

Overview of Mathematics Standards Development

TEXAS: 2010 – 2014

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Jane F. Schielack is an Associate Dean for Assessment and PreK–12 Education and a Professor in the Department of Mathematics at Texas A&M University. A former elementary teacher, Dr. Schielack has pursued her interests in working with teachers and students to enhance mathematics learning in the elementary grades. She has focused her activities for improving elementary mathematics education in two main areas: teacher education and professional development and curriculum development.

As a teacher educator, she has taught mathematics for elementary teachers for over 30 years and co-authored a textbook for the courses. Her professional development work has included the design of multiple sets of workshops, both face-to-face and web-based, addressing the mathematical knowledge of elementary and middle school teachers. Dr. Schielack participated on the writing committee of the NCTM Professional Standards for Teaching Mathematics.

With regards to curriculum development, she began her involvement at the Texas Education Agency where she participated in the development of the Texas Essential Knowledge and Skills for K-8 Mathematics. At the national level, she was the chair of the writing committee for the NCTM Curriculum Focal Points (2006) and editor of the NCTM Teaching with Curriculum Focal Points series for Grades 3-8. She was a member of the NCTM Review Team of the Common Core Standards and was an input group contributor. Through consultation, she continues to contribute to curriculum development and implementation at both the state and national levels. She was an author of *Scott Foresman-Addison Wesley Mathematics*, *Scott Foresman-Addison Wesley enVisionMATH*, and *enVisionMATH Common Core*. She is currently an author of *digits* and *enVisionMATH Common Core, Realize Edition*.

I. Groundwork for Change

Commissioner's Mathematics Advisory Group created in Fall 2010

(13 mathematics educators and mathematicians from Texas)

Charge:

Make recommendations for next generation of mathematics standards in Texas

Commissioner's Draft of the Texas Mathematics Standards reviewed by a National Review Committee and published in April 2011

Major resources used:

- NCTM Curriculum Focal Points
- Examples of Mathematics Standards from high-achieving states
- Texas College and Career Readiness Standards

A copy of the full Commissioner's Draft can be downloaded from

[http://tea.texas.gov/Curriculum and Instructional Programs/Curriculum Standards/Mathematics Texas Essential Knowledge and Skills/](http://tea.texas.gov/Curriculum_and_Instructional_Programs/Curriculum_Standards/Mathematics_Texas_Essential_Knowledge_and_Skills/)

II. State Board of Education Involvement

Mathematics Expert Reviewers identified in January 2011

(mix of 7 in-state and out-of-state mathematicians and mathematics educators)

Charge:

Review Commissioner's Draft for input to TEKS Review Committee

Review First Draft of Revised TEKS to provide feedback to TEKS Review Committee

IIIa. Revision of the Standards

TEKS Review Committees identified by State Board in May 2011

K-2: 1 univ., 5 teachers, 7 district admin, 2 others; 14/15 SBOE districts

3-5: 0 univ., 2 teachers, 12 district admin, 1 other; 13/15 SBOE districts

6-8: 1 univ., 8 teachers, 4 district admin, 2 other; 14/15 SBOE districts

9-12: 3 univ., 17 teachers, 12 district admin, 10 other; 14/15 SBOE districts

Charge:

Revise current TEKS to next-generation of standards using:

Commissioner's Draft and Experts' comments

NCTM Focal Points (K-8) and Focus in High School Mathematics

Current research in mathematics learning

IIIb. Revision of the Standards

Timeline: 11 months

May 2011: 3 day meeting (Members then sought input from local groups.)

July 2011: 5 day meeting (major writing effort)

October 2011: 3 day meeting (including vertical alignment)

Responsibilities:

Identification of strands

Grade placement of standards

Vertical alignment (formation of topic groups)

Validation as College and Career Ready

IV. Adoption and Implementation

Review by assessment group at state education agency

Review by state education agency for college and career readiness

First reading at State Board, January 2012

Second Reading and Adoption, April 2012

K-8 implemented Fall 2014;

9-12 implemented Fall 2015 if materials available

V. Support for Implementation

Creation of five-year professional development plan, made concurrently with standards revision

Design and implementation of PD for new standards including:

Side-by-side comparison, current standards to new standards

Identification of

What's new in a grade

What's moved to another grade

What has been totally removed

Detailed information about Resources for the Revised Kindergarten – Grade 8 Mathematics TEKS can be found at:

http://tea.texas.gov/Curriculum_and_Instructional_Programs/Subject_Areas/Mathematics/Resources_for_the_Revised_Kindergarten_%E2%80%93_Grade_8_Mathematics_TEKS/

Information for Teachers includes:

Side-by-Side TEKS Comparison Documents: These documents present a side-by-side comparison of the previous TEKS and the revised mathematics TEKS for kindergarten through high school courses.

Vertical Alignment Charts: The vertical alignment charts demonstrate the progression of mathematics content across the grade levels.

Interactive Math Glossary: This glossary helps teachers explore and understand mathematics vocabulary used in the grades K - 8 TEKS. Each term is displayed in a four quadrant Frayer Model that includes *My Definition*, *Key Characteristics*, *Example*, and *Non-example*.

Texas Response to the Curriculum Focal Points: This document organizes the Texas Essential Knowledge and Skills (TEKS) around key conceptual ideas that emphasize integration of concepts across the strands/skills and lead naturally to mathematical connections and higher-level thinking.

TEKS with “Such As” Statements: This document shows the revised TEKS with “such as” statements that were removed at second reading and final adoption of the TEKS.

On-line Professional Development Courses

VI. Issues that WILL Arise

Staying within the timeline

Managing vertical integration

Making decisions such as:

- How to include mathematical thinking in the standards

- To what extent to include instructional guidance/examples

- How to connect to assessment (both formative and summative)

VII. Suggestions for Improvement

Specific targets for committees, but flexible process to achieve targets

Grade level bands that enhance vertical alignment:

PreK-1, if there is a PreK

Grades 2 – 4 (Or K – Grade 4, if no PreK)

Grades 5 – 8

Grades 9 – 12

SMALL working groups to produce the writing with input from and feedback to the larger committees