Texas Education Agency

TASM

TEA Curriculum Update

October 20, 2015

Texas Education Agency

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Agenda

- SBOE Updates
- Frequently Asked Question
- ESTAR/MSTAR
- OnTRACK
- Professional Development
- Update on Current Resources
- New Resources
- PAEMST

SBOE Updates

July Meeting

Chapter 74, Subchapter G

- Minimum High School Program – Added Algebraic Reasoning and Statistics
- Recommended High School Program – Added Algebraic Reasoning and Statistics
- Distinguished Achievement Program – Added Statistics

SBOE Updates

July Meeting

Proclamation 2017

- Algebraic Reasoning and Statistics
- Career and Technical Education (CTE)
- Languages Other Than English (LOTE)
- Special Topics in Social Studies

SBOE Updates

July Meeting

Chapter 111 – §111.43 Mathematical Models with Applications, Adopted 2012

- Changed to “one credit”
- Deleted sentence addressing a sequencing requirement

§111.43 Mathematical Models with Applications, Adopted 2012 ([~~One-Half to~~] One Credit).

(a) General requirements. Students can be awarded [~~one-half to~~] one credit for successful completion of this course. Prerequisite: Algebra I. [~~This course must be taken before receiving credit for Algebra II.~~]

SBOE Updates

New CTE Courses that will Satisfy a Mathematics Credit

- Accounting II
- Applied Mathematics for Technical Professionals
- Financial Mathematics
- Manufacturing Engineering Technology II
- Mathematics for Medical Professionals
- Robotics II

SBOE Updates

September Meeting

19 TAC Chapter 74, Curriculum Requirements, Subchapter B, Graduation Requirements

- Discussed possible amendments
- Requested that rule text for proposed revision be presented for first reading and filing authorization

§74.13(e)(2)(U) "Mathematical Models with Applications, if credit is earned prior to September 1, 2015, or September 1 of a subsequent year in which either of the courses listed in subparagraph (F) or (G) of this paragraph has been developed and approved by the State Board of Education, whichever is later." **– proposed to strike this language**

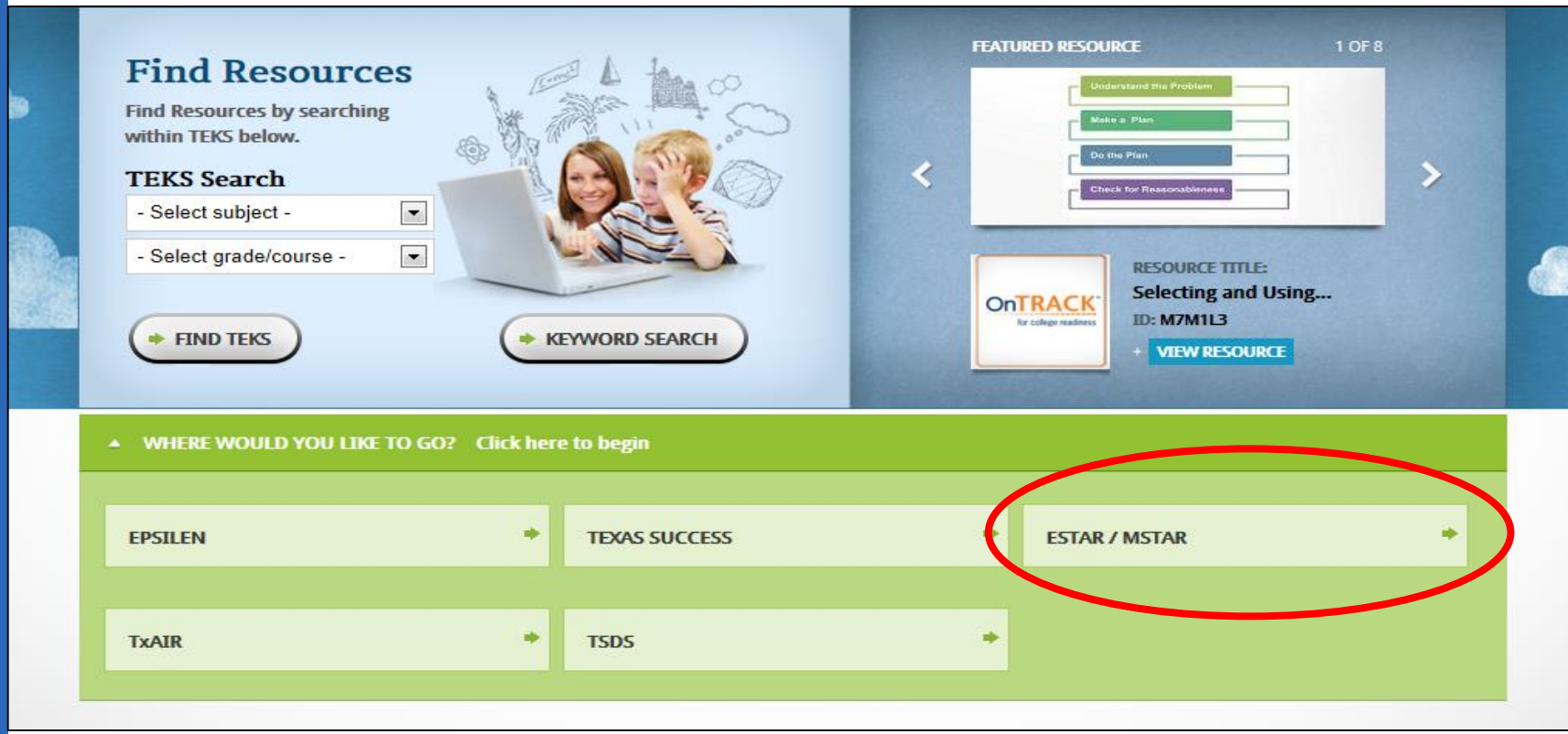
Frequently Asked Question

A student has not completed Algebra I. Can they still enroll in Geometry (or other courses, such as MMA)?

Algebra I is a required prerequisite for Geometry. A student must meet prerequisite requirements for each course. Texas Administrative Code §74.11 and §74.71 provide additional clarification on prerequisites. If a situation arises where §74.11(j) or §74.71(k) are appropriate, it is a local decision on the process the district would use to determine equivalent knowledge of a course.

ESTAR/MSTAR

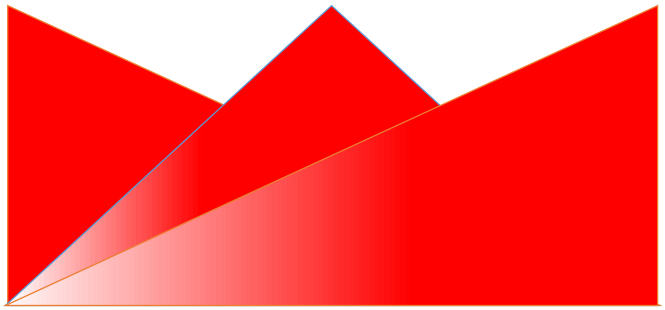
The assessments can be accessed through the Gateway.



ESTAR/MSTAR

ESTAR/MSTAR Universal Screener

- **Fall** – August 24 - October 16, 2015
- **Winter** – January 11 - February 12, 2016
- **Spring** – April 4 - May 6, 2016



Foundational Bridging Target

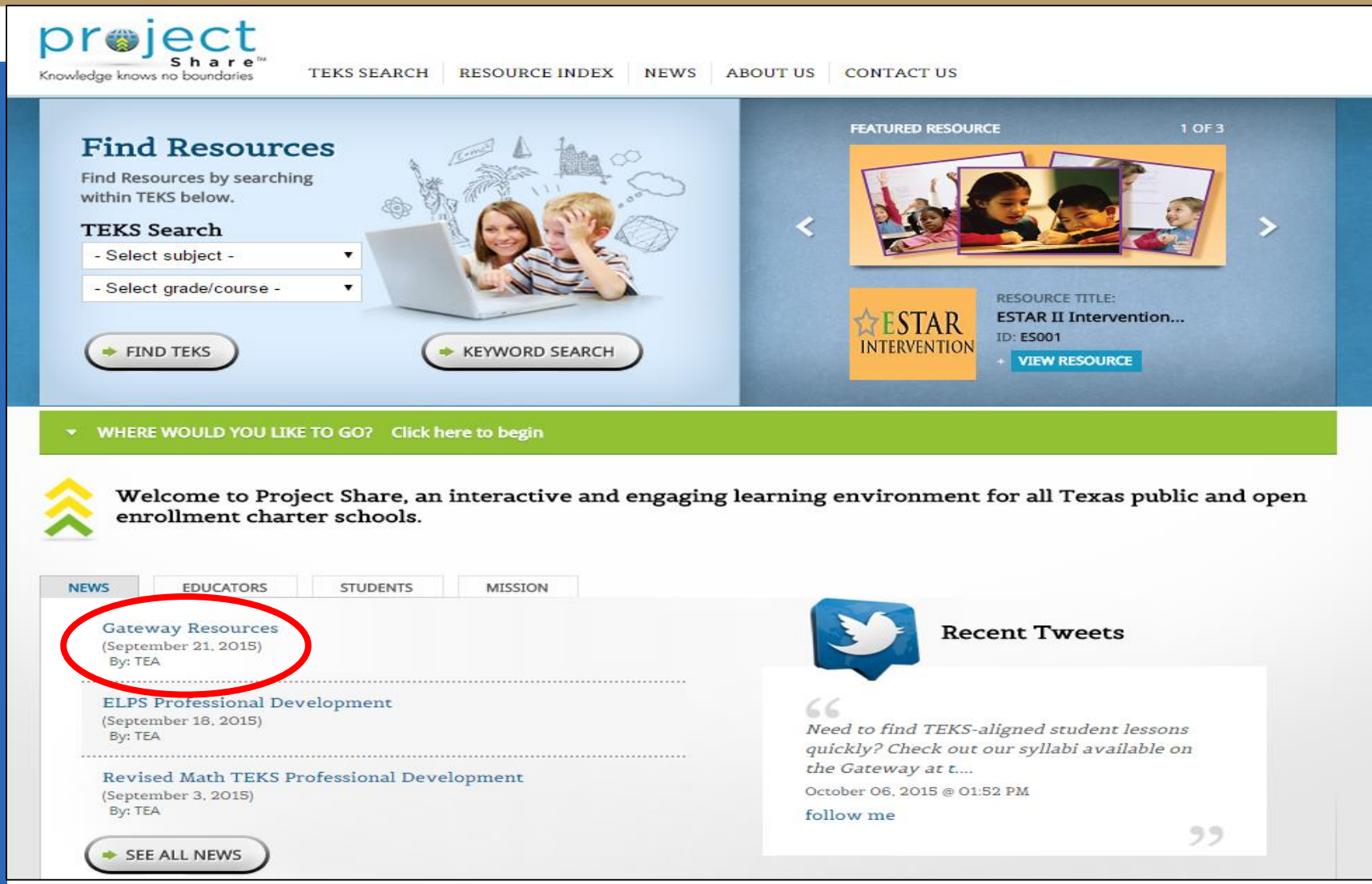
ESTAR/MSTAR

ESTAR/MSTAR Diagnostic Assessments

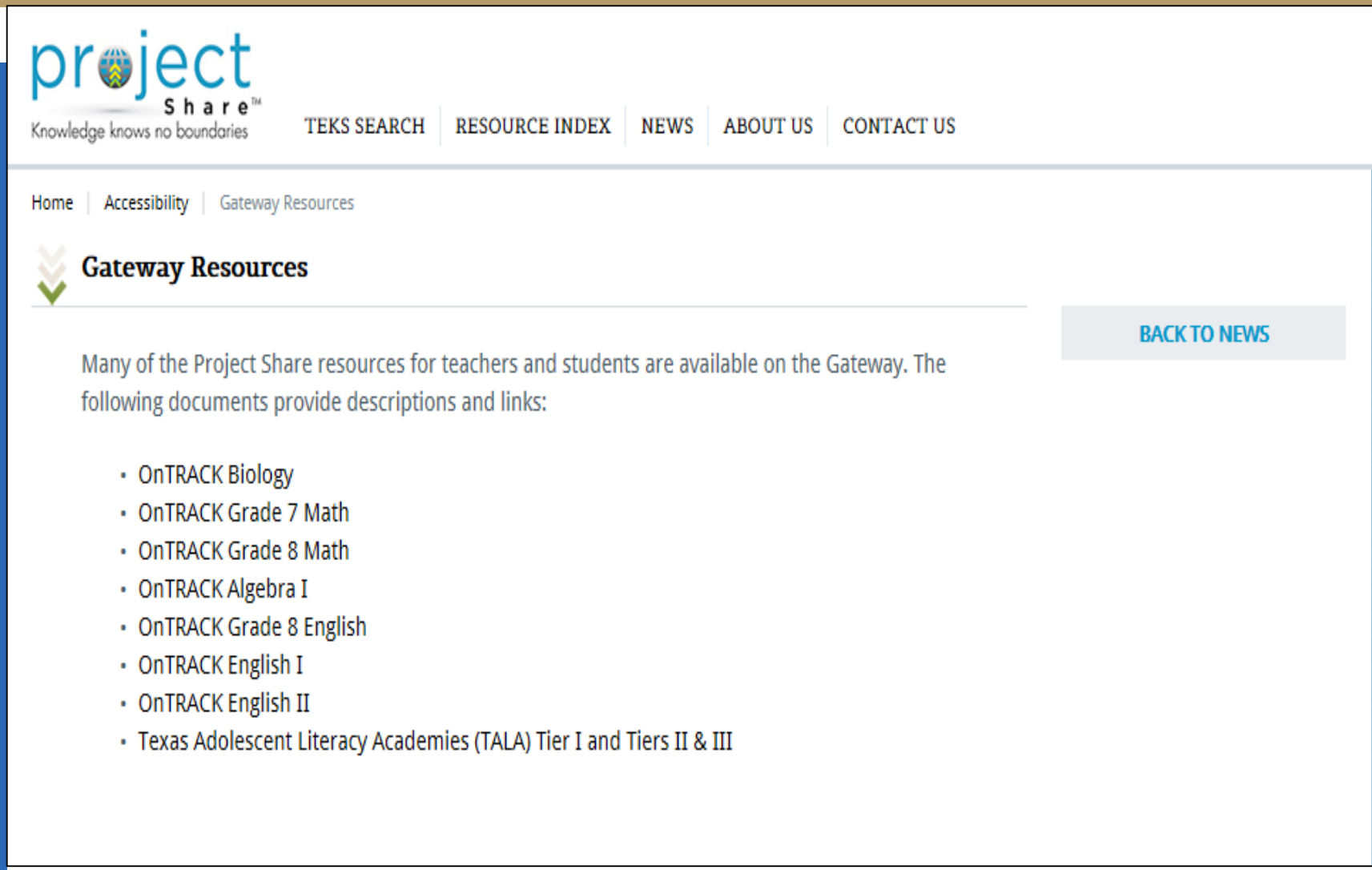
- **Fall** – August 31 - October 23, 2015
- **Winter** – January 18 - February 19, 2016
- **Spring** – April 11 - May 13, 2016

Help Desk: mathtx@esc13.net

OnTRACK



OnTRACK



Texas SUCCESS Initiative

For the next contract, TEA issued RFPs for reading and mathematics resources, and it is anticipated that resources resulting from the RFPs will be made available to districts and charter schools this fall.

TEA Correspondence from June 26, 2015

Resources to be Developed

Teacher 2 Teacher Videos

- Preview hosted by Region 13 (first batch of 3 – 5 videos)
- Additional videos released in batches of 5 or 10

Resources to be Developed

Teacher 2 Teacher Videos

- Adding and Subtracting Techniques (K – 4)
- Multiple Representations of Equations (5 – 8)
- Solving Equations (6 – 8)
- Measurement (2 – 5)
- Growth Rate vs. Growth Factor vs. Continuous Growth Rate (Algebra)

Resources to be Developed

- Continued Work on the Interactive Math Glossary
  - App – Available Soon
  - Additional Terms
  - Update to the Master Lists
- K – 3 Math Academies
- Vertical Alignment Chart for Statistics

New Resources

Supporting Information Documents

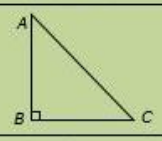
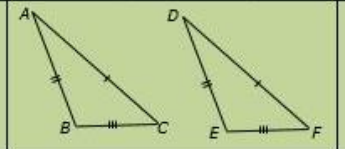
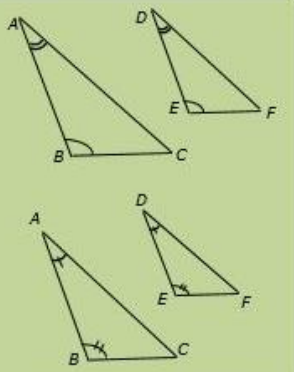
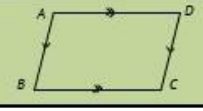
- These documents are updates to the Side-by-Side TEKS Comparison documents for grades K – 8.
- Documents for grades 3 – 5 and 8 have been published.
  - Grades K – 2 — This week
  - Grades 6 and 7 — Early November

New Resources

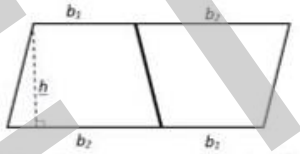
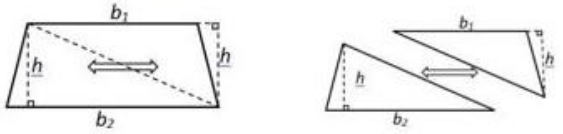
Current TEKS: Number and Operations.	Supporting Information
4(2)(A) **Number and operations.** The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value. **The student is expected to interpret the value of each place-value position as 10 times the position to the right and as one-tenth of the value of the place to its left.**	The place-value positions address whole numbers through (less than or equal to) 1,000,000,000 and decimals to the hundredths (greater than or equal to 0.01).
4(2)(B) The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value. **The student is expected to represent the value of the digit in whole numbers through 1,000,000,000 and decimals to the hundredths using expanded notation and numerals.**	The SE reflects the representing of whole numbers through (less than or equal to) 1,000,000,000 and decimals to the hundredths (greater than or equal to 0.01). For the number 3.94, the 3 in the ones place is 3; the 9 in the tenths place is 0.9; and the 4 in the hundredths place is 0.04; and 3.94 is the sum of 3 ones, 9 tenths, and 4 hundredths. The expanded notation for 3.94 may be represented as $3.94 = 3 \times 1 + 9 \times 0.1 + 4 \times 0.01$; $3.94 = 3 \times 1 + 9 \times {}^{1}/_{10} + 4 \times {}^{1}/_{100}$; $3.94 = (3 \times 1) + (9 \times 0.1) + (4 \times 0.01)$; or $3.94 = (3 \times 1) + (9 \times {}^{1}/_{10}) + (4 \times {}^{1}/_{100})$.
4(2)(C) **Number and operations.** The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value. **The student is expected to compare and order whole numbers to 1,000,000,000 and represent comparisons using the symbols >, <, or =.**	Specificity regarding notation is included with the inclusion of the symbols >, <, or =.
4(2)(D) **Number and operations.** The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value. **The student is expected to round whole numbers to a given place value through the hundred thousands place.**	The phrase "to a given place value through the hundred thousands place" is more precise than "to the nearest ten, hundred, or thousand."
4(2)(E) **Number and operations.** The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value. **The student is expected to represent decimals, including tenths and hundredths, using concrete and visual models and money.**	The SE separates the representations of decimals, including tenths and hundredths, from other skills with decimals. Students are not expected to represent decimals smaller than hundredths.
4(2)(F) **Number and operations.** The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value. **The student is expected to compare and order decimals using concrete and visual models to the hundredths.**	The SE separates the comparing and ordering of decimals to the hundredths using concrete and visual models from other skills with decimals. Students can but are not expected to use the symbols >, <, or = with these comparisons.
4(2)(G) **Number and operations.** The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value. **The student is expected to relate decimals to fractions that name tenths and hundredths.**	When paired with 4(1)(D), students may relate decimals to fractions that name tenths and hundredths using concrete and pictorial models.
4(2)(H) **Number and operations.** The student applies mathematical process standards to represent, compare, and order whole numbers and decimals and understand relationships related to place value. **The student is expected to determine the corresponding decimal to the tenths or hundredths place of a specified point on a number line.**	When paired with 4(3)(C), decimals can be developed from fractions that have equivalent fractions with denominators of ten or one hundred, such as 0.25 from ¼ or 0.4 from ²/₅.

New Resources

Current TEKS: Geometry and Measurement.	Supporting Information
5(5) **Geometry and measurement.** The student applies mathematical process standards to classify two-dimensional figures by attributes and properties. **The student is expected to classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties.**	The SE focuses on classification by attributes and properties. An attribute is a characteristic or component of a geometric figure. The attributes of a square include side lengths and angle measures. The attributes combine to form the properties of a square: 4 right angles, 4 congruent sides, 2 sets of parallel sides. The SE clarifies the purpose of identifying essential attributes: classification within a hierarchy of set and subsets. For example, all rectangles have the property that opposite sides are parallel; therefore, every rectangle is a parallelogram. The SE specifies the use of graphic organizers as a classification tool.

Geometric Idea	Notation	Meaning
Right Angle		$m\angle ABC = 90°$
Congruent Sides		$\overline{AB} \cong \overline{DE}$ $\overline{BC} \cong \overline{EF}$ $\overline{AC} \cong \overline{DF}$
Congruent Angles		In both pairs of triangles: $\angle A \cong \angle D$ $\angle B \cong \angle E$ $\angle C \cong \angle F$
Parallel lines		$\overline{AB} \parallel \overline{DC}$ $\overline{AD} \parallel \overline{BC}$

New Resources

Current TEKS: Expressions, Equations, and Relationships.	Supporting Information
6(8)(A) **Expressions, equations, and relationships.** The student applies mathematical process standards to use geometry to represent relationships and solve problems. **The student is expected to extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle.**	Specificity includes the relationships involving triangles. Students are expected to determine when three lengths form a triangle and a relationship between side lengths and angle measures of a triangle.
6(8)(B) **Expressions, equations, and relationships.** The student applies mathematical process standards to use geometry to represent relationships and solve problems. **The student is expected to model area formulas for parallelograms, trapezoids, and triangles by decomposing and rearranging parts of these shapes.**	Specificity is included regarding the development of formulas. Here are three possible techniques that could model the area formula for a trapezoid. I. Use two congruent trapezoids to form a parallelogram. This parallelogram has area of $(b_1 + b_2)h$, so the area of one trapezoid would be $\frac{1}{2}(b_1 + b_2)h$.  II. Divide the trapezoid with a line segment parallel to both bases and halfway between each. Rotate and reflect one of these pieces to form a parallelogram with a length of $b_1 + b_2$ and a width of $\frac{1}{2}h$. As such the area of the parallelogram and hence the trapezoid would be $\frac{1}{2}(b_1 + b_2)h$.  III. Divide the trapezoid using a diagonal to form two triangles. The area of one triangle would be $\frac{1}{2}b_1h$, and the area of the second triangle would be $1/2b_2h$, so the area of the trapezoid would be $\frac{1}{2}b_1h + \frac{1}{2}b_2h = \frac{1}{2}(b_1 + b_2)h$.  Other techniques may exist.
6(8)(C) **Expressions, equations, and relationships.** The student applies mathematical process standards to use geometry to represent relationships and solve problems. **The student is expected to write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.**	When this SE is paired with 6(1)(D) and 6(1)(G), the expectation is that students use tables to generate equations as appropriate to the problem. The dimensions may be positive rational numbers.
6(8)(D) **Expressions, equations, and relationships.** The student applies mathematical process standards to use geometry to represent relationships and solve problems. **The student is expected to determine solutions for problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms where dimensions are positive rational numbers.**	Dimensions may be positive rational numbers.

Professional Development

http://texasmathsupportcenter.org/

Courses Available Now

Introduction to the Revised Math TEKS: Grades K–8

- **The Revised Math TEKS (2012) with Supporting Documents**
  The goals for participation are to become familiar with the focal points and the TEKS comparison documents, to examine how to use the documents to improve overall mathematics instruction, and to explore vertical alignment of mathematical concepts and processes within the Revised TEKS (2012). CEU credit is 3.
- **Applying the Mathematical Process Standards**
  The goals for participation are to become familiar with the revised mathematical process standards and compare them to the current underlying processes and mathematical tools, to explore resources on the Project Share Gateway, and to amplify instructional tasks. CEU credit is 3.
- **Completing the Gap Analysis**
  The goals for participation are to become familiar with the focal points and TEKS comparison documents, to examine how to use the documents to improve overall mathematics instruction, and to explore vertical alignment of mathematical concepts and processes. CEU credit is 3.
- **Achieving Fluency and Proficiency**
  The goals for participation are to define computational fluency, automaticity, mathematical proficiency, and conceptual understanding; to examine the learning progressions for computational fluency; to make connections between computational fluency, mathematical proficiency, and the process standards; and to explore computational fluency and mathematical proficiency activities. CEU credit is 3.

Professional Development

http://texasmathsupportcenter.org/

Introduction to the Revised Math TEKS: Grades 9-12

- **The Revised Math TEKS (Grades 9–12) with Supporting Documents**

  The goals for participation are to become familiar with the revised TEKS and the TEKS comparison documents, to examine how to use the documents to improve overall mathematics instruction, and to explore vertical alignment of mathematical concepts and processes within the revised TEKS. CEU credit is 3.

- **Applying the Mathematical Process Standards**

  The goals for participation are to become familiar with the mathematical process standards and compare them to the current underlying processes and mathematical tools, to explore resources on the Project Share Gateway, and to amplify instructional tasks. CEU credit is 3.

- **Completing the Gap Analysis**

  The goals for participation are to study the revised TEKS; to explore curriculum and instructional gaps in student learning for the 2015–2016 implementation; to explore vertical connections; to explore instructional implications for student cohorts, including those students entering Algebra I who received instruction in grade 8 revised TEKS; and to create an action plan for the transition to the revised TEKS. CEU credit is 3.

- **Achieving Fluency and Proficiency**

  The goals for participation are to define computational fluency, automaticity, mathematical proficiency, and conceptual understanding; to examine the learning progressions for computational fluency; to make connections between computational fluency, mathematical proficiency, and the process standards; and to explore computational fluency and mathematical proficiency activities. CEU credit is 3.

For more information about Continuing Education Units (CEUs), visit the CEU Credit page.

Professional Development

http://texasmathsupportcenter.org/

TEA ESTAR/MSTAR Universal Screeners Overview

This course provides a brief overview of the ESTAR/MSTAR Universal Screeners and describes how to interpret the results obtained after administering a screener. Results from the ESTAR/MSTAR Universal Screeners guide instructional decision making and help educators identify the intensity of support needed for students who might be at risk for not meeting expectations in algebra and algebra readiness skills.

For more information about Continuing Education Units (CEUs), visit the CEU Credit page.

TEA ESTAR/MSTAR Diagnostic Assessments Overview

This course provides a brief overview of the ESTAR/MSTAR Diagnostic Assessments, examines how learning progressions fit with the Diagnostic Assessments, discusses how the diagnostic assessments were developed, and provides guidance on how to interpret the results.

For more information about Continuing Education Units (CEUs), visit the CEU Credit page.

TEA ESTAR/MSTAR Learning Progressions

This course explores the learning progressions created specifically for the ESTAR/MSTAR Diagnostic Assessments. Participants will explore the definition of learning progressions in general, information about the ESTAR/MSTAR learning progressions, and the use of learning progressions in mathematics instruction and assessment in order to better prepare students for algebra. Participants will also become familiar with the ESTAR/MSTAR Diagnostic Assessments.

For more information about Continuing Education Units (CEUs), visit the CEU Credit page.

PAEMST – 2013 Winner

Jessica Caviness teaches Geometry and Algebra II at Coppell High School in Coppell ISD.

View Jessica's official PAEMST biography.

PAEMST – 2015 Finalists

Jonathan Claydon
Northbrook Senior High School
Spring Branch ISD

Darla Emerson
Lovejoy High School
Lovejoy ISD

Rebecca Grant
Haggard Middle School
Plano ISD

PAEMST – 2015 Finalists

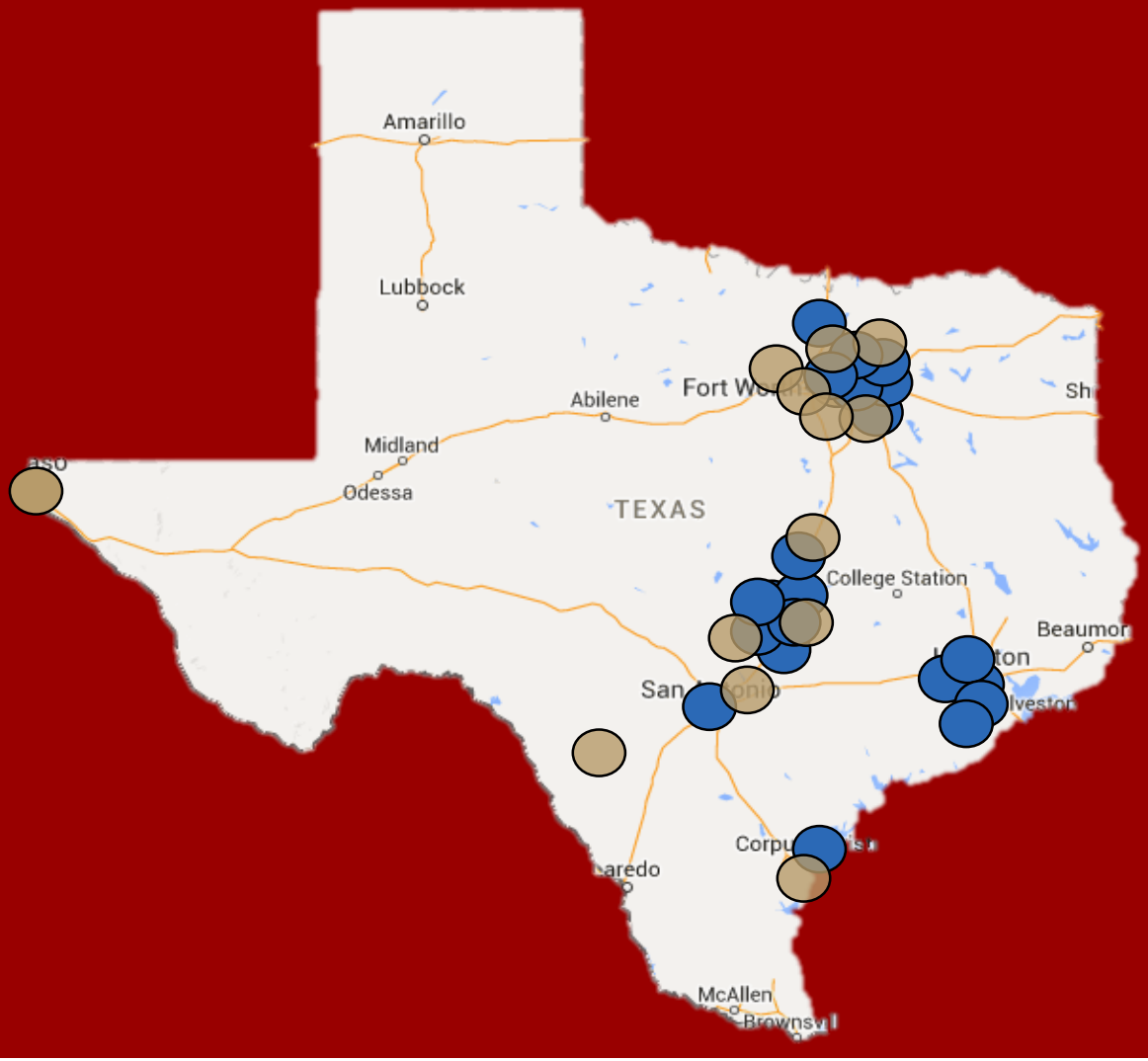
Patty Hill
Kealing Middle School
Austin ISD

Penny Smeltzer
Westwood High School
Round Rock ISD

PAEMST – 2016 Competition

- Teachers in grades K – 6 can now be nominated or apply directly.
- Eligible teachers will earn 20 CPE hours for submitting a completed application.
- Information is available at www.paemst.org.

PAEMST – Former Winners



Curriculum Information

Curriculum Newsletter

The Curriculum Division is pleased to announce that the fall 2015 *Curriculum Update* newsletter will be available on the TEA website soon.

Sign up to receive Mathematics Communications.

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