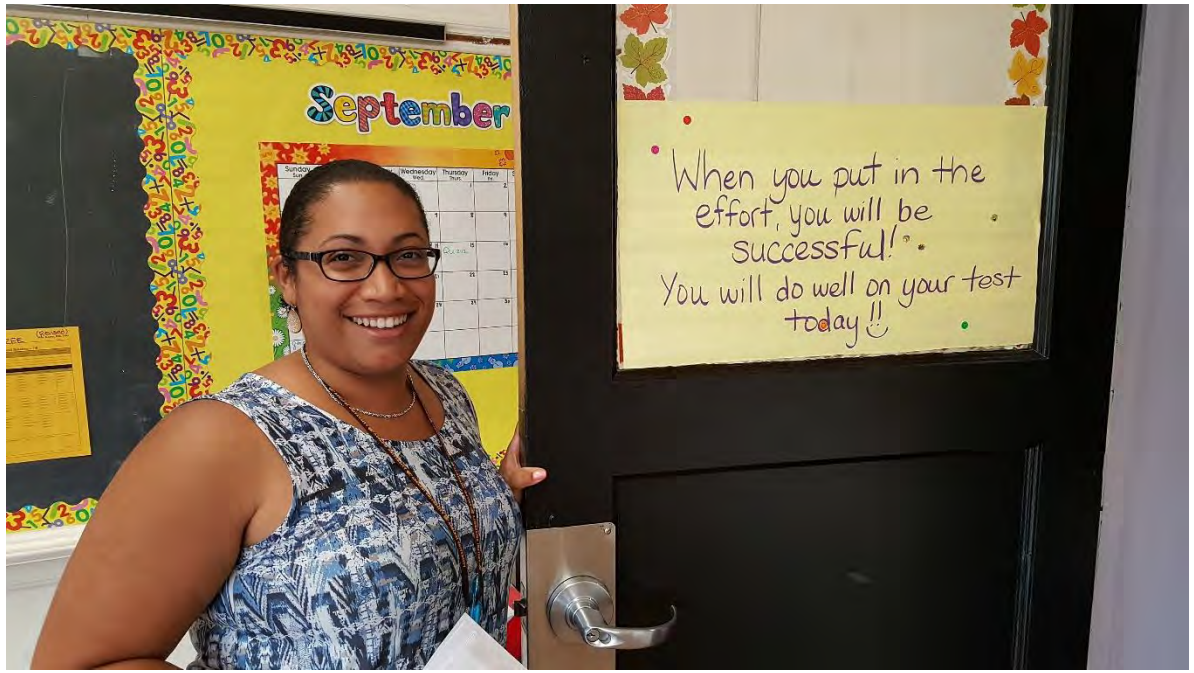
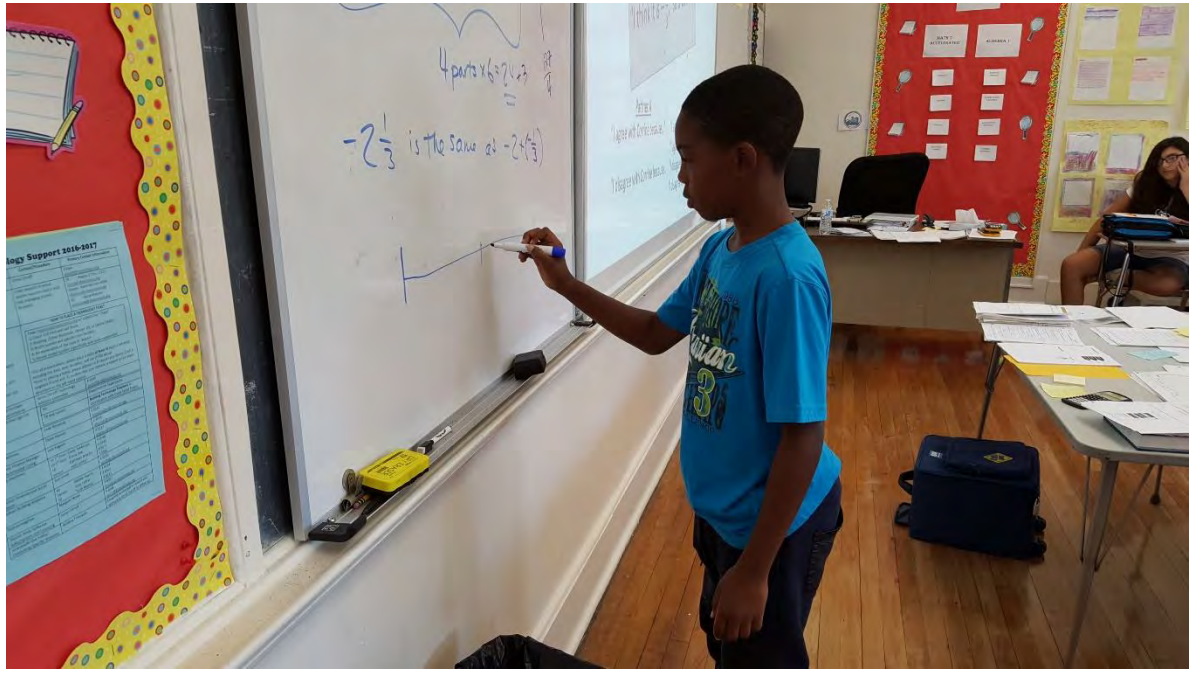
Mathematics Program
Oyster Bay – East Norwich Central School District

Jack Burke, K-12 Mathematics Supervisor

May 23, 2017


September
When you put in the effort, you will be successful!
You will do well on your test today!!



COMMON CORE STATE STANDARDS FOR

Mathematics

3-8 Math Assessments

2006 - 2012
Grades 3 – 8 Assessments in Math and ELA

3-8 Math Assessments

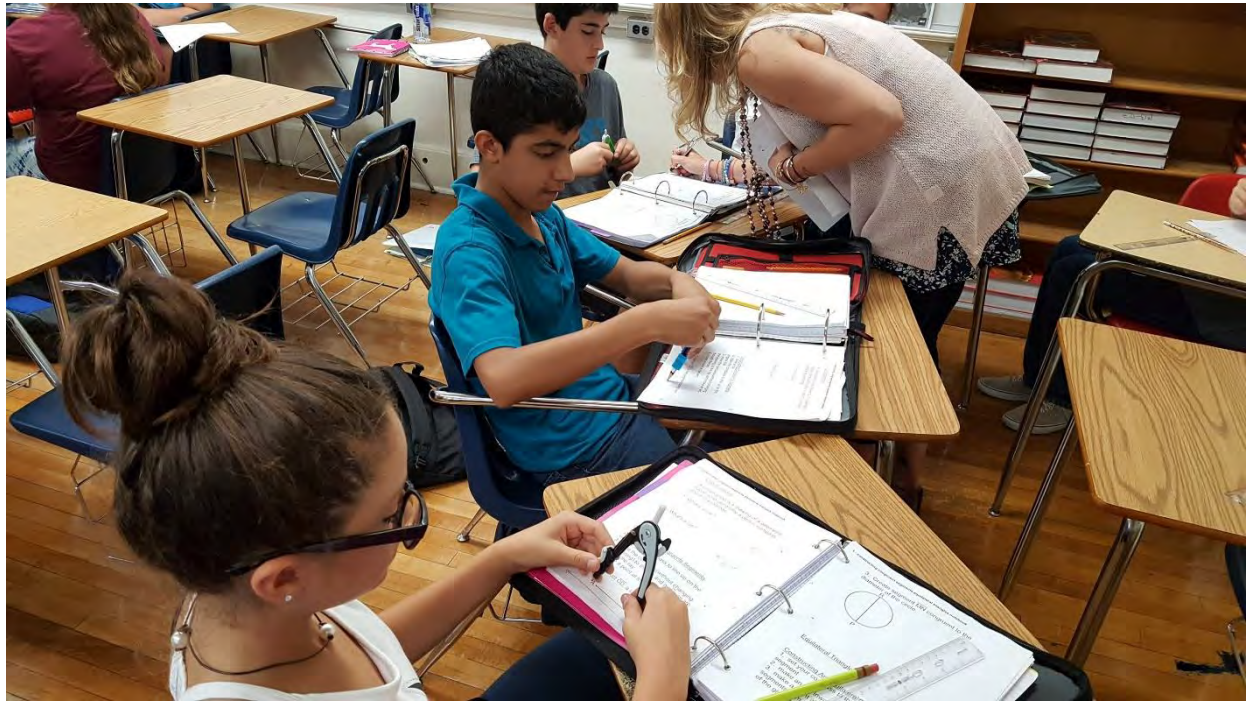
2006 - 2012	2013 - Present
Grades 3 – 8 Assessments in Math and ELA	Grades 3 – 8 Assessments in Math and ELA Aligned to Common Core Learning Standards

Previous Regents Exams

- Prior to 2007-08 – Math A, Math B Regents Exams
- 2007-08 – First implementation of the Integrated Algebra Regents Exam
- 2008-09 – First Implementation of the Geometry Regents Exam
- 2009-10 – First Implementation of the Algebra 2/Trigonometry Regents Exam

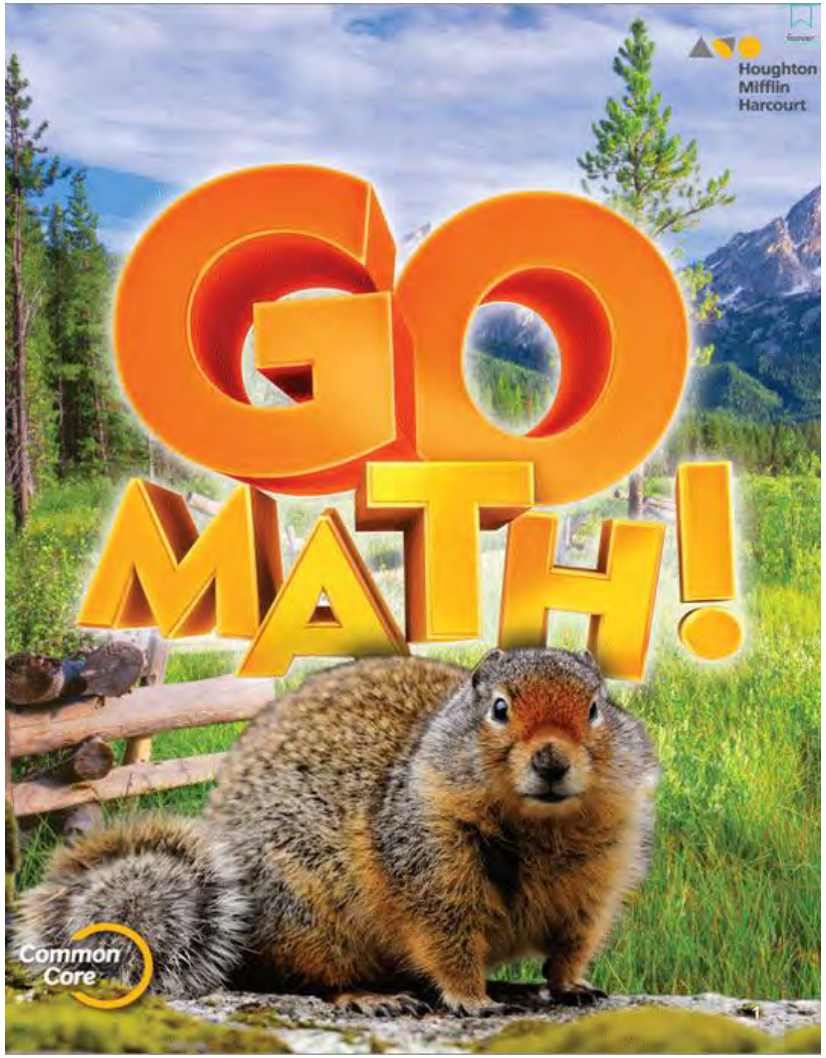
Phasing in New Regents Exams

2012-13	2013-14		2014-15		2015-16		2016-17
Integrated Algebra (2005)	Integrated Algebra (2005)	Algebra I (CCLS)	Algebra I (CCLS)		Algebra I (CCLS)		Algebra I (CCLS)
Geometry (2005)	Geometry (2005)		Geometry (2005)	Geometry (CCLS)	Geometry (CCLS)		Geometry (CCLS)
Algebra 2/ Trigonometry (2005)	Algebra 2/ Trigonometry (2005)		Algebra 2/ Trigonometry (2005)		Algebra 2/ Trigonometry (2005)	Algebra II (CCLS)	Algebra II (CCLS)

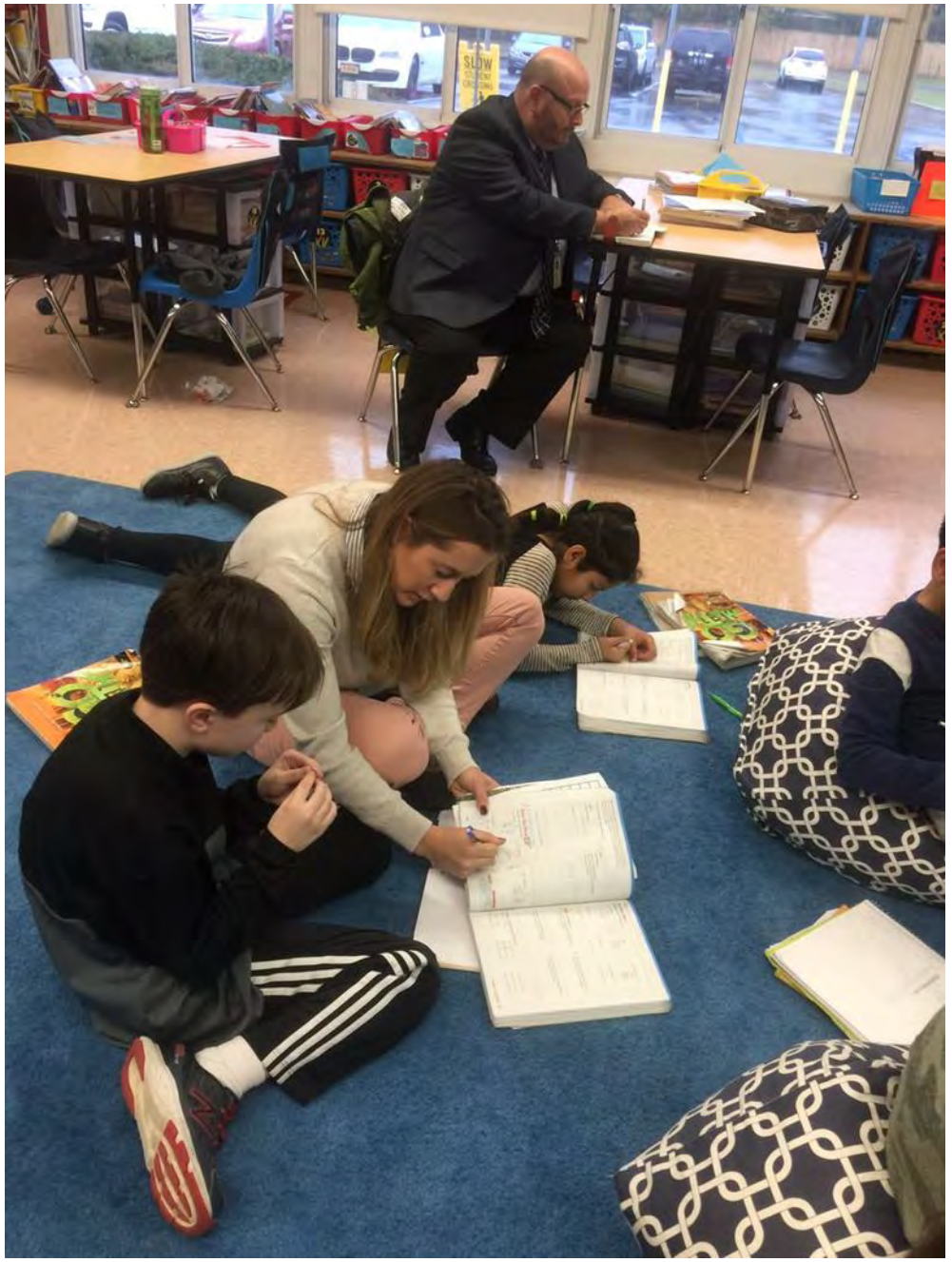


Curriculum


Making Our Big Debut With Our Co-Stars
Table 2
Table 4
Table 1
Table 3
THE PEANUTS MOVIE
GO MATH!


Houghton Mifflin Harcourt
GO MATH!
Common Core


STOP



Curriculum

New York State Common Core

Mathematics Curriculum

ALGEBRA I • MODULE 2

Table of Contents[1]

Descriptive Statistics

[1]Each lesson is ONE day, and ONE day is considered a 45-minute period.

engage^ny

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Common Core | Teacher/Leader Effectiveness | Data Driven Instruction | Video Library | Professional Development | Parents and Families

Common Core Curriculum

English Language Arts

- Prekindergarten English Language Arts
- Kindergarten English Language Arts
- Grade 1 English Language Arts
- Grade 2 English Language Arts
- Grade 3 English Language Arts
- Grade 4 English Language Arts
- Grade 5 English Language Arts
- Grade 6 English Language Arts
- Grade 7 English Language Arts
- Grade 8 English Language Arts
- Grade 9 English Language Arts
- Grade 10 English Language Arts
- Grade 11 English Language Arts
- Grade 12 English Language Arts

Mathematics

- Prekindergarten Mathematics
- Kindergarten Mathematics
- Grade 1 Mathematics
- Grade 2 Mathematics
- Grade 3 Mathematics
- Grade 4 Mathematics
- Grade 5 Mathematics
- Grade 6 Mathematics
- Grade 7 Mathematics
- Grade 8 Mathematics
- Algebra I
- Geometry
- Algebra II
- Precalculus and Advanced Topics

Featured


Test Guides for English Language Arts and Mathematics
Common Core Curriculum & Assessments


New York State K-12 Social Studies Framework
Common Core Curriculum & Assessments


Curriculum Module Updates
Common Core Curriculum & Assessments


Translated Modules
Common Core Curriculum & Assessments

News

Parents Newsletter: Revised ELA and Math Standards

News and Notes: Ready to Read Program; Guidance Available in 20 Languages

News and Notes: Statement on President Trump's Budget Proposal; Amendments to Teacher Certification Requirements

News and Notes: State Education Department Releases High School Graduation Rates

Most Viewed

Common Core Curriculum

Annotated 3-8 ELA and Mathematics State Test Questions (2013 & 2014)

New York State Math Curriculum

Common Core 3-8 ELA and Mathematics Tests

Standards for Mathematical Practice

- 1. Make sense of problems and persevere in solving them.
- 2. Reason abstractly and quantitatively.
- 3. Construct viable arguments and critique the reasoning of others.
- 4. Model with mathematics.
- 5. Use appropriate tools strategically.
- 6. Attend to precision.
- 7. Look for and make use of structure.
- 8. Look for and express regularity in repeated reasoning.

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Algebra 2 - Trigonometry, 2005 Performance Indicators; June 2010 - August 2015				MC - #1-27 = 2 pts; CR - #28-35 = 2 pts; #36-38 = 4 pts; #39 = 6 pts. 88 pts Total												
Strand	Category	Code	Performance Indicator	Jun-10	Aug-10	Jan-11	Jun-11	Jan-12	Jun-12	Jan-13	Jun-13	Jan-14	Jun-14	Jan-15	Jun-15	Aug-15	Total Items by Indicator
Number Sense and Operations	Operations	A2.N.1	Evaluate numerical expressions with negative and/or fractional exponents, without the aid of a calculator (when the answers are rational numbers)	3							14					3	3
Number Sense and Operations	Operations	A2.N.2	Perform arithmetic operations (addition, subtraction, multiplication, division) with expressions containing irrational numbers in radical form	32						19		21		16			4
Number Sense and Operations	Operations	A2.N.3	Perform arithmetic operations with polynomial expressions containing rational coefficients		34	14	28	6	1	14				24	15		8
Number Sense and Operations	Operations	A2.N.4	Perform arithmetic operations on irrational expressions		1								7				2
Number Sense and Operations	Operations	A2.N.5	Perform arithmetic operations on irrational expressions	12			16					4			9	18	5
Number Sense and Operations	Operations	A2.N.6	Write square roots of negative numbers in terms of i	6									4			24	3
Number Sense and Operations	Operations	A2.N.7	Simplify powers of i	19	4				28			33			33		5
Number Sense and Operations	Operations	A2.N.8	Determine the conjugate of a complex number		24	11		13	19				32				5
Number Sense and Operations	Operations	A2.N.9	Perform arithmetic operations on complex numbers and write the answer in the form a + bi Note: This includes simplifying expressions with complex denominators.							27	19			12, 33			4
Number Sense and Operations	Operations	A2.N.10	Know and apply sigma notation			31	18	30			15	14			26	35	7
Algebra	Equations and Inequalities	A2.A.1	Solve absolute value equations and inequalities involving linear expressions in one variable			6	37		9	34	7	32	30		13	38	9
Algebra	Equations and Inequalities	A2.A.2	Use the discriminant to determine the nature of the roots of a quadratic equation	28	16	2				23		11	23	6	24		8
Algebra	Equations and Inequalities	A2.A.3	Solve systems of equations involving one linear equation and one quadratic equation algebraically No extraneous roots.te: This includes rational equations that result in linear equations with extraneous roots.		15		39			2	12	31					5
Algebra	Equations and Inequalities	A2.A.4	Solve quadratic inequalities in one and two variables, algebraically and graphically	17		15		28							7		4

Comparison of Algebra 2 2005 Performance Indicators and Common Core Learning Standards

Polynomial, Rational, and Radical Relationships

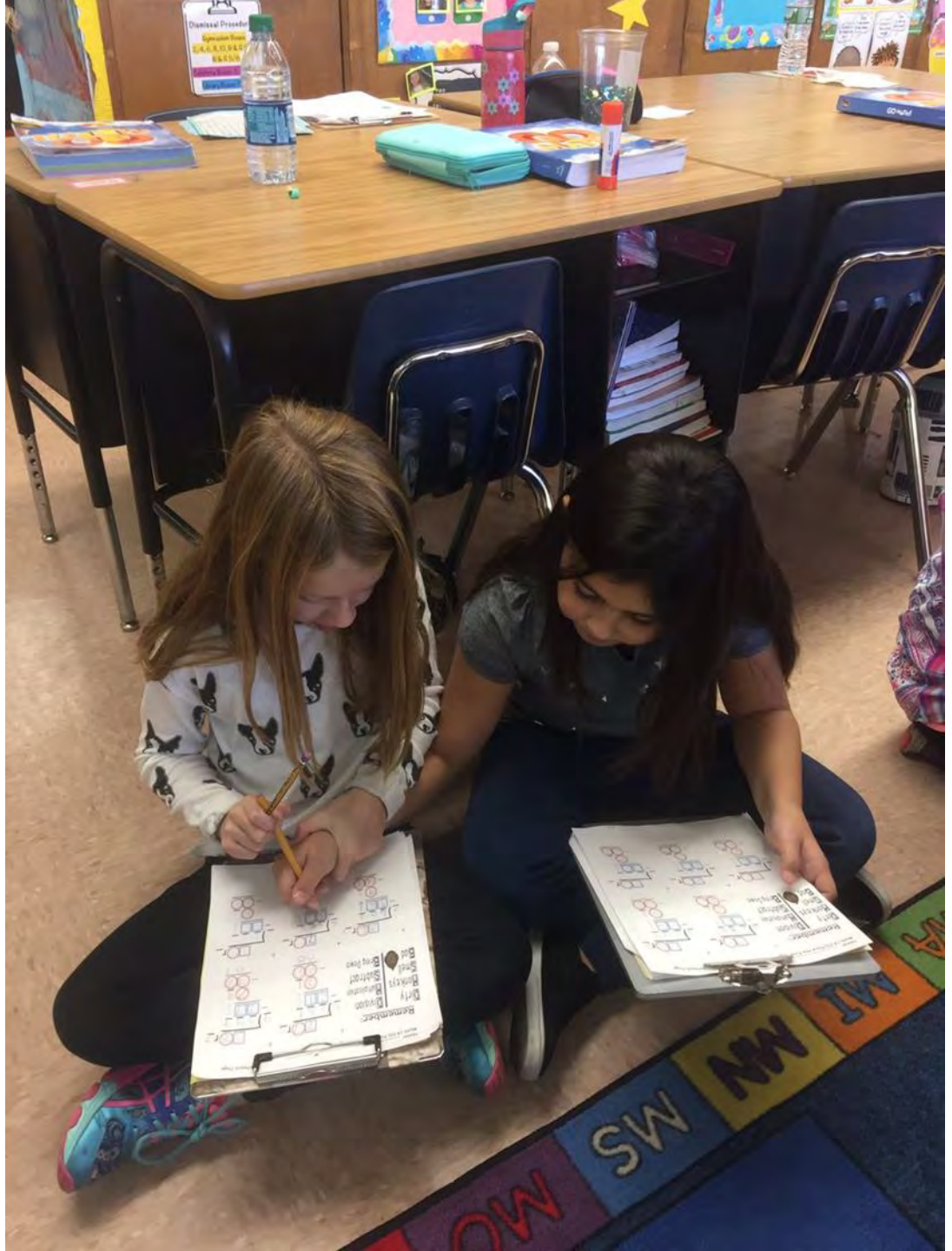
2005 Performance Indicators	*Common Core Learning Standards*
Operations	***Reason quantitatively and use units to solve problems.***
• **A2.N.2** Perform arithmetic operations (addition, subtraction, multiplication, division) with expressions containing irrational numbers in radical form • **A2.N.4** Perform arithmetic operations on irrational expressions • **A2.N.5** Rationalize a denominator containing a radical expression	• **N-Q.2** Define appropriate quantities for the purpose of descriptive modeling.
Variables and Expressions	***Perform arithmetic operations with complex numbers.***
• **A2.A.7** Factor polynomial expressions completely, using any combination of the following techniques: common factor extraction, difference of two perfect squares, quadratic trinomials • **A2.A.13** Simplify radical expressions • **A2.A.14** Perform addition, subtraction, multiplication, and division of radical expressions • **A2.A.15** Rationalize denominators involving algebraic radical expressions	• **N-CN.1** Know there is a complex number i such that $i^2 = -1$, and every complex number has the form a + bi with a and b real. • **N-CN.2** Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers. Use complex numbers in polynomial identities and equations. • **N-CN.7** Solve quadratic equations with real coefficients that have complex solutions.
Equations and Inequalities	***Interpret the structure of expressions***
• **A2.A.24** Know and apply the technique of completing the square • **A2.A.25** Solve quadratic equations, using the quadratic formula • **A2.A.26** Find the solution to polynomial equations of higher degree that can be solved using factoring and/or the quadratic formula	• **A-SSE.2** Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.
Coordinate Geometry	***Understand the relationship between zeros and factors of polynomials***
• **A2.A.50** Approximate the solution to polynomial equations of higher degree by inspecting the graph	• **A-APR.2** Know and apply the Remainder Theorem: For a polynomial p(x) and a number a, the remainder on division by x – a is p(a), so p(a) = 0 if and only if (x – a) is a factor of p(x). • **A-APR.3** Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.
	Use polynomial identities to solve problems
	• **A-APR.4** Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.
	Rewrite rational expressions
	• **A-APR.6** Rewrite simple rational expressions in different forms; write a(x)/b(x) in the form q(x) + r(x)/b(x), where a(x), b(x), q(x), and r(x) are polynomials with the degree of r(x) less than the degree of b(x), using inspection, long division, or, for the more complicated examples, a computer algebra system.
	Understand solving equations as a process of reasoning and explain the reasoning
	• **A-REI.1** Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. • **A-REI.2** Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise. Solve equations and inequalities in one variable • **A-REI.4** Solve quadratic equations in one variable. **b.** Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a ± bi for real numbers a and b.
	Solve systems of equations
	• **A-REI.6** Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables. • **A-REI.7** Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.
	Analyze functions using different representations
	• **F-IF-7** Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. **c.** Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.
	Translate between the geometric description and the equation for a conic section
	• **G-GPE.2** Derive the equation of a parabola given a focus and directrix.

Topic A: Polynomials—From Base Ten to Base X (A-SSE.A.2, A-APR.C.4)

Standards:

- **A-SSE.2** Use the structure of an expression to identify ways to rewrite it. For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.
- **A-APR.4** Prove polynomial identities and use them to describe numerical relationships. For example, the polynomial identity $(x^2 + y^2)^2 = (x^2 - y^2)^2 + (2xy)^2$ can be used to generate Pythagorean triples.


PROVIDENCE



Course Offerings

Data

Test Chapter 7

Test	Rating	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	Lesson	7.1	7.1	7.1	7.1	7.3	7.3	7.2	7.2	7.2	7.3	7.2	7.2	7.5	7.5	7.5	7.3	7.5	7.3	7.3	7.5	7.4	7.4	7.4	7.4	
	Standard	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	CC.1.N	
92%	3+	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	0
92%	3+	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	0
100%	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
100%	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
100%	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
100%	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
83%	3	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	0	1	1	0	0
100%	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
100%	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
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79%	2+	1	1	1	1	1	1	1	1	0	0	1	0	1	1	1	1	1	1	1	0	1	0	1	1	0
100%	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
100%	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
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92%	3+	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	0
92%	3+	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	0
100%	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
79%	2+	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	0	1	1	1	1	1	0	0	0
88%	3	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
14	D	4214	100.0%	10	10	0	C	B	B	D	B	B	B	B	B	C
15	C	1701	100.0%	10	10	0	C	B	B	D	B	B	B	B	B	C
16	C	1711	100.0%	10	10	0	C	B	B	D	B	B	B	B	B	C
17	C	1713	100.0%	10	10	0	C	B	B	D	B	B	B	B	B	C
18	C	1719	100.0%	10	10	0	C	B	B	D	B	B	B	B	B	C
19	A	1505	100.0%	10	10	0	C	B	B	D	B	B	B	B	B	C
20	A	1506	100.0%	10	10	0	C	B	B	D	B	B	B	B	B	C
21	A	1510	100.0%	10	10	0	C	B	B	D	B	B	B	B	B	C
22	A	1514	100.0%	10	10	0	C	B	B	D	B	B	B	B	B	C
23	A	1515	100.0%	10	10	0	C	B	B	D	B	B	B	B	B	C
24	A	1519	100.0%	10	10	0	C	B	B	D	B	B	B	B	B	C
25	A	1520	100.0%	10	10	0	C	B	B	D	B	B	B	B	B	C
26	A	1522	100.0%	10	10	0	C	B	B	D	B	B	B	B	B	C
27	B	4108	90.0%	9	9	0	B	B	B	D	B	B	B	B	B	C
28	B	4118	90.0%	9	9	0	C	B	B	D	B	C	B	B	B	C
29	B	4119	90.0%	9	9	0	C	B	B	D	B	C	B	B	B	C
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33	D	4204	90.0%	9	9	0	C	B	C	D	B	B	B	B	B	C
34	D	4212	90.0%	9	9	0	C	B	B	D	B	A	B	B	B	C
35	D	4217	90.0%	9	9	0	C	B	A	D	B	B	B	B	B	C
36	C	1702	90.0%	9	9	0	C	B	B	D	B	A	B	B	B	C
37	C	1710	90.0%	9	9	0	C	B	B	D	B	D	B	B	B	C
38	C	1717	90.0%	9	9	0	C	B	B	D	B	D	B	B	B	C
39	C	1718	90.0%	9	9	0	C	B	B	B	B	B	B	B	B	C
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52	B	4109	80.0%	8	8	0	C	B	B	A	B	A	B	B	B	C
53	B	411 2	80.0%	8	8	0	C	B	B	A	B	B	B	B	B	A
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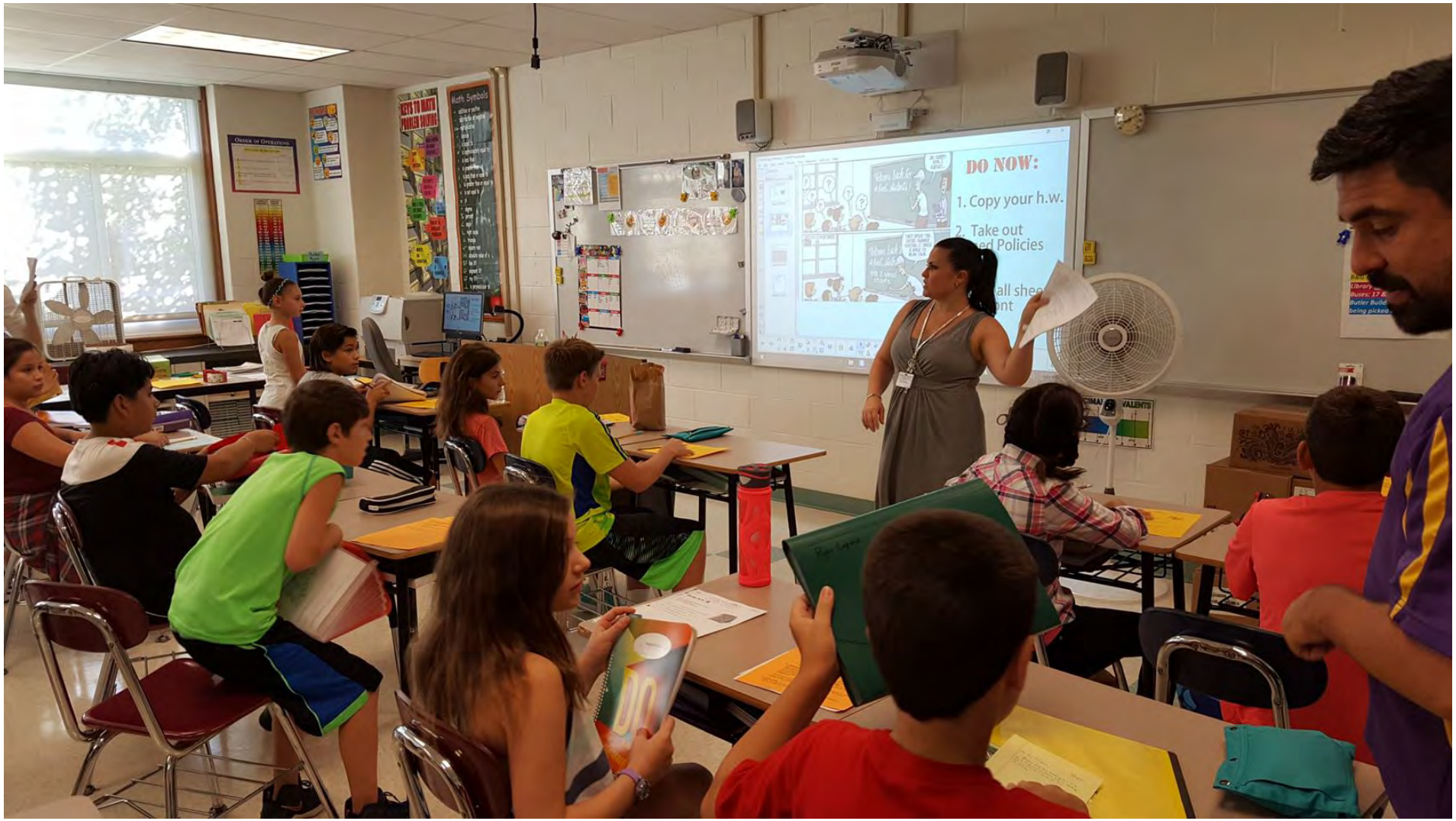
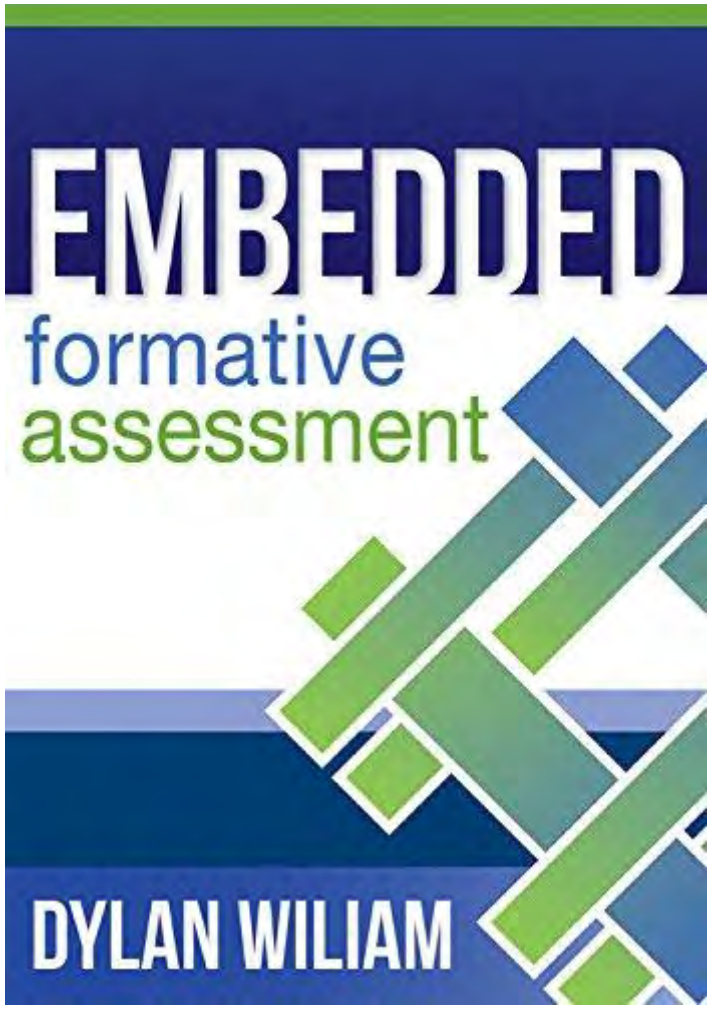
55	B	4117	80.0%	8	8	0	C	B	B	C	B	A	B	B	B	C
56	D	4207	80.0%	8	8	0	C	B	A	D	B	C	B	B	B	C

Sheet1

Instruction



Instruction



Success Criteria: Comparative Inferences

Your completed work should include:

I. A circling, in the word problem, of the measure of center or measure of spread to be used.

II. A calculation of the appropriate measure of center or measure of spread for each sample.

III. An inference, or conclusion, that...
   a. compares the populations, and
   b. uses the sample data as evidence

Success Criteria: Factoring

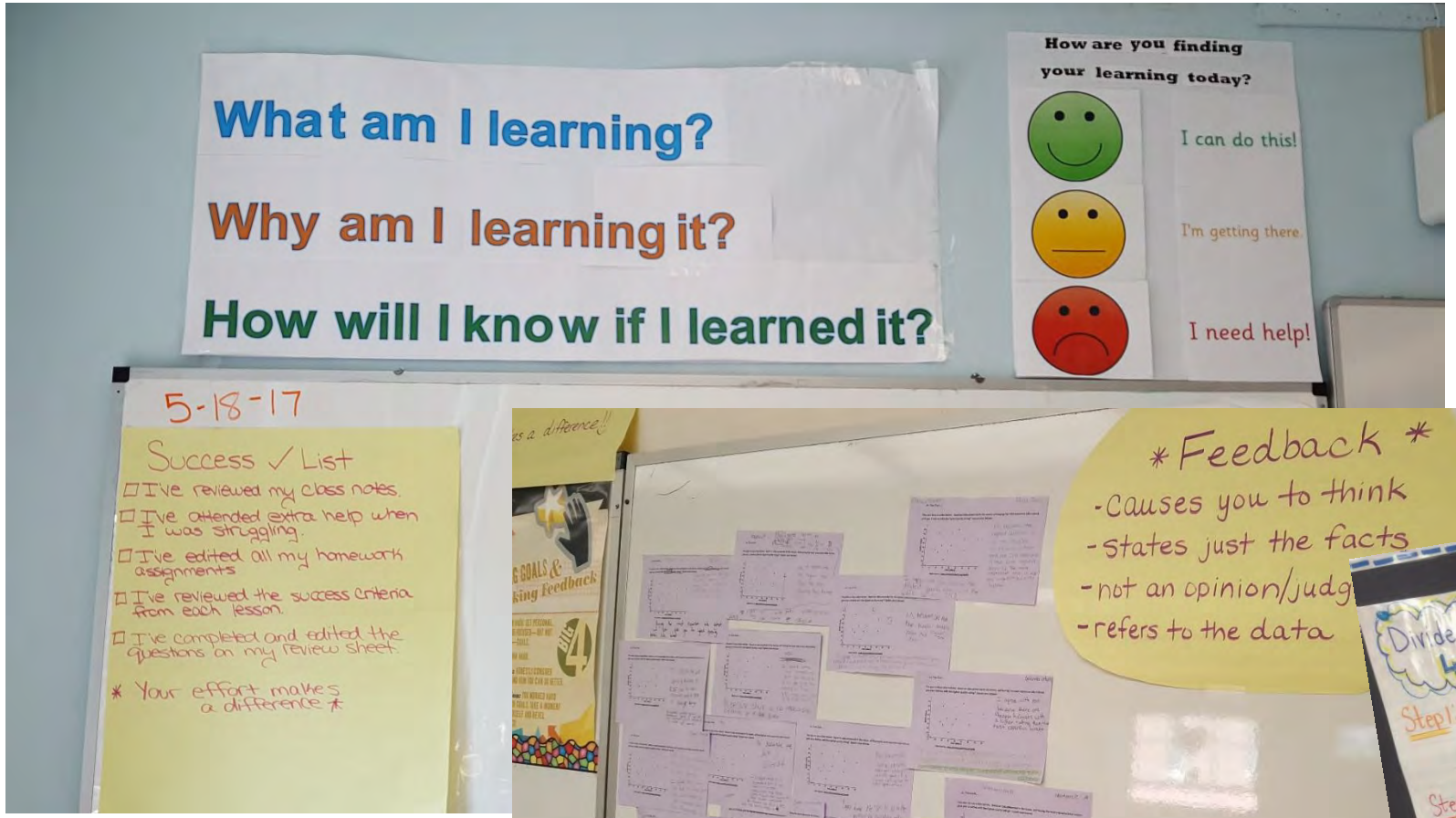
Your completed work should include:

I. A statement of which factoring method was used: GCF, DOTS, Trinomials

II. A review of your factors to make sure they cannot be factored further.

III. A check of your work by multiplying to see if you get back the original polynomial

Formative Assessment Strategies



Formative Assessment Strategies

Exit Ticket

Answer the following questions

The quadratic formula allows us to determine:

- ◯ The axis of symmetry of a parabola
- ◯ The location of the vertex of a parabola
- ◯ The roots, or solutions, of a parabola
- ◯ The y-intercept of a parabola

Describe the process for determining the ordered pair for the minimum or maximum point of any parabola:

Your answer

SUBMIT

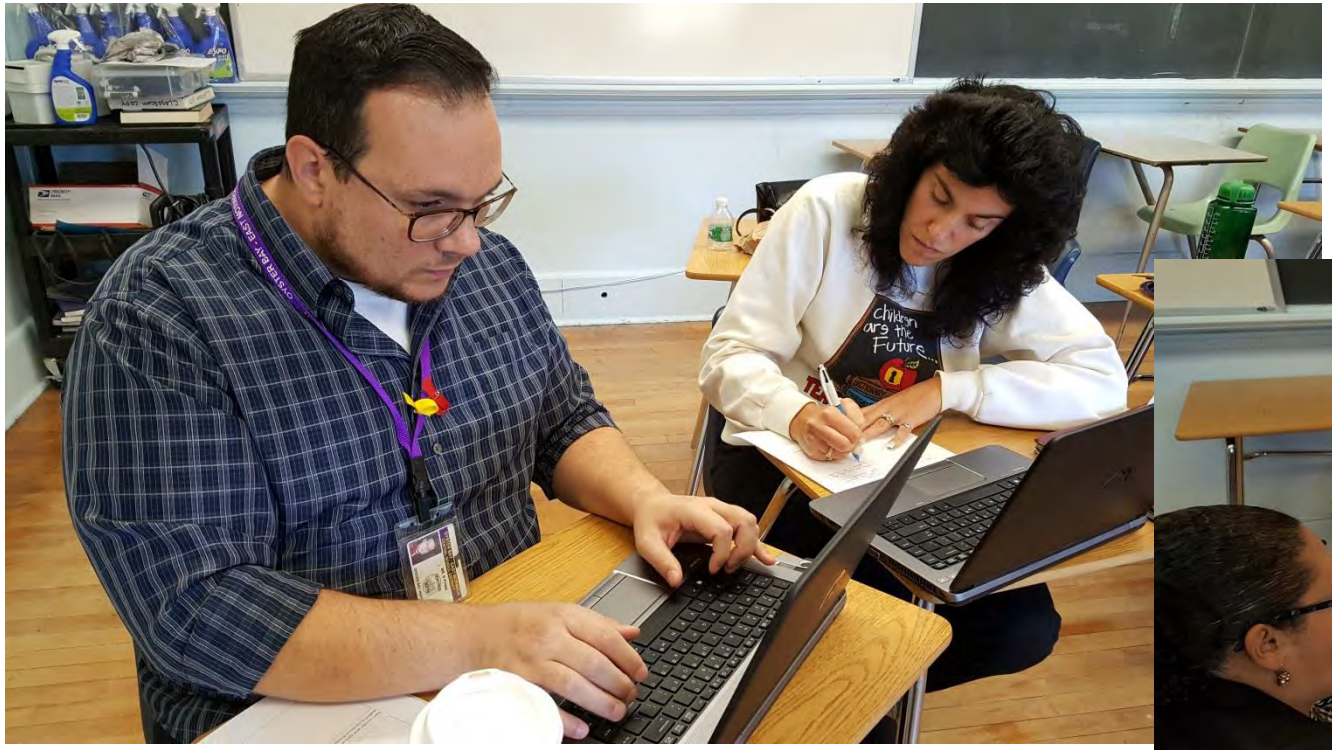
Never submit passwords through Google Forms.

formative

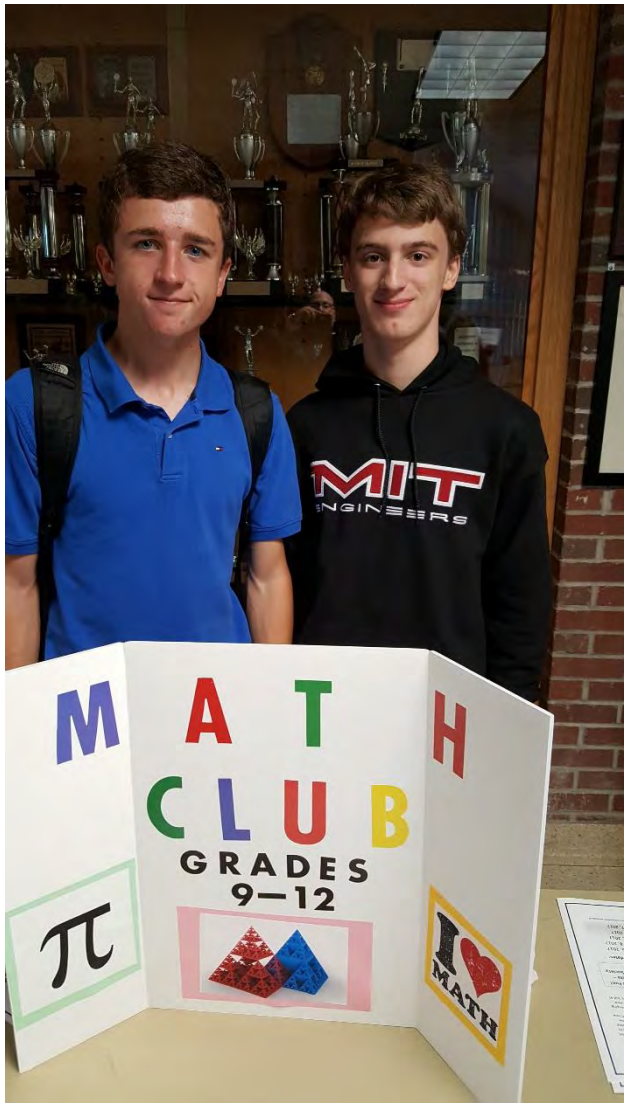
Intervene in the moments that matter most.

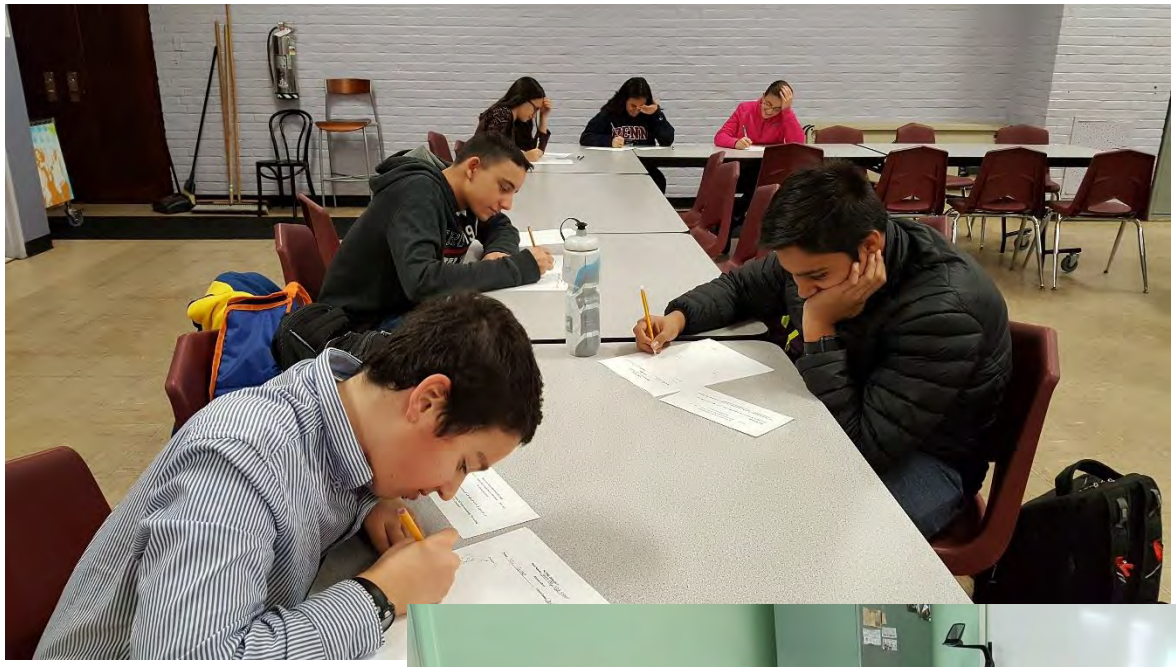
GET LIVE RESULTS!

Technology in the Classroom



Mathletes

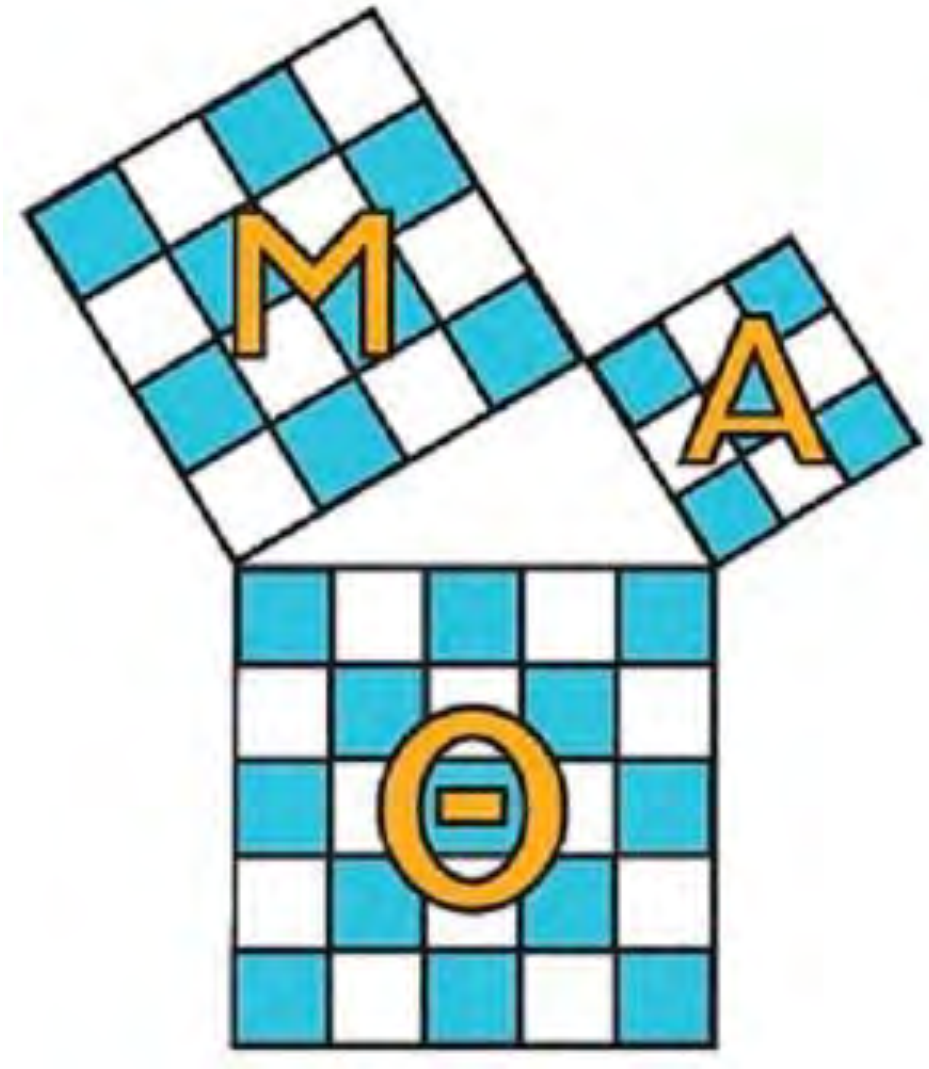




OBHS Math Club

Vernon Math Club

Mu Alpha Theta



Mu Alpha Theta


KEEP LOOKING
FORWARD