 4 th students should be able to generate patterns that follow a given rule.
	H Yes	All 5 th grade students should be able to write and interpret numerical expressions.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	I Yes	All 5 th grade students should be able to generate two numerical patterns using two given rules and identify apparent relations between corresponding terms.

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Geometry</p> <p><i>Grade 3</i></p> <p>A. Reason with shapes and their attributes.</p> <p><i>Grade 4</i></p> <p>B. Draw and identify lines and angles, and classify shapes by properties of their lines and angles.</p> <p><i>Grade 5</i></p> <p>C. Graph points on the coordinate plane to solve real-world and mathematical problems.</p> <p>D. Classify two-dimensional figures into categories based on their properties.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level

Yes it meets the review criteria

Partially meets the review criteria or **undetermined**

No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	Clear and concise
	B. Yes	Clear and concise
	C. P	An example of a real world or mathematical problem would be helpful.
	D. Yes	
Is the element grade level appropriate ?	A. Yes	Intro to geometry; students recognize shared attributes of shapes. Combines learning of geometry with learning of fractions. Good application of fraction learning.
	B. Yes	Students focus on

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. Yes	
	D. Yes	
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	Geometry is a valuable subject for students to learn. Provides opportunities for students to observe and study shapes mathematically for higher student learning.
	B. Yes	Students are engaged in learning by drawing points, lines, line segments, rays, angles, etc. They classify two-dimensional figures.
	C. Yes	When students learn and practice graphing points on the coordinate plane, they gain an understanding of the relationship of points on two axes in a two-dimensional plane that allows them to begin to understand higher level spatial relationships.
	D. Yes	Categorizing two-dimensional figures promotes visual-spatial ability.
Does the element support subject matter comprehension?	A. Yes	Foundational learning of geometry supports subject matter comprehension.
	B. Yes	Engaged learning that requires students to create, classify, and recognize two dimensional figures. This definitely supports essential knowledge and comprehension of geometry subject matter
	C. Yes	Students can apply their new graphing knowledge to mapping or other real world applications.
	D. Yes	
Does the element promote essential knowledge in the subject?	A. Yes	Foundational learning of geometry is essential to promote knowledge in the subject of geometry.
	B. Yes	Engaged learning that requires students to create, classify, and recognize two-dimensional figures definitely supports essential knowledge and comprehension of geometry subject matter.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. Yes	Students can apply their new graphing knowledge to mapping or other real world applications.
	D. Yes	
Does the element promote lifelong learning ?	A. Yes	Students are beginning to recognize and categorize shapes by shared attributes, e.g. number of lines. Students learn to categorize and subcategorize shapes. Students become observant of the shapes of objects in their everyday lives for lifelong learning.
	B. Yes	Working with two-dimensional objects helps people develop visual-spatial ability.
	C. Yes	
	D. Yes	
Does the element promote the liberal arts tradition ?	A. Yes	Geometry is important in many content areas and in many careers, including engineering, architecture, art.
	B. Yes	This element focuses on two-dimensional figures that promote visual-spatial ability, which is very important in the arts, architecture, interior design, etc.
	C. Yes	Graphing is important in art and architecture, archeology, etc.
	D. Yes	
Does the element promote college and career readiness ?	A. Yes	Foundational learning of geometry is a step toward college and career readiness.
	B. Yes	Same as A
	C. Yes	Same as A
	D. Yes	Same as A
Does the element reduce the need for remediation ?	A. NA	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B. NA	
	C.NA	
	D.NA	
Does the element meet the definition of a standard?	A. Yes	All 3d grade students need foundational learning of geometry.
	B. Yes	Same as A
	C. Yes	
	D. Yes	

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Number and Operations – Fractions</p> <p><i>Grade 3</i></p> <p>A. Develop understanding of fractions as numbers.</p> <p><i>Grade 4</i></p> <p>B. Extend understanding of fraction equivalence and ordering.</p> <p>C. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.</p> <p>D. Understand decimal notation for fractions, and compare decimal fractions.</p> <p><i>Grade 5</i></p> <p>E. Use equivalent fractions as a strategy to add and subtract fractions.</p> <p>F. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Yes	Examples are helpful; clear
	B Yes	Clear explanation; concise
	C Yes	Concise with helpful examples
	D Yes	Clear and concise
	E Yes	Concise with helpful examples
	F Yes	Clear and concise

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate?	A Yes	3d grade students are developmentally ready to use number lines and visual fractional models to learn and express their understanding of fractions as numbers.
	B Yes	Visual fractional models help students see parts of a whole to create fractions using symbols of $<$, $=$ $>$ and justifying their conclusions.
	C Yes	Students are honing their skills in working with fractions—applying previous understanding of operations and extending operations to multiplying a fraction by a whole number.
	D Yes	Builds from working with fractions to decimal notation for fractions and comparing decimal fractions.
	E Yes	
	F Yes	This element requires students to apply and extend previous understandings of multiplication and division to multiply and divide fractions. Applying previous learning with new learning requires use of higher order thinking skills, a goal of Common Core standards. The element logically scaffolds up from 4 th grade concepts learned to 5 th grade concepts that apply and extend learning from 4 th grade.
Does the element promote higher student performance, learning and improved student achievement?	A Yes	Using fractions to express parts of a whole is important math learning. The element and its visual learning “tools” promote higher student learning and performance
	B Yes	Students are learning new math principles to recognize and generate equivalent fractions which promotes higher student learning.
	C Yes	Students are honing their skills in working with fractions—applying previous understanding of operations and extending operations to multiplying a fraction by a whole number. This promotes higher student learning.
	D Yes	Students are extending their knowledge of fractions to decimal equivalents. This promotes improved student achievement.
	E Yes	Students use prior knowledge about fractions to mentally estimate whether answers are reasonable. This requires higher order thinking skills—critical thinking.
	F Yes	Absolutely. This element is an example of well-planned scaffolding of math concepts.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element support subject matter comprehension ?	A Yes	Using visual fraction models--number lines, ribbon and liquid in a bucket--helps students visually see and calculate fractional parts of a whole. This supports subject matter comprehension.
	B Yes	
	C Yes	Students are honing their skills in working with fractions—applying previous understanding of operations and extending operations to multiplying a fraction by a whole number. Comprehension and retention are higher when new content is connected with previously learned concepts.
	D Yes	Students use decimal notation for fractions and compare two decimals to hundredths through reasoning. This increases comprehension.
	E Yes	Students use prior knowledge about fractions to mentally estimate whether answers are reasonable. This requires comprehension.
	F Yes	Review and use of math concepts learned one year applied and expanded the next year is a highly successful way for students to comprehend new concepts and retain learning from prior years. Students also see value in their past learning when it is used and logically connected with new learning. “Connecting the dots” of learning is important for students.
Does the element promote essential knowledge in the subject ?	A Yes	Understanding and using fractions promotes essential knowledge in math.
	B Yes	
	C Yes	
	D Yes	Students are extending their study of fractions to decimal notations for fractions. This promotes essential knowledge in math.
	E Yes	
	F Yes	
Does the element promote lifelong learning ?	A Yes	Understanding and use of fractions is needed throughout one’s life. The learning and comprehension of adding, subtracting, multiplying and dividing fractions promotes lifelong learning.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
Does the element promote the liberal arts tradition?	A Yes	Fractions are frequently used in science and math.
	B Yes	Same as A
	C Yes	Same as A
	D Yes	Same as A
	E Yes	Same as A
	F Yes	Same as A
Does the element promote college and career readiness?	A Yes	Comprehending and using math fraction concepts is important in preparing students for college and careers.
	B Yes	Same as A
	C Yes	Same as A
	D Yes	Same as A
	E Yes	Same as A
	F Yes	Same as A
Does the element reduce the need for remediation?	A NA	
	B NA	
	C NA	
	D NA	
	E NA	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F NA	
Does the element meet the definition of a standard?	A Yes	All 3d grade students need to be able to develop comprehension of fractions as numbers.
	B Yes	Same as A
	C Yes	All 4 th grade students need to understand fraction equivalence and ordering.
	D Yes	All 4 th grade students need to understand decimal notation for fractions.
	E Yes	All 5 th grade students need to be able to use equivalent fractions as a strategy to add and subtract fractions.
	F Yes	All 5 th grade students need to be able to apply and extend previous understandings of multiplication and division to multiply and divide fractions.

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Definitions

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Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

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⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

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⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Measurement and Data</p> <p><i>Grade 3</i></p> <ul style="list-style-type: none"> A. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. B. Represent and interpret data. C. Geometric measurement: understand concepts of area and relate area to multiplication and to addition. D. Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. <p><i>Grade 4</i></p> <ul style="list-style-type: none"> E. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. F. Represent and interpret data. G. Geometric measurement: understand concepts of angle and measure angles. <p><i>Grade 5</i></p> <ul style="list-style-type: none"> H. Convert like measurement units within a given measurement system. I. Represent and interpret data. J. Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Yes	
	B Yes	
	C P	Clear but not concise; however, element provides good examples that are needed.
	D Yes	
	E P	Clear but not concise; however, element provides good examples that are needed.
	F Yes	Clear and concise
	G Yes	Clear and concise.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate?	H Yes	
	I Yes	
	J Yes	
	No	This level of abstract thinking is not appropriate for many 3d grade students. Research demonstrates literacy, including comprehension, vocabulary and fluency, is crucial to abstract thought. <i>For the most part, children think concretely when they are young and they become more capable of abstract thought later. A huge industry has grown up around the idea that we can game the human system and teach children to think abstractly before they are ready. Such strategies haven't been very successful.</i> Engel "The Hungry Mind: The Origins of Curiosity in Childhood." Students are just learning division in 3d grade. Are they ready in both math and reading as well as developmentally ready to analyze how to use division in word problems in 3d grade?
	B Yes	Students use rulers and a scaled bar graph to represent a data set. This provides both visual and tactile learning of math.
	C Yes	
	D Yes	
	E Yes	Students focus on solving measurement problems using units that include metric measurement, U.S. Customary system, time measurement, weight, etc., using diagrams that feature a measurement scale.
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
Does the element promote higher student performance, learning and improved student achievement?	A P	If students are able to perform all 4 arithmetic operations effectively and are reading at least at 3d grade level, they may be able to perform one-step word problems. If so, the element promotes higher student performance. For students who are not able to perform all of these skills yet, it is too advanced and is presented too early for their maturity and/or ability in 3d grade.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B Yes	Students show data making a line plot which correlates and reinforces their learning of geometry.
	C Yes	This element includes measurement concepts that correlate well with elements being learned in 3d grade geometry standards
	D Yes	Students connect geometric measurement with their 3d grade geometry standards.
	E Yes	The understanding and use of measurement systems is valuable in real life as well as valuable in mathematics class.
	F Yes	Students are learning to represent and interpret data by integrating prior learning of plotting a data set with measurement in fractions solving problems involving addition and subtraction of fractions using info presented in line plots. Great method of integrating math concepts learned.
	G Yes	Students learn to recognize angles as geometric shapes, measure angles with a protractor, sketch angles of specified measure.
	H Yes	
	I Yes	
	J Yes	
Does the element support subject matter comprehension?	A P	If students are able to perform all 4 arithmetic operations effectively and are reading at least at 3d grade level, they may be able to perform one-step word problems. If so, the element promotes higher student performance. For students who are not able to perform all of these skills yet, it is too advanced and is presented too early for their maturity and/or ability in 3d grade.
	B Yes	Reinforces and supports learning in geometry as well as in measurement and data.
	C	This element includes measurement concepts that correlate well with elements being learned in 3d grade geometry standards
	D Yes	Provides opportunity for students to distinguish between linear and area measures for geometric measurement comprehension. Real world problems also support subject matter comprehension.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E Yes	Reinforces comprehension of line plots to display a data set of measurements in fractions and addition and subtraction of fractions.
	F Yes	
	G Yes	Scaffolding of measurement and data as it relates to geometry.
	H Yes	
	I Yes	
	J Yes	
Does the element promote essential knowledge in the subject?	A P	For students who are able to perform all 4 arithmetic operations effectively and are reading at least at 3d grade level, they may be able to perform one-step word problems. If so, the element promotes essential knowledge in measurement and data. For students who are not able to perform all of these skills yet, it is too advanced and is presented too early for their maturity and/or ability in 3d grade.
	B Yes	Good hands-on and visual learning of data and measurement for 3d grade students.
	C	This element includes measurement concepts that correlate well with elements being learned in 3d grade geometry standards
	D Yes	Geometric measurement real world problems promote subject matter comprehension.
	E Yes	Measurement systems and conversion of measurements are used in many ways in math and in life. It promotes essential knowledge and use of mathematics.
	F Yes	This element requires students to represent and interpret data through integration of prior fraction and line plot learning.
	G Yes	
	H Yes	Converting like measurement units within a given measurement system and solving multi-step real-world problems is challenging and promotes essential knowledge in math.
	I Yes	
	J Yes	
Does the element promote lifelong learning?	A Yes	All math learned promotes lifelong learning and serves as a foundation for learning throughout life.
	B Yes	Same as A
	C Yes	Same as A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
Does the element promote the liberal arts tradition?	A Yes	
	B Yes	
	C Yes	Geometric measurement relates with art, architecture and other liberal arts content areas.
	D Yes	
	E Yes	Measurement systems and conversion of measurements is useful knowledge that can be used in many content areas.
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	
Does the element promote college and career readiness?	A Yes	Early measurement and data skills serve as a foundation for more advanced learning in mathematics.
	B Yes	Same as A
	C Yes	Same as A
	D Yes	Same as A
	E Yes	Same as A
	F Yes	Same as A
	G Yes	Same as A
	H Yes	Same as A
	I Yes	Same as A
	J Yes	Same as A
Does the element reduce the need for remediation?	A NA	
	B NA	
	C NA	
	D NA	
	E NA	
	F NA	
	G NA	
	H NA	
	I NA	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	J NA	
Does the element meet the definition of a standard?	A Yes	
	B No	May not be appropriate for all 3d grade students
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	I Yes	
	J Yes	

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>RATIOS AND PROPORTIONAL RELATIONSHIPS</p> <p><i>Grade 6</i></p> <p>A. Understand ratio concepts and use ratio reasoning to solve problems</p> <p><i>Grade 7</i></p> <p>B. Analyze proportional relationships and use them to solve real-world and mathematical problems.</p>
Grade Level(s) Under Review	Grades 6 and 7

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	Clear and concise. Examples are helpful and provide examples of what kinds of problems students are expected to learn to solve.
	B. Yes	
Is the element grade level appropriate ?	A. Yes	New concepts based on previous learning from Grade 5 <i>Number and Operations in Base Ten, Number and Operations – Fractions</i> .
	B. Yes	Scaffolds up from ratio learning in Grade 6

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	Learning ratio concepts and solving word and life problems helps students see how their learning is useful in solving problems.
	B. Yes	Students extend their learning from whole number multiplication and division ratios and rates learned in 6 th grade to single and multi-step problems involving discounts, interest, taxes, tips and percent increase or decrease. Students graph proportional relationships.
Does the element support subject matter comprehension?	A. Yes	When students apply learning to life problems they encounter, e.g. calculating amount of ingredients for cooking a recipe—recipe has a ratio of 3 cups of flour to 4 cups of sugar-- or figuring how many lawns they can mow in if it takes them 7 hours to mow 4 lawns, it supports subject matter comprehension.
	B. Yes	Students apply their learning to real life problems including calculating discounts, interest, taxes, tips, etc. This makes ratio/proportional relationships useful to students in their daily lives and supports comprehension
Does the element promote essential knowledge in the subject?	A. Yes	
	B. Yes	
Does the element promote lifelong learning?	A. Yes	Ratios are used in many life situations. Using concepts learned promotes lifelong learning. The concepts continue to be useful throughout life to use for new learning situations.
	B. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote the liberal arts tradition?	A. Yes	Ratios are used in many content areas and in many ways in our personal lives. Artists use ratios to create paintings and sculptures so their works of art look accurate both up close and from a distance. Ratios are used in creating recipes and to mix formulas. They are also used in consumer reports, politics and in personal ways—what percentage of time we encounter getting stopped at up to 5 stoplights on our way to the grocery store.
	B. Yes	
Does the element promote college and career readiness?	A. Yes	The ability to calculate and use ratio and proportional relationships to explain and support research is an important skill for college and career readiness.
	B. Yes	Same as A
Does the element reduce the need for remediation?	A. Yes	
	B. Yes	
Does the element meet the definition of a standard?	A. Yes	All 6 th grade students need to be able to use ratio reasoning to solve problems
	B. Yes	

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Statistics and Probability</p> <p><i>Grade 6</i></p> <ul style="list-style-type: none"> A. Develop understanding of statistical variability. B. Summarize and describe distributions. <p><i>Grade 7</i></p> <ul style="list-style-type: none"> C. Use random sampling to draw inferences about a population. D. Draw informal comparative inferences about two populations. E. Investigate chance processes and develop, use, and evaluate probability models. <p><i>Grade 8</i></p> <ul style="list-style-type: none"> F. Investigate patterns of association in bivariate data.
Grade Level(s) Under Review	Grades 6, 7 and 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
<p>Is the element grade level appropriate?</p>	A Yes	<p>Sixth grade students are introduced to statistics and probability concepts. They are also learning ratios and proportional relationships in 6th grade math. These math skills will greatly enhance their research abilities when integrated with common core English language arts learning.</p> <p><u>CCSS.ELA-Literacy.W.6.1</u></p> <p>Write arguments to support claims with clear reasons and relevant evidence.</p> <p><u>CCSS.ELA-Literacy.W.6.1.a</u></p> <p>Introduce claim(s) and organize the reasons and evidence clearly.</p> <p>This reviewer promotes having “natural cross walks” developed among concepts being presented/learned at each grade level in math, English, science/engineering design/technology and social studies to promote teacher collaboration and problem-based learning. PBL provides students with opportunities to apply their learning and skills in a multi-disciplinary manner to local or world problems. Other content areas including art and foreign language could also be included, when appropriate.</p> <p>Providing several examples at each grade level could serve as a means to “jump start” teacher thinking about how the standards/learning can be applied at high levels, comprehended and retained through multi-disciplinary application of learning to real life problems. PBL promotes 21st Century skills needed for college and career readiness and serves as a foundation for lifelong learning.</p>
	B Yes	<p>Sixth grade students learn to display numerical data in plots on a number line and summarize numerical data sets in relation to their context. This is fundamental statistical learning.</p>
	C Yes	<p>Using a random sampling to draw inferences about a population is a very interesting way for students to apply their statistical and probability skills.</p>
	D Yes	
	E Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F Yes	
Does the element promote higher student performance, learning and improved student achievement?	A Yes	Sixth grade students are being introduced to statistics and probability, which relates to improved performance and learning and connects closely with research, logic, and the ability to support one’s conclusions or recommendations with statistical data.
	B Yes	Continues to extend learning of statistics for higher student performance.
	C Yes	Application of learning and connecting the new learning with concepts learned in 6th grade promotes higher student performance.
	D Yes	Students are using their learning of statistics as it relates to comparative inferences about two populations to assess measures of center and measures of variability for numerical data to draw informal comparative inferences about two populations. Using math for authentic purposes promotes higher student learning and performance.
	E Yes	
	F Yes	
Does the element support subject matter comprehension?	A Yes	
	B Yes	
	C Yes	Application of statistics learning to a real world situation—using a random sampling to draw inferences about a population-- and connecting the new learning with statistics concepts learned in 6th grade supports statistical and probability comprehension.
	D Yes	Using math for authentic purposes promotes higher student subject matter comprehension.
	E Yes	
	F Yes	
Does the element promote essential knowledge in the subject?	A Yes	Statistics promotes essential mathematical knowledge.
	B Yes	Same as A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C Yes	When applying statistical learning in an authentic situation, essential knowledge is promoted in math.
	D Yes	Same as C
	E Yes	
	F Yes	
Does the element promote lifelong learning?	A Yes	The ability to use statistics can be applied in other content areas and for one's career. It definitely promotes lifelong learning through application to new situations.
	B Yes	
	C Yes	When applying statistical learning in an authentic situation, students see other uses for applying their new learning and skills.
	D Yes	Same as C
	E Yes	
	F Yes	
Does the element promote the liberal arts tradition?	A Yes	Statistics and probability can be applied to all content areas and used as a tool to support one's conclusions or recommendations in research.
	B Yes	Same as A
	C Yes	Learning to use random sampling to draw inferences about a population can be used in other subject areas including social sciences, environmental science, etc.
	D Yes	Same as C
	E Yes	
	F Yes	
Does the element promote college and career readiness?	A Yes	Statistics is an invaluable tool in research, which is important for college and career readiness.
	B Yes	Same as A
	C Yes	Same as A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Yes	Same as A
	E Yes	
	F Yes	
Does the element reduce the need for remediation?	A NA	
	B NA	
	C NA	
	D NA	
	E NA	
	F NA	
Does the element meet the definition of a standard?	A Yes	All 6 th grade students need to develop understanding of statistical variability.
	B Yes	Same as A
	C Yes	All 7 th grade students need to learn to use random sampling to draw inferences.
	D Yes	
	E Yes	
	F Yes	

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Geometry</p> <p><i>Grade 6</i></p> <p>A. Solve real-world and mathematical problems involving area, surface area, and volume.</p> <p><i>Grade 7</i></p> <p>B. Draw, construct and describe geometrical figures and describe the relationships between them.</p> <p>C. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.</p> <p><i>Grade 8</i></p> <p>D. Understand congruence and similarity using physical models, transparencies, or geometry software.</p> <p>E. Understand and apply the Pythagorean theorem.</p> <p>F. Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.</p>
Grade Level(s) Under Review	Grades 6, 7 and 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A Yes	These mathematical problems involving area, surface area and volume build on earlier learned concepts from 5 th grade.
	B Yes	
	C Yes	
	D Yes	
	E Yes	Geometry concepts are building to prepare students for high school geometry.
	F Yes	
Does the element promote higher student performance, learning and improved student achievement ?	A Yes	The model curricula informs teachers of ways to have students continue to manipulate materials to “make connections to the symbolic and more abstract aspects of geometry.” This kind of learning promotes higher student performance.
	B Yes	In 7 th grade the Model Curriculum focuses on the importance of visualization. Students create drawings of geometric figures to scale and develop an understanding of proportionality. This promotes visual-spatial perception and moves students from working with concrete concepts to abstract concepts.
	C Yes	
	D Yes	
	E Yes	With the introduction of the Pythagorean Theorem students are to be able to justify a simple proof.
	F Yes	
Does the element support subject matter comprehension ?	A Yes	This element strongly supports subject matter comprehension and encourages students to use their learning of geometry in creative ways.
	B Yes	
	C Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Yes	
	E Yes	
	F Yes	
Does the element promote essential knowledge in the subject?	A Yes	In the Model Curriculum Students will design a package to accommodate a “mystery item”, identifying the area, surface area, and volume. Lead a discussion, or host a career speaker, to relate this skill to various career fields that require critical thinking, problem solving, and mathematic calculations (e.g.logistics, transportation, health). These are authentic connections with the world of work that promote essential knowledge of geometry.
	B Yes	Using geometry to create solutions for authentic problems promotes essential knowledge.
	C Yes	
	D Yes	
	E Yes	
	F Yes	
Does the element promote lifelong learning?	A Yes	Students are applying their learning of geometry to solve real-world problems that require mathematics. This promotes lifelong learning.
	B Yes	Promotes creativity and problem-solving skills for lifelong learning and success.
	C Yes	
	D Yes	
	E Yes	
	F Yes	
Does the element promote the liberal arts tradition?	A Yes	
	B Yes	Knowledge of geometry concepts that can be used to solve real life problems promotes the liberal arts tradition.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C Yes	
	D Yes	
	E Yes	
	F Yes	
Does the element promote college and career readiness?	A Yes	Using math in real world context promotes college and career readiness by making direct connections between what students learn in school and skills and knowledge required in various career fields that require a college background.
	B Yes	In the Model Curriculum students use different materials to construct triangles and other shapes. This promotes their understanding of how geometry is integrated in career fields including construction and architecture.
	C Yes	
	D Yes	
	E Yes	<i>In the Model Curriculum students will use the Pythagorean Theorem for constructing a design and proving the measurements. They will construct a real work design (e.g., landscaping or garden, building floor plan, scaled map) and then use the 3-4-5 concept to prove their measurements and plan their project. Coordinate a hands-on project (e.g., community garden, school map, classroom model) where students will apply this skill and identify the application among careers (e.g., agriculture, engineering, design). These authentic uses of the Pythagorean Theorem for constructing a design promote STEM careers and college and career readiness.</i>
	F Yes	
Does the element reduce the need for remediation?	A NA	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B NA	
	C NA	
	D NA	
	E NA	
	F NA	
Does the element meet the definition of a standard?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	

Ohio Standards Committee Review Form

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Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	Name Ensign Date
Element Under Review (Cluster)	<p style="margin: 0;">Expressions and Equations</p> <p style="margin: 0;"><i>Grade 6</i></p> <ul style="list-style-type: none"> A. Apply and extend previous understandings of arithmetic to algebraic expressions. B. Reason about and solve one-variable equations and inequalities. C. Represent and analyze quantitative relationships between dependent and independent variables. <p style="margin: 0;"><i>Grade 7</i></p> <ul style="list-style-type: none"> D. Use properties of operations to generate equivalent expressions. E. Solve real-life and mathematical problems using numerical and algebraic expressions and equations. <p style="margin: 0;"><i>Grade 8</i></p> <ul style="list-style-type: none"> F. Work with radicals and integer exponents. G. Understand the connections between proportional relationships, lines, and linear equations. H. Analyze and solve linear equations and pairs of simultaneous linear equations.
Grade Level(s) Under Review	Grades 6, 7 and 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Yes	
	B Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C Yes	
	D Yes	
	E Yes	Good real-world problem examples.
	F Yes	
	G Yes	
	H Yes	
Is the element grade level appropriate?	A Yes	Extends arithmetic and algebraic learning from grade 5 where students were required to write and interpret numerical expressions to algebraic ways of thinking.
	B Yes	
	C Yes	
	D Yes	
	E Yes	Students are building on earlier concepts learned using whole numbers, fractions and decimals in multi-step real life problems.
	F Yes	
	G Yes	
	H Yes	
Does the element promote higher student performance, learning and improved student achievement?	A Yes	Students are applying and extending what they learned in Grade 5 by learning to write and evaluate numerical expressions involving whole number exponents and learning to write read and evaluate expressions in which letters stand for numbers. Students are moving from simple arithmetic to algebraic thinking and problem solving.
	B Yes	Students must use reasoning skills to determine whether the problem is an equation or inequality using substitution and reasoning skills.
	C Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Yes	
	E Yes	Students are solving problems using positive and negative rational numbers and assessing the reasonableness of their answers using mental computation and estimation strategies. This definitely promotes higher students learning and understanding of math.
	F Yes	
	G Yes	
	H Yes	
Does the element support subject matter comprehension?	A Yes	Promotes higher order thinking skills for students to write numbers as expressions
	B Yes	
	C Yes	
	D Yes	
	E Yes	When students are able to use mental computation and estimation strategies and assess the reasonableness of their answers, they have demonstrated comprehension of the concepts they are learning.
	F Yes	Use of new learning about radicals and integer exponents includes a problem that requires students to <i>estimate the population of the U.S. as $3 \times 10(8^{\text{th}}$ power) and the population of the world as $7 \times 10(9^{\text{th}}$ power), and determine that the world population is more than 20 times larger.</i> This kind of problem supports subject matter comprehension.
	G Yes	This element provides a problem for students to <i>compare a distance-time graph to a distance-time equation to determine which of two objects has greater speed.</i> This is an excellent example of how students can use their new knowledge in a useful, meaningful way.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	H Yes	This element includes: <i>Solve real-world and mathematical problems leading to two linear equations in two variables.</i> No real-world problem is provided. Providing real-world problems helps students connect what they are learning with useful ways to apply their knowledge. It also helps teachers.
Does the element promote essential knowledge in the subject?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	Students are solving problems using numerical and algebraic expressions and equations using positive and negative rational numbers in different forms—whole numbers, fractions and decimals—in multi-step real-life math problems. This definitely promotes essential knowledge in math.
	F Yes	Please see F immediately above
	G Yes	Please see G immediately above
	H Yes	Please see H immediately above
Does the element promote lifelong learning?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	Same as F
	F Yes	Students are more inclined to use expressions and equations throughout their lives when they have used this learning in real-life problems and understand the value of their learning.
	G Yes	Same as F

Standards Committee Review Form

Review Criteria	Review Level	Notes
	H Yes	Same as F
Does the element promote the liberal arts tradition?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	Solving multi-step real-life math problems using positive and negative rational numbers as whole numbers, fractions and decimals can be used in multiple liberal arts content areas including sociology, social studies, geography, etc.
	F Yes	Radicals and integer exponents can be used in social sciences and in sciences such as biology and environmental biology to calculate and study populations of people, animals, plants, etc.
	G Yes	Same as F
	H Yes	Same as F
Does the element promote college and career readiness?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	These mathematics concepts promote higher learning of math and promote college and career readiness.
	G Yes	Same as F
	H Yes	Same as F
Does the element reduce the need for remediation?	A Yes	
	B Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C Yes	
	D Yes	
	E Yes	
	F Yes	Learning about expressions and equations promotes learning of algebra, which definitely reduces the need for math remediation.
	G Yes	Same as F
	H Yes	Same as F
Does the element meet the definition of a standard?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	Name _____ Date _____
Element Under Review (Cluster)	<p>Functions <i>Grade 8</i></p> <p>A. Define, evaluate, and compare functions. B. Use functions to model relationships between quantities.</p>
Grade Level(s) Under Review	Grade 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	A function can be compared to a machine as having an input and an output. In some manner, the input is related to the output.
	B. Yes	
Is the element grade level appropriate ?	A. P	For students who have developed understanding of math concepts presented through the Common Core up to grade 8, this is grade level appropriate. For students who are behind, this concept is most likely too advanced.
	B. P	Same

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	The math concept of input and output promotes higher student learning and prepares students for HS algebra I and II.
	B. Yes	The math concept of comparing properties of two functions using multiple ways to represent the concept—algebraically, graphically, verbally, etc. promotes higher student learning and prepares students for HS algebra I and II.
Does the element support subject matter comprehension?	A. Yes	Promotes knowledge in algebra.
	B. Yes	Same
Does the element promote essential knowledge in the subject?	A. Yes	Promotes knowledge in algebra.
	B. Yes	Same
Does the element promote lifelong learning?	A. Yes	Helps you think logically and solve problems.
	B. Yes	Same
Does the element promote the liberal arts tradition?	A. P	All learning of math promotes the liberal arts tradition in a general way. It is difficult for this reviewer to see how this concept directly promotes the liberal arts tradition in a direct manner.
	B. P	Same
Does the element promote college and career readiness?	A. Yes	Increases student knowledge of mathematics.
	B. Yes	Increases student knowledge of mathematics.
Does the element reduce the need for remediation?	A. Yes	Increases student knowledge of mathematics for college entrance exams and college courses.
	B. Yes	Increases student knowledge of mathematics for college entrance exams and college courses
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	Name Ensign Date
Element Under Review (Cluster)	<p style="margin: 0;">The Number System</p> <p style="margin: 0;"><i>Grade 6</i></p> <ul style="list-style-type: none"> A. Apply and extend previous understandings of multiplication and division to divide fractions by fractions. B. Compute fluently with multi-digit numbers and find common factors and multiples. C. Apply and extend previous understandings of numbers to the system of rational numbers. <p style="margin: 0;"><i>Grade 7</i></p> <ul style="list-style-type: none"> D. Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. <p style="margin: 0;"><i>Grade 8</i></p> <ul style="list-style-type: none"> E. Know that there are numbers that are not rational, and approximate them by rational numbers.
Grade Level(s) Under Review	Grades 6, 7 and 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise?	A Yes	Creating story context to describe dividing fractions is helpful to clarify element.
	B Yes	
	C Yes	Element is very clear. There is good extension of past knowledge using number line.
	D Yes	The element is clear. It would help; if more specific examples were used as is done in Grade 6 discussion of element.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E Yes	Element is very clear. Although this element is a small section, it is the foundation of higher mathematics, e.g. calculus.
Is the element grade level appropriate ?	A Yes	There is logical progression to the next grade level.
	B Yes	There is logical extension from grade 5.
	C Yes	Same
	D Yes	Good extension from grade 6.
	E Yes	Absolutely fits the progression of knowledge.
Does the element promote higher student performance, learning and improved student achievement ?	A Yes	The element is both a consolidation of prior learning while expanding into new areas.
	B Yes	Same
	C Yes	Same
	D Yes	
	E Yes	
Does the element support subject matter comprehension ?	A Yes	Using story context and word problems allows the student to apply the elements.
	B Yes	
	C Yes	
	D Yes	This reviewer suggests word problems be provided to serve as examples.
	E Yes	
Does the element promote essential knowledge in the subject ?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote lifelong learning ?	A Yes	Absolutely. The ability to use these mathematical concepts are the foundation of lifelong problem solving in a very practical way.
	B Yes	
	C Yes	
	D Yes	
	E Yes	
Does the element promote the liberal arts tradition ?	A Yes	These forms of mathematics are fundamental to art, music, the social sciences.
	B Yes	Proportions/scale/ratio are all critical to the understanding of these disciplines.
	C Yes	
	D Yes	
	E Yes	
Does the element promote college and career readiness ?	A Yes	The element is a fundamental building block to college learning and not only promotes learning but allows learning to occur.
	B Yes	
	C Yes	
	D Yes	
	E Yes	
Does the element reduce the need for remediation ?	A Yes	This element reduces the need for remediation particularly as students review and consolidate the concepts that came prior to this learning.
	B Yes	
	C Yes	
	D Yes	
	E Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element meet the definition of a standard?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

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Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Counting and Cardinality</p> <p>A. Know number names and the count sequence.</p> <p>B. Count to tell the number of objects.</p> <p>C. Compare numbers.</p>
Grade Level(s) Under Review	Kindergarten

Review level**Yes** it meets the review criteria**Partially** meets the review criteria or **undetermined****No** it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A.	Yes.
	B.	Yes.
	C.	Yes.
Is the element grade level appropriate ?	A.	Yes.
	B.	Yes.
	C.	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote higher student performance, learning and improved student achievement?	A.	Yes.
	B.	Yes.
	C.	Yes.
Does the element support subject matter comprehension?	A.	Yes. When is backward counting necessary?
	B.	Yes.
	C.	Yes.
Does the element promote essential knowledge in the subject?	A.	Yes.
	B.	Yes.
	C.	Yes.
Does the element promote lifelong learning?	A.	Yes.
	B.	Yes.
	C.	Yes.
Does the element promote the liberal arts tradition?	A.	Yes.
	B.	Yes.
	C.	Yes.
Does the element promote college and career readiness?	A.	Yes.
	B.	Yes.
	C.	Yes.
Does the element reduce the need for remediation?	A.	Yes.
	B.	Yes.
	C.	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element meet the definition of a standard?	A.	Yes.
	B.	Yes.
	C.	Yes.

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Number and Operations in Base Ten</p> <p><i>Kindergarten</i></p> <p>A. Work with numbers 11–19 to gain foundations for place value.</p> <p><i>Grade 1</i></p> <p>B. Extend the counting sequence. C. Understand place value. D. Use place value understanding and properties of operations to add and subtract.</p> <p><i>Grade 2</i></p> <p>E. Understand place value. F. Use place value understanding and properties of operations to add and subtract.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level**Yes** it meets the review criteria**Partially** meets the review criteria or **undetermined****No** it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote higher student performance, learning and improved student achievement ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes. Important habit to use place value and properties of operations to develop and make sense of algorithms for arithmetic.
	E	Yes.
	F	Yes. Important habit to use place value and properties of operations to develop and make sense of algorithms for arithmetic.
Does the element support subject matter comprehension ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote essential knowledge in the subject ?	A	Yes.
	B	Yes.
	C	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote lifelong learning ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote the liberal arts tradition ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote college and career readiness ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element reduce the need for remediation ?	A	Yes.
	B	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

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Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Operations and Algebraic Thinking</p> <p><i>Kindergarten</i></p> <p>A. Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.</p> <p><i>Grade 1</i></p> <p>B. Represent and solve problems involving addition and subtraction. C. Understand and apply properties of operations and the relationship between addition and subtraction. D. Add and subtract within 20. E. Work with addition and subtraction equations.</p> <p><i>Grade 2</i></p> <p>F. Represent and solve problems involving addition and subtraction. G. Add and subtract within 20. H. Work with equal groups of objects to gain foundations for multiplication.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level

Yes it meets the review criteria

Partially meets the review criteria or **undetermined**

No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F	Yes.
	G	Yes.
	H	Yes.
Is the element grade level appropriate?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
Does the element promote higher student performance, learning and improved student achievement?	A	Yes. Strategies such as putting together, taking apart, and comparing are based on extensive research on the learning of number and operation across pre-K to grade 3.
	B	Yes. Same.
	C	Yes. Same.
	D	Yes. Same.
	E	Yes. Same.
	F	Yes. Same.
	G	Yes. Same.
	H	Yes. Same.
Does the element support subject matter comprehension?	A	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
Does the element promote essential knowledge in the subject?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
Does the element promote lifelong learning?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G	Yes.
	H	Yes.
Does the element promote the liberal arts tradition?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
Does the element promote college and career readiness?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
Does the element reduce the need for remediation?	A	Yes.
	B	Yes.
	C	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.

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Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Measurement and Data</p> <p><i>Kindergarten</i></p> <p>A. Describe and compare measurable attributes. B. Classify objects and count the number of objects in categories.</p> <p><i>Grade 1</i></p> <p>C. Measure lengths indirectly and by iterating length units. D. Tell and write time. E. Represent and interpret data.</p> <p><i>Grade 2</i></p> <p>F. Measure and estimate lengths in standard units. G. Relate addition and subtraction to length. H. Work with time and money. I. Represent and interpret data.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level**Yes** it meets the review criteria**Partially** meets the review criteria or **undetermined****No** it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote higher student performance, learning and improved student achievement ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element support subject matter comprehension ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote essential knowledge in the subject ?	A	Yes.
	B	Yes.
	C	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote lifelong learning ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote the liberal arts tradition ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote college and career readiness ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G	Yes.
	H	Yes.
	I	Yes.
Does the element reduce the need for remediation?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.

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Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Geometry</p> <p><i>Kindergarten</i></p> <p>A. Identify and describe shapes. B. Analyze, compare, create, and compose shapes.</p> <p><i>Grade 1</i></p> <p>C. Reason with shapes and their attributes..</p> <p><i>Grade 2</i></p> <p>D. Reason with shapes and their attributes.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level **Yes** it meets the review criteria
Partially meets the review criteria or **undetermined**
No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Is the element grade level appropriate ?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Does the element promote higher student performance, learning and improved student achievement ?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Does the element support subject matter comprehension ?	A.	Yes.
	B.	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C.	Yes.
	D.	Yes.
Does the element promote essential knowledge in the subject?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Does the element promote lifelong learning?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Does the element promote the liberal arts tradition?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Does the element promote college and career readiness?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Does the element reduce the need for remediation?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Does the element meet the definition of a standard?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Number and Operations in Base Ten</p> <p><i>Grade 3</i></p> <p>A. Use place value understanding and properties of operations to perform multi-digit arithmetic.</p> <p><i>Grade 4</i></p> <p>B. Generalize place value understanding for multi-digit whole numbers.</p> <p>C. Use place value understanding and properties of operations to perform multi-digit arithmetic.</p> <p><i>Grade 5</i></p> <p>D. Understand the place value system.</p> <p>E. Perform operations with multi-digit whole numbers and with decimals to hundredths.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level**Yes** it meets the review criteria**Partially** meets the review criteria or **undetermined****No** it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
Does the element promote higher student performance, learning and improved student achievement ?	A	Yes. Important habit to use place value and properties of operations to develop and make sense of algorithms for arithmetic.
	B	Yes.
	C	Yes. Important habit to use place value and properties of operations to develop and make sense of algorithms for arithmetic.
	D	Yes.
	E	Yes. Important habit to use place value and properties of operations to develop and make sense of algorithms for arithmetic.
Does the element support subject matter comprehension ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
Does the element promote essential knowledge in the subject ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
Does the element promote lifelong learning ?	A	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
Does the element promote the liberal arts tradition?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
Does the element promote college and career readiness?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
Does the element reduce the need for remediation?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.

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Standards Committee Review Form

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Committee Member Name	
Element Under Review (Cluster)	<p>Operations and Algebraic Thinking</p> <p><i>Grade 3</i></p> <p>A. Represent and solve problems involving multiplication and division.</p> <p>B. Understand properties of multiplication and the relationship between multiplication and division.</p> <p>C. Multiply and divide within 100.</p> <p>D. Solve problems involving the four operations, and identify and explain patterns in arithmetic.</p> <p><i>Grade 4</i></p> <p>E. Use the four operations with whole numbers to solve problems.</p> <p>F. Gain familiarity with factors and multiples.</p> <p>G. Generate and analyze patterns.</p> <p><i>Grade 5</i></p> <p>H. Write and interpret numerical expressions.</p> <p>I. Analyze patterns and relationships.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level**Yes** it meets the review criteria**Partially** meets the review criteria or **undetermined****No** it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote higher student performance, learning and improved student achievement?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element support subject matter comprehension?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote essential knowledge in the subject?	A	Yes.
	B	Yes.
	C	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote lifelong learning?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote the liberal arts tradition?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote college and career readiness?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G	Yes.
	H	Yes.
	I	Yes.
Does the element reduce the need for remediation?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Geometry</p> <p><i>Grade 3</i></p> <p>A. Reason with shapes and their attributes.</p> <p><i>Grade 4</i></p> <p>B. Draw and identify lines and angles, and classify shapes by properties of their lines and angles.</p> <p><i>Grade 5</i></p> <p>C. Graph points on the coordinate plane to solve real-world and mathematical problems.</p> <p>D. Classify two-dimensional figures into categories based on their properties.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
Partially meets the review criteria or **undetermined**
No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Is the element grade level appropriate ?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Partially. This is an appropriate grade to begin to discuss properties logically, but subcategories and hierarchical classification may be a challenges for many fifth graders.
Does the element promote higher student performance, learning and improved student achievement ?	A.	Yes.
	B.	Yes.
	C.	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D.	Yes.
Does the element support subject matter comprehension ?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Does the element promote essential knowledge in the subject ?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Does the element promote lifelong learning ?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Does the element promote the liberal arts tradition ?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Does the element promote college and career readiness ?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Does the element reduce the need for remediation ?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.
Does the element meet the definition of a standard ?	A.	Yes.
	B.	Yes.
	C.	Yes.
	D.	Yes.

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Measurement and Data</p> <p><i>Grade 3</i></p> <p>A. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</p> <p>B. Represent and interpret data.</p> <p>C. Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</p> <p>D. Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.</p> <p><i>Grade 4</i></p> <p>E. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.</p> <p>F. Represent and interpret data.</p> <p>G. Geometric measurement: understand concepts of angle and measure angles.</p> <p><i>Grade 5</i></p> <p>H. Convert like measurement units within a given measurement system.</p> <p>I. Represent and interpret data.</p> <p>J. Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
Partially meets the review criteria or **undetermined**
No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes.
	B	Yes.
	C	Yes. This is closer to geometry than to data.
	D	Yes.
	E	Yes.
	F	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
Is the element grade level appropriate?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
Does the element promote higher student performance, learning and improved student achievement?	A	Yes.
	B	Yes.
	C	Yes. This is a critical connection between area and multiplication, which is also introduced in grade 3.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
Does the element support subject matter comprehension?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
Does the element promote essential knowledge in the subject?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
Does the element promote lifelong learning?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
Does the element promote the liberal arts tradition?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
Does the element promote college and career readiness?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
Does the element reduce the need for remediation?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.

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Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Number and Operations – Fractions</p> <p><i>Grade 3</i></p> <p>A. Develop understanding of fractions as numbers.</p> <p><i>Grade 4</i></p> <p>B. Extend understanding of fraction equivalence and ordering. C. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers. D. Understand decimal notation for fractions, and compare decimal fractions.</p> <p><i>Grade 5</i></p> <p>E. Use equivalent fractions as a strategy to add and subtract fractions. F. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote higher student performance, learning and improved student achievement ?	A	Yes. The idea of “unit fraction” began with the Egyptians and has a long history in mathematics research. The idea that $\frac{3}{5}$ is “three pieces of size $\frac{1}{5}$ ” serves as a grounding meaning that allows students to use their knowledge of whole numbers to make sense of fraction arithmetic.
	B	Yes.
	C	Yes. Note the use of unit fractions.
	D	Yes. Important connections to fractions.
	E	Yes. Note the use of unit fractions.
	F	Yes. Note the use of unit fractions and area models.
Does the element support subject matter comprehension ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote essential knowledge in the subject ?	A	Yes.
	B	Yes.
	C	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote lifelong learning ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote the liberal arts tradition ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote college and career readiness ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element reduce the need for remediation ?	A	Yes.
	B	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Definitions

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Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>RATIOS AND PROPORTIONAL RELATIONSHIPS</p> <p><i>Grade 6</i></p> <p>A. Understand ratio concepts and use ratio reasoning to solve problems</p> <p><i>Grade 7</i></p> <p>B. Analyze proportional relationships and use them to solve real-world and mathematical problems.</p>
Grade Level(s) Under Review	Grades 6 and 7

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A.	Yes.
	B.	Yes.
Is the element grade level appropriate ?	A.	Yes.
	B.	Yes.
Does the element promote higher student performance, learning and improved student achievement ?	A.	Yes.
	B.	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element support subject matter comprehension ?	A.	Yes.
	B.	Yes.
Does the element promote essential knowledge in the subject ?	A.	Yes. This is the centerpiece of middle grades mathematics, building upon fractions from grades 3-5 and undergirding functions, which begins formally in grade 8. Rather than “set up a proportion and cross multiply,” the intent is to write an equation and solve, which is central in algebra.
	B.	Yes. Proportional relationships are particular kinds of relationships between quantities: functions of the form $y = kx$. Critical here (and in grade 6) is the unit rate, which becomes the slope of the linear equation.
Does the element promote lifelong learning ?	A.	Yes.
	B.	Yes.
Does the element promote the liberal arts tradition ?	A.	Yes.
	B.	Yes.
Does the element promote college and career readiness ?	A.	Yes. This content is abundantly critical for college and careers.
	B.	Yes.
Does the element reduce the need for remediation ?	A.	Yes.
	B.	Yes.
Does the element meet the definition of a standard ?	A.	Yes.
	B.	Yes.

Ohio Standards Committee Review Form

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Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

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Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

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⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Statistics and Probability</p> <p><i>Grade 6</i></p> <p>A. Develop understanding of statistical variability. B. Summarize and describe distributions.</p> <p><i>Grade 7</i></p> <p>C. Use random sampling to draw inferences about a population. D. Draw informal comparative inferences about two populations. E. Investigate chance processes and develop, use, and evaluate probability models.</p> <p><i>Grade 8</i></p> <p>F. Investigate patterns of association in bivariate data.</p>
Grade Level(s) Under Review	Grades 6, 7 and 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Is the element grade level appropriate ?	A	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B	Yes.
	C	Undetermined. These ideas seem quite sophisticated for grade 7. The distinction between a sample and a data set is subtle.
	D	Undetermined. These ideas seem quite sophisticated for grade 7.
	E	Partial. A lot of new ideas at once. Might be better to begin probability informally in earlier grades and to postpone probabilities of compound events.
	F	Yes.
Does the element promote higher student performance, learning and improved student achievement?	A	Yes.
	B	Yes. Mean absolute deviation (MAD), although unfamiliar to many, is an intuitive measure of spread that supports understanding of standard deviation, introduced later. Furthermore, MAD is an immediate application of the idea of absolute value, also introduced in grade 6.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element support subject matter comprehension?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote essential knowledge in the subject?	A	Yes.
	B	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote lifelong learning ?	A	Yes. These standards launch the goal of statistical literacy at the end of high school, which is useful not just for science and social science but also for everyday life, such as reading the newspaper.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote the liberal arts tradition ?	A	Yes. Statistical literacy is important across the liberal arts, especially sciences and social sciences.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote college and career readiness ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F	Yes.
Does the element reduce the need for remediation?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Geometry</p> <p><i>Grade 6</i></p> <p>A. Solve real-world and mathematical problems involving area, surface area, and volume.</p> <p><i>Grade 7</i></p> <p>B. Draw, construct and describe geometrical figures and describe the relationships between them.</p> <p>C. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.</p> <p><i>Grade 8</i></p> <p>D. Understand congruence and similarity using physical models, transparencies, or geometry software.</p> <p>E. Understand and apply the Pythagorean theorem.</p> <p>F. Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.</p>
Grade Level(s) Under Review	Grades 6, 7 and 8

Review level**Yes** it meets the review criteria**Partially** meets the review criteria or **undetermined****No** it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes. Could be clearer that students need to be able to explain the area formulas.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes. Might help to point out that transformations do not require a coordinate system.
	E	Yes.
	F	Yes.
Does the element promote higher student performance, learning and improved student achievement ?	A	Yes.
	B	Yes. The scaling ideas undergird similarity. Drawing from given conditions undergirds congruence. Similarity and congruence are developed more formally in grade 8 and high school.
	C	Yes.
	D	Yes. Basing congruence and similarity on transformations makes the ideas both accessible and appropriately precise, neither of which is the case for typical treatments.
	E	Yes. The phrase “explain a proof” can help bridge the gap between informal justification and formal proof. And distance in the coordinate plane is an application of the Pythagorean Theorem rather than a formula to be memorized.
	F	Yes.
Does the element support subject matter comprehension ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote essential knowledge in the subject ?	A	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote lifelong learning?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote the liberal arts tradition?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element promote college and career readiness?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element reduce the need for remediation?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	
Element Under Review (Cluster)	<p>Expressions and Equations</p> <p><i>Grade 6</i></p> <ul style="list-style-type: none"> A. Apply and extend previous understandings of arithmetic to algebraic expressions. B. Reason about and solve one-variable equations and inequalities. C. Represent and analyze quantitative relationships between dependent and independent variables. <p><i>Grade 7</i></p> <ul style="list-style-type: none"> D. Use properties of operations to generate equivalent expressions. E. Solve real-life and mathematical problems using numerical and algebraic expressions and equations. <p><i>Grade 8</i></p> <ul style="list-style-type: none"> F. Work with radicals and integer exponents. G. Understand the connections between proportional relationships, lines, and linear equations. H. Analyze and solve linear equations and pairs of simultaneous linear equations.
Grade Level(s) Under Review	Grades 6, 7 and 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes.
	B	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
Is the element grade level appropriate?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes. Note that radicals are introduced in grade 8 (and not earlier) because it the Pythagorean Theorem makes the idea necessary.
	G	Yes.
	H	Yes.
Does the element promote higher student performance, learning and improved student achievement?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes. Rules of exponents (8.EE.1) would be improved by including that the meaning of 0 and negative exponents follows from extending the properties of whole-number exponents to negative exponents.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G	Yes. Important connection between algebra and geometry: Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane.
	H	Yes.
Does the element support subject matter comprehension ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
Does the element promote essential knowledge in the subject ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
Does the element promote lifelong learning ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
Does the element promote the liberal arts tradition?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
Does the element promote college and career readiness?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
Does the element reduce the need for remediation?	A	Yes.
	B	Yes.
	C	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	Name _____ Date _____
Element Under Review (Cluster)	Functions <i>Grade 8</i> A. Define, evaluate, and compare functions. B. Use functions to model relationships between quantities.
Grade Level(s) Under Review	Grade 8

Review level **Yes** it meets the review criteria
Partially meets the review criteria or **undetermined**
No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A.	Yes.
	B.	Yes.
Is the element grade level appropriate ?	A.	Yes.
	B.	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote higher student performance, learning and improved student achievement?	A.	Yes. The key idea here in grade 8 is distinguishing direct proportions (grades 6 and 7) from linear functions that are not direct proportions. It is wise not to require function notation at this point and wise also to talk about input and output values rather than the formal language of domain and range. And important habit is explicit here: using symbolic, numerical, graphical, and verbal representations of relationships between quantities.
	B.	Yes.
Does the element support subject matter comprehension?	A.	Yes.
	B.	Yes.
Does the element promote essential knowledge in the subject?	A.	Yes.
	B.	Yes.
Does the element promote lifelong learning?	A.	Yes.
	B.	Yes.
Does the element promote the liberal arts tradition?	A.	Yes.
	B.	Yes.
Does the element promote college and career readiness?	A.	Yes.
	B.	Yes.
Does the element reduce the need for remediation?	A.	Yes.
	B.	Yes.
Does the element meet the definition of a standard?	A.	Yes.
	B.	Yes.

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	Name _____ Date _____
Element Under Review (Cluster)	<p>The Number System</p> <p><i>Grade 6</i></p> <p>A. Apply and extend previous understandings of multiplication and division to divide fractions by fractions.</p> <p>B. Compute fluently with multi-digit numbers and find common factors and multiples.</p> <p>C. Apply and extend previous understandings of numbers to the system of rational numbers.</p> <p><i>Grade 7</i></p> <p>D. Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.</p> <p><i>Grade 8</i></p> <p>E. Know that there are numbers that are not rational, and approximate them by rational numbers.</p>
Grade Level(s) Under Review	Grades 6, 7 and 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E	Yes.
Is the element grade level appropriate ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
Does the element promote higher student performance, learning and improved student achievement ?	A	Yes. These standards are the culmination of decimal and fraction arithmetic (particularly division) from grades 4 and 5 and also the beginning of the rational numbers and the idea of a number system.
	B	Yes. (Same.)
	C	Yes. In the previous standards, arithmetic of negative numbers was introduced in grade 5. Separating the idea of negative numbers (grade 6) from their arithmetic in grade 7 is an opportunity to promote better understanding than has been typical.
	D	Yes. Note the progression from long division (grade 6, cluster B), fractions as repeating decimals (grade 7, cluster D), and then the introduction of irrational numbers as non-repeating, non-terminating decimals (grade 8, cluster E).
	E	Yes.
Does the element support subject matter comprehension ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
Does the element promote essential knowledge in the subject ?	A	Yes.
	B	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C	Yes.
	D	Yes.
	E	Yes.
Does the element promote lifelong learning ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
Does the element promote the liberal arts tradition ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
Does the element promote college and career readiness ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
Does the element reduce the need for remediation ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	
Element Under Review (Cluster)	<p>ALGEBRA</p> <p><i>SEEING STRUCTURE IN EXPRESSIONS</i></p> <p>A. Interpret the structure of expressions B. Write expressions in equivalent forms to solve problems</p> <p><i>ARITHMETIC WITH POLYNOMIALS AND RATIONAL EXPRESSIONS</i></p> <p>C. Perform arithmetic operations on polynomials D. Understand the relationship between zeros and factors of polynomials E. Use polynomial identities to solve problems F. Rewrite rational expressions</p> <p><i>CREATING EQUATIONS</i></p> <p>G. Create equations that describe numbers or relationships</p> <p><i>REASONING WITH EQUATIONS AND INEQUALITIES</i></p> <p>H. Understand solving equations as a process of reasoning and explain the reasoning I. Solve equations and inequalities in one variable J. Solve systems of equations K. Represent and solve equations and inequalities graphically</p>
Grade Level(s) Under Review	High School

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F	Yes. Might help to have more examples regarding the fluency expected with rational expressions, which is usually very difficult for students because of weak fraction understandings. For college readiness, the examples should be just hard enough to generalize fraction understandings.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
Is the element grade level appropriate?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
Does the element promote higher student performance, learning and improved student achievement?	A	Yes. Seeing structure in expressions is a critical idea for college readiness, as is the realization that different forms of an expression reveal different features, thus there is no "simplest" form.
	B	Yes.
	C	Yes. Useful connection to arithmetic of integers.
	D	Yes. Could be improved with explicit attention to the zero product property.
	E	Yes.
	F	Yes.
	G	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	H	Yes. Important to notice that many of these standards are about reasoning, explaining, and solving problems, not merely manipulating symbols.
	I	Yes.
	J	Yes.
	K	Yes. A-REI.11 is a critical connection between functions and algebra that can potentially unite the many different equation-solving techniques.
Does the element support subject matter comprehension ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
Does the element promote essential knowledge in the subject ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
Does the element promote lifelong learning ?	A	Yes.
	B	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
Does the element promote the liberal arts tradition?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
Does the element promote college and career readiness?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	K	Yes.
Does the element reduce the need for remediation?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	
Element Under Review (Cluster)	<p>FUNCTIONS</p> <p><i>INTERPRETING FUNCTIONS</i></p> <p>A. Understand the concept of a function and use function notation</p> <p>B. Interpret functions that arise in applications in terms of the context</p> <p>C. Analyze functions using different representations</p> <p><i>BUILDING FUNCTIONS</i></p> <p>D. Build a function that models a relationship between two quantities</p> <p>E. Build new functions from existing functions</p> <p><i>LINEAR, QUADRATIC, AND EXPONENTIAL MODELS</i></p> <p>F. Construct and compare linear, quadratic, and exponential models and solve problems</p> <p>G. Interpret expressions for functions in terms of the situation they model</p> <p><i>TRIGONOMETRIC FUNCTIONS</i></p> <p>H. Extend the domain of trigonometric functions using the unit circle</p> <p>I. Model periodic phenomena with trigonometric functions</p> <p>J. Prove and apply trigonometric identities</p>
Grade Level(s) Under Review	High School

Review level

Yes it meets the review criteria

Partially meets the review criteria or **undetermined**

No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F	Yes.
	G	Yes.
	H	Yes. Might help to emphasize that trigonometric functions are expected of all students so that they can model periodic phenomena (cluster I). No need to go beyond that goal for all students.
	I	Yes.
	J	Yes.
Is the element grade level appropriate?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
Does the element promote higher student performance, learning and improved student achievement?	A	Yes. Appreciate the important connecting idea that sequences (patterns) are functions. But teachers too often assume (incorrectly) that sequences and series must go together.
	B	Yes. Average rate of change is a useful and important idea for understanding, discussing, and explaining the distinction between linear and nonlinear functions. And this undergirds calculus.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element support subject matter comprehension?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
Does the element promote essential knowledge in the subject?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
Does the element promote lifelong learning?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote the liberal arts tradition?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
Does the element promote college and career readiness?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
Does the element reduce the need for remediation?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

Each committee created in division (I)(1) of this section shall review the academic content standards for its respective subject area to ensure that such standards are **clear, concise, and appropriate for each grade level** and **promote higher student performance, learning, subject matter comprehension, and improved student achievement**. Each committee also shall review whether the standards for its respective subject area **promote essential knowledge in the subject, lifelong learning, the liberal arts tradition, and college and career readiness** and whether the standards **reduce remediation**.

Definitions

Clear – Easily understood; free from doubt or confusion¹

College and Career Readiness – remediation-free status; prepared to enroll in non-remedial, credit-bearing college courses leading to a postsecondary degree or other credential²

Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

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⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

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⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

⁸ Ohio Revised Code 333.041: <http://codes.ohio.gov/orc/3333.041>

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	
Element Under Review (Cluster)	<p>GEOMETRY</p> <p><i>CONGRUENCE</i></p> <p>A. Experiment with transformations in the plane B. Understand congruence in terms of rigid motions C. Prove geometric theorems D. Make geometric constructions</p> <p><i>SIMILARITY, RIGHT TRIANGLES, AND TRIGONOMETRY</i></p> <p>E. Understand similarity in terms of similarity transformations F. Prove theorems involving similarity G. Define trigonometric ratios and solve problems involving right triangles H. Apply trigonometry to general triangles</p> <p><i>CIRCLES</i></p> <p>I. Understand and apply theorems about circles J. Find arc lengths and areas of sectors of circles</p> <p><i>EXPRESSING GEOMETRIC PROPERTIES WITH EQUATIONS</i></p> <p>K. Translate between the geometric description and the equation for a conic section L. Use coordinates to prove simple geometric theorems algebraically</p> <p><i>GEOMETRIC MEASUREMENT AND DIMENSION</i></p> <p>M. Explain volume formulas and use them to solve problems N. Visualize relationships between two-dimensional and three-dimensional objects</p> <p><i>MODELING WITH GEOMETRY</i></p> <p>O. Apply geometric concepts in modeling situations</p>
Grade Level(s) Under Review	High School

Review level**Yes** it meets the review criteria**Partially** meets the review criteria or **undetermined****No** it does not meet the review criteria

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes. Might help to mention again that transformations do not require a coordinate system.
	B	Yes.
	C	Yes. Teachers sometimes don't see that much of familiar high school geometry follows from the congruence and similarity criteria, and thus theorems do not need to be proven from transformations when they can be proven from triangle congruence or similarity. Difficult, also, for teachers to imagine that proofs do not need to be in two-column format. (These kinds of points are made in the narrative overview.)
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
	L	Yes.
	M	Yes.
	N	Yes.
O	Yes.	
Is the element grade level appropriate ?	A	Yes. Perhaps there are so many standards in the Congruence domain (G-CO) because of overlap with grade 8.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
	L	Yes.
	M	Yes.
	N	Yes.
	O	Yes.
Does the element promote higher student performance, learning and improved student achievement?	A	Yes. Basing congruence and similarity on transformations makes the ideas both accessible and appropriately precise, neither of which is the case for typical treatments.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
	L	Yes.
	M	Yes.
	N	Yes.
	O	Yes.
Does the element support subject matter comprehension?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
	L	Yes.
	M	Yes.
	N	Yes.
	O	Yes.
Does the element promote essential knowledge in the subject?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
	L	Yes.
	M	Yes.
	N	Yes.
O	Yes.	
Does the element promote lifelong learning?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
	L	Yes.
	M	Yes.
	N	Yes.
	O	Yes.
Does the element promote the liberal arts tradition?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
	L	Yes.
	M	Yes.
	N	Yes.
O	Yes.	
Does the element promote college and career readiness?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
	L	Yes.
	M	Yes.
	N	Yes.
	O	Yes.
Does the element reduce the need for remediation?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
	L	Yes.
	M	Yes.
	N	Yes.
O	Yes.	
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
	J	Yes.
	K	Yes.
	L	Yes.
	M	Yes.
	N	Yes.
	O	Yes.

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	
Element Under Review (Cluster)	<p>NUMBER AND QUANTITY</p> <p><i>THE REAL NUMBER SYSTEM</i></p> <p>A. Extend the properties of exponents to rational exponents B. Use properties of rational and irrational numbers.</p> <p><i>QUANTITIES</i></p> <p>C. Reason quantitatively and use units to solve problems</p> <p><i>THE COMPLEX NUMBER SYSTEM</i></p> <p>D. Perform arithmetic operations with complex numbers E. Represent complex numbers and their operations on the complex plane F. Use complex numbers in polynomial identities and equations</p> <p><i>VECTOR AND MATRIX QUANTITIES</i></p> <p>G. Represent and model with vector quantities. H. Perform operations on vectors. I. Perform operations on matrices and use matrices in applications.</p>
Grade Level(s) Under Review	High School

Review level **Yes** it meets the review criteria
Partially meets the review criteria or **undetermined**
No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	H	Yes.
	I	Yes.
Is the element grade level appropriate?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote higher student performance, learning and improved student achievement?	A	Yes. Critical ideas here: the meanings of rational exponents follow from the rules of integer exponents and they connect to radicals.
	B	Yes. Appreciate the attention to number systems and the distinction between rational and irrational numbers. Good opportunities for reasoning and proof about number ideas (rather than merely in geometry).
	C	Yes. Appreciate the attention to units (dimensional analysis) in modeling situations.
	D	Yes. Subtle yet important distinctions here between what is expected of all students and the additional mathematics that might be taught to some students. For example, all students are expected to add subtract and multiply complex numbers, as this is what is necessary to verify that a particular complex number is the solution to a polynomial equation. Thus division of complex numbers can be reserved for a Precalculus course for interested students.
	E	Yes.
	F	Yes.
	G	Yes. Vectors and matrices are excluded from the expectations for all students because it was difficult to describe a coherent set of expectations that would not take significant time away from other content that is more critical for college and career readiness.
	H	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	I	Yes.
Does the element support subject matter comprehension?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote essential knowledge in the subject?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote lifelong learning?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote the liberal arts tradition?	A	Yes.
	B	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote college and career readiness?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element reduce the need for remediation?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	
Element Under Review (Cluster)	<p>STATISTICS AND PROBABILITY</p> <p><i>INTERPRETING CATEGORICAL AND QUANTITATIVE DATA</i></p> <p>A. Summarize, represent, and interpret data on a single count or measurement variable</p> <p>B. Summarize, represent, and interpret data on two categorical and quantitative variables</p> <p>C. Interpret linear models</p> <p><i>MAKING INFERENCES AND JUSTIFYING CONCLUSIONS</i></p> <p>D. Understand and evaluate random processes underlying statistical experiments</p> <p>E. Make inferences and justify conclusions from sample surveys, experiments and observational studies</p> <p><i>CONDITIONAL PROBABILITY AND THE RULES OF PROBABILITY</i></p> <p>F. Understand independence and conditional probability and use them to interpret data</p> <p>G. Use the rules of probability to compute probabilities of compound events in a uniform probability model</p> <p><i>USING PROBABILITY TO MAKE DECISIONS</i></p> <p>H. Calculate expected values and use them to solve problems</p> <p>I. Use probability to evaluate outcomes of decisions</p>
Grade Level(s) Under Review	High School

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Yes.
	B	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Is the element grade level appropriate?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote higher student performance, learning and improved student achievement?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element support subject matter comprehension?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes. Notice that this is statistical inference for all, based on simulation rather than normal theory.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote essential knowledge in the subject?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes. Notice that this is statistical inference for all, based on simulation rather than normal theory.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote lifelong learning?	A	Yes. One can reasonably argue that, for citizenship and everyday life, statistics sense is more important than algebraic fluency. Thus these standards represent a potential educational improvement for our students.
	B	Yes. Same.
	C	Yes. Same.
	D	Yes. Same.
	E	Yes. Same.
	F	Yes. Same.
	G	Yes. Same.
	H	Yes.
	I	Yes.
Does the element promote the liberal arts tradition?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G	Yes.
	H	Yes.
	I	Yes.
Does the element promote college and career readiness?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element reduce the need for remediation?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.
Does the element meet the definition of a standard?	A	Yes.
	B	Yes.
	C	Yes.
	D	Yes.
	E	Yes.
	F	Yes.
	G	Yes.
	H	Yes.
	I	Yes.

Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	Counting and Cardinality A. Know number names and the count sequence. B. Count to tell the number of objects. C. Compare numbers.
Grade Level(s) Under Review	Kindergarten

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	No
	B	No
	C	No
Is the element grade level appropriate ?	A	Undermined
	B	Undermined
	C	Undermined
Does the element promote higher student performance, learning and improved student achievement ?	A	No
	B	No
	C	No
Does the element support subject matter comprehension ?	A	Not at all
	B	Not at all
	C	Not at all

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote essential knowledge in the subject?	A	No, quite the contrary, non-math.
	B	Vague, imprecise language is used, as well as misused.
	C	
Does the element promote lifelong learning?	A	No, it promotes total math confusion.
	B	No, it promotes total math confusion.
	C	No, it promotes total math confusion.
Does the element promote the liberal arts tradition?	A	No, it undermines the beauty of real math.
	B	No, it undermines the beauty of real math.
	C	No, it undermines the beauty of real math.
Does the element promote college and career readiness?	A	Not in any way. I could imagine only for a career in some "Educational" quango perhaps.
	B	
	C	
Does the element reduce the need for remediation?	A	No, definitely not, it promotes it.
	B	No, definitely not, it promotes it.
	C	No, definitely not, it promotes it.
Does the element meet the definition of a standard?	A	No-Vagueness abounds.
	B	No-Vagueness abounds.
	C	No-Vagueness abounds.

Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	Deb G.
Element Under Review (Theme, Area, Strand)	Geometry Kindergarten <ol style="list-style-type: none"> a. Identify and describe shapes. b. Analyze, compare, create and compose shapes. Grade 1 <ol style="list-style-type: none"> c. Reason with shapes and their attributes. Grade 2 <ol style="list-style-type: none"> d. Reason with shapes and their attributes.
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	No
	B	No
	C	No
	D	No
Is the element grade level appropriate ?	A	Undermined
	B	Undermined
	C	Undermined
	D	Undermined
Does the element promote higher student performance, learning and improved student achievement ?	A	No
	B	No
	C	No
	D	No
Does the element support subject matter comprehension ?	A	No at all, on the contrary, it promotes confusion
	B	No at all, on the contrary, it promotes confusion
	C	No at all, on the contrary, it promotes confusion
	D	No at all, on the contrary, it promotes confusion
Does the element promote essential knowledge in the subject ?	A	No, it destroys a precise subject with vague, fuzzy, imprecise language.
	B	No, it destroys a precise subject with vague, fuzzy, imprecise language.
	C	No, it destroys a precise subject with vague, fuzzy, imprecise language.

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Standards Committee Review Form

Review Criteria	Review Level	Notes
	D	No, it destroys a precise subject with vague, fuzzy, imprecise language.
Does the element promote lifelong learning ?	A	No, it destroys the beauty and logic that would appeal to a naturally logical child's mind.
	B	No, it destroys the beauty and logic that would appeal to a naturally logical child's mind.
	C	No, it destroys the beauty and logic that would appeal to a naturally logical child's mind.
	D	No, it destroys the beauty and logic that would appeal to a naturally logical child's mind.
Does the element promote the liberal arts tradition ?	A	No, it destroys even the classical conception of mathematics as a precise logical discipline.
	B	No, it destroys even the classical conception of mathematics as a precise logical discipline.
	C	No, it destroys even the classical conception of mathematics as a precise logical discipline.
	D	No, it destroys even the classical conception of mathematics as a precise logical discipline.
Does the element promote college and career readiness ?	A	No, sadly, quite the opposite.
	B	No, sadly, quite the opposite.
	C	No, sadly, quite the opposite.
	D	No, sadly, quite the opposite.
Does the element reduce the need for remediation ?	A	No, it creates the need for remediation.
	B	No, it creates the need for remediation.
	C	No, it creates the need for remediation.
	D	No, it creates the need for remediation.
Does the element meet the definition of a standard ?	A	Not in any normal sense of that word.
	B	Not in any normal sense of that word.
	C	Not in any normal sense of that word.
	D	Not in any normal sense of that word.

Ohio Standards Committee Review Form

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Definitions

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Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

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Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

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Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>RATIOS AND PROPORTIONAL RELATIONSHIPS</p> <p><i>Grade 6</i></p> <p>A. Understand ratio concepts and use ratio reasoning to solve problems</p> <p><i>Grade 7</i></p> <p>B. Analyze proportional relationships and use them to solve real-world and mathematical problems.</p>
Grade Level(s) Under Review	Grades 6 and 7

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A.	No, wordy and prescriptive, yet vague and unclear as to meaning. Here is an example: “Use ratio reasoning (What is “ratio reasoning”? Why not leave off the first 4 words and simply ask students to convert measurement units?) to convert measurement units; manipulate and transform units appropriately (appropriately vague?) when multiplying or dividing quantities (which quantities?).” 6.RP 3d

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B.	As in A. above, element is wordy and prescriptive, yet uses vague language such as “recognize”, or “explain...in terms of the situation.”
Is the element grade level appropriate ?	A.	Not as written
	B.	Not as written
Does the element promote higher student performance, learning and improved student achievement ?	A.	Definitely not
	B.	No.
Does the element support subject matter comprehension ?	A.	No, it does not respect the traditional distinction between a ratio and a rate. In standard mathematical terminology, a “rate” problem has to do with elapsed time. It is not descriptive of any proportional relationship, as is indicated in these CC standards.
	B.	No.
Does the element promote essential knowledge in the subject ?	A.	Not as written. It prioritizes “understanding” and “reasoning”, at the expense of traditional mathematical ability
	B.	Not as written.
Does the element promote lifelong learning ?	A.	No, it overcomplicates a relatively simple concept, and is certain to confuse and frustrate any learner
	B.	Ditto

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote the liberal arts tradition?	A.	No, it uses its own definitions of traditional math concepts and terms (ratio, rate, unit rate), as well as waters down the development of facility with the standard math symbolic system, by specifying that reasoning about models such as tables, tape diagrams, and double number line diagrams can be used as alternatives to equations. The emphasis on physical models avoids engaging the abstract thinking abilities which a liberal arts (as opposed to a vocational) orientation would do at this stage of learning.
	B.	Again, there is a high reliance on visual aids – tables, graphs, and diagrams, or words that are apparently not specifically math terms – “verbal descriptions”. Visual aids or models have their place in the initial stages of learning, but must not be allowed to become “methods”. This is math, not modeling class.
Does the element promote college and career readiness?	A.	No. It promotes vague, confused thinking.
	B.	Ditto.
Does the element reduce the need for remediation?	A.	Not possible to say without further information.
	B.	Ditto
Does the element meet the definition of a standard?	A.	No. It involves many elements of pedagogy (“understand the concept”, “use ratio reasoning”, “use tables to compare”, etc.), which attempt to direct the child’s mind into the desired channels – all the while remaining vague and poorly defined.
	B.	No, it is vague – how can one measure whether a student has “recognized” something? It is nevertheless prescriptive, “Explain what a point (x,y) on the graph of a proportional relationship means in terms of the situation (?), with special attention to the points (0,0) and (1,r) where r is the unit rate.” My, my.

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Geometry</p> <p><i>Grade 6</i></p> <p>A. Solve real-world and mathematical problems involving area, surface area, and volume.</p> <p><i>Grade 7</i></p> <p>B. Draw, construct and describe geometrical figures and describe the relationships between them.</p> <p>C. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.</p> <p><i>Grade 8</i></p> <p>D. Understand congruence and similarity using physical models, transparencies, or geometry software.</p> <p>E. Understand and apply the Pythagorean theorem.</p> <p>F. Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.</p>
Grade Level(s) Under Review	Grades 6, 7 and 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Please see Appendices A and B for all comments on this section. Basically the answer to all questions is, “No.”
	B	
	C	
	D	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E	
	F	
Is the element grade level appropriate?	A	
	B	
	C	
	D	
	E	
	F	
Does the element promote higher student performance, learning and improved student achievement?	A	
	B	
	C	
	D	
	E	
	F	
Does the element support subject matter comprehension?	A	
	B	
	C	
	D	
	E	
	F	
Does the element promote essential knowledge in the subject?	A	
	B	
	C	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D	
	E	
	F	
Does the element promote lifelong learning?	A	
	B	
	C	
	D	
	E	
	F	
Does the element promote the liberal arts tradition?	A	
	B	
	C	
	D	
	E	
	F	
Does the element promote college and career readiness?	A	
	B	
	C	
	D	
	E	
	F	
Does the element reduce the need for remediation?	A	
	B	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C	
	D	
	E	
	F	
Does the element meet the definition of a standard?	A	
	B	
	C	
	D	
	E	
	F	

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	
Element Under Review (Cluster)	<p>Expressions and Equations</p> <p><i>Grade 6</i></p> <ul style="list-style-type: none"> A. Apply and extend previous understandings of arithmetic to algebraic expressions. B. Reason about and solve one-variable equations and inequalities. C. Represent and analyze quantitative relationships between dependent and independent variables. <p><i>Grade 7</i></p> <ul style="list-style-type: none"> D. Use properties of operations to generate equivalent expressions. E. Solve real-life and mathematical problems using numerical and algebraic expressions and equations. <p><i>Grade 8</i></p> <ul style="list-style-type: none"> F. Work with radicals and integer exponents. G. Understand the connections between proportional relationships, lines, and linear equations. H. Analyze and solve linear equations and pairs of simultaneous linear equations.
Grade Level(s) Under Review	Grades 6, 7 and 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	Please see Appendices A and B for all comments on this section.
	B	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C	
	D	
	E	
	F	
	G	
	H	
Is the element grade level appropriate?	A	
	B	
	C	
	D	
	E	
	F	
	G	
	H	
Does the element promote higher student performance, learning and improved student achievement?	A	
	B	
	C	
	D	
	E	
	F	
	G	
	H	
Does the element support subject matter comprehension?	A	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B	
	C	
	D	
	E	
	F	
	G	
	H	
	Does the element promote essential knowledge in the subject?	A
B		
C		
D		
E		
F		
G		
H		
Does the element promote lifelong learning?	A	
	B	
	C	
	D	
	E	
	F	
	G	
	H	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote the liberal arts tradition?	A	
	B	
	C	
	D	
	E	
	F	
	G	
	H	
Does the element promote college and career readiness?	A	
	B	
	C	
	D	
	E	
	F	
	G	
	H	
Does the element reduce the need for remediation?	A	
	B	
	C	
	D	
	E	
	F	
	G	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	H	
Does the element meet the definition of a standard?	A	
	B	
	C	
	D	
	E	
	F	
	G	
	H	

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Standards Committee Review Form

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Committee Member Name/Date	
Element Under Review (Cluster)	<p>Functions</p> <p><i>Grade 8</i></p> <ul style="list-style-type: none"> A. Define, evaluate, and compare functions. B. Use functions to model relationships between quantities.
Grade Level(s) Under Review	Grade 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise?	A.	Please see attached appendices A and B for all comments for this section.
	B.	
Is the element grade level appropriate?	A.	
	B.	
Does the element promote higher student performance, learning and improved student achievement?	A.	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B.	
Does the element support subject matter comprehension ?	A.	
	B.	
Does the element promote essential knowledge in the subject ?	A.	
	B.	
Does the element promote lifelong learning ?	A.	
	B.	
Does the element promote the liberal arts tradition ?	A.	
	B.	
Does the element promote college and career readiness ?	A.	
	B.	
Does the element reduce the need for remediation ?	A.	
	B.	
Does the element meet the definition of a standard ?	A.	
	B.	

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Standards Committee Review Form

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Committee Member Name/Date	
Element Under Review (Cluster)	<p>The Number System</p> <p><i>Grade 6</i></p> <ul style="list-style-type: none"> A. Apply and extend previous understandings of multiplication and division to divide fractions by fractions. B. Compute fluently with multi-digit numbers and find common factors and multiples. C. Apply and extend previous understandings of numbers to the system of rational numbers. <p><i>Grade 7</i></p> <ul style="list-style-type: none"> D. Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. <p><i>Grade 8</i></p> <ul style="list-style-type: none"> E. Know that there are numbers that are not rational, and approximate them by rational numbers.
Grade Level(s) Under Review	Grades 6, 7 and 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A	
	B	
	C	
	D	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E	
Is the element grade level appropriate ?	A	
	B	
	C	
	D	
	E	
Does the element promote higher student performance, learning and improved student achievement ?	A	
	B	
	C	
	D	
	E	
Does the element support subject matter comprehension ?	A	
	B	
	C	
	D	
	E	
Does the element promote essential knowledge in the subject ?	A	
	B	
	C	
	D	
	E	
Does the element promote lifelong learning ?	A	
	B	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C	
	D	
	E	
Does the element promote the liberal arts tradition?	A	
	B	
	C	
	D	
	E	
Does the element promote college and career readiness?	A	
	B	
	C	
	D	
	E	
Does the element reduce the need for remediation?	A	
	B	
	C	
	D	
	E	
Does the element meet the definition of a standard?	A	
	B	
	C	
	D	
	E	

Appendix A

Grades K-8 Summary Comments Deborah K. Guebert
Ohio House Appointee
Common Core Math Standards Review Committee July 2015

The introduction to the Grade 6 Mathematics section of E. D. Hirsch’s highly regarded Core Knowledge Sequence, intended to provide a guide to essential content for each grade level, states, “Mathematics has its own vocabulary and patterns of thinking. It is a discipline with its own language and conventions. Thus, while some lessons may offer occasional opportunities for linking mathematics to other disciplines, it is critically important to attend to math as math.”

This sounds so obvious as to not require a moment’s thought, yet it is a principle stood on its head by the ideologically driven Common Core Math Standards, now relabeled Ohio’s New Learning Standards. One of the signal failures of the deliberately casual, develop-it-yourself approach that is embedded in the Common Core (CC) standards, is a lack of respect for the precision of standard math terminology and methodology. The standards even go so far as to specify the use of “informal language.” The resulting ambiguity resulting from the substitution of vague “informal” language for clearly defined math vocabulary (and/or the sloppy misuse of even standard math terms) can only make it nearly impossible for a child to appreciate the beauty of precision, order, and logic, which characterizes authentic mathematics. For specific examples of these and other aspects mentioned below, please see Appendix B.

Young children crave clarity, logic, and the comfort of structure, as anyone with parenting experience can testify. Too much ambiguity frustrates and confuses them, in learning situations as well as in daily life. Their “gut” response to the vagaries of the progressive approach is almost inevitably a deep-seated aversion to that which has been presented to them as “math”. Sadly, it is for the simple reason that it was never really math at all.

By the time children reach Grade 3 or 4, the cause is already all but lost, not only because “math” has become odious to them, but because they still lack the solid foundation of basic math knowledge and practical experience with it, that would have put them on track to succeed at a more advanced level. In the federally promoted Common Core Standards, the simple standard algorithms (methods) for doing basic arithmetic (adding, subtracting, multiplying, and dividing) are withheld from the hapless student until the 5th Grade (for addition) or 6th Grade (for the remaining three).

For the 4 or 5 years before “enlightenment”, the child has been forced to invent or discover his/her own Stone Age methods, most likely in a group setting with his/her equally frustrated and ignorant peers. And let us not forget to mention the “facilitation” role of the adult in the room, who was once known as the teacher.

Throwing the would-be learner into the deep end of a pool of undifferentiated primitive “strategies” could be considered cruel and unusual punishment. Certainly it flies in the face of everything that we know about early childhood and age appropriate learning. Yet the Common Core Standards insist on this approach, apparently in an attempt to realize the utopian goal of equalizing the achievement potential of every child. In the quest for this imaginary ideal, any real opportunity for a child to develop his/her logical mind has been sacrificed.

The real life result of this mission impossible is, in fact, the diametric opposite of the supposed intention. Those from homes with the least resources will suffer the most, as these less privileged children, unlike their more advantaged peers, are entirely dependent on what the public school system has to offer. This is the sad reality of such utopian schemes, concocted in hothouse academic environments by zealous theorists, theorists who apparently have only tenuous contact with normal human beings.

Rather than depend on ivory tower theories allied to John Dewey’s progressive educational

philosophy of the previous century, and designed to transform society by using education to create a new type of socially cooperative ideal human being, (misguided efforts like John Goodlad's Education for Everyone, Benjamin Bloom's Mastery Learning, and William Spady's Transformational Outcome Based Education), with monotonous records of utter failure, we have only to examine the straight forward, time-honored ways that children have learned successfully for generations. A child today still progresses through the same stages of physical development – sitting up, crawling, pulling to a stand, walking, running and so on - as a child at any point in recorded history, and there is no reason to believe that the stages of mental development have altered significantly either. Although the endpoint of mathematical learning in this technologically advanced age may have moved forward, yet in terms of age appropriate stages of learning, we depart from our heritage of accumulated wisdom and experience at our peril.

For further reading, please see the references below.

John Dewey and the High Tide of American Liberalism, by Alan Ryan

The Cult of Common Core, by Brad McQueen (a fifth grade teacher in Arizona)

The Road to Serfdom, by Friedrich Hayek

Fear of Knowledge: against relativism and constructivism, by Paul Boghossian

Credentialed to Destroy: How and why education became a weapon, by Robin S. Eubanks

Online articles by Barry Garelick, onetime EPA statistician who retrained as a math teacher

Online articles by James Milgram, member of the math validation committee for the Common Core standards And much more, on the internet and otherwise, available to any searcher after truth

Appendix B

Reasons for Appendix A comments on the Common Core/Ohio's New Learning Math Standards

Deborah K. Guebert Ohio House Appointee
Common Core Math Standards Review Committee July 2015

The repetition of phrases like “**students understand**”, “**students recognize**”, “**students grasp**”, “**students use**”, “**students choose**”, and “**students show**” (Grade 8 Introduction) and “**students discuss, develop, and justify**” (Grade 6 Introduction (4)), demonstrate the standards writers’ obsession with student-directed inquiry as the primary learning method. (Here and elsewhere, the **bold** print is my device to draw attention to particular words, usually quoted from the C. C. Standards, on which my comments are based.) There are numerous phrases of this type throughout the standards. In addition to the standards’ emphasis on learning being **student**-generated, there is also the clear prioritization of concept (**understand, recognize, grasp, show**) over actual problem-solving practice. Words like “**explain**”, “**discuss**”, and “**interpret**” also figure prominently. (6.NS.7b and elsewhere)

Another ideological issue is revealed by the constant repetition of “**real world and mathematical problems**”, which sets up a false dichotomy between “**real world**” problems and “**mathematical**” problems. All problems which have a mathematical solution are by definition “mathematical” problems. Ignoring this obvious fact, the standards writers appear to choose this juxtaposition in order to convey their desire to emphasize application, a choice which is very much in accord with the vocational and workplace emphasis of the Common Core system. Contrary to the liberal arts approach, which the “college prep” track was once designed to forward, the system promoted by the progressivist writers of the C.C. standards is oriented towards workforce development. Rather than promoting the development of abstract thinking ability, as their publicity and paid lobbyists proclaim, the C. C. standards push the concrete and the applied, through the ubiquitous use of physical models, pictures, diagrams, and so on, far beyond the introductory stages where they might be appropriate.

Classic liberal arts mathematics, on the other hand, utilizes a purpose-built symbolic language which, in addition to developing abstract thinking ability, also allows the short hand expression of ideas which would be extremely cumbersome, awkward, and imprecisely defined if expressed in regular English vocabulary. When the subject is designated as “mathematics”, surely the goal is for students to learn and become fluent users of the precisely defined math symbols and vocabulary that allow both the efficient and unambiguous communication of mathematical ideas, as well as their use in calculation.

Even with the obvious Common Core (C.C.) preference for generalist vocabulary in the lower grades, one might expect more respect for standard mathematical vocabulary and conventions after the initial introductory stage. Unfortunately, this expectation is not fulfilled. As late as Grade 8, we still find “**use informal**” language or arguments (8.G.5, 8.NS.1, Grade 8 Intro (1)). We find also such statements as: “Investigate patterns of **association**....” (8.SP), which sounds more like a detective’s task than a mathematical assignment, and “**Interpret** the rate of change...in terms of the **situation** it models....”(8.F.4), which again uses vague and ambiguous language.

Examples of vague, fuzzy language use abound, and sometimes the intended meaning is completely destroyed by careless word choice. When speaking of the results of spatial transformations, for instance, we find this kind of description: “Lines are **taken to** lines”, “Angles are **taken to** angles”, and “Parallel lines are **taken to** parallel lines.”(8.G.1) “**Taken to**” is language more appropriate for describing how a child got to school, rather than a mathematical transformation, where “**mapped into**” or even “**taken into**”, would express a more precise meaning. Another example of unclear language is the directive to “sketch a graph...that has been **described verbally**.” “**Described verbally**” appears to be a coded request for the Common Core preferred “**informal language**”, or may be included to promote the achievement of some other unstated ideological goal, but it certainly does not promote the development of any kind of traditional mathematical ability. One or two such ideological ploys **might** be excused, but there are similar sorts of poorly defined words or phrases used **throughout** the Common Core K-8 standards. For a set of standards meant to shape the mathematical abilities of an entire nation’s children, this can only be described as criminally negligent.

There is also carelessness in the use of language, even when the language itself is not inappropriate. For instance, the C.C. standards state that the Pythagorean Theorem is to be used “to determine unknown side **lengths** in right triangles....”(8.G.7) The penchant of the standard writers to use the plural inappropriately, here and elsewhere, can result in an open door to faulty interpretation. In this case, the use of **lengths** in the plural leads to the possible interpretation that more than one side length in a right triangle can be determined by the use of the Pythagorean Theorem, which is, of course, not the case. Another example of confusion generated by the misuse of the plural form is seen here: “Students solve **systems** of two linear equations in two variables and relate the **systems** to pairs of lines in the plane....” (Grade 8 Intro (1)) It is not clear that each system consists of two linear equations, and is to be solved separately, rather than multiple systems consisting of two linear equations, which are to be solved simultaneously.

We find the phrase “**special** linear equations” (Grade 8 Intro (1)) used where in conventional mathematical language this phrase would be “**special cases** of a linear equation”. Unbelievably, it would appear that the “experts” writing these standards were themselves rather unfamiliar with standard mathematical conventions.

In the confusion of language category, the metaphorical use of “**reflected**” (Grade 8 Intro (2)), just two lines before the literal use of “**reflections**” to refer to the flipping of a geometric figure about a defined axis, has to rank as startling. It can only demonstrate complete unawareness of the separate and distinct meaning attached to a mathematically defined term when used in a mathematical context.

There is also **repeated** misuse of the term “**quantity**” or its plural form, “**quantities**”, where the correct term would be “variable” or “variables”. One cannot draw a scatter plot as intended in 8.SP.1, with just one pair of coordinates, but that is all that could be extracted from a set of just two quantities. Of additional note is that in the C. C. standards, “**quantities**” are considered to have direction. (6.NS.5) **Quantity, however, is scalar**, and therefore does not possess the attribute of direction. Likewise “**distance**”. (Intro to Grade 8 (3)) is supposedly subject to

translations, rotations, etc. However, distance is also **scalar**, and therefore not subject to vector transformations of any kind.

Due to time and space considerations, these evidentiary examples must be limited to those above, however anyone who peruses the C. C. standards will note similar types of offenses against both common sense and a “math as math” approach.

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

Each committee created in division (I)(1) of this section shall review the academic content standards for its respective subject area to ensure that such standards are **clear, concise, and appropriate for each grade level** and **promote higher student performance, learning, subject matter comprehension, and improved student achievement**. Each committee also shall review whether the standards for its respective subject area **promote essential knowledge in the subject, lifelong learning, the liberal arts tradition, and college and career readiness** and whether the standards **reduce remediation**.

Definitions

Clear – Easily understood; free from doubt or confusion¹

College and Career Readiness – remediation-free status; prepared to enroll in non-remedial, credit-bearing college courses leading to a postsecondary degree or other credential²

Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

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https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/data/reports/hs-to-college/2012_UNIFORM_STATEWIDE_REMEDIATION_FREE_STANDARDS%28010913%29.pdf

³ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/concise>

⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

⁵ Vocabulary.com: <http://www.vocabulary.com/dictionary/grade-appropriate>

⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

⁸ Ohio Revised Code 333.041: <http://codes.ohio.gov/orc/3333.041>

⁹ Education Portal: <http://education-portal.com/academy/lesson/student-achievement-definition-factors-research.html>

¹⁰ United States Department of Education: <http://www.ed.gov/race-top/district-competition/definitions>

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p style="margin: 0;">Counting and Cardinality</p> <p style="margin: 0;">A. Know number names and the count sequence.</p> <p style="margin: 0;">B. Count to tell the number of objects.</p> <p style="margin: 0;">C. Compare numbers.</p>
Grade Level(s) Under Review	Kindergarten

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	A higher standard than before but students are meeting it.
	B. Yes	
	C. Yes	
Is the element grade level appropriate ?	A. Yes	
	B. Yes	
	C. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote higher student performance, learning and improved student achievement?	A. Part	Is counting backward included? From 5? From 10? Counting up (or back?) from a random number is an important improvement from past standards.
	B. Yes	
	C. Yes	
Does the element support subject matter comprehension?	A. Yes	
	B. Yes	
	C. Yes	
Does the element promote essential knowledge in the subject?	A. Yes	
	B. Yes	
	C. Yes	
Does the element promote lifelong learning?	A. Yes	
	B. Yes	
	C. Yes	
Does the element promote the liberal arts tradition?	A. Yes	
	B. Yes	
	C. Yes	
Does the element promote college and career readiness?	A. Yes	
	B. Yes	
	C. Yes	
Does the element reduce the need for remediation?	A. Yes	
	B. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

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⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

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Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p style="text-align: center;">Number and Operations in Base Ten</p> <p><i>Kindergarten</i></p> <p>A. Work with numbers 11–19 to gain foundations for place value.</p> <p><i>Grade 1</i></p> <p>B. Extend the counting sequence. C. Understand place value. D. Use place value understanding and properties of operations to add and subtract.</p> <p><i>Grade 2</i></p> <p>E. Understand place value. F. Use place value understanding and properties of operations to add and subtract.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level

Yes it meets the review criteria

Partially meets the review criteria or **undetermined**

No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element promote higher student performance, learning and improved student achievement ?	A. Yes	Including an introduction of the “teen” numbers an improvement over old standards.
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element support subject matter comprehension ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element promote essential knowledge in the subject ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F. Yes	
Does the element promote lifelong learning?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element promote the liberal arts tradition?	A	
	B	
	C	
	D	
	E	
	F	
Does the element promote college and career readiness?	A	
	B	
	C	
	D	
	E	
	F	
Does the element reduce the need for remediation?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E. Yes	
	F. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Operations and Algebraic Thinking</p> <p><i>Kindergarten</i></p> <p>A. Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.</p> <p><i>Grade 1</i></p> <p>B. Represent and solve problems involving addition and subtraction. C. Understand and apply properties of operations and the relationship between addition and subtraction. D. Add and subtract within 20. E. Work with addition and subtraction equations.</p> <p><i>Grade 2</i></p> <p>F. Represent and solve problems involving addition and subtraction. G. Add and subtract within 20. H. Work with equal groups of objects to gain foundations for multiplication.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level

Yes it meets the review criteria

Partially meets the review criteria or **undetermined**

No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F Yes	
	G Yes	
	H Yes	
Is the element grade level appropriate?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
Does the element promote higher student performance, learning and improved student achievement?	A Yes	
	B Yes	
	C Yes	
	D Part	I wonder why counting backward was not specifically mentioned here.
	E Yes	
	F Yes	
	G Yes	It is no accident that the standard says, "know from memory" rather than "memorize". The first describes an outcome, whereas the second might be seen as describing a method of achieving that outcome. So no, the standards are not dictating timed tests. (McCallum, October 2011)
	H Yes	
Does the element support subject matter	A Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
comprehension?	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	
	Does the element promote essential knowledge in the subject?	A Yes
B Yes		
C Yes		
D Yes		Add and subtract within 20. Fluency within 10.
E Yes		Often misunderstood and undervalued at the primary level – but extremely important.
F Yes		
G Yes		Add and subtract within 100. Fluency within 20.
H Yes		
Does the element promote lifelong learning?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G Yes	
	H Yes	
Does the element promote the liberal arts tradition?	A	
	B	
	C	
	D	
	E	
	F	
	G	
	H	
Does the element promote college and career readiness?	A	
	B	
	C	
	D	
	E	
	F	
	G	
	H	
Does the element reduce the need for remediation?	A Yes	
	B Yes	
	C Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	Adding equal groups in grade 2 prepares for third grade multiplication.
Does the element meet the definition of a standard?	A Yes	
	B Yes	
	C Yes	
	D Yes	
	E Yes	
	F Yes	
	G Yes	
	H Yes	

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Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

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Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

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Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Measurement and Data</p> <p><i>Kindergarten</i></p> <p>A. Describe and compare measurable attributes. B. Classify objects and count the number of objects in categories.</p> <p><i>Grade 1</i></p> <p>C. Measure lengths indirectly and by iterating length units. D. Tell and write time. E. Represent and interpret data.</p> <p><i>Grade 2</i></p> <p>F. Measure and estimate lengths in standard units. G. Relate addition and subtraction to length. H. Work with time and money. I. Represent and interpret data.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level **Yes** it meets the review criteria
Partially meets the review criteria or **undetermined**
No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A. Yes	The use of iteration is moved to grade 1.
	B. Yes	
	C. Yes	
	D. Yes	Same as before.
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote higher student performance, learning and improved student achievement ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Part	As it deals with coherence, teachers struggle with the idea that money is first introduced at grade 2 often with no experience at all at lower levels.
	I. Yes	
Does the element support subject matter comprehension ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	Standards emphasize length
	G. Yes	Standards emphasize measurement as it relates to the number line and addition & subtraction.
	H. Yes	
	I. Yes	
Does the element promote essential knowledge in the subject ?	A. Yes	
	B. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote lifelong learning ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote the liberal arts tradition ?	A	
	B	
	C	
	D	
	E	
	F	
	G	
	H	
	I	
Does the element promote college and career readiness ?	A	
	B	
	C	
	D	
	E	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F	
	G	
	H	
	I	
Does the element reduce the need for remediation?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Geometry <i>Kindergarten</i> A. Identify and describe shapes. B. Analyze, compare, create, and compose shapes.</p> <p><i>Grade 1</i> C. Reason with shapes and their attributes..</p> <p><i>Grade 2</i> D. Reason with shapes and their attributes.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	Specific shapes are listed. Fewer plane figures than before but includes some 3-D shapes.
	B. Yes	
	C. Yes	
	D. Yes	
Is the element grade level appropriate ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
Does the element support subject matter comprehension?	A. Yes	
	B. Yes	
	C. Yes	Standard 3 serves as a basis for the introduction of fractions.
	D. Yes	Standard 3 serves as an introduction of fractions. Standard 2 serves as an intro to area/multiplication.
Does the element promote essential knowledge in the subject?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
Does the element promote lifelong learning?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
Does the element promote the liberal arts tradition?	A.	
	B.	
	C.	
	D.	
Does the element promote college and career readiness?	A.	
	B.	
	C.	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D.	
Does the element reduce the need for remediation?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p style="margin: 0;">Number and Operations in Base Ten</p> <p style="margin: 0;"><i>Grade 3</i></p> <p style="margin: 0;">A. Use place value understanding and properties of operations to perform multi-digit arithmetic.</p> <p style="margin: 0;"><i>Grade 4</i></p> <p style="margin: 0;">B. Generalize place value understanding for multi-digit whole numbers.</p> <p style="margin: 0;">C. Use place value understanding and properties of operations to perform multi-digit arithmetic.</p> <p style="margin: 0;"><i>Grade 5</i></p> <p style="margin: 0;">D. Understand the place value system.</p> <p style="margin: 0;">E. Perform operations with multi-digit whole numbers and with decimals to hundredths.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level**Yes** it meets the review criteria**Partially** meets the review criteria or **undetermined****No** it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	Measurement expands to
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
Does the element promote higher student performance, learning and improved student achievement ?	A. Yes	Fluently add and subtract within 1000.
	B. Yes	
	C. Yes	Fluently add and subtract multi-digit numbers.
	D. Yes	
	E. Yes	Fluently multiply multi-digit whole numbers.
Does the element support subject matter comprehension ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
Does the element promote essential knowledge in the subject ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
Does the element promote lifelong learning ?	A. Yes	
	B. Yes	
	C. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D. Yes	
	E. Yes	
Does the element promote the liberal arts tradition?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
Does the element promote college and career readiness?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
Does the element reduce the need for remediation?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Operations and Algebraic Thinking</p> <p><i>Grade 3</i></p> <ul style="list-style-type: none"> A. Represent and solve problems involving multiplication and division. B. Understand properties of multiplication and the relationship between multiplication and division. C. Multiply and divide within 100. D. Solve problems involving the four operations, and identify and explain patterns in arithmetic. <p><i>Grade 4</i></p> <ul style="list-style-type: none"> E. Use the four operations with whole numbers to solve problems. F. Gain familiarity with factors and multiples. G. Generate and analyze patterns. <p><i>Grade 5</i></p> <ul style="list-style-type: none"> H. Write and interpret numerical expressions. I. Analyze patterns and relationships.
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote higher student performance, learning and improved student achievement ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	Old standards mention parentheses. New standards require parentheses, brackets, and braces.
	I. Yes	
Does the element support subject matter comprehension ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	Students learn to distinguish a multiplicative relation from an additive relation.
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote essential knowledge in the subject ?	A. Yes	
	B. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote lifelong learning ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote the liberal arts tradition ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote college and career readiness ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element reduce the need for remediation?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	

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Committee Member Name	
Element Under Review (Cluster)	<p>Geometry</p> <p><i>Grade 3</i></p> <p>A. Reason with shapes and their attributes.</p> <p><i>Grade 4</i></p> <p>B. Draw and identify lines and angles, and classify shapes by properties of their lines and angles.</p> <p><i>Grade 5</i></p> <p>C. Graph points on the coordinate plane to solve real-world and mathematical problems.</p> <p>D. Classify two-dimensional figures into categories based on their properties.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
Is the element grade level appropriate ?	A. Yes	
	B. Yes	
	C. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D. Yes	
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	Classification is emphasized.
	B. Yes	Classification is emphasized.
	C. Yes	
	D. Yes	Classification is emphasized.
Does the element support subject matter comprehension?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
Does the element promote essential knowledge in the subject?	A. Yes	Geometry used to support fraction understanding.
	B. Yes	
	C. Yes	
	D. Yes	
Does the element promote lifelong learning?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
Does the element promote the liberal arts tradition?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
Does the element promote college and career readiness?	A. Yes	
	B. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. Yes	
	D. Yes	
Does the element reduce the need for remediation?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	

Ohio Standards Committee Review Form

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Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Measurement and Data</p> <p><i>Grade 3</i></p> <p>A. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</p> <p>B. Represent and interpret data.</p> <p>C. Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</p> <p>D. Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.</p> <p><i>Grade 4</i></p> <p>E. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.</p> <p>F. Represent and interpret data.</p> <p>G. Geometric measurement: understand concepts of angle and measure angles.</p> <p><i>Grade 5</i></p> <p>H. Convert like measurement units within a given measurement system.</p> <p>I. Represent and interpret data.</p> <p>J. Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Is the element grade level appropriate?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	Measurement expands to area
	E. Yes	
	F. Yes	
	G. Yes	Measurement expands to angle measure
	H. Yes	
	I. Yes	
	J. Yes	Measurement expands to volume.
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	The inverse relationship with unit conversion relates to fraction size as well.
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element support subject matter comprehension?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	Measurements used for data charts.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element promote essential knowledge in the subject?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element promote lifelong learning?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element promote the liberal arts tradition?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element promote college and career readiness?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element reduce the need for remediation?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Number and Operations – Fractions</p> <p><i>Grade 3</i></p> <p>A. Develop understanding of fractions as numbers.</p> <p><i>Grade 4</i></p> <p>B. Extend understanding of fraction equivalence and ordering.</p> <p>C. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.</p> <p>D. Understand decimal notation for fractions, and compare decimal fractions.</p> <p><i>Grade 5</i></p> <p>E. Use equivalent fractions as a strategy to add and subtract fractions.</p> <p>F. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A. Yes	Much more detail about the instruction of fractions is now available compared to the 20001 standards.
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element promote higher student performance, learning and improved student achievement ?	A. Yes	There is an emphasis on the unit fraction and fractions on the number line.
	B. Yes	
	C. Yes	
	D. Yes	Decimals are taught as a special subset of the set of fractions.
	E. Yes	
	F. Yes	
Does the element support subject matter comprehension ?	A. Yes	There is a conscience effort to connect the intro to fractions to the student's first intro to whole numbers.
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element promote essential knowledge in the subject ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E. Yes	
	F. Yes	
Does the element promote lifelong learning ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element promote the liberal arts tradition ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element promote college and career readiness ?	A. Yes	Fraction fluency better predicts a student's future in mathematics than does their IQ, family background or knowledge of other mathematics. Research by Siegler, Jordon & Fuchs
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element reduce the need for remediation ?	A. Yes	
	B. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>	
Committee Member Name	Carl Jones Name	5 / 21 / 15 Date
Element Under Review (Cluster)	RATIOS AND PROPORTIONAL RELATIONSHIPS <i>Grade 6</i> A. Understand ratio concepts and use ratio reasoning to solve problems <i>Grade 7</i> B. Analyze proportional relationships and use them to solve real-world and mathematical problems.	
Grade Level(s) Under Review	Grades 6 and 7	

Review level **Yes** it meets the review criteria
Partially meets the review criteria or **undetermined**
No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	Clarity is amplified by the many examples given.
	B. Yes	
Is the element grade level appropriate ?	A. Yes	These topics build naturally from the study of fractions in 3-5.
	B. Yes	
Does the element promote higher student performance, learning and improved student achievement ?	A. Yes	
	B. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element support subject matter comprehension ?	A. Yes	
	B. Yes	
Does the element promote essential knowledge in the subject ?	A. Yes	
	B. Yes	
Does the element promote lifelong learning ?	A. Yes	
	B. Yes	
Does the element promote the liberal arts tradition ?	A. Yes	
	B. Yes	
Does the element promote college and career readiness ?	A. Yes	
	B. Yes	
Does the element reduce the need for remediation ?	A. Yes	
	B. Yes	
Does the element meet the definition of a standard ?	A. Yes	
	B. Yes	

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>	
Committee Member Name	Carl Jones <small>Name</small>	6 / 3 / 15 <small>Date</small>
Element Under Review (Cluster)	<p>Statistics and Probability</p> <p><i>Grade 6</i></p> <p>A. Develop understanding of statistical variability. B. Summarize and describe distributions.</p> <p><i>Grade 7</i></p> <p>C. Use random sampling to draw inferences about a population. D. Draw informal comparative inferences about two populations. E. Investigate chance processes and develop, use, and evaluate probability models.</p> <p><i>Grade 8</i></p> <p>F. Investigate patterns of association in bivariate data.</p>	
Grade Level(s) Under Review	Grades 6, 7 and 8	

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

My comments in this document are from discussions I had with Jerry Moreno, Assistant Professor Emeritus of Statistics and an author of the GAISE (Guidelines for Assessment and Instruction in Statistics Education) report.

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F. Yes	
Is the element grade level appropriate?	A. Part	It is unfortunate that for all intents and purposes, statistics and probability are not in grades K-5. It is true that bar graphs and line plots are presented in the elementary grades but they are there for mathematical reasons not statistical ones. It would take a teacher who has had training in the GAISE model to be able to extend those topics from a mathematical perspective to a statistical framework.
	B. Part	Developing the Mean Absolute Deviation (MAD) as a measure of variability is terrific. One problem that has arisen is that apparently the arithmetic of signed numbers is not done until grade 7. So the statistical concept of deviation (specifically, negative deviations for points below the mean) is problematic. One way around that is to simply talk about calculating distances from the mean in both directions and wanting the total sum of the distances to be equal on either side of the mean. (I've had teachers tell me how much better they themselves understand standard deviation having now been introduced to the MAD.)
	C. Yes	
	D. Part	Standard 7B3 is excellent but is presented too early. I would move it to grade 9 (if the bivariate of grade 8 must remain). There is a problem with 7B3 in that it is looking at two data sets whereas the inferential treatment looks at two sampling distributions. Finding how many measures of variation separate two measures of center is what statistical inference for comparing two groups is all about. But 7B3 doesn't talk about sampling distributions, rather data sets. So even teachers are confused as they ask me all the time how many MADs for means (IQRs for medians) are needed to show a significant difference. That's a natural but not an appropriate question to ask as the comparison is being made on data sets, not sampling distributions.
	E. Yes	
	F. Part	The mathematics standard regarding equation of the line in grade 8 drives involving bivariate data as the grade 8 statistics standard. So be it, but the development of bivariate statistics needs to be more from a modeling perspective. After all, modeling is a big deal in the standards and it is not treated well in grade 8 statistics. So, in light of wanting to articulate sampling variability throughout the middle grades, I would move the bivariate from grade 8 to high school and do more with sampling distributions in grade 8 connecting it to grades 6 and 7.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element support subject matter comprehension?	A. Yes	Grade 6A first forces students to recognize, conceptualize, and verbalize the three major features of a distribution – center, spread, and shape – without doing any calculations. Then (6B) it has students quantify measures of center and spread. Excellent approach.
	B. Yes	
	C. Part	Introducing the concept of sampling variability in grade 7 is excellent but the topic is not present in grade 8, then it reappears in grade 9, skips grade 10 and is finalized in grade 11. To articulate the topic would mean significant changes in grades 8 and 10 but I would urge that somehow that be considered.
	D. Yes	
	E. Part	<p>There is a lot of material in grade 7. Although students should be introduced to probability, the introduction should be in the lower grades. Since the chances of that happening are slim to none, and since the Probability Standards in grade 7 do not lend themselves to the statistics topics of Grade 7, I would move the probability out of Grade 7 to high school. Also the GAISE treatment of probability is primarily on the building of distributions for purposes in statistical inference. Grade 7 Probability is treated in the standards as a topic more for its own sake where in GAISE it is foundational for the developmental of inference.</p> <p>The positive part of the probability cluster in grade 7 is simulation. Simulation is very important for the high school standards. Introducing it in middle school is a good idea except that there is the gap problem jumping over grade 8. There is no simulation in grade 8.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F. Part	For the most part grades 6 and 7 work together fairly well. However, there is a disconnect between grades 6 and 7 with grade 8. Because the mathematics topic of grade 8 concerns the line, it was therefore natural for the writers to concentrate on linear relationships between two numerical variables for the Statistics Standard of grade 8. However, the material in grades 6 and 7 is not connected to grade 8. This is not good. Having mathematics drive where statistical concepts are covered is a problem.
Does the element promote essential knowledge in the subject?	A. Part	Although the GAISE model as a whole is not explicitly cited in the standards, its first step of creating a statistical question plays a prominent part in grade 6 (the first standard) and the other three steps of the GAISE process are present throughout the standards, albeit somewhat disguised. I applaud the authors for including the importance of beginning with a statistical question as typically in textbooks, problems begin with analyzing a given set of data. That's step 2 of the GAISE model having skipped the important first step of creating a statistical question. In a revision, I would encourage the explicit mention of the GAISE model.
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element promote lifelong learning?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element promote the liberal arts tradition?	A. Yes	
	B. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element promote college and career readiness ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element reduce the need for remediation ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element meet the definition of a standard ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>	
Committee Member Name	Carl Jones <small>Name</small>	5 / 21 / 15 <small>Date</small>
Element Under Review (Cluster)	<p>Geometry</p> <p><i>Grade 6</i></p> <p>A. Solve real-world and mathematical problems involving area, surface area, and volume.</p> <p><i>Grade 7</i></p> <p>B. Draw, construct and describe geometrical figures and describe the relationships between them.</p> <p>C. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.</p> <p><i>Grade 8</i></p> <p>D. Understand congruence and similarity using physical models, transparencies, or geometry software.</p> <p>E. Understand and apply the Pythagorean theorem.</p> <p>F. Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.</p>	
Grade Level(s) Under Review	Grades 6, 7 and 8	

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Is the element grade level appropriate ?	A. Yes	
	B. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. Yes	
	D. Yes	
	E. Partial	I question whether the proof of the Pythagorean Theorem is needed at this grade level. The application of the theorem is OK.
	F. Yes	
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element support subject matter comprehension?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element promote essential knowledge in the subject?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote lifelong learning ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element promote the liberal arts tradition ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element promote college and career readiness ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
Does the element reduce the need for remediation ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>	
Committee Member Name/Date	Carl Jones Name	5 / 21 / 15 Date
Element Under Review (Cluster)	<p>Expressions and Equations</p> <p><i>Grade 6</i></p> <p>A. Apply and extend previous understandings of arithmetic to algebraic expressions.</p> <p>B. Reason about and solve one-variable equations and inequalities.</p> <p>C. Represent and analyze quantitative relationships between dependent and independent variables.</p> <p><i>Grade 7</i></p> <p>D. Use properties of operations to generate equivalent expressions.</p> <p>E. Solve real-life and mathematical problems using numerical and algebraic expressions and equations.</p> <p><i>Grade 8</i></p> <p>F. Work with radicals and integer exponents.</p> <p>G. Understand the connections between proportional relationships, lines, and linear equations.</p> <p>H. Analyze and solve linear equations and pairs of simultaneous linear equations.</p>	
Grade Level(s) Under Review	Grades 6, 7 and 8	

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F. Yes	
	G. Yes	
	H. Yes	
Is the element grade level appropriate?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
Does the element support subject matter comprehension?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
Does the element promote essential knowledge in the subject?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
Does the element promote lifelong learning?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
Does the element promote the liberal arts tradition?	A. Yes	
	B. Yes	
	C. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
Does the element promote college and career readiness ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
Does the element reduce the need for remediation ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
Does the element meet the definition of a standard ?	A. Yes	
	B. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>	
Committee Member Name/Date	Carl Jones Name	5 / 21 / 15 Date
Element Under Review (Cluster)	Functions <i>Grade 8</i> A. Define, evaluate, and compare functions. B. Use functions to model relationships between quantities.	
Grade Level(s) Under Review	Grade 8	

Review level **Yes** it meets the review criteria
Partially meets the review criteria or **undetermined**
No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	
Is the element grade level appropriate ?	A. Yes	
	B. Yes	
Does the element promote higher student performance, learning and improved student achievement ?	A. Yes	Better understanding by looking at algebraic, graphic, numeric, and verbal examples.
	B. Yes	
Does the element support subject matter comprehension ?	A. Yes	
	B. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote essential knowledge in the subject ?	A. Yes	The idea of a function and its uses are introduced much earlier to help clarify its use.
	B. Yes	
Does the element promote lifelong learning ?	A. Yes	
	B. Yes	
Does the element promote the liberal arts tradition ?	A. Yes	
	B. Yes	
Does the element promote college and career readiness ?	A. Yes	
	B. Yes	
Does the element reduce the need for remediation ?	A. Yes	
	B. Yes	
Does the element meet the definition of a standard ?	A. Yes	
	B. Yes	

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	Carl Jones <small>Name</small> 5 / 21 / 15 <small>Date</small>
Element Under Review (Cluster)	<p>the Number System</p> <p><i>Grade 6</i></p> <ul style="list-style-type: none"> A. Apply and extend previous understandings of multiplication and division to divide fractions by fractions. B. Compute fluently with multi-digit numbers and find common factors and multiples. C. Apply and extend previous understandings of numbers to the system of rational numbers. <p><i>Grade 7</i></p> <ul style="list-style-type: none"> D. Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. <p><i>Grade 8</i></p> <ul style="list-style-type: none"> E. Know that there are numbers that are not rational, and approximate them by rational numbers.
Grade Level(s) Under Review	Grades 6, 7 and 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. YES	
	B. YES	
	C. YES	
	D. YES	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E. YES	
Is the element grade level appropriate ?	A. YES	
	B. YES	
	C. YES	
	D. YES	
	E. YES	
Does the element promote higher student performance, learning and improved student achievement ?	A. YES	
	B. YES	Mastery of arithmetic skills required at grade 6 as students move toward Algebra topics.
	C. YES	
	D. YES	
	E. YES	
Does the element support subject matter comprehension ?	A. YES	
	B. YES	
	C. YES	Absolute value is talked about as a distance from zero and a magnitude. Better than past standards
	D. YES	
	E. YES	The Real Number System is completed with the introduction of irrational numbers.
Does the element promote essential knowledge in the subject ?	A. YES	
	B. YES	
	C. YES	
	D. YES	
	E. YES	
Does the element promote lifelong learning ?	A. YES	
	B. YES	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. YES	
	D. YES	
	E. YES	
Does the element promote the liberal arts tradition?	A. YES	
	B. YES	
	C. YES	
	D. YES	
	E. YES	
Does the element promote college and career readiness?	A. YES	
	B. YES	
	C. YES	
	D. YES	
	E. YES	
Does the element reduce the need for remediation?	A. YES	All of these standards ask the teachers and students to build their new knowledge of the Real Number System on what they learned previously with whole numbers. Adds to coherence.
	B. YES	
	C. YES	
	D. YES	
	E. YES	
Does the element meet the definition of a standard?	A. YES	
	B. YES	
	C. YES	
	D. YES	
	E. YES ^c	

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>	
Committee Member Name/Date	Carl Jones <small>Name</small>	6 / 1 / 2015 <small>Date</small>
Element Under Review (Cluster)	<p>ALGEBRA</p> <p><i>SEEING STRUCTURE IN EXPRESSIONS</i></p> <p>A. Interpret the structure of expressions B. Write expressions in equivalent forms to solve problems</p> <p><i>ARITHMETIC WITH POLYNOMIALS AND RATIONAL EXPRESSIONS</i></p> <p>C. Perform arithmetic operations on polynomials D. Understand the relationship between zeros and factors of polynomials E. Use polynomial identities to solve problems F. Rewrite rational expressions</p> <p><i>CREATING EQUATIONS</i></p> <p>G. Create equations that describe numbers or relationships</p> <p><i>REASONING WITH EQUATIONS AND INEQUALITIES</i></p> <p>H. Understand solving equations as a process of reasoning and explain the reasoning I. Solve equations and inequalities in one variable J. Solve systems of equations K. Represent and solve equations and inequalities graphically</p>	
Grade Level(s) Under Review	High School	

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
Is the element COURSE appropriate?	A. Yes	
	B. Yes	
	C. Yes	
	D. PART	In the interest in paring down some of the Algebra 1 standards, I feel limiting this cluster to Algebra 2 would be appropriate.
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. PART	In the interest in paring down some of the Algebra 1 standards, I feel we should eliminate quadratics from Algebra 1 and cover instead in Algebra 2.
	J. Yes	
K. Yes		
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element support subject matter comprehension?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
Does the element promote essential knowledge in the subject?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
Does the element promote lifelong learning?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	I. Yes	
	J. Yes	
	K. Yes	
Does the element promote the liberal arts tradition?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
Does the element promote college and career readiness?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
Does the element reduce the need for remediation?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

Each committee created in division (I)(1) of this section shall review the academic content standards for its respective subject area to ensure that such standards are **clear, concise, and appropriate for each grade level** and **promote higher student performance, learning, subject matter comprehension, and improved student achievement**. Each committee also shall review whether the standards for its respective subject area **promote essential knowledge in the subject, lifelong learning, the liberal arts tradition, and college and career readiness** and whether the standards **reduce remediation**.

Definitions

Clear – Easily understood; free from doubt or confusion¹

College and Career Readiness – remediation-free status; prepared to enroll in non-remedial, credit-bearing college courses leading to a postsecondary degree or other credential²

Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

¹ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/clear>

² Ohio Uniform Statewide Standards for Remediation-Free Status:

https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/data/reports/hs-to-college/2012_UNIFORM_STATEWIDE_REMEDIATION_FREE_STANDARDS%28010913%29.pdf

³ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/concise>

⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

⁵ Vocabulary.com: <http://www.vocabulary.com/dictionary/grade-appropriate>

⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

⁸ Ohio Revised Code 333.041: <http://codes.ohio.gov/orc/3333.041>

⁹ Education Portal: <http://education-portal.com/academy/lesson/student-achievement-definition-factors-research.html>

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>	
Committee Member Name/Date	Carl Jones <small>Name</small>	6 / 2 / 2015 <small>Date</small>
Element Under Review (Cluster)	<p>FUNCTIONS</p> <p><i>INTERPRETING FUNCTIONS</i></p> <p>A. Understand the concept of a function and use function notation</p> <p>B. Interpret functions that arise in applications in terms of the context</p> <p>C. Analyze functions using different representations</p> <p><i>BUILDING FUNCTIONS</i></p> <p>D. Build a function that models a relationship between two quantities</p> <p>E. Build new functions from existing functions</p> <p><i>LINEAR, QUADRATIC, AND EXPONENTIAL MODELS</i></p> <p>F. Construct and compare linear, quadratic, and exponential models and solve problems</p> <p>G. Interpret expressions for functions in terms of the situation they model</p> <p><i>TRIGONOMETRIC FUNCTIONS</i></p> <p>H. Extend the domain of trigonometric functions using the unit circle</p> <p>I. Model periodic phenomena with trigonometric functions</p> <p>J. Prove and apply trigonometric identities</p>	
Grade Level(s) Under Review	High School	

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Is the element grade level appropriate?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element support subject matter comprehension?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element promote essential knowledge in the subject?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element promote lifelong learning?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element promote the liberal arts tradition?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element promote college and career readiness?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element reduce the need for remediation?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

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Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

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https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/data/reports/hs-to-college/2012_UNIFORM_STATEWIDE_REMEDIATION_FREE_STANDARDS%28010913%29.pdf

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⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

⁵ Vocabulary.com: <http://www.vocabulary.com/dictionary/grade-appropriate>

⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

⁸ Ohio Revised Code 333.041: <http://codes.ohio.gov/orc/3333.041>

⁹ Education Portal: <http://education-portal.com/academy/lesson/student-achievement-definition-factors-research.html>

¹⁰ United States Department of Education: <http://www.ed.gov/race-top/district-competition/definitions>

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	Carl Jones <small>Name</small>
Element Under Review (Cluster)	5 / 27 / 2015 <small>Date</small>
Element Under Review (Cluster)	<p>GEOMETRY</p> <p><i>CONGRUENCE</i></p> <ul style="list-style-type: none"> A. Experiment with transformations in the plane B. Understand congruence in terms of rigid motions C. Prove geometric theorems D. Make geometric constructions <p><i>SIMILARITY, RIGHT TRIANGLES, AND TRIGONOMETRY</i></p> <ul style="list-style-type: none"> E. Understand similarity in terms of similarity transformations F. Prove theorems involving similarity G. Define trigonometric ratios and solve problems involving right triangles H. Apply trigonometry to general triangles <p><i>CIRCLES</i></p> <ul style="list-style-type: none"> I. Understand and apply theorems about circles J. Find arc lengths and areas of sectors of circles <p><i>EXPRESSING GEOMETRIC PROPERTIES WITH EQUATIONS</i></p> <ul style="list-style-type: none"> K. Translate between the geometric description and the equation for a conic section L. Use coordinates to prove simple geometric theorems algebraically <p><i>GEOMETRIC MEASUREMENT AND DIMENSION</i></p> <ul style="list-style-type: none"> M. Explain volume formulas and use them to solve problems N. Visualize relationships between two- dimensional and three dimensional objects <p><i>MODELING WITH GEOMETRY</i></p> <ul style="list-style-type: none"> O. Apply geometric concepts in modeling situations
Grade Level(s) Under Review	High School

Review level**Yes** it meets the review criteria**Partially** meets the review criteria or **undetermined****No** it does not meet the review criteria

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
	L. Yes	
	M. Yes	
	N. Yes	
	O. Yes	
element grade level appropriate ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
	L. Yes	
	M. Yes	
	N. Yes	
	O. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
<p>Does the element promote higher student performance, learning and improved student achievement?</p>	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
	L. Yes	
	M. Yes	
	N. Yes	
	O. Yes	
<p>Does the element support subject matter comprehension?</p>	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
	L. Yes	
	M. Yes	
	N. Yes	
	O. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote essential knowledge in the subject?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
	L. Yes	
	M. Yes	
	N. Yes	
	O. Yes	
Does the element promote lifelong learning?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
	L. Yes	
	M. Yes	
	N. Yes	
	O. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote the liberal arts tradition?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
	L. Yes	
	M. Yes	
	N. Yes	
	O. Yes	
Does the element promote college and career readiness?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
	L. Yes	
	M. Yes	
	N. Yes	
	O. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element reduce the need for remediation?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
	L. Yes	
	M. Yes	
	N. Yes	
	O. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	J. Yes	
	K. Yes	
	L. Yes	
	M. Yes	
	N. Yes	
	O. Yes	

Ohio Standards Committee Review Form

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	Carl Jones <small>Name</small> 5 / 27 / 2015 <small>Date</small>
Element Under Review (Cluster)	<p>NUMBER AND QUANTITY</p> <p><i>THE REAL NUMBER SYSTEM</i></p> <p>A. Extend the properties of exponents to rational exponents</p> <p>B. Use properties of rational and irrational numbers.</p> <p><i>QUANTITIES</i></p> <p>C. Reason quantitatively and use units to solve problems</p> <p><i>THE COMPLEX NUMBER SYSTEM</i></p> <p>D. Perform arithmetic operations with complex numbers</p> <p>E. Represent complex numbers and their operations on the complex plane</p> <p>F. Use complex numbers in polynomial identities and equations</p> <p><i>VECTOR AND MATRIX QUANTITIES</i></p> <p>G. Represent and model with vector quantities.</p> <p>H. Perform operations on vectors.</p> <p>I. Perform operations on matrices and use matrices in applications.</p>
Grade Level(s) Under Review	High School

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	H. Yes	
	I. Yes	
Is the element grade level appropriate?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element support subject matter comprehension?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote essential knowledge in the subject?	A. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
	Does the element promote lifelong learning?	A. Yes
B. Yes		
C. Yes		
D. Yes		
E. Yes		
F. Yes		
G. Yes		
H. Yes		
I. Yes		
Does the element promote the liberal arts tradition?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote college and career readiness?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element reduce the need for remediation?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	

Ohio Standards Committee Review Form

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Definitions

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College and Career Readiness – remediation-free status; prepared to enroll in non-remedial, credit-bearing college courses leading to a postsecondary degree or other credential²

Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

¹ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/clear>

² Ohio Uniform Statewide Standards for Remediation-Free Status:

https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/data/reports/hs-to-college/2012_UNIFORM_STATEWIDE_REMEDIATION_FREE_STANDARDS%28010913%29.pdf

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⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

⁵ Vocabulary.com: <http://www.vocabulary.com/dictionary/grade-appropriate>

⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

⁸ Ohio Revised Code 333.041: <http://codes.ohio.gov/orc/3333.041>

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name/Date	<div style="display: flex; justify-content: space-between;"> Carl Jones Name 5 / 27 / 2015 Date </div>
Element Under Review (Cluster)	<p>STATISTICS AND PROBABILITY <i>INTERPRETING CATEGORICAL AND QUANTITATIVE DATA</i></p> <ul style="list-style-type: none"> A. Summarize, represent, and interpret data on a single count or measurement variable B. Summarize, represent, and interpret data on two categorical and quantitative variables C. Interpret linear models <p><i>MAKING INFERENCES AND JUSTIFYING CONCLUSIONS</i></p> <ul style="list-style-type: none"> D. Understand and evaluate random processes underlying statistical experiments E. Make inferences and justify conclusions from sample surveys, experiments and observational studies <p><i>CONDITIONAL PROBABILITY AND THE RULES OF PROBABILITY</i></p> <ul style="list-style-type: none"> F. Understand independence and conditional probability and use them to interpret data G. Use the rules of probability to compute probabilities of compound events in a uniform probability model <p><i>USING PROBABILITY TO MAKE DECISIONS</i></p> <ul style="list-style-type: none"> H. Calculate expected values and use them to solve problems I. Use probability to evaluate outcomes of decisions
Grade Level(s) Under Review	High School

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Yes	
	B. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Is the element grade level appropriate?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote higher student performance, learning and improved student achievement?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element support subject matter comprehension?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote essential knowledge in the subject?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote lifelong learning?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element promote the liberal arts tradition?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	I. Yes	
Does the element promote college and career readiness?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element reduce the need for remediation?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	
Does the element meet the definition of a standard?	A. Yes	
	B. Yes	
	C. Yes	
	D. Yes	
	E. Yes	
	F. Yes	
	G. Yes	
	H. Yes	
	I. Yes	

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

Each committee created in division (I)(1) of this section shall review the academic content standards for its respective subject area to ensure that such standards are **clear, concise, and appropriate for each grade level** and **promote higher student performance, learning, subject matter comprehension, and improved student achievement**. Each committee also shall review whether the standards for its respective subject area **promote essential knowledge in the subject, lifelong learning, the liberal arts tradition, and college and career readiness** and whether the standards **reduce remediation**.

Definitions

Clear – Easily understood; free from doubt or confusion¹

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Counting and Cardinality</p> <p>A. Know number names and the count sequence.</p> <p>B. Count to tell the number of objects.</p> <p>C. Compare numbers.</p>
Grade Level(s) Under Review	Kindergarten

Review level

Yes it meets the review criteria

Partially meets the review criteria or **undetermined**

No it does not meet the review criteria

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. NO	<p>OVERALL COMMENT on Clear and Concise The arrangement and order of the individual standards and the standards document overall often make it less clear and more confusing because some topics are not listed in an order to know what material has been covered, or for logical learning progression, and important information is given in footnotes, tables and prose in various parts of the document making it hard to keep everything relevant in mind.</p> <p>K.CC-1 Two separate standards Count to 100 by ones. Count to 100 by 10's.</p> <p>K.CC-2 Not clear or concise. Does not define range. Wording similar to Grade 1.NBT -1 would be an improvement: "Count forward to 100 beginning at any number less than 100 (other than 1)."</p> <p>K.CC-3 This is 2 separate standards clumped as one 1st one should say " Write <i>numerals</i> from 0 to 20." (not <i>numbers</i>) "Represent..." is a separate standard and logically would go under the next section "Count to tell the number of objects" (The perceived need to indicate 0 represents a count of no objects is a bit insulting to teachers)</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B.NO	<p>K.CC-4 No range indicated. By starting a standard with "Understand." it is not clear what is expected. The header-type line of 4.: "Understand ... cardinality" is not a standard as written"</p> <p>Three separate standards clumped as one:</p> <p>a. "Count objects, saying the number names in the standards order, pairing each object with one and only one number name, and each number name with one and only one object." b. "<i>Indicate</i> that the last number ...counted" c. "<i>Demonstrate</i> that each successive number name refers to a quantity that is one larger."</p> <p>K.CC-5 This borders on pedagogy. The last part: "given...objects." is covered by the standards contained in #4. (Multiple standards)</p>
	C.NO	<p>K.CC-6 The info in the () is pedagogy. If the matching technique is the standard, it should be written as such instead of parenthetically. Giving 2 examples parenthetically leaves room to wonder if there are additional methods that are expected to be known that aren't mentioned. K.CC-7 Vague - compare what? greater/less? how the numeral is written?</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
		<p>"Grade Level Appropriate" OVERALL Asking to evaluate: <i>Is the element grade level appropriate?</i> is not a reasonable request given no further information.</p> <p>Does this criteria mean appropriate by building on what is contained in the mandated standards of this document for the previous grade levels? Does it mean based on what has traditionally been content for this subject at this grade level?</p> <p>Anything can be "grade level appropriate" if that grade level is defined accordingly.</p> <p>Since this is the official state standards for education in Ohio, it could be said that everything in the standards document is deemed grade level appropriate because it is in the standards. By establishing the contents of this document as the standards for K12 math education in Ohio, and by doing so in a grade level arrangement, the state has created these standards to be the definition of each grade level. One could then put forth the idea that everything in it is automatically "grade level appropriate" even if is or could be totally inappropriate based on reason, student's prior knowledge, and the reality of human development.</p> <p>"Developmentally appropriate" is of great concern and critical to the proper and appropriate education of each individual student. It would be an important aspect to evaluate but is not legislatively part of these reviews. It also cannot be established for the masses but needs to take into consideration each unique individual's situation, life experiences, genetic and environmental factors.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate?	A. Undetermined See above	K.CC-1 Due to their young age, some students at K level may have a short attention-span, making the ability to focus for the time required to count to 100 not possible. Counting by ones to say 40 would establish the pattern and allow opportunity for connections between the pattern of counting by ones and counting by 10.
	B. Undetermined See above	K.CC-4 Not when written as "Understand." Many young children learn patterns and rote abilities, and these are important, but they are developmentally unable to fully "understand" some concepts until a later age. K.CC-5 See Clear and Concise comments
	C. Undetermined See above	K.CC-7 Vague

Standards Committee Review Form

Review Criteria	Review Level	Notes
		<p>OVERALL Comment related to the following criteria:</p> <p>"Does the element promote higher student performance, learning and improved student achievement?</p> <p>Does the element support subject matter comprehension?</p> <p>Does the element promote essential knowledge in the subject?</p> <p>Does the element promote lifelong learning?"</p> <p>Equally concerning, and in some cases more so, than the individual standards, is the order of the standards, their progression over time, and the emphasis on theory, pedagogy, methods and experiential learning before foundational knowledge is obtained. Basic knowledge committed to memory to the level of automaticity <u>first</u>, is a foundation for building a solid understanding overtime, a critical tool for practical use, and both roots and branches for desiring more knowledge. A person who knows basic factual knowledge, has that as a "hook" of sort when exposed to other situations and information, sparking curiosity and a desire to learn more and a critical tool for critical thought. Delaying this and putting other things before obtaining basic knowledge is a disservice to students and a hindrance to reaching their full capacity at each stage of life, even the earliest.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote higher student performance, learning and improved student achievement?	A.	<p>OVERALL:</p> <p>As far as evaluating standards based on these criteria, what promotes these criteria for a student can vary greatly from one child to the next. Methods of presenting material, educational approaches and pedagogy that help one student may not help all students. Each child is an individual and should be considered as such when educating. To decide on a mass scale what promotes these criteria for all would be a false determination, and relying on such a determination to influence an educational system could be harmful to some children.</p> <p>Therefore, I cannot rate them.</p>
	B.	See comment for A
	C.	See comment for A
Does the element support subject matter comprehension?	A. Yes	
	B. Undetermined	If rewritten as valid standards. (See comments on Clear/Concise criteria)
	C. Partially	K.CC-7 is too vague
Does the element promote essential knowledge in the subject?	A. Yes	
	B. Undetermined	K.CC-4 Would be Yes, if rewritten as valid standards. (See comments on Clear/Concise criteria)
	C. No	K.CC-7 Vague.
Does the element promote lifelong learning?	A. Undetermined	<p>OVERALL</p> <p>This is a rather ridiculous point to be asked to assess in regards to education "standards." Certain knowledge or certain skills are necessary in order to be able to learn further since knowledge builds, and some abilities must be possessed in order to learn, but standards cannot "promote" lifelong learning.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B. Undetermined	See comment for A
	C. Undetermined	See comment for A
Does the element promote the liberal arts tradition ?	A. Undetermined	OVERALL: This is a rather ridiculous point to be asked to assess in regards to education "standards." "Standards" cannot "promote" the liberal arts tradition. Education content can be a part of the liberal arts tradition, but to assess that there has to be given a definition of the specific subject matter content of "the liberal arts tradition".
	B. Undetermined	See comment for A
	C. Undetermined	See comment for A
Does the element promote college and career readiness ?	A. Undetermined	OVERALL This is a rather ridiculous point to be asked to assess in regards to education "standards". "Standards" or anything else for that matter, cannot validly be put forth as promoting college and career readiness" unless the entry requirements of the specific type and level of college and career are defined and identified.
	B. Undetermined	See comment for A
	C. Undetermined	See comment for A
Does the element reduce the need for remediation ?	A. Undetermined	OVERALL This is a rather ridiculous point to be asked to assess. Anytime something is learned it would reduce the need to "remediate" the lack of knowledge of that point or skill, but a valid claim cannot be made that one standard or even a set of standards will "reduce the need for remediation" overall.
	B. Undetermined	See comment for A
	C. Undetermined	See comment for A
Does the element meet the definition of a standard ?	A. YES	K.CC-1 Multiple standards

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B. NO	K.CC-4 Multiple standards clumped as one. "Understand" is not a measurable standard. K.CC-5 This borders on pedagogy. Multiple standards
	C. NO	K.CC-6 This includes pedagogy. K.CC-7 Too Vague. Not measurable

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Number and Operations in Base Ten</p> <p><i>Kindergarten</i></p> <p>A. Work with numbers 11–19 to gain foundations for place value.</p> <p><i>Grade 1</i></p> <p>B. Extend the counting sequence. C. Understand place value. D. Use place value understanding and properties of operations to add and subtract.</p> <p><i>Grade 2</i></p> <p>E. Understand place value. F. Use place value understanding and properties of operations to add and subtract.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level

Yes it meets the review criteria

Partially meets the review criteria or **undetermined**

No it does not meet the review criteria

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A No	<p>OVERALL COMMENT on Clear and Concise The arrangement and order of the individual standards and the standards document overall often make it less clear and more confusing because some topics are not listed in an order to know what material has been covered, or for logical learning progression, and important information is given in footnotes, tables and prose in various parts of the document making it hard to keep everything relevant in mind.</p> <p>K.NBT-1 Pedagogy. Example is wordy and goes beyond necessary to convey standard.</p>
	B No	<p>1.NBT-1 Multiple standards written as one. The first standard in the item (Count to.... 120) It seems this does not belong in NBT but should be in a Counting and Cardinality section like in K.CC. Placing like items in different section when presented at different grade levels makes for confusion.</p>
	C No	<p>1.NBT-2 Using "Understand" makes it vague. Sub-lines a,b,c, are not "special cases" but definitive of place value. Sub-line c finally acknowledges that a even "ten" has 0 ones. Zero is a valid number of tens and when working with 2 digit numbers students should work with 10-19 not 11-19.</p> <p>1. NBT-3 Compare values or what? Symbols not previously addressed in any standards - it implies multiple standards that a teacher and parent would have to deduce needs to be learned.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D No	<p>1.NBT-4 Wordy. Adding within 100 would naturally include one and 2 digit numbers. Word order implies pedagogy of adding tens first and "making tens" all adds to confusion of simple addition. Using "Understand" makes it vague .</p> <p>1.NBT-5 "Explain..." Some things are simply states of being and requiring a 6 year old to explain is ridiculous. What explanation is to be required by this standard?</p> <p>1.NBT-6 Pedagogy. Wordy. Simple standard content is lost by the "over control" put forth in the pedagogy. Multiple standards in one adds to confusion and lack of clarity.</p>
	E No	<p>2.NBT-1 Using "Understand" makes it vague. Sub-lines a,b, are not "special cases" but definitive of place value.</p> <p>2.NBT-2 Multiple standards. Does not belong in NBT but should be in a CC section like in K.CC. Placing like items in different section when presented at different grade levels makes for confusion.</p> <p>2.NBT-3 Why now define this as using Base ten system? Need for consistency throughout standards which is greatly lacking. Multiple standards.(esp by including expanded forms with numerals and names in this standard)</p> <p>2.NBT-4 Compare values or what? Symbols not previously addressed in any standards (Except by similar use in 1.NBT-3 without previously being introduced - it implies multiple standards that a teacher and parent would have to deduce needs to be learned. Forces pedagogy.</p>
	F No	<p>2.NBT-5 "and/or" what is required? Forces pedagogy.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A	<p>OVERALL</p> <p>Asking to evaluate: <i>Is the element grade level appropriate?</i> is not a reasonable request given no further information.</p> <p>Does this criteria mean appropriate by building on what is contained in the mandated standards of this document for the previous grade levels? Does it mean based on what has traditionally been content for this subject at this grade level?</p> <p>Anything can be "grade level appropriate" if that grade level is defined accordingly.</p> <p>Since this is the official state standards for education in Ohio, it could be said that everything in the standards document is deemed grade level appropriate because it is in the standards. By establishing the contents of this document as the standards for K12 math education in Ohio, and by doing so in a grade level arrangement, the state has created these standards to be the definition of each grade level. One could then put forth the idea that everything in it is automatically "grade level appropriate" even if is or could be totally inappropriate based on reason, student's prior knowledge, and the reality of human development.</p> <p>"Developmentally appropriate" is of great concern and critical to the proper and appropriate education of each individual student. It would be an important aspect to evaluate but is not legislatively part of these reviews. It also cannot be established for the masses but needs to take into consideration each unique individual's situation, life experiences, genetic and environmental factors</p> <p>K.NBT-1</p>
	B	1.NBT-1

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C	1.NBT-2
	D	1.NBT-4
	E	2.NBT-1 2.NBT-3 Delayed. Not learning to read any number names until 2nd grade??
	F	2.NBT-5
		<p>OVERALL Comment related to the following criteria: "Does the element promote higher student performance, learning and improved student achievement? Does the element support subject matter comprehension? Does the element promote essential knowledge in the subject? Does the element promote lifelong learning?"</p> <p>Equally concerning, and in some cases more so, than the individual standards, is the order of the standards, their progression over time, and the emphasis on theory, pedagogy, methods and experiential learning before foundational knowledge is obtained. Basic knowledge committed to memory to the level of automaticity <u>first</u>, is a foundation for building a solid understanding overtime, a critical tool for practical use, and both roots and branches for desiring more knowledge. A person who knows basic factual knowledge, has that as a "hook" of sort when exposed to other situations and information, sparking curiosity and a desire to learn more and a critical tool for critical thought. Delaying this and putting other things before obtaining basic knowledge is a disservice to students and a hindrance to reaching their full capacity at each stage of life, even the earliest.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote higher student performance, learning and improved student achievement?	A Undetermined	<p>OVERALL: What promotes these criteria for a student can vary greatly from one child to the next. Methods of presenting material, educational approaches and pedagogy that help one student may not help all students. Each child is an individual and should be considered as such when educating. To decide on a mass scale what promotes these criteria for all would be a false determination and relying on such a determination to influence an educational system could be harmful to some children.</p> <p>Therefore, I cannot rate them.</p> <p>K.NBT-1 Fails to include 0 as a valid number of ones</p>
	B Undetermined	1.NBT-1
	C Undetermined	1.NBT-2. 1.NBT-3
	D Undetermined	<p>1.NBT-4 Implying to add tens first confuses the understanding of numbers and place value. Performance and achievement are not dependant on using the strategies required.</p> <p>1.NBT-5 Requiring a student to explain a fact that exist by definition does not promote anything worthwhile.</p> <p>1.NBT-6 Requiring theoretical approach to simple math at this grade level does not necessarily promote performance, learning and achievement.</p>
	E Undetermined	<p>2.NBT-1</p> <p>2.NBT-2 Not counting to 1000 or skip counting by 5,10,100 until 2nd grade is delayed and could hinder achievement.</p> <p>2.NBT-3 Not reading and writing names until 2nd grade is delayed and could hinder achievement.</p> <p>2.NBT-4</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F Undetermined	<p>2.NBT-5 Requiring use of given strategies does not necessarily promote performance, learning and achievement but could hinder it at this grade level.</p> <p>2.NBT-6 Requiring use of given strategies does not promote performance, learning and achievement but could hinder it at this grade level.</p> <p>2.NBT-7 Not as written. Implying to add/subtract tens first confuses the understanding of numbers and place value. Performance and achievement are not dependant on using the strategies required and could hinder it.</p> <p>2.NBT-8</p> <p>2.NBT-9 Requiring a student to explain a fact that exist by definition does not promote anything worthwhile.</p>
Does the element support subject matter comprehension?	A Partially	K.NBT-1 Fails to include 0 as a valid number of ones
	B Yes	1.NBT-1
	C Yes	<p>1.NBT-2 If it was written as a valid standard.</p> <p>1.NBT-3 yes</p>
	D Partial	<p>1.NBT-4 Not as written. Implying to add tens first confuses the understanding of numbers and place value. Comprehension is not dependant on using the strategies required.</p> <p>1.NBT-5 Requiring a student to explain a fact that exist by definition does not promote anything worthwhile.</p> <p>1.NBT-6 Requiring theoretical approach to simple math at this grade level does not promote comprehension.</p>
	E Partial	<p>2.NBT-1 yes</p> <p>2.NBT-2 Not counting to 1000 or skip counting by 5,10,100 until 2nd grade is delayed and could hinder comprehension at earlier levels.</p> <p>2.NBT-3 Not reading and writing names until 2nd grade is delayed and could hinder comprehension at earlier levels.</p> <p>2.NBT-4 yes</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F Partial	<p>2.NBT-5 Requiring use of given strategies does not promote comprehension but could hinder it at this grade level.</p> <p>2.NBT-6 Requiring use of given strategies does not promote comprehension at this grade level.</p> <p>2.NBT-7 Not as written. Implying to add/subtract tens first confuses the understanding of numbers and place value. Using the strategies required could hinder it.</p> <p>2.NBT-8 Yes</p> <p>2.NBT-9 Requiring a student to explain a fact that exist by definition does not promote anything worthwhile.</p>
Does the element promote essential knowledge in the subject?	A Partial	K.NBT-1 Fails to include 0 as a valid number of ones
	B Yes	1.NBT-1
	C Yes	1.NBT-2 and 3
	D No	<p>1.NBT-4 Implying to add tens first confuses the understanding of numbers and place value</p> <p>1.NBT-5 Requiring a student to explain a fact that exist by definition does not promote anything worthwhile.</p> <p>1.NBT-6 Requiring theoretical approach to simple math at this grade level does not promote essential knowledge</p>
	E Yes	<p>2.NBT-1</p> <p>2.NBT-2 Multiple standards written into this one</p> <p>2.NBT-3</p> <p>2.NBT-4</p>
	F Partial	<p>2.NBT-5 Using the strategies required does not.</p> <p>2.NBT-6 Using the strategies required does not.</p> <p>2.NBT-7 NO Implying to add hundreds first then tens etc confuses the understanding of numbers and place value</p> <p>2.NBT-8 Yes</p> <p>2.NBT-9 No. Requiring a student to explain a fact that exist by definition does not promote anything worthwhile.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote lifelong learning?	A Undetermined	OVERALL This is a rather ridiculous point to be asked to assess in regards to education "standards." Certain knowledge or certain skills are necessary in order to be able to learn further since knowledge builds, and some abilities must be possessed in order to learn, but standards cannot "promote" lifelong learning.
	B Undetermined	See comment for A
	C Undetermined	See comment for A
	D Undetermined	See comment for A 1.NBT-5 Requiring a student to explain a fact that exist by definition does not promote anything worthwhile.
	E Undetermined	See comment for A
	F Undetermined	See comment for A
Does the element promote the liberal arts tradition?	A Undetermined	OVERALL: This is a rather ridiculous point to be asked to assess in regards to education "standards." "Standards" cannot "promote" the liberal arts tradition. Education content can be a part of the liberal arts tradition, but even to assess that there has to be given a working definition of the specific subject matter content of "the liberal arts tradition".

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B Undetermined	See comment for A
	C Undetermined	See comment for A
	D Undetermined	See comment for A
	E Undetermined	See comment for A
	F Undetermined	See comment for A
	Does the element promote college and career readiness?	A Undetermined
B Undetermined		See comment for A
C Undetermined		See comment for A
D Undetermined		See comment for A
E Undetermined		See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F Undetermined	See comment for A
Does the element reduce the need for remediation?	A Undetermined	OVERALL This is a rather ridiculous point to be asked to assess. Anytime something is learned it would reduce the need to "remediate" the lack of knowledge of that point or skill, but a valid claim cannot be made that one standard or even a set of standards will "reduce the need for remediation" overall.
	B Undetermined	See comment for A
	C Undetermined	See comment for A
	D Undetermined	See comment for A
	E Undetermined	See comment for A
	F Undetermined	See comment for A
Does the element meet the definition of a standard?	A No	K.NBT-1 Includes pedagogy
	B Yes	1.NBT-1
	C No	1.NBT-2 "Understand" is not measurable and there must be a way to assess that a student has met a goal. 1.NBT-3

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D No	<p>1.NBT-4 "Understand" is not measurable and there must be a way to determine that a student has met a goal. Includes pedagogy</p> <p>1.NBT-5</p> <p>1.NBT-6 Includes pedagogy</p>
	E No	<p>2.NBT-1 "Understand" is not measurable and there must be a way to determine that a student has met a goal.</p> <p>2.NBT-2 Multiple standards presented as one</p> <p>2.NBT-3 Multiple standards presented as one</p> <p>2.NBT-4</p>
	F No	<p>2.NBT-5 Includes pedagogy</p> <p>2.NBT-6 Includes pedagogy</p> <p>2.NBT-7 Includes pedagogy. "Understand" is not measurable and there must be a way to determine that a student has met a goal.</p> <p>2.NBT-8</p> <p>2.NBT-9</p>

Standards Committee Review Form

Ohio Standards Committee Review Form

Whitesel

Ohio Revised Code 3301.079 (I)(2)(a)

Each committee created in division (I)(1) of this section shall review the academic content standards for its respective subject area to ensure that such standards are **clear, concise, and appropriate for each grade level** and **promote higher student performance, learning, subject matter comprehension, and improved student achievement**. Each committee also shall review whether the standards for its respective subject area **promote essential knowledge in the subject, lifelong learning, the liberal arts tradition, and college and career readiness** and whether the standards **reduce remediation**.

Definitions

Clear – Easily understood; free from doubt or confusion¹

College and Career Readiness – remediation-free status; prepared to enroll in non-remedial, credit-bearing college courses leading to a postsecondary degree or other credential²

Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

¹ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/clear>

² Ohio Uniform Statewide Standards for Remediation-Free Status:
https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/data/reports/hs-to-college/2012_UNIFORM_STATEWIDE_REMEDIATION_FREE_STANDARDS%28010913%29.pdf

³ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/concise>

⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

⁵ Vocabulary.com: <http://www.vocabulary.com/dictionary/grade-appropriate>

⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

⁸ Ohio Revised Code 333.041: <http://codes.ohio.gov/orc/3333.041>

⁹ Education Portal: <http://education-portal.com/academy/lesson/student-achievement-definition-factors-research.html>

¹⁰ United States Department of Education: <http://www.ed.gov/race-top/district-competition/definitions>

¹¹ Merriam-Webster: <http://www.merriam-webster.com/dictionary/comprehension>

¹² Merriam-Webster: <http://www.merriam-webster.com/dictionary/subject%20matter>

Standards Committee Review Form

Whitesel

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p style="margin: 0;">Operations and Algebraic Thinking</p> <p style="margin: 0;"><i>Kindergarten</i></p> <p style="margin: 0;">A. Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.</p> <p style="margin: 0;"><i>Grade 1</i></p> <p style="margin: 0;">B. Represent and solve problems involving addition and subtraction.</p> <p style="margin: 0;">C. Understand and apply properties of operations and the relationship between addition and subtraction.</p> <p style="margin: 0;">D. Add and subtract within 20.</p> <p style="margin: 0;">E. Work with addition and subtraction equations.</p> <p style="margin: 0;"><i>Grade 2</i></p> <p style="margin: 0;">F. Represent and solve problems involving addition and subtraction.</p> <p style="margin: 0;">G. Add and subtract within 20.</p> <p style="margin: 0;">H. Work with equal groups of objects to gain foundations for multiplication.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level

Yes it meets the review criteria

Partially meets the review criteria or **undetermined**

No it does not meet the review criteria

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A No	<p>OVERALL COMMENT on Clear and Concise The arrangement and order of the individual standards and the standards document overall often make it less clear and more confusing because some topics are not listed in an order to know what material has been covered, or for logical learning progression, and important information is given in footnotes, tables and prose in various parts of the document making it hard to keep everything relevant in mind.</p> <p>Repeated reference to use equations in examples but equations not required according to page 9 adds confusion and uncertainty.</p> <p>K.OA-1 No range of problems given (within 10?) Inconsistent: Use of equations for representing listed here but not suggested for actually solving problems in K.OA-2. (inclusive or exclusive "or"?)</p> <p>K.OA-2 Multiple standards. As written includes pedagogy. Suggested re-write could be (in this order): -Use objects to add and subtract two numbers each less than 10. -Solve addition and subtraction word problems that are represented by objects or drawings, not to exceed 10 total. Inconsistent: Use of equations for representing listed in K.OA-1 but not suggested for actually solving problems here.</p> <p>K.OA-3 There is no prior standard introducing equations. This is pedagogy for teaching addition and subtraction. The knowledge this seems to be trying to address is covered in the first standard which is part of K.OA-2 "Add and subtract within 10." Poorly written/Excessive: Has an example for the example.</p> <p>K.OA-4 Includes pedagogy as written. Are students given a number (7) or a number of objects (7 stars) ?</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B No	<p>1.OA-1 and 2 No previous standards addressing knowledge of equations indicated in standards.</p> <p>The footnote reference to Glossary, Table1 is an insult to teachers as restating addition and subtraction with list of "adding to...,taking apart... Needlessly "wordy." No indication of complexity of word problems (2.OA-1 at least indicates one- and two-step problems.)</p>
	C No	<p>1.OA-3 1.OA-4 Vague - "Understand"</p>
	D No	<p>1.OA-5 1.OA-6 "Fluency" is a vague term. Does this mean memorization of facts? This is pedagogy for teaching addition and subtraction that borders on gobblity-gook. The problems arising in the public outcry about CC math because of the examples and strategies on how to teach given in this item are an example of the problems and dangers of the overreach of this document beyond being "just "standards".</p>
	E No	<p>1.OA-7 Vague - "Understand" No domain given.(sums to 20?) Concept of True and False not previously introduced.</p> <p>1.OA-8 This is already covered in 1.OA-1 No domain given.(sums to 20?) The order of standards is often illogical, which adds confusion to a parent or teacher planning lessons.</p>
	F No	<p>2.OA-1 No previous standards addressing knowledge of equations indicated in standards. Includes pedagogy. The footnote reference to Glossary, Table1 is an insult to teachers., as restating addition and subtraction with list of "adding to..., taking apart... " Needlessly "wordy."</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G No	<p>2.OA-2 "Fluency" is a vague term. Automaticity is needed.</p> <p>Footnotes says to refer to 1.OA-6 .</p> <p>1.OA-6 is pedagogy for teaching addition and subtraction that borders on gobblity-gook. The problems arising in the public outcry about CC math because of the examples and strategies on how to teach given in this item are an example of the problems and dangers of the overreach of this document being presented as " just standards".</p>
	H No	<p>2.OA-3 Odd and Even never previously introduced. Pedagogy.</p> <p>2.OA-4 Should say "a rectangular array" (singular) unless these are intended to be multistep problems using multiple arrays at once.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
		<p>OVERALL Comment related to the following criteria:</p> <p>"Does the element promote higher student performance, learning and improved student achievement?</p> <p>Does the element support subject matter comprehension?</p> <p>Does the element promote essential knowledge in the subject?</p> <p>Does the element promote lifelong learning?"</p> <p>Equally concerning, and in some cases more so, than the individual standards, is the order of the standards, their progression over time, and the emphasis on theory, pedagogy, methods and experiential learning before foundational knowledge is obtained. Basic knowledge committed to memory to the level of automaticity <u>first</u>, is a foundation for building a solid understanding overtime, a critical tool for practical use, and both roots and branches for desiring more knowledge. A person who knows basic factual knowledge, has that as a "hook" of sort when exposed to other situations and information, sparking curiosity and a desire to learn more and a critical tool for critical thought. Delaying this and putting other things before obtaining basic knowledge is a disservice to students and a hindrance to reaching their full capacity at each stage of life, even the earliest.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A	<p>OVERALL Asking to evaluate: <i>Is the element grade level appropriate?</i> is not a reasonable request given no further information.</p> <p>Does this criteria mean appropriate by building on what is contained in the mandated standards of this document for the previous grade levels? Does it mean based on what has traditionally been content for this subject at this grade level?</p> <p>Anything can be "grade level appropriate" if that grade level is defined accordingly.</p> <p>Since this is the official state standards for education in Ohio, it could be said that everything in the standards document is deemed grade level appropriate because it is in the standards. By establishing the contents of this document as the standards for K12 math education in Ohio, and by doing so in a grade level arrangement, the state has created these standards to be the definition of each grade level. One could then put forth the idea that everything in it is automatically "grade level appropriate" even if is or could be totally inappropriate based on reason, student's prior knowledge, and the reality of human development.</p> <p>"Developmentally appropriate" is of great concern and critical to the proper and appropriate education of each individual student. It would be an important aspect to evaluate but is not legislatively part of these reviews. It also cannot be established for the masses but needs to take into consideration each unique individual's situation, life experiences, genetic and environmental factors.</p>
	B	See comment for A
	C	See comment for A
	D	See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E	See comment for A
	F	See comment for A
	G	See comment for A
	H	See comment for A
Does the element promote higher student performance, learning and improved student achievement?	A Undetermined	<p>OVERALL: What promotes these criteria for a student can vary greatly from one child to the next. Methods of presenting material, educational approaches and pedagogy that help one student may not help all students. Each child is an individual and should be considered as such when educating. To decide on a mass scale what promotes these criteria for all would be a false determination and relying on such a determination to influence an educational system could be harmful to some children.</p> <p>Therefore, I cannot rate them.</p> <p>K.OA-1 Equations must be introduced to the student prior to the teaching of this standard. K.OA-5 Automaticity is needed, not "fluency"</p>
	B Undetermined	<p>1.OA-1 and 2 Equations must be introduced to the student prior to the teaching of this standard. Automaticity is needed, not "fluency"</p>
	C Undetermined	<p>1.OA-3 and 4 Not necessarily at this grade level</p>
	D Undetermined	<p>1.OA-5 Counting by anything other than 1 or 10 not previously introduced 1.OA-6 Pedagogy. This approach to teaching can cause confusion and frustration and "turn off" students to math. Automaticity is needed, not vague "fluency"</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E Undetermined	1.OA-7 Concepts of true and false and equations not introduced to the student prior to the teaching of this standard. How can a student understand the meaning of an equal sign if they don't understand true and false first?
	F Undetermined	2.OA-1 Excessive use of drawings at grade level could stifle development of abstract thought and bore some students, resulting in decreased performance and attention.
	G Undetermined	2.OA-2 Automaticity is needed, not vague "fluency" or "know from memory" Delaying the memorization of basic addition facts of two 1 digit numbers until 2nd grade inhibits performance and achievement.
	H Undetermined	2.OA-3 Odd and even not introduced prior to this. Counting by 2 not previously introduced.
Does the element support subject matter comprehension?	A Yes	K.OA-1 thru 5
	B Yes	1.OA-1 and 2
	C Yes	1.OA-3 and 4
	D No	1.OA-5 Not as written because counting by anything other than 1 or 10 not previously introduced. 1.OA-6 Not as written. Pedagogy. This approach to teaching does not necessarily increase comprehension. This approach to teaching can cause confusion and frustration and "turn off" students to math. Automaticity is needed, not vague "fluency"
	E Partially	1.OA-7 Concepts of true and false and equations not introduced to the student prior to the teaching of this standard. How can a student understand the meaning of an equal sign if they don't understand true and false first? 1.OA-8 yes
	F Yes	2.OA-1

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G No	2.OA-2 Automaticity is needed, not vague "fluency" or "know from memory" Delaying the memorization of basic addition facts of two 1 digit numbers until 2nd grade inhibits comprehension of subject matter.
	H No	2.OA-3 Odd and even not introduced prior to this. Counting by 2 not previously introduced.
Does the element promote essential knowledge in the subject?	A Partially	K.OA-1 thru5 While some of the methods required by these standards are used to promote knowledge, some of the methods are not essential to the gaining the knowledge
	B Yes	1.OA-1 and 2
	C Partially	1.OA-3 and 4 Not necessarily at this grade level
	D No	1.OA-5 and 6 While some of the methods required by these standards may be intended to promote knowledge, some of the methods are not essential to the gaining the knowledge, and in fact can cause confusion and frustration at this level.
	E No	1.OA-7 Not without concepts of true and false and equations being introduced to the student prior to the teaching of this standard. 1.OA-8 yes
	F Yes	2.OA-1
	G Partially	2.OA-2 Automaticity is needed, not vague "fluency" or "know from memory" Delaying the memorization of basic addition facts of two 1 digit numbers until 2nd grade withholds essential knowledge.
	H No	2.OA-3 Odd and even not introduced prior to this. Not as written because counting by anything other than 1 or 10 not previously introduced.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote lifelong learning ?	A Undetermined	OVERALL This is a rather ridiculous point to be asked to assess in regards to education "standards." Certain knowledge or certain skills are necessary in order to be able to learn further since knowledge builds, and some abilities must be possessed in order to learn, but standards cannot "promote" lifelong learning.
	B Undetermined	See A.
	C Undetermined	See A.
	D Undetermined	See A.
	E Undetermined	See A.
	F Undetermined	See A.
	G Undetermined	See A.
	H Undetermined	See A.
Does the element promote the liberal arts tradition ?	A Undetermined	OVERALL: This is a rather ridiculous point to be asked to assess in regards to education "standards." "Standards" cannot "promote" the liberal arts tradition. Education content can be a part of the liberal arts tradition, but even to assess that there has to be given a working definition of the specific subject matter content of "the liberal arts tradition".
	B Undetermined	See A.
	C Undetermined	See A.
	D Undetermined	See A.
	E Undetermined	See A.
	F Undetermined	See A.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G Undetermined	See A.
	H Undetermined	See A.
Does the element promote college and career readiness?	A Undetermined	OVERALL This is a rather ridiculous point to be asked to assess in regards to education "standards". "Standards" or anything else for that matter cannot validly be put forth as promoting college and career readiness" unless the entry requirements of the specific type and level of college and career are defined and identified.
	B Undetermined	See A.
	C Undetermined	See A.
	D Undetermined	See A.
	E Undetermined	See A.
	F Undetermined	See A.
	G Undetermined	See A.
	H Undetermined	See A.
Does the element reduce the need for remediation?	A Undetermined	OVERALL This is a rather ridiculous point to be asked to assess. Anytime something is learned it would reduce the need to "remediate" the lack of knowledge of that point or skill, but a valid claim cannot be made that one standard or even a set of standards will "reduce the need for remediation" overall.
	B Undetermined	See A.
	C Undetermined	See A.
	D Undetermined	See A.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E Undetermined	See A.
	F Undetermined	See A.
	G Undetermined	See A.
	H Undetermined	See A.
Does the element meet the definition of a standard?	A Undetermined	K.OA-1 Pedagogy included. How does a teacher assess a child's mental image? Possibly a description of a mental image, but a teacher cannot assess a child's mental image. K.OA-3 This is pedagogy for teaching addition and subtraction. The knowledge this seems to be trying to address is covered in the first standard which is part of K.OA-2 "Add and subtract within 10."
	B Yes	1.OA-1 and 2 Pedagogy included
	C No	1.OA- 4 "Understand" is not measurable
	D No	1.OA-5 Vague 1.OA-6 "Demonstrating fluency" is vague. Pedagogy.
	E #7 No #8 Yes	1.OA-7 "Understand" is not measurable
	F Yes	2.OA-1 Pedagogy included
	G No	2.OA-2 Multiple standards in one "Fluently" is vague and therefore not measurable. (Also include pedagogy in 1.OA-6)
	H Yes	2.OA-3 Pedagogy included

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

Each committee created in division (I)(1) of this section shall review the academic content standards for its respective subject area to ensure that such standards are **clear, concise, and appropriate for each grade level** and **promote higher student performance, learning, subject matter comprehension, and improved student achievement**. Each committee also shall review whether the standards for its respective subject area **promote essential knowledge in the subject, lifelong learning, the liberal arts tradition, and college and career readiness** and whether the standards **reduce remediation**.

Definitions

Clear – Easily understood; free from doubt or confusion¹

College and Career Readiness – remediation-free status; prepared to enroll in non-remedial, credit-bearing college courses leading to a postsecondary degree or other credential²

Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

¹ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/clear>

² Ohio Uniform Statewide Standards for Remediation-Free Status:

https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/data/reports/hs-to-college/2012_UNIFORM_STATEWIDE_REMEDIATION_FREE_STANDARDS%28010913%29.pdf

³ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/concise>

⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

⁵ Vocabulary.com: <http://www.vocabulary.com/dictionary/grade-appropriate>

⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

⁸ Ohio Revised Code 333.041: <http://codes.ohio.gov/orc/3333.041>

⁹ Education Portal: <http://education-portal.com/academy/lesson/student-achievement-definition-factors-research.html>

¹⁰ United States Department of Education: <http://www.ed.gov/race-top/district-competition/definitions>

¹¹ Merriam-Webster: <http://www.merriam-webster.com/dictionary/comprehension>

¹² Merriam-Webster: <http://www.merriam-webster.com/dictionary/subject%20matter>

Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Measurement and Data</p> <p><i>Kindergarten</i></p> <p>A. Describe and compare measurable attributes. B. Classify objects and count the number of objects in categories.</p> <p><i>Grade 1</i></p> <p>C. Measure lengths indirectly and by iterating length units. D. Tell and write time. E. Represent and interpret data.</p> <p><i>Grade 2</i></p> <p>F. Measure and estimate lengths in standard units. G. Relate addition and subtraction to length. H. Work with time and money. I. Represent and interpret data.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level**Yes** it meets the review criteria**Partially** meets the review criteria or **undetermined****No** it does not meet the review criteria

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A No	<p>OVERALL COMMENT on Clear and Concise The arrangement and order of the individual standards and the standards document overall often make it less clear and more confusing because some topics are not listed in an order to know what material has been covered, or for logical learning progression, and important information is given in footnotes, tables and prose in various parts of the document making it hard to keep everything relevant in mind.</p> <p>K.MD-1 Vague and confusing. What attributes are required at this level? If this is to be the standard it should list all attributes required. Does this require a description of the attribute ("What does length mean?" /"To what does length refer?") or describe the object by using attribute terms and values? What level or depth of description is expected from a 5 year old?</p> <p>K.MD-2 Vague. What attributes are required at this level? If this is to be standards it should list all attributes required. (Children are not objects!) What level or depth of description is expected from a 5 year old?</p>
	B No	<p>K-MD-3 For clarity list limits directly in the standards not in a footnote. Category counts: less than 10 categories or less than 10 items in each category? Multiple standards listed as one.</p>
	C No	<p>1.MD-1 Pedagogy and/or multiple standards Because of this, it is confusing. When initially ordering by length were the objects to be measured first or was order determined by visual inspection without formal measurement? 1.MD-2 Pedagogy What is meant by "Understand"?</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Partial	1.MD-3 Use consistent wording across grade levels for same topics (reference 2.MD-7 for comparison) Write time using standard time notation, or words, or both?
	E No	1.MD-4 This is so wide open it could include just about anything! Multiple standards lumped into one. Are the questions given the only specific ones they need to be able to answer? Excessive wordiness makes it less clear and raises more uncertainty as to what it includes/means.
	F No	2.MD-1 To what degree? inches? millimeters? fractions of units? "such as" is vague and opens up to question: Is it limited to just those tools listed? 2.MD-2 "length units of different lengths"??? 2.MD-3 How - By visual inspection without instruments? These units were never introduced prior. How can a student estimate using a unit they are not familiar with? 2.MD-4 What length units should be known and used? Is it limited to those listed in 2.MD-3? Whole numbers only?
	G No	2.MD-5 Pedagogy included and makes it confusing. Whole numbers only? 2.MD-6 Wordy and not clear. Number lines never introduced. Just positive numbers or negatives as well? (positive and negative numbers are whole numbers) "Add and subtract whole positive numbers within 100 on a number line." Requiring use of number line to teach measurement is pedagogy.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	H No	<p>2.MD-7 Use consistent wording across grade levels for same topics (reference 1.MD-3 for comparison) Write time using standard time notation, or words, or both? Poorly worded: "write... from ... clock" ???</p> <p>2.MD-8 Multiple standards. Coins, their values and the concept of money never previously introduced. "Solve word problems" is vague. Is the example the only type and complexity for word problems required?</p> <p>A clearly worded standard would eliminate the need for examples and avoid further confusion and questions. Compare this to the CA2005 Grade 1 standard: "Identify and know the value of coins and show different combinations of coins that equal the same value." Is clearer and covers more skills.</p>
	I No	<p>2.MD-9 "by making repeated measurements of the same object" - What is the purpose of that? Not previously introduced: "a line-plot." Excessively wordy. Multiple standards.</p> <p>2.MD-10 Multiple standards. "Graphs, picture graphs, bar graphs not previously introduced. "put-together, take-apart..." -- Is this addition and subtraction? (terminology like this is insulting and does not advance level of education) Critical information left out of the standard itself and put in a footnote lessen clarity.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
		<p>OVERALL Comment related to the following criteria: "Does the element promote higher student performance, learning and improved student achievement? Does the element support subject matter comprehension? Does the element promote essential knowledge in the subject? Does the element promote lifelong learning?"</p> <p>Equally concerning, and in some cases more so, than the individual standards, is the order of the standards, their progression over time, and the emphasis on theory, pedagogy, methods and experiential learning before foundational knowledge is obtained. Basic knowledge committed to memory to the level of automaticity <u>first</u>, is a foundation for building a solid understanding overtime, a critical tool for practical use, and both roots and branches for desiring more knowledge. A person who knows basic factual knowledge, has that as a "hook" of sort when exposed to other situations and information, sparking curiosity and a desire to learn more and a critical tool for critical thought. Delaying this and putting other things before obtaining basic knowledge is a disservice to students and a hindrance to reaching their full capacity at each stage of life, even the earliest.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A	<p>Asking to evaluate: <i>Is the element grade level appropriate?</i> is not a reasonable request given no further information.</p> <p>Does this criteria mean appropriate by building on what is contained in the mandated standards of this document for the previous grade levels? Does it mean based on what has traditionally been content for this subject at this grade level?</p> <p>Anything can be "grade level appropriate" if that grade level is defined accordingly.</p> <p>Since this is the official state standards for education in Ohio, it could be said that everything in the standards document is deemed grade level appropriate because it is in the standards. By establishing the contents of this document as the standards for K12 math education in Ohio, and by doing so in a grade level arrangement, the state has created these standards to be the definition of each grade level. One could then put forth the idea that everything in it is automatically "grade level appropriate" even if is totally inappropriate based on reason, student's prior knowledge, and the reality of human development.</p> <p>"Developmentally appropriate" is of great concern and critical to the proper and appropriate education of each individual student. It would be an important aspect to evaluate but is not legislatively part of these reviews. It also cannot be established for the masses but needs to take into consideration each unique individual's situation, life experiences, genetic and environmental factors.</p>
	B	See comment for A
	C	See comment for A
	D	See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E	See comment for A
	F	See comment for A
	G	See comment for A
	H	See comment for A
	I	See comment for A
Does the element promote higher student performance, learning and improved student achievement?	A Undetermined	OVERALL: What promotes these criteria for a student can vary greatly from one child to the next. Methods of presenting material, educational approaches and pedagogy that help one student may not help all students. Each child is an individual and should be considered as such when educating. To decide on a mass scale what promotes these criteria for all would be a false determination and relying on such a determination to influence an educational system could be harmful to some children. Therefore I cannot rate them.
	B Undetermined	See comment for A
	C Undetermined	See comment for A
	D Undetermined	See comment for A
	E Undetermined	See comment for A
	F Undetermined	See comment for A 2.MD-1 Opportunities missed/delayed by not presenting at an earlier grade level. 2.MD-3 Problems could occur since necessary content not previously introduced. 2.MD-4 Opportunities missed/delayed by not presenting at an earlier grade level.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G Undetermined	See comment for A 2.MD-6 Can be achieved by simply learning to measure with a ruler and add and subtract whole numbers.
	H Undetermined	See comment for A 2.MD-8 Necessary content not previously introduced.
	I Undetermined	See comment for A 2.MD-9 A teacher might determine other teaching methods to be better for her student(s) 2.MD-10 A teacher might determine other teaching methods to be better for her student(s)
Does the element support subject matter comprehension?	A Yes	K.MD-1 and 2
	B Yes	K.MD-3
	C Yes	1.MD-1 1.MD-2
	D Yes	1.MD-3
	E Undetermined	1.MD-4 Too wide open to determine
	F Yes	2.MD-1 2.MD-2 2.MD-3 2.MD-4
	G Partial	2.MD-5 and 6 Pedagogy required is not only means. Many alternative methods could be used to the same end and could be best determined by teacher for students.
	H Yes	2.MD-7 and 8

Standards Committee Review Form

Review Criteria	Review Level	Notes
	I Partial	2.MD-9 and 10 Pedagogy required is not only means. Many alternative methods could be used to the same end and could be best determined by teacher for students.
Does the element promote essential knowledge in the subject?	A Yes	K.MD-1 K.MD-2
	B Yes	K.MD-3
	C Yes	1.MD-1 1.MD-2
	D Yes	1.MD-3
	E Undetermined	1.MD-4 Too vague
	F Yes	2.MD-1 2.MD-2 2.MD-3 2.MD-4
	G Partial	2.MD-5 and 6 Many alternative methods could be used to the same end.
	H Yes	2.MD-7 2.MD-8
	I Partial	2.MD-9 and 10 Many alternative methods could be used to the same end.
Does the element promote lifelong learning?	A Undetermined	OVERALL This is a rather ridiculous point to be asked to assess in regards to education "standards." Certain knowledge or certain skills are necessary in order to be able to learn further since knowledge builds, and some abilities must be possessed in order to learn, but standards cannot "promote" lifelong learning.
	B Undetermined	See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C Undetermined	See comment for A
	D Undetermined	See comment for A
	E Undetermined	See comment for A
	F Undetermined	See comment for A
	G Undetermined	See comment for A
	H Undetermined	See comment for A
	I Undetermined	See comment for A
Does the element promote the liberal arts tradition?	A Undetermined	OVERALL: This is a rather ridiculous point to be asked to assess in regards to education "standards." "Standards" cannot "promote" the liberal arts tradition. Education content can be a part of the liberal arts tradition, but even to assess that there has to be given a working definition of the specific subject matter content of "the liberal arts tradition".
	B Undetermined	See comment for A
	C Undetermined	See comment for A
	D Undetermined	See comment for A
	E Undetermined	See comment for A
	F Undetermined	See comment for A
	G Undetermined	See comment for A
	H Undetermined	See comment for A
	I Undetermined	See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote college and career readiness ?	A Undetermined	OVERALL This is a rather ridiculous point to be asked to assess in regards to education "standards". "Standards" or anything else for that matter cannot validly be put forth as promoting college and career readiness" unless the entry requirements of the specific type and level of college and career are defined and identified.
	B Undetermined	See comment for A
	C Undetermined	See comment for A
	D Undetermined	See comment for A
	E Undetermined	See comment for A
	F Undetermined	See comment for A
	G Undetermined	See comment for A
	H Undetermined	See comment for A
	I Undetermined	See comment for A
Does the element reduce the need for remediation ?	A Undetermined	OVERALL This is a rather ridiculous point to be asked to assess. Anytime something is learned it would reduce the need to "remediate" the lack of knowledge of that point or skill, but a valid claim cannot be made that one standard or even a set of standards will "reduce the need for remediation" overall.
	B Undetermined	See comment for A
	C Undetermined	See comment for A
	D Undetermined	See comment for A
	E Undetermined	See comment for A
	F Undetermined	See comment for A
	G Undetermined	See comment for A
	I Undetermined	See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	H Undetermined	See comment for A
	I Undetermined	See comment for A
Does the element meet the definition of a standard?	A Yes	K.MD-1 As written, this could be interpreted to be multiple standards. K.MD-2
	B Yes	K.MD-3 Multiple standards.
	C Partial	1.MD-1 Multiple standards 1.MD-2 "Understand" is not measureable. A goal must have a way to determine when it has been achieved, which does not exist here.
	D Yes	1.MD-3
	E Undetermined	1.MD-4 Multiple standards.
	F Yes	2.MD-1 2.MD-2 2.MD-3 2.MD-4
	G No	2.MD-5 Pedagogy 2.MD-6 Requiring use of number line to teach measurement is pedagogy.
	H Yes	2.MD-7 2.MD-8
	I Partial	2.MD-9 Requiring use of "line plot" is pedagogy. 2.MD-10 Multiple standards

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

Each committee created in division (I)(1) of this section shall review the academic content standards for its respective subject area to ensure that such standards are **clear, concise, and appropriate for each grade level** and **promote higher student performance, learning, subject matter comprehension, and improved student achievement**. Each committee also shall review whether the standards for its respective subject area **promote essential knowledge in the subject, lifelong learning, the liberal arts tradition, and college and career readiness** and whether the standards **reduce remediation**.

Definitions

Clear – Easily understood; free from doubt or confusion¹

College and Career Readiness – remediation-free status; prepared to enroll in non-remedial, credit-bearing college courses leading to a postsecondary degree or other credential²

Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

¹ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/clear>

² Ohio Uniform Statewide Standards for Remediation-Free Status:
https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/data/reports/hs-to-college/2012_UNIFORM_STATEWIDE_REMEDIATION_FREE_STANDARDS%28010913%29.pdf

³ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/concise>

⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

⁵ Vocabulary.com: <http://www.vocabulary.com/dictionary/grade-appropriate>

⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

⁸ Ohio Revised Code 333.041: <http://codes.ohio.gov/orc/3333.041>

⁹ Education Portal: <http://education-portal.com/academy/lesson/student-achievement-definition-factors-research.html>

¹⁰ United States Department of Education: <http://www.ed.gov/race-top/district-competition/definitions>

¹¹ Merriam-Webster: <http://www.merriam-webster.com/dictionary/comprehension>

¹² Merriam-Webster: <http://www.merriam-webster.com/dictionary/subject%20matter>

Standards Committee Review Form

Standards Committee (Content Area)	Mathematics
Committee Member Name	
Element Under Review (Theme, Area, Strand)	<p>Geometry</p> <p><i>Kindergarten</i></p> <p>A. Identify and describe shapes. B. Analyze, compare, create, and compose shapes.</p> <p><i>Grade 1</i></p> <p>C. Reason with shapes and their attributes.</p> <p><i>Grade 2</i></p> <p>D. Reason with shapes and their attributes.</p>
Grade Level(s) Under Review	Kindergarten – Grade 2

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. Partial	<p>OVERALL COMMENT on Clear and Concise The arrangement and order of the individual standards and the standards document overall often make it less clear and more confusing because some topics are not listed in an order to know what material has been covered, or for logical learning progression, and important information is given in footnotes, tables and prose in various parts of the document making it hard to keep everything relevant in mind.</p> <p>K.G-1 Multiple standards K.G-2 K.G-3</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B. Partial	K.G-4 "and other attributes" Vague. Wordy. K.G-5 Pedagogy K.G-6
	C. No	1.G-1 Pedagogy 1.G-2 "compose" used in two different ways in same sentence makes it less clear. 1.G-3 Pedagogy
	D. No	2.G-1 Multiple standards 2.G-2 Pedagogy for learning area? As stated purpose is not clear. 2.G-3 Pedagogy

Standards Committee Review Form

Review Criteria	Review Level	Notes
		<p>OVERALL Comment related to the following criteria:</p> <p>"Does the element promote higher student performance, learning and improved student achievement?</p> <p>Does the element support subject matter comprehension?</p> <p>Does the element promote essential knowledge in the subject?</p> <p>Does the element promote lifelong learning?"</p> <p>Equally concerning, and in some cases more so, than the individual standards, is the order of the standards, their progression over time, and the emphasis on theory, pedagogy, methods and experiential learning before foundational knowledge is obtained. Basic knowledge committed to memory to the level of automaticity <u>first</u>, is a foundation for building a solid understanding overtime, a critical tool for practical use, and both roots and branches for desiring more knowledge. A person who knows basic factual knowledge, has that as a "hook" of sort when exposed to other situations and information, sparking curiosity and a desire to learn more and a critical tool for critical thought. Delaying this and putting other things before obtaining basic knowledge is a disservice to students and a hindrance to reaching their full capacity at each stage of life, even the earliest.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A.	<p>OVERALL Asking to evaluate: <i>Is the element grade level appropriate?</i> is not a reasonable request given no further information.</p> <p>Does this criteria mean appropriate by building on what is contained in the mandated standards of this document for the previous grade levels? Does it mean based on what has traditionally been content for this subject at this grade level?</p> <p>Anything can be "grade level appropriate" if that grade level is defined accordingly.</p> <p>Since this is the official state standards for education in Ohio, it could be said that everything in the standards document is deemed grade level appropriate because it is in the standards. By establishing the contents of this document as the standards for K12 math education in Ohio, and by doing so in a grade level arrangement, the state has created these standards to be the definition of each grade level. One could then put forth the idea that everything in it is automatically "grade level appropriate" even if is or could be totally inappropriate based on reason, student's prior knowledge, and the reality of human development.</p> <p>"Developmentally appropriate" is of great concern and critical to the proper and appropriate education of each individual student. It would be an important aspect to evaluate but is not legislatively part of these reviews. It also cannot be established for the masses but needs to take into consideration each unique individual's situation, life experiences, genetic and environmental factors.</p>
	B.	
	C.	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D.	2.G-1 and 2 Identifying basic shapes closer to a preschool/Kindergarten topic?
Does the element promote higher student performance, learning and improved student achievement?	A. Undetermined	OVERALL: What promotes these criteria for a student can vary greatly from one child to the next. Methods of presenting material, educational approaches and pedagogy that help one student may not help all students. Each child is an individual and should be considered as such when educating. To decide on a mass scale what promotes these criteria for all would be a false determination and relying on such a determination to influence an educational system could be harmful to some children. Therefore I cannot rate them.
	B. Undetermined	See comment for A
	C. Undetermined	See comment for A
	D. Undetermined	See comment for A
Does the element support subject matter comprehension?	A. Yes	K.G-1 thru 3
	B. Yes	K.G-4 thru 6
	C. Yes	1.G-1 thru 3
	D. Yes	2.G-1 thru 3
Does the element promote essential knowledge in the subject?	A. Yes	K.G-1 K.G-2 K.G-3
	B. Partial/Yes	K.G-5 Pedagogy (A student can have a full understanding of shapes without being required to make them out of clay etc)

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. Yes	1.G-1 thru 3
	D. Partial	2.G-1 2.G-2 Not as stated (no purpose related) 2.G-3
Does the element promote lifelong learning?	A. Undetermined	OVERALL This is a rather ridiculous point to be asked to assess in regards to education "standards." Certain knowledge or certain skills are necessary in order to be able to learn further since knowledge builds, and some abilities must be possessed in order to learn, but standards cannot "promote" lifelong learning.
	B. Undetermined	See comment for A
	C. Undetermined	See comment for A
	D. Undetermined	See comment for A
Does the element promote the liberal arts tradition?	A. Undetermined	OVERALL: This is a rather ridiculous point to be asked to assess in regards to education "standards." "Standards" cannot "promote" the liberal arts tradition. Education content can be a part of the liberal arts tradition, but even to assess that there has to be given a working definition of the specific subject matter content of "the liberal arts tradition".
	B. Undetermined	See comment for A
	C. Undetermined	See comment for A
	D. Undetermined	See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote college and career readiness ?	A. Undetermined	OVERALL This is a rather ridiculous point to be asked to assess in regards to education "standards". "Standards" or anything else for that matter cannot validly be put forth as promoting college and career readiness" unless the entry requirements of the specific type and level of college and career are defined and identified.
	B. Undetermined	See comment for A
	C. Undetermined	See comment for A
	D. Undetermined	See comment for A
Does the element reduce the need for remediation ?	A. Undetermined	OVERALL This is a rather ridiculous point to be asked to assess. Anytime something is learned it would reduce the need to "remediate" the lack of knowledge of that point or skill, but a valid claim cannot be made that one standard or even a set of standards will "reduce the need for remediation" overall.
	B. Undetermined	See comment for A
	C. Undetermined	See comment for A
	D. Undetermined	See comment for A
Does the element meet the definition of a standard ?	A. Yes	K.G-1 Multiple standards K.G-2 K.G-3
	B. Partial	K.G-4 K.G-5 Pedagogy (unless this is for art class) K.G-6
	C. Yes	1.G-1 1.G-2 1.G-3
	D. Partial	2.G-1 Multiple standards 2.G-2 Pedagogy (with purpose not stated) 2.G-3

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

Each committee created in division (I)(1) of this section shall review the academic content standards for its respective subject area to ensure that such standards are **clear, concise, and appropriate for each grade level** and **promote higher student performance, learning, subject matter comprehension, and improved student achievement**. Each committee also shall review whether the standards for its respective subject area **promote essential knowledge in the subject, lifelong learning, the liberal arts tradition, and college and career readiness** and whether the standards **reduce remediation**.

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Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

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Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

¹ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/clear>

² Ohio Uniform Statewide Standards for Remediation-Free Status:

https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/data/reports/hs-to-college/2012_UNIFORM_STATEWIDE_REMEDIATION_FREE_STANDARDS%28010913%29.pdf

³ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/concise>

⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

⁵ Vocabulary.com: <http://www.vocabulary.com/dictionary/grade-appropriate>

⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

⁸ Ohio Revised Code 333.041: <http://codes.ohio.gov/orc/3333.041>

⁹ Education Portal: <http://education-portal.com/academy/lesson/student-achievement-definition-factors-research.html>

¹⁰ United States Department of Education: <http://www.ed.gov/race-top/district-competition/definitions>

¹¹ Merriam-Webster: <http://www.merriam-webster.com/dictionary/comprehension>

¹² Merriam-Webster: <http://www.merriam-webster.com/dictionary/subject%20matter>

Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p style="margin: 0;">Number and Operations in Base Ten</p> <p style="margin: 0;"><i>Grade 3</i></p> <p style="margin: 0;">A. Use place value understanding and properties of operations to perform multi-digit arithmetic.</p> <p style="margin: 0;"><i>Grade 4</i></p> <p style="margin: 0;">B. Generalize place value understanding for multi-digit whole numbers.</p> <p style="margin: 0;">C. Use place value understanding and properties of operations to perform multi-digit arithmetic.</p> <p style="margin: 0;"><i>Grade 5</i></p> <p style="margin: 0;">D. Understand the place value system.</p> <p style="margin: 0;">E. Perform operations with multi-digit whole numbers and with decimals to hundredths.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise?	A Partially	<p>3.NBT.1 yes</p> <p>3.NBT.2</p> <p>"Using strategies...based on..." "and/or" leave questions as to what is included and required.</p> <p>3.NBT.3 "Using strategies ... based on..." leaves questions as to what is included and required.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B NO	4.NBT.1 "represents 10 times" but then example is one of division 4.NBT.2 Multiple standards written as one. At a minimum break into a.) b.) c.) 4.NBT.3 "to a given place" instead of "to any place"
	C Partially	4.NBT.4 Yes 4.NBT.5 and 4.NBT.6 NO "Using strategies...based on..." "and/or" leaves questions as to what is specifically is included and required.
	D Partially	5.NBT.1 Yes 5.NBT.2 No. Multiple standards written as one. Make last statement the first one would also help 5.NBT.3 Yes 5.NBT.4 "to a given place" instead of "to any place"
	E Partially	5.NBT.5 Yes 5.NBT.6 NO "Using strategies...based on..." "and/or" leaves questions as to what is specifically is included and required. 5.NBT.7 NO "Using strategies...based on..." "and/or" leaves questions as to what is specifically is included and required.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate ?	A Undetermined	<p>Does this criteria mean is the element appropriate by building on what is contained in the mandated standards of this document for the previous grade levels? Does it mean based on what has traditionally been content for this subject at this grade level?</p> <p>Anything can be "grade level appropriate" if that grade level is defined accordingly.</p> <p>Since this is the official state standards for education in Ohio, it could be said that everything in the standards document is deemed grade level appropriate because it is in the standards. By establishing the contents of this document as the standards for K12 math education in Ohio, and by doing so in a grade level arrangement, the state has created these standards to be the definition of each grade level. One could then put forth the idea that everything in it is automatically "grade level appropriate" even if is or could be totally inappropriate based on reason, student's prior knowledge, and the reality of human development.</p> <p>"Developmentally appropriate" is of great concern and critical to the proper and appropriate education of each individual student. It would be an important aspect to evaluate but is not legislatively part of these reviews. It also cannot be established for the masses but needs to take into consideration each unique individual's situation, life experiences, genetic and environmental factors</p>
	B Undetermined	See comment for A
	C Undetermined	See comment for A
	D Undetermined	See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E Undetermined	See comment for A
Does the element promote higher student performance, learning and improved student achievement?	A Undetermined.	<p>OVERALL Comment related to the following criteria:</p> <p>"Does the element promote higher student performance, learning and improved student achievement?</p> <p>Does the element support subject matter comprehension?</p> <p>Does the element promote essential knowledge in the subject?</p> <p>Does the element promote lifelong learning?"</p> <p>Equally concerning, and in some cases more so, than the individual standards, is the order of the standards, their progression over time, and the emphasis on theory, pedagogy, methods and experiential learning before foundational knowledge is obtained. Basic knowledge committed to memory to the level of automaticity <u>first</u>, is a foundation for building a solid understanding overtime, a critical tool for practical use, and both roots and branches for desiring more knowledge. A person who knows basic factual knowledge, has that as a "hook" of sort when exposed to other situations and information, sparking curiosity and a desire to learn more and a critical tool for critical thought. Delaying this and putting other things before obtaining basic knowledge is a disservice to students and a hindrance to reaching their full capacity at each stage of life, even the earliest.</p>
	B Undetermined.	See comment for A
	C Undetermined.	See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Undetermined.	See comment for A
	E Undetermined.	See comment for A
Does the element support subject matter comprehension?	A Yes	3.NBT.1 3.NBT.2 3.NBT.3
	B Yes	4.NBT.1, 2, 3
	C Partially	4.NBT.4 Students need to reach the level of automaticity, not the vague level of "fluency" 4.NBT.5 yes 4.NBT.6 yes
	D Yes	5.NBT.1, 2, 3, 4
	E Partially	5.NBT.5 Students need to reach the level of automaticity, not the vague level of "fluency." 5.NBT.6 and 5.NBT.7 mandating methods is excessive. This is best left to be determined by a teacher who knows his/her students.
Does the element promote essential knowledge in the subject?	A Yes	3.NBT.1 3.NBT.2 3.NBT.3
	B Yes	4.NBT.1 4.NBT.2 4.NBT.3
	C Partially	4.NBT.4 Students need to reach the level of automaticity, not the vague level of "fluency" 4.NBT.5 yes 4.NBT.6 yes

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Yes	5.NBT.1 5.NBT.2 5.NBT.3 5.NBT.4
	E Partially	5.NBT.5 Students need to reach the level of automaticity, not the vague level of "fluency." 5.NBT.6 and 5.NBT.7 mandating methods is excessive. This is best left to be determined by a teacher who knows his/her students.
Does the element promote lifelong learning ?	A No	Certain knowledge or certain skills are necessary in order to be able to learn further since knowledge builds, and some abilities must be possessed in order to learn, but standards cannot "promote" lifelong learning.
	B No	See comment for A
	C No	See comment for A
	D No	See comment for A
	E No	See comment for A
Does the element promote the liberal arts tradition ?	A No	"Standards" cannot "promote" the liberal arts tradition. Education content can be a part of the liberal arts tradition, but even to assess that there has to be given a working definition of the specific subject matter content of "the liberal arts tradition".
	B No	See comment for A
	C No	See comment for A
	D No	See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E No	See comment for A
Does the element promote college and career readiness?	A Undetermined	"Standards" or anything else for that matter cannot validly be put forth as promoting "college and career readiness" unless the entry requirements of the specific type and level of college and career are defined and identified.
	B Undetermined	See comment for A
	C Undetermined	See comment for A
	D Undetermined	See comment for A
	E Undetermined	See comment for A
Does the element reduce the need for remediation?	A Undetermined	Anytime something is learned it would reduce the need to "remediate" the lack of knowledge of that point or skill, but a valid claim cannot be made that one standard or even a set of standards will "reduce the need for remediation" overall.
	B Undetermined	See comment for A
	C Undetermined	See comment for A
	D Undetermined	See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E Undetermined	See comment for A
Does the element meet the definition of a standard?	A Yes	3.NBT.1 3.NBT.2 3.NBT.3
	B Partially	4.NBT.1 4.NBT.2 Multiple standards written as one 4.NBT.3
	C Partially	4.NBT.4 4.NBT.5 Pedagogy "using strategies"- "by using" 4.NBT.6 Pedagogy "using strategies"- "by using"
	D Yes	5.NBT.1 5.NBT.2 5.NBT.3 5.NBT.4
	E Partially	5.NBT.5 5.NBT.6 Pedagogy "using strategies"- "by using" 5.NBT.7 Pedagogy "using strategies"- "by using"

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

Each committee created in division (I)(1) of this section shall review the academic content standards for its respective subject area to ensure that such standards are **clear, concise, and appropriate for each grade level** and **promote higher student performance, learning, subject matter comprehension, and improved student achievement**. Each committee also shall review whether the standards for its respective subject area **promote essential knowledge in the subject, lifelong learning, the liberal arts tradition, and college and career readiness** and whether the standards **reduce remediation**.

Definitions

Clear – Easily understood; free from doubt or confusion¹

College and Career Readiness – remediation-free status; prepared to enroll in non-remedial, credit-bearing college courses leading to a postsecondary degree or other credential²

Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

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⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

⁵ Vocabulary.com: <http://www.vocabulary.com/dictionary/grade-appropriate>

⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

⁸ Ohio Revised Code 333.041: <http://codes.ohio.gov/orc/3333.041>

⁹ Education Portal: <http://education-portal.com/academy/lesson/student-achievement-definition-factors-research.html>

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p style="margin: 0;">Operations and Algebraic Thinking</p> <p style="margin: 0;"><i>Grade 3</i></p> <ul style="list-style-type: none"> A. Represent and solve problems involving multiplication and division. B. Understand properties of multiplication and the relationship between multiplication and division. C. Multiply and divide within 100. D. Solve problems involving the four operations, and identify and explain patterns in arithmetic. <p style="margin: 0;"><i>Grade 4</i></p> <ul style="list-style-type: none"> E. Use the four operations with whole numbers to solve problems. F. Gain familiarity with factors and multiples. G. Generate and analyze patterns. <p style="margin: 0;"><i>Grade 5</i></p> <ul style="list-style-type: none"> H. Write and interpret numerical expressions. I. Analyze patterns and relationships.
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A no	<p>OA - OVERALL - what could be simply stated standards are made complex or lengthy.</p> <p>3OA1,2 examples in examples. 3 - whole numbers? evenly divisible?</p>
	B no	<p>3OA5 is excessively wordy 3OA5 "Understand"?</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C no	3OA7 "using strategies such as" - are there others as well or just these?
	D no	3OA8-9 "Using mental computation" - is there another kind?
	E no	4OA1 -3 wordy, 3 whole numbers answers do not have remainders
	F no	4OA4 multiple standards
	G no	4OA5 multiple concepts
	H yes	5OA1 yes 5OA2 yes
	I undetermined	5OA3 lengthy

Standards Committee Review Form

Review Criteria	Review Level	Notes
<p>Is the element grade level appropriate?</p>	<p>A thru I</p>	<p>OVERALL Asking to evaluate: <i>Is the element grade level appropriate?</i> is not a reasonable request given no further information.</p> <p>Does this criteria mean appropriate by building on what is contained in the mandated standards of this document for the previous grade levels? Does it mean based on what has traditionally been content for this subject at this grade level?</p> <p>Anything can be "grade level appropriate" if that grade level is defined accordingly.</p> <p>Since this is the official state standards for education in Ohio, it could be said that everything in the standards document is deemed grade level appropriate because it is in the standards. By establishing the contents of this document as the standards for K12 math education in Ohio, and by doing so in a grade level arrangement, the state has created these standards to be the definition of each grade level. One could then put forth the idea that everything in it is automatically "grade level appropriate" even if is or could be totally inappropriate based on reason, student's prior knowledge, and the reality of human development.</p> <p>"Developmentally appropriate" is of great concern and critical to the proper and appropriate education of each individual student. It would be an important aspect to evaluate but is not legislatively part of these reviews. It also cannot be established for the masses but needs to take into consideration each unique individual's situation, life experiences, genetic and environmental factors</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote higher student performance, learning and improved student achievement?	A thru I	<p>OVERALL Comment related to the following criteria:</p> <p>"Does the element promote higher student performance, learning and improved student achievement?</p> <p>Does the element support subject matter comprehension?</p> <p>Does the element promote essential knowledge in the subject?</p> <p>Does the element promote lifelong learning?"</p> <p>Equally concerning, and in some cases more so, than the individual standards, is the order of the standards, their progression over time, and the emphasis on theory, pedagogy, methods and experiential learning before foundational knowledge is obtained. Basic knowledge committed to memory to the level of automaticity <u>first</u>, is a foundation for building a solid understanding overtime, a critical tool for practical use, and both roots and branches for desiring more knowledge. A person who knows basic factual knowledge, has that as a "hook" of sort when exposed to other situations and information, sparking curiosity and a desire to learn more and a critical tool for critical thought. Delaying this and putting other things before obtaining basic knowledge is a disservice to students and a hindrance to reaching their full capacity at each stage of life, even the earliest.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element support subject matter comprehension ?	A	3OA1 -4
	B	3OA5-6
	C	3OA7
	D no	3OA8-9 Four operations in one problem for 3 rd graders?
	E No	4OA1 -3 whole numbers answers do not have remainders
	F	4OA4 were prime and composite even ever previously introduced?
	G undetermined	4OA5 were odd and even ever previously introduced?
	H yes	5OA1 -2
	Iyes	5OA3
Does the element promote essential knowledge in the subject ?	A yes	3OA1 -4
	B yes	3OA5-6
	C partially	3OA7 need more than fluently: need automaticity
	D partially	3OA8-9 use of letters at this grade not essential
	E undetermined	4OA1 This is just the basic concept of multiplication that should have been known before this point. -3 whole number answers with remainders??
	F undetermined	4OA4 only if prime and composite were previously introduced.

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G undetermined	4OA5 only if odd and even were previously introduced
	H yes	5OA1 -2
	I yes	5OA3
Does the element promote lifelong learning?	A thru I NO	Certain knowledge or certain skills are necessary in order to be able to learn further since knowledge builds, and some abilities must be possessed in order to learn, but standards cannot "promote" lifelong learning.
Does the element promote the liberal arts tradition?	A thru I	"Standards" cannot "promote" the liberal arts tradition. Education content can be a part of the liberal arts tradition, but even to assess that there has to be given a working definition of the specific subject matter content of "the liberal arts tradition".

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote college and career readiness ?	A thru I	"Standards" or anything else for that matter cannot validly be put forth as promoting "college and career readiness" unless the entry requirements of the specific type and level of college and career are defined and identified.
Does the element reduce the need for remediation ?	A thru I	Anytime something is learned it would reduce the need to "remediate" the lack of knowledge of that point or skill, but a valid claim cannot be made that one standard or even a set of standards will "reduce the need for remediation" overall.
Does the element meet the definition of a standard ?	A yes	30A1 -4
	B partially	30A5-6 "understand" is vague to measure
	C yes	30A7
	D yes	30A8-9
	E no	40A1 -3 how to teach
	F no	40A4 multiple standards
	G no	40A5 how to teach
	H yes	50A1 -2
	I no	50A3 tells how to teach

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Definitions

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⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Geometry</p> <p><i>Grade 3</i></p> <p>A. Reason with shapes and their attributes.</p> <p><i>Grade 4</i></p> <p>B. Draw and identify lines and angles, and classify shapes by properties of their lines and angles.</p> <p><i>Grade 5</i></p> <p>C. Graph points on the coordinate plane to solve real-world and mathematical problems.</p> <p>D. Classify two-dimensional figures into categories based on their properties.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. 1. NO 2. YES	<p>3.G.1 It would be clearer if the 1st sentence preceded the 2nd sentence. Starting a standard with "Understand" immediately goes in to the realm of abstract concepts and makes the standard vague and immeasurable rather than concrete and a measurable, attainable goal.</p> <p>While the standard is only 2 sentences, it implies a great deal of material that is to be covered.</p> <p>3.G.2 yes</p>
	B. YES	<p>4.G.1 Yes (one of the best)</p> <p>4.G.2 Yes (one of the best)</p> <p>4.G.3 Yes (one of the best)</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. 1. NO 2. YES	<p>5.G.1 NO Standards are not the place to be teaching the teachers. Any teacher who needs this explanation should not be teaching math at any level. What is attempted to be explained here is basic and fundamental. Every teacher should know this or should not be certified. This is a classic example of where these standards (the standards writers) inappropriately are trying to solve the problem with education in Ohio. The problem is not the lack of standards and mandated testing placed upon students, teachers and school districts, and it will not be solved by the state placing standards and mandated testing upon students, teachers and school districts. If the state really thinks content of this standard needs to be expressed in a "standard", what may really be needed is improved teacher training and local accountability to make sure qualified and knowledgeable teachers are in the classrooms.</p> <p>5.G.2 Yes (one of the best)</p>
	D. NO	<p>5.G.3 NO. As is a reoccurring problem with the standard, trying to impose a requirement for abstract thought before the factual basis on which abstract thought can develop causes confusion. Starting a standard with "Understand" causes problems with clarity as to what a student is to know and be able to do. In the case of this standards it may be preferred to say: "Classify two-dimensional figures into categories and sub-categories, demonstrating the understanding that attributes belonging to a category also belong to all subcategories of that category."</p> <p>5.G.4 NO Are the figures already in a hierarchy and students are to classify them based on properties, or are students to use the properties to classified them INTO a hierarchy of categories?</p>

Standards Committee Review Form

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	B.	See comment for A
	C.	See comment for A
	D.	See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote higher student performance, learning and improved student achievement?	A Undetermined.	<p>OVERALL Comment related to the following criteria:</p> <p>"Does the element promote higher student performance, learning and improved student achievement?</p> <p>Does the element support subject matter comprehension?</p> <p>Does the element promote essential knowledge in the subject?</p> <p>Does the element promote lifelong learning?"</p> <p>Equally concerning, and in some cases more so, than the individual standards, is the order of the standards, their progression over time, and the emphasis on theory, pedagogy, methods and experiential learning before foundational knowledge is obtained. Basic knowledge committed to memory to the level of automaticity <u>first</u>, is a foundation for building a solid understanding overtime, a critical tool for practical use, and both roots and branches for desiring more knowledge. A person who knows basic factual knowledge, has that as a "hook" of sort when exposed to other situations and information, sparking curiosity and a desire to learn more and a critical tool for critical thought. Delaying this and putting other things before obtaining basic knowledge is a disservice to students and a hindrance to reaching their full capacity at each stage of life, even the earliest.</p>
	B. Undetermined	See comment for A
	C. Undetermined	See comment for A
	D. Undetermined	See comment for A
Does the element support subject matter comprehension?	A. Yes	3.G.1 and 3.G.2
	B. Yes	4.G.1, 2 and 3

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C. Undetermined	5.G.1 Most likely if it was clearly and concisely written 5.G.2 Yes
	D. Undetermined	5.G.3 and 5.G.4 Most likely if they were clearly written.
Does the element promote essential knowledge in the subject?	A. Yes	3.G.1 and 3.G.2
	B. Yes	4.G.1, 2 and 3
	C. Undetermined	5.G.1 Most likely if it was clearly and concisely written 5.G.2 Yes
	D. Undetermined	5.G.3 and 5.G.4 Most likely if they were clearly written.
Does the element promote lifelong learning?	A. No	Certain knowledge or certain skills are necessary in order to be able to learn further since knowledge builds, and some abilities must be possessed in order to learn, but standards cannot "promote" lifelong learning.
	B. No	See comment for A
	C. No	See comment for A
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Does the element promote the liberal arts tradition?	A. No	"Standards" cannot "promote" the liberal arts tradition. Education content can be a part of the liberal arts tradition, but even to assess that there has to be given a working definition of the specific subject matter content of "the liberal arts tradition".
	B. No	See comment for A
	C. No	See comment for A
	D. No	See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote college and career readiness ?	A. Undetermined	"Standards" or anything else for that matter cannot validly be put forth as promoting "college and career readiness" unless the entry requirements of the specific type and level of college and career are defined and identified.
	B. Undetermined	See comment for A
	C. Undetermined	See comment for A
	D. Undetermined	See comment for A
Does the element reduce the need for remediation ?	A. Undetermined	Anytime something is learned it would reduce the need to "remediate" the lack of knowledge of that point or skill, but a valid claim cannot be made that one standard or even a set of standards will "reduce the need for remediation" overall.
	B. Undetermined	See comment for A
	C. Undetermined	See comment for A
	D. Undetermined	See comment for A
Does the element meet the definition of a standard ?	A. Partially	3.G.1 Starting with "Understand" immediately goes in to the realm of abstractness and makes it vague and immeasurable rather than concrete and a measurable, attainable goal. 3.G.2 OK
	B. Yes	4.G.1 Yes (one of the best) 4.G.2 Yes (one of the best) 4.G.3 Yes (one of the best)
	C. Partially	5.G.2 Yes
	D. Undetermined	5.G.3 Starting with "Understand" immediately goes in to the realm of abstractness and makes it vague and immeasurable rather than concrete and a measurable, attainable goal. 5.G.4 due to lack of clarity

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¹ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/clear>

² Ohio Uniform Statewide Standards for Remediation-Free Status:

https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/data/reports/hs-to-college/2012_UNIFORM_STATEWIDE_REMEDIATION_FREE_STANDARDS%28010913%29.pdf

³ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/concise>

⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

⁵ Vocabulary.com: <http://www.vocabulary.com/dictionary/grade-appropriate>

⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

⁸ Ohio Revised Code 333.041: <http://codes.ohio.gov/orc/3333.041>

⁹ Education Portal: <http://education-portal.com/academy/lesson/student-achievement-definition-factors-research.html>

¹⁰ United States Department of Education: <http://www.ed.gov/race-top/district-competition/definitions>

¹¹ Merriam-Webster: <http://www.merriam-webster.com/dictionary/comprehension>

¹² Merriam-Webster: <http://www.merriam-webster.com/dictionary/subject%20matter>

Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p style="margin: 0;">Measurement and Data</p> <p style="margin: 0;"><i>Grade 3</i></p> <ul style="list-style-type: none"> A. Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects. B. Represent and interpret data. C. Geometric measurement: understand concepts of area and relate area to multiplication and to addition. D. Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures. <p style="margin: 0;"><i>Grade 4</i></p> <ul style="list-style-type: none"> E. Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. F. Represent and interpret data. G. Geometric measurement: understand concepts of angle and measure angles. <p style="margin: 0;"><i>Grade 5</i></p> <ul style="list-style-type: none"> H. Convert like measurement units within a given measurement system. I. Represent and interpret data. J. Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A Yes	3.MD.1 3.MD.2
	B Yes	3.MD.4 To be most clear use consistent terms (fourths /quarters) Shouldn't it say "whole numbers, halves AND quarters" instead of "...OR quarters"?

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C No	3.MD.5 "understand concepts" - Are a.) and b.) the only ones required? From this a teacher could think that a 3rd grader is to grasp "n unit squares". "n" is a bit too abstract for many students at this age.
	D	3.MD.8 A compound sentence with a series separated by commas in the 1st clause makes it difficult to know where the series and first clause end and makes it difficult to read.
	E No	4.MD.1 Tells how to teach. 4.MD.2 all four operations in one word problem? 4.MD.3 Example can be construed to think a specified approach is required.
	F no	4.MD.4
	G No	4.MD.5 Recognize angles as geometric shapes????? 4.MD.6 Are the sketches by using a protractor or free hand? 4.MD.7 Why the example as is?
	H undetermined	5.MD.1 Use consistent wording across grade level standards (compare to 4MD1)
	I No	5.MD.2 " Use operations on fractions for this grade"?
	J no/partially	5.MD.3 5.MD.4 5.MD.5 No - Is associative property part of the standard? Order of subpoints: why doesn't content of b) come before a)? Completing a) requires the use of the content of b).

Standards Committee Review Form

Review Criteria	Review Level	Notes
<p>Is the element grade level appropriate?</p>	<p>A</p>	<p>OVERALL Asking to evaluate: <i>Is the element grade level appropriate?</i> is not a reasonable request given no further information.</p> <p>Does this criteria mean appropriate by building on what is contained in the mandated standards of this document for the previous grade levels? Does it mean based on what has traditionally been content for this subject at this grade level?</p> <p>Anything can be "grade level appropriate" if that grade level is defined accordingly.</p> <p>Since this is the official state standards for education in Ohio, it could be said that everything in the standards document is deemed grade level appropriate because it is in the standards. By establishing the contents of this document as the standards for K12 math education in Ohio, and by doing so in a grade level arrangement, the state has created these standards to be the definition of each grade level. One could then put forth the idea that everything in it is automatically "grade level appropriate" even if is or could be totally inappropriate based on reason, student's prior knowledge, and the reality of human development.</p> <p>"Developmentally appropriate" is of great concern and critical to the proper and appropriate education of each individual student. It would be an important aspect to evaluate but is not legislatively part of these reviews. It also cannot be established for the masses but needs to take into consideration each unique individual's situation, life experiences, genetic and environmental factors</p>
	<p>B</p>	<p>See comment for A</p>
	<p>C</p>	<p>See comment for A</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D	See comment for A
	E	See comment for A
	F	See comment for A
	G	See comment for A
	H	See comment for A
	I	See comment for A
	J	See comment for A
Does the element promote higher student performance, learning and improved student achievement?	A Undetermined	<p>OVERALL Comment related to the following criteria: "Does the element promote higher student performance, learning and improved student achievement? Does the element support subject matter comprehension? Does the element promote essential knowledge in the subject? Does the element promote lifelong learning?"</p> <p>Equally concerning, and in some cases more so, than the individual standards, is the order of the standards, their progression over time, and the emphasis on theory, pedagogy, methods and experiential learning before foundational knowledge is obtained. Basic knowledge committed to memory to the level of automaticity <u>first</u>, is a foundation for building a solid understanding overtime, a critical tool for practical use, and both roots and branches for desiring more knowledge. A person who knows basic factual knowledge, has that as a "hook" of sort when exposed to other situations and information, sparking curiosity and a desire to learn more and a critical tool for critical thought. Delaying this and putting other things before obtaining basic knowledge is a disservice to students and a hindrance to reaching their full capacity at each stage of life, even the earliest.</p>
	B Undetermined	See comment for A
	C Undetermined	See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D Undetermined	See comment for A
	E Undetermined	See comment for A
	F Undetermined	See comment for A
	G Undetermined	See comment for A
	H Undetermined	See comment for A
	I Undetermined	See comment for A
	J Undetermined	See comment for A
Does the element support subject matter comprehension ?	A partially	<p>3.MD.1 Using a number line for time seems it could be more confusing than supporting comprehension. Will the number line be marked like a clock with 60 minutes to each hours? How about intervals of 5? Why not just use a clock with minutes marked off ?</p> <p>3.MD.2 missing US measurements</p>
	B partially	<p>3.MD.3 Why require picture graphs? These standards are often too prescriptive.</p> <p>3.MD.4</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
	C yes, conditionally	<p>OVERALL items 5 thru 8: <i>It appears the order intentionally puts generalized abstract concepts before concrete, and abstract concepts without first teaching children important definitive knowledge. This could cause confusion. Give the children the practical first so they have some point of reference to understand the abstract.</i></p> <p>3.MD.5 yes, IF it is understood that 3rd graders are not expected to grasp the concept of "n"</p> <p>3.MD.6 and 7(d) IF this is not drilled to the point of boredom and annoyance where the students miss the concepts.</p>
	D yes	3.MD.8 (see section above)
	E no/partially	<p>4.MD.1 Missing US standards units of volume.</p> <p>4.MD.2</p> <p>4.MD.3 Example can be construed to think a specified approach is required.</p>
	F partially	4.MD.4 Line plots in these standards are overused.
	G Partially	<p>4.MD.5 "angles as geometric shapes"???</p> <p>4.MD.6</p> <p>4.MD.7</p>
	H yes	5.MD.1

Standards Committee Review Form

Review Criteria	Review Level	Notes
	I no	5.MD.2 4 Line plots in these standards are overused.
	J partially	5.MD.3 5.MD.4 Counting cubes is over used beyond usefulness. 5.MD.5 Not in order written. Completing a) requires the use of the content of b).
Does the element promote essential knowledge in the subject?	A No	3.MD.1 Is it expected that each hour is marked off to sixty minutes on the time line??? 3.MD.2 NO fails to use U.S. standard measures such as quarts pints etc 3.MD.2
	B Partially	3.MD.3 and 4 Requiring picture graphs and line plots is not essential. For some, other means might prove more essential.
	C partially	3.MD.5,6,7 Essential knowledge could be missed by overemphasis on unit counting. Boring students will turn them off to math.
	D yes	3.MD.8
	E Partially	4.MD.1 Why no standard US volume measurements? 4.MD.2 yes 4.MD.3 yes
	F No	4.MD.4 no "over emphasis on line plots"
	G Partially	4.MD.5 Not clear. Angles are not geometric shapes 4.MD.6 4.MD.7
	H yes	5.MD.1
	I no	5.MD.2 "over emphasis on line plots"

Standards Committee Review Form

Review Criteria	Review Level	Notes
	J Partially	5.MD.3 5.MD.4 I'd expect grade 5 to be passed counting cubes 5.MD.5
Does the element promote lifelong learning?	A No	Certain knowledge or certain skills are necessary in order to be able to learn further since knowledge builds, and some abilities must be possessed in order to learn, but standards cannot "promote" lifelong learning.
	B No	See comment for A
	C No	See comment for A
	D No	See comment for A
	E No	See comment for A
	F No	See comment for A
	G No	See comment for A
	H No	See comment for A
	I No	See comment for A
	J No	See comment for A
Does the element promote the liberal arts tradition?	A No	"Standards" cannot "promote" the liberal arts tradition. Education content can be a part of the liberal arts tradition, but even to assess that there has to be given a working definition of the specific subject matter content of "the liberal arts tradition".
	B No	See comment for A
	C No	See comment for A
	D No	See comment for A
	E No	See comment for A
	F No	See comment for A
	G No	See comment for A
	H No	See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	I No	See comment for A
	J No	See comment for A
Does the element promote college and career readiness ?	A Undetermined	"Standards" or anything else for that matter cannot validly be put forth as promoting "college and career readiness" unless the entry requirements of the specific type and level of college and career are defined and identified.
	B Undetermined	See comment for A
	C Undetermined	See comment for A
	D Undetermined	See comment for A
	E Undetermined	See comment for A
	F Undetermined	See comment for A
	G Undetermined	See comment for A
	H Undetermined	See comment for A
	I Undetermined	See comment for A
	J Undetermined	See comment for A
	Does the element reduce the need for remediation ?	A Undetermined
B Undetermined		See comment for A
C Undetermined		See comment for A
D Undetermined		See comment for A
E Undetermined		See comment for A
F Undetermined		See comment for A
F Undetermined		See comment for A

Standards Committee Review Form

Review Criteria	Review Level	Notes
	G Undetermined	See comment for A
	H Undetermined	See comment for A
	I Undetermined	See comment for A
	J Undetermined	See comment for A
Does the element meet the definition of a standard?	A no/partially	3.MD.1 Example is used to tell how to teach. Otherwise who would think to teach time on a number line rather than a clock? (which actually is a number line so any teacher worth salt would just use the clock!) 3.MD.2
	B no	3.MD.3 and 4 pedagogy 3.MD.4
	C no	3.MD.5 , 6,7 pedagogy
	D yes	3.MD.8
	E no	4.MD.1, 2, 3 pedagogy
	F no	4.MD.4 pedagogy
	G partially	4.MD.5 4.MD.6 4.MD.7 example crosses the line
	H yes	5.MD.1
	I no	5.MD.2 pedagogy
	J no/partially	5.MD.3 5.MD.4 pedagogy 5.MD.5 pedagogy

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

Each committee created in division (I)(1) of this section shall review the academic content standards for its respective subject area to ensure that such standards are **clear, concise, and appropriate for each grade level** and **promote higher student performance, learning, subject matter comprehension, and improved student achievement**. Each committee also shall review whether the standards for its respective subject area **promote essential knowledge in the subject, lifelong learning, the liberal arts tradition, and college and career readiness** and whether the standards **reduce remediation**.

Definitions

Clear – Easily understood; free from doubt or confusion¹

College and Career Readiness – remediation-free status; prepared to enroll in non-remedial, credit-bearing college courses leading to a postsecondary degree or other credential²

Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

¹ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/clear>

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³ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/concise>

⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

⁵ Vocabulary.com: <http://www.vocabulary.com/dictionary/grade-appropriate>

⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

⁸ Ohio Revised Code 333.041: <http://codes.ohio.gov/orc/3333.041>

⁹ Education Portal: <http://education-portal.com/academy/lesson/student-achievement-definition-factors-research.html>

¹⁰ United States Department of Education: <http://www.ed.gov/race-top/district-competition/definitions>

¹¹ Merriam-Webster: <http://www.merriam-webster.com/dictionary/comprehension>

¹² Merriam-Webster: <http://www.merriam-webster.com/dictionary/subject%20matter>

Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Number and Operations – Fractions</p> <p><i>Grade 3</i></p> <p>A. Develop understanding of fractions as numbers.</p> <p><i>Grade 4</i></p> <p>B. Extend understanding of fraction equivalence and ordering.</p> <p>C. Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.</p> <p>D. Understand decimal notation for fractions, and compare decimal fractions.</p> <p><i>Grade 5</i></p> <p>E. Use equivalent fractions as a strategy to add and subtract fractions.</p> <p>F. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</p>
Grade Level(s) Under Review	Grades 3, 4 and 5

Review level **Yes** it meets the review criteria
Partially meets the review criteria or **undetermined**
No it does not meet the review criteria

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A no	<p>3.NF 1 indicates a required teaching method. What principle? Maybe for some learning the "Identity property" would be more helpful than playing with "visual fraction models".</p> <p>3.NF 2 are 3rd graders expected to grasp the abstract concept of "b" ?</p> <p>3.NF 3 "reasoning about"?</p> <p>"a lengths"- "a parts"</p>
	B	4.NF 1-2
	C	4.NF 3-4
	D	4.NF 5-7
	E no	<p>5.NF 1 Consider something this simple and straight forward: "Add and subtract fractions with unlike denominators (including mixed number) by first finding a common denominator."</p> <p>5.NF 2 multiple standards</p>
	F no	<p>5.NF 3 The 2nd sentence is all that is needed.</p> <p>5.NF 4a "a parts of.."</p> <p>4b The last sentence is all that is needed to be a standards.</p> <p>5.NF.5 footnote confuses in that it says what this standard requires is not required in general.</p> <p>-7a,b "Interpret division"?? Should this really say "interpret a story problem..."? </p> <p>7a,b Multiplication and division are inverse: 4 divided by $1/5 = 20$ because $4 \times (5/1) = 20$.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
<p>Is the element grade level appropriate?</p>	<p>A-F</p>	<p>OVERALL Asking to evaluate: <i>Is the element grade level appropriate?</i> is not a reasonable request given no further information.</p> <p>Does this criteria mean appropriate by building on what is contained in the mandated standards of this document for the previous grade levels? Does it mean based on what has traditionally been content for this subject at this grade level?</p> <p>Anything can be "grade level appropriate" if that grade level is defined accordingly.</p> <p>Since this is the official state standards for education in Ohio, it could be said that everything in the standards document is deemed grade level appropriate because it is in the standards. By establishing the contents of this document as the standards for K12 math education in Ohio, and by doing so in a grade level arrangement, the state has created these standards to be the definition of each grade level. One could then put forth the idea that everything in it is automatically "grade level appropriate" even if is or could be totally inappropriate based on reason, student's prior knowledge, and the reality of human development.</p> <p>"Developmentally appropriate" is of great concern and critical to the proper and appropriate education of each individual student. It would be an important aspect to evaluate but is not legislatively part of these reviews. It also cannot be established for the masses but needs to take into consideration each unique individual's situation, life experiences, genetic and environmental factors</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote higher student performance, learning and improved student achievement?	A-F	<p>OVERALL Comment related to the following criteria:</p> <p>"Does the element promote higher student performance, learning and improved student achievement?</p> <p>Does the element support subject matter comprehension?</p> <p>Does the element promote essential knowledge in the subject?</p> <p>Does the element promote lifelong learning?"</p> <p>Equally concerning, and in some cases more so, than the individual standards, is the order of the standards, their progression over time, and the emphasis on theory, pedagogy, methods and experiential learning before foundational knowledge is obtained. Basic knowledge committed to memory to the level of automaticity <u>first</u>, is a foundation for building a solid understanding overtime, a critical tool for practical use, and both roots and branches for desiring more knowledge. A person who knows basic factual knowledge, has that as a "hook" of sort when exposed to other situations and information, sparking curiosity and a desire to learn more and a critical tool for critical thought. Delaying this and putting other things before obtaining basic knowledge is a disservice to students and a hindrance to reaching their full capacity at each stage of life, even the earliest.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element support subject matter comprehension?	A partially	OVERALL: Requiring or implying "visual fraction model" to be required could lead teacher to focus only on that when in some cases a teacher may know other method might be more effective but not use them do to standards imposed on them. 3.NF 1-3
	B partially	4.NF 1-2 misses the clarity and simple-ness of the identity property.
	C partially	4.NF 3-4
	D partially	4.NF 5-7
	E partially	5.NF 1-2
	F partially	5.NF 3-7

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote essential knowledge in the subject?	A yes	OVERALL: Seems to be an over-emphasis on "visual fraction model" which can be interpreted as being required. - May lead to getting bogged down and missing the essential knowledge/skill or students losing interest. 3.NF 1-3
	B yes	4.NF 1-2
	C yes	4.NF 3-4
	D yes	4.NF 5-7
	E yes	5.NF 1-2
	F yes	5.NF 3-7
Does the element promote lifelong learning?	A-F no	Certain knowledge or certain skills are necessary in order to be able to learn further since knowledge builds, and some abilities must be possessed in order to learn, but standards cannot "promote" lifelong learning.

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote the liberal arts tradition ?	A-F	"Standards" cannot "promote" the liberal arts tradition. Education content can be a part of the liberal arts tradition, but even to assess that there has to be given a working definition of the specific subject matter content of "the liberal arts tradition".
Does the element promote college and career readiness ?	A-F	"Standards" or anything else for that matter cannot validly be put forth as promoting "college and career readiness" unless the entry requirements of the specific type and level of college and career are defined and identified.
Does the element reduce the need for remediation ?	A-F	Anytime something is learned it would reduce the need to "remediate" the lack of knowledge of that point or skill, but a valid claim cannot be made that one standard or even a set of standards will "reduce the need for remediation" overall.
Does the element meet the definition of a standard ?	A no	3.NF 1-3 Starts with "Understand" - not measurable
	B no	4.NF 1-2 requires a teaching method (visual fraction models)
	C no	4.NF 3-4 Starts with "Understand" - not measurable. Example implies a required teaching method (visual fraction models)
	D no	4.NF 5-7 Example implies a required teaching method (visual fraction models)
	E no	5.NF 1-2 multiple standards in one
	F no	5.NF 3-7 multiple standards in one.

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p style="text-align: center;">RATIOS AND PROPORTIONAL RELATIONSHIPS</p> <p><i>Grade 6</i></p> <p>A. Understand ratio concepts and use ratio reasoning to solve problems</p> <p><i>Grade 7</i></p> <p>B. Analyze proportional relationships and use them to solve real-world and mathematical problems.</p>
Grade Level(s) Under Review	Grades 6 and 7

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A. yes	Better than earlier grades. Examples might be excessive.
	B. yes	Better than earlier grades.
Is the element grade level appropriate ?	A.	
	B.	
Does the element promote higher student performance, learning and improved student achievement ?	A.	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	B.	
Does the element support subject matter comprehension ?	A. yes	
	B.yes	
Does the element promote essential knowledge in the subject ?	A. yes	
	B. yes	
Does the element promote lifelong learning ?	A.	
	B.	
Does the element promote the liberal arts tradition ?	A.	
	B.	
Does the element promote college and career readiness ?	A.	
	B.	
Does the element reduce the need for remediation ?	A.	
	B.	
Does the element meet the definition of a standard ?	A. yes/partially	"Understand" is not measurable 6RP3a requires a teaching method
	B. yes	

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

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Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

Subject Matter Comprehension – ability to understand¹¹ matter presented for consideration in discussion, thought, or study¹²

¹ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/clear>

² Ohio Uniform Statewide Standards for Remediation-Free Status:

https://www.ohiohighered.org/sites/ohiohighered.org/files/uploads/data/reports/hs-to-college/2012_UNIFORM_STATEWIDE_REMEDIATION_FREE_STANDARDS%28010913%29.pdf

³ Merriam-Webster Dictionary: <http://www.merriam-webster.com/dictionary/concise>

⁴ The Glossary of Education Reform: <http://edglossary.org/standards-based/>

⁵ Vocabulary.com: <http://www.vocabulary.com/dictionary/grade-appropriate>

⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

⁸ Ohio Revised Code 333.041: <http://codes.ohio.gov/orc/3333.041>

⁹ Education Portal: <http://education-portal.com/academy/lesson/student-achievement-definition-factors-research.html>

¹⁰ United States Department of Education: <http://www.ed.gov/race-top/district-competition/definitions>

¹¹ Merriam-Webster: <http://www.merriam-webster.com/dictionary/comprehension>

¹² Merriam-Webster: <http://www.merriam-webster.com/dictionary/subject%20matter>

Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Statistics and Probability</p> <p><i>Grade 6</i></p> <ul style="list-style-type: none"> A. Develop understanding of statistical variability. B. Summarize and describe distributions. <p><i>Grade 7</i></p> <ul style="list-style-type: none"> C. Use random sampling to draw inferences about a population. D. Draw informal comparative inferences about two populations. E. Investigate chance processes and develop, use, and evaluate probability models. <p><i>Grade 8</i></p> <ul style="list-style-type: none"> F. Investigate patterns of association in bivariate data.
Grade Level(s) Under Review	Grades 6, 7 and 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise?	A partially	"Understand " is vague
	B partially	6.SP.5 "such as" makes it ambiguous as to what all is to be included
	C yes	
	D yes	
	E yes	
	F yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
Is the element grade level appropriate?	A	
	B	
	C	
	D	
	E	
	F	
Does the element promote higher student performance, learning and improved student achievement?	A	
	B	
	C	
	D	
	E	
	F	
Does the element support subject matter comprehension?	A yes	
	B yes	
	C	
	D	
	E yes	
	F yes	
Does the element promote essential knowledge in the subject?	A yes	
	B yes	
	C yes	
	D yes	
	E yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	F yes	
Does the element promote lifelong learning?	A	
	B	
	C	
	D	
	E	
	F	
Does the element promote the liberal arts tradition?	A	
	B	
	C	
	D	
	E	
	F	
Does the element promote college and career readiness?	A	
	B	
	C	
	D	
	E	
	F	
Does the element reduce the need for remediation?	A	
	B	
	C	
	D	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	E	
	F	
Does the element meet the definition of a standard?	A yes/partially	"understand" is not measurable
	B yes	
	C yes/partially	"understand" is not measurable
	D yes	
	E yes/partially	"understand" is not measurable - just say "Know"
	F yes/partially	"understand" is not measurable. Rework.

Ohio Standards Committee Review Form

Ohio Revised Code 3301.079 (I)(2)(a)

Each committee created in division (I)(1) of this section shall review the academic content standards for its respective subject area to ensure that such standards are **clear, concise, and appropriate for each grade level** and **promote higher student performance, learning, subject matter comprehension, and improved student achievement**. Each committee also shall review whether the standards for its respective subject area **promote essential knowledge in the subject, lifelong learning, the liberal arts tradition, and college and career readiness** and whether the standards **reduce remediation**.

Definitions

Clear – Easily understood; free from doubt or confusion¹

College and Career Readiness – remediation-free status; prepared to enroll in non-remedial, credit-bearing college courses leading to a postsecondary degree or other credential²

Concise – Succinct and comprehensive; using few words, not including extra or unnecessary information³

Essential Knowledge – key academic concepts and skills that are deemed to be essential in leading to success in school, higher education, careers, and adult life⁴

Grade Level Appropriate – the quality of ability and work that is appropriate for students in a specified grade⁵

Liberal Arts Tradition – the study of literature, languages, philosophy, history, mathematics, and science as the basis of a general, or liberal, education.⁶

Lifelong Learning – the ongoing, voluntary, self-motivated pursuit of knowledge⁷

Remediation – a prerequisite course to enrolling in courses generally required for first-year college students⁸

Standards – A level of attainment regarded as a goal or measure of adequacy of the essential academic content and skills that students are expected to know and be able to do at each grade level

Student Achievement – the amount of academic content a student learns in a determined amount of time⁹

Student Performance and Learning – academic progress as measured by such as formative and summative assessment data, coursework, instructor observations, information about student engagement and time on task, and similar information¹⁰

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⁵ Vocabulary.com: <http://www.vocabulary.com/dictionary/grade-appropriate>

⁶ Encyclopaedia Britannica: <http://www.britannica.com/EBchecked/topic/339020/liberal-arts>

⁷ Wikipedia: http://en.wikipedia.org/wiki/Lifelong_learning

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¹² Merriam-Webster: <http://www.merriam-webster.com/dictionary/subject%20matter>

Standards Committee Review Form

Standards Committee (Content Area)	<i>Mathematics</i>
Committee Member Name	
Element Under Review (Cluster)	<p>Geometry</p> <p><i>Grade 6</i></p> <p>A. Solve real-world and mathematical problems involving area, surface area, and volume.</p> <p><i>Grade 7</i></p> <p>B. Draw, construct and describe geometrical figures and describe the relationships between them.</p> <p>C. Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.</p> <p><i>Grade 8</i></p> <p>D. Understand congruence and similarity using physical models, transparencies, or geometry software.</p> <p>E. Understand and apply the Pythagorean theorem.</p> <p>F. Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.</p>
Grade Level(s) Under Review	Grades 6, 7 and 8

Review level **Yes** it meets the review criteria
 Partially meets the review criteria or **undetermined**
 No it does not meet the review criteria

Review Criteria	Review Level	Notes
Is the element clear and concise ?	A yes	Much better than earlier grades' standards
	B yes	Much better than earlier grades' standards
	C yes	7.G.6 Assume not all in one problem?
	D yes	Much better than earlier grades' standards
	E yes	Much better than earlier grades' standards
	F yes	Much better than earlier grades' standards

Standards Committee Review Form

Review Criteria	Review Level	Notes
<p>Is the element grade level appropriate?</p>	<p>A -F</p>	<p>OVERALL Asking to evaluate: <i>Is the element grade level appropriate?</i> is not a reasonable request given no further information.</p> <p>Does this criteria mean appropriate by building on what is contained in the mandated standards of this document for the previous grade levels? Does it mean based on what has traditionally been content for this subject at this grade level?</p> <p>Anything can be "grade level appropriate" if that grade level is defined accordingly.</p> <p>Since this is the official state standards for education in Ohio, it could be said that everything in the standards document is deemed grade level appropriate because it is in the standards. By establishing the contents of this document as the standards for K12 math education in Ohio, and by doing so in a grade level arrangement, the state has created these standards to be the definition of each grade level. One could then put forth the idea that everything in it is automatically "grade level appropriate" even if is or could be totally inappropriate based on reason, student's prior knowledge, and the reality of human development.</p> <p>"Developmentally appropriate" is of great concern and critical to the proper and appropriate education of each individual student. It would be an important aspect to evaluate but is not legislatively part of these reviews. It also cannot be established for the masses but needs to take into consideration each unique individual's situation, life experiences, genetic and environmental factors</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote higher student performance, learning and improved student achievement?	A-F	<p>OVERALL Comment related to the following criteria:</p> <p>"Does the element promote higher student performance, learning and improved student achievement?</p> <p>Does the element support subject matter comprehension?</p> <p>Does the element promote essential knowledge in the subject?</p> <p>Does the element promote lifelong learning?"</p> <p>Basic knowledge committed to memory to the level of automaticity <u>first</u>, is a foundation for building a solid understanding overtime, a critical tool for practical use, and both roots and branches for desiring more knowledge. A person who knows basic factual knowledge, has that as a "hook" of sort when exposed to other situations and information, sparking curiosity and a desire to learn more and a critical tool for critical thought.</p> <p>The MS Standards with as basic factual knowledge and subject matter content, are better suited to be a foundation for building a solid understanding than many of the earlier grade's standards</p>
Does the element support subject matter comprehension?	A yes	
	B yes	
	C yes	

Standards Committee Review Form

Review Criteria	Review Level	Notes
	D yes	
	E yes	
	F yes	
Does the element promote essential knowledge in the subject?	A yes	
	B yes	
	C yes	
	D yes	
	E yes	
	F yes	
Does the element promote lifelong learning?	A-F	Certain knowledge or certain skills are necessary in order to be able to learn further since knowledge builds, and some abilities must be possessed in order to learn, but standards cannot "promote" lifelong learning.
Does the element promote the liberal arts tradition?	A -F	<p>OVERALL "Standards" cannot "promote" the liberal arts tradition. Education content can be a part of the liberal arts tradition, but even to assess that there has to be given a working definition of the specific subject matter content of "the liberal arts tradition".</p> <p>That said, the standards at the MS level are much more focused on traditional, solid educational content than many standards for the earlier grades.</p>

Standards Committee Review Form

Review Criteria	Review Level	Notes
Does the element promote college and career readiness ?	A -F	"Standards" or anything else for that matter cannot validly be put forth as promoting "college and career readiness" unless the entry requirements of the specific type and level of college and career are defined and identified.
Does the element reduce the need for remediation ?	A -F	Anytime something is learned it would reduce the need to "remediate" the lack of knowledge of that point or skill, but a valid claim cannot be made that one standard or even a set of standards will "reduce the need for remediation" overall.
Does the element meet the definition of a standard ?	A yes/partially	6G4 is requiring a teaching method.
	B yes	
	C yes	
	D yes	
	E yes	
	F yes	