# Core Standards Implementation Update

Utah State Office of Education

May 21, 2014

# Core Revision Timeline

| Content Area | 2013-14 | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 |
|---|---|---|---|---|---|---|---|---|
| Language Arts - Elementary | New Assessment Fully Implement | | | | Public review Revise Standards | Adoption Professional Development | Begin to implement and align assessment | New Assessment Fully Implement |
| Language Arts - Secondary | New Assessment Fully Implement | | | Public review Revise Standards | Adoption Professional Development | Begin to implement and align assessment | New Assessment Fully Implement | |
| Math – Elementary | New Assessment Fully Implement | Public review | | Public review Revise Standards | Adoption Professional Development | Begin to implement and align assessment | New Assessment Fully Implement | |
| Math – Secondary | New Assessment Fully Implement | Public review | | | Public review Revise Standards | Adoption Professional Development | Begin to implement and align assessment | New Assessment Fully Implement |
| Science Elementary | | | Public review Revise Standards | Adoption Professional Development | Begin to implement and align assessment | New Assessment Fully Implement | | |
| Science 6,7, 8 | | Public review Revise Standards | Adoption Professional Development | Begin to implement and align assessment | New Assessment Fully Implement | | | |
| Science HS | | | Public review Revise Standards | Adoption Professional Development | Begin to implement and align assessment | New Assessment Fully Implement | | |
| Soc. Studies Secondary | | Revise Standards Public review | Professional Development Adoption | Implement | | | | |
| Soc. Studies Elementary | | | Revise Standards Public review | Professional Development | Implement | | | |
| Fine Arts Elem | | Revise Standards Public review | Professional Development | Implement | | | | |
| Fine Arts HS | | Revise Standards Public review | Professional Development | Implement | | | | |
| P. E. | | Public review Revise Standards | Professional Development Implement | | | | | |
| Health | | | | Revise Standards | Public review Professional Development | Implement | | |
| Dr. Ed. | Implement | | | | | Revise Standards | Public review Professional Development | Implement |
| Library/Media Secondary & Elementary | | Public review Revise Standards Adopt | Professional Development Implement | | | | | |
| Ed. Tech | | Public review Revise Standards | Professional Development Implement | | | | | |
| World Languages | Public review Revise Standards | Professional Development Implement | | | | | | |

# The Role of Standards in Public Education

*"Recall information from experiences or gather information to answer a question."*

*"Tell and write time in hours and half-hours using analog and digital clocks"*

✓Teaching methodology – instructional practices and strategies
✓Textbooks and instructional materials

Formal and informal assessments that give teachers information on academic strengths and weaknesses of each student

ACT/SAT constitute the "Gold Standard" in College & Career Readiness – they are the gatekeepers to college entrance

More rigorous standards designed to limit remedial courses in freshman year of college

**Standards** → **Curriculum** → **Assessments** → **ACT/SAT** → **College**

✓Established by State Board of Education as required by Utah State statute
✓Standards formally set in 1984 & reviewed every 5 – 7 years
✓Common Core standards in math and English language arts adopted – Aug 2010

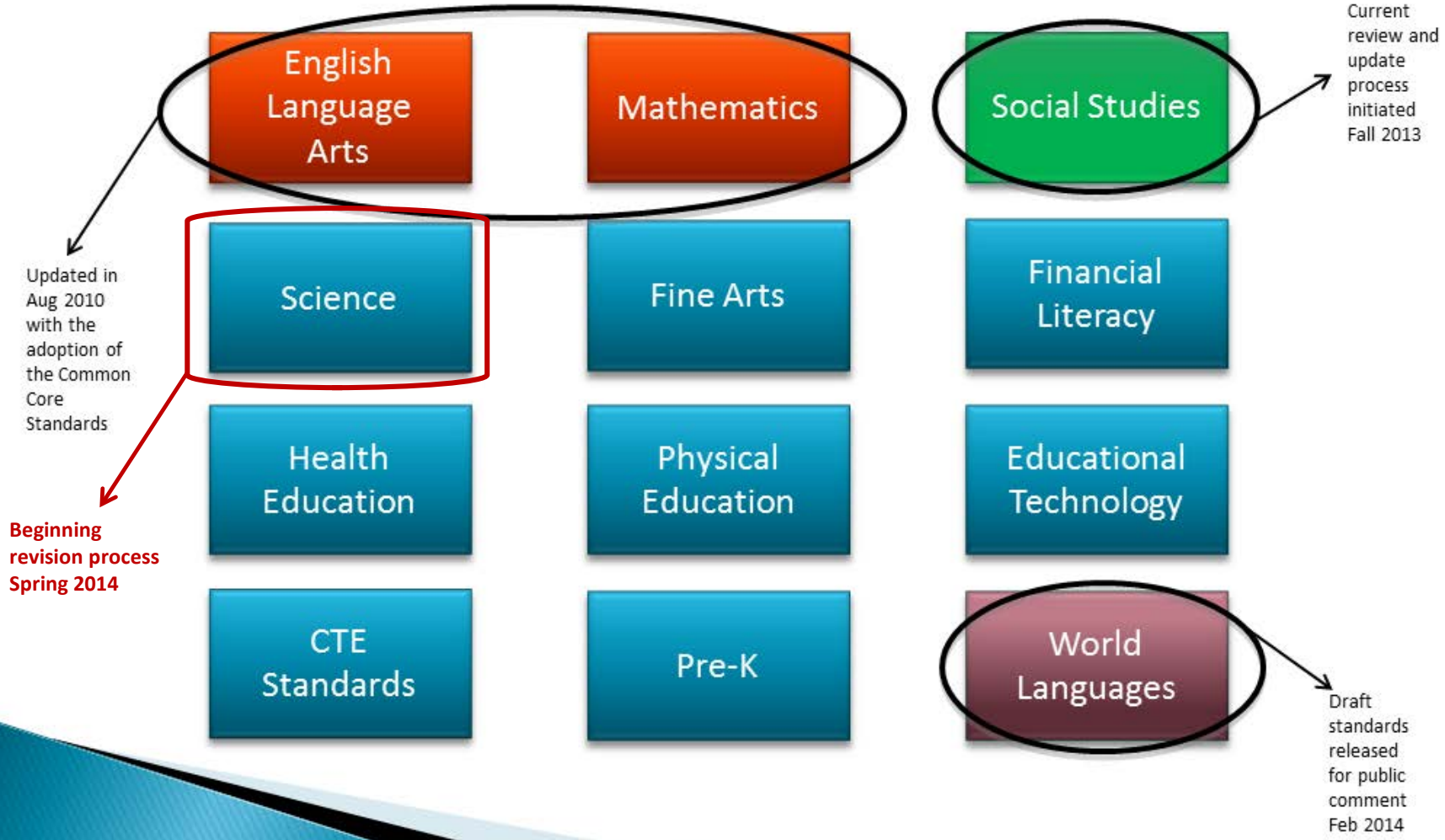
✓In Utah, local school districts & charters control the curriculum - textbooks and teaching materials used in the classroom
✓Utah colleges and universities teach pedagogy to pre-service teachers, while local districts, charters, & the State Office of Education facilitate ongoing teacher professional development

✓Utah's 2008-11 pilot testing of Computer Adaptive Assessments prove successful, helping parents and teachers monitor student progress and plan instruction
✓State Legislature establishes Computer Adaptive Testing statewide to replace previous year-end testing required by No Child Left Behind

✓State Legislature supports ACT testing for all Utah high school juniors, assisting parents and teachers in gauging student readiness for college and/or career entry

✓State Board Graduation Initiative – upgrading graduation requirements, studying competency-based credit & multiple paths to graduation
✓Ongoing emphasis on improving graduation rates

# UTAH CORE STANDARDS



# What are the issues with mathematics?

- New standards are integrated in nature and Utah selected new courses to reflect this change
- Instructional focus on both procedural knowledge and conceptual understanding is new for parents, students, and some teachers
- Materials and resources may not be in the form of one textbook. Utah has developed our own online materials in many cases.
- Published materials adopted by schools and districts are often not aligned to standards

# Shifts required by new standards

- Focus
- Coherence
- Rigor
  - Fluency
  - Understanding
  - Application

# Standards for Mathematical Practice

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

# Integrated Standards – International Model

## International Model

Secondary I → Secondary II → Secondary III

- Fluency in linear and exponential relationships
- Fluency in linear data
- Congruence & Constructions
- Coordinate Geometry

- Quadratics
- Polynomial expressions and equations
- Probability
- Similarity, Proof & Trig
- Circles

- Polynomial, rational & radical functions & relationships
- Unit circle and trig functions
- Modeling
- Inferences with data

## Algebra-Geometry-Alg. II Model

Algebra → Geometry → Algebra 2

- Fluency in linear algebra and data in linear models
- Exponentials
- Quadratics

- Coordinate Geometry
- Congruence& Proof
- Constructions
- Similarity & Trig
- Probability
- Circles

- Polynomial, rational & radical functions
- Unit circle and trig functions
- Modeling
- Inferences with data

# Math Committee Discussion on Benefits of Models

## International

- Eliminates algebra gap between geometry & algebra 2
- Better treatment of geometry through integration
- Cuts ties with outdated practices, attitudes, and curriculum
- Forces change-no familiar classes
- Connections within mathematics topics
- Separates linear and quadratic mathematics
- Broadens definition of mathematics
- World Class

## Traditional

- Easier to double enroll (algebra and geometry)
- Better treatment of geometry through focused curriculum
- More comfortable for teachers and parents
- Parents understand names

# Math Steering Committee Membership

- USOE Specialists in mathematics, science, special education, Title I, comprehensive guidance and assessment
- Representatives from USHE & K-16 Alliance
- LEA counselors, math specialists, curriculum directors, charter directors
- Representatives from Office of the Governor, Utah Education Policy Center, Utah Education Network
- University Mathematicians and Mathematics Educators

# Committees and Organizations Supporting the International Model for Secondary Mathematics

- Utah Core Advisory Committee
- Utah Council of Teachers of Mathematics
- Utah Curriculum Directors
- Utah State Mathematics Education Coordinating Committee
- Utah State Higher Education Mathematics Majors Committee
- Northern Utah Curriculum Consortium

# Mathematics Implementation Survey

- 4,426 respondents
  - 29% participation rate overall
  - 3,447/13,539 elementary teachers
    - 225 identify as special education teachers
  - 993/1,826 secondary math teachers
    - 91 identify as special education teachers
    - 3% of 6th grade teacher respondents are in middle school setting

# Overall Findings from Surveys

- No significant differences in responses between rural and urban/suburban settings or between charters and districts.
- Most respondents are in their second year of implementation while a quarter are in their third or first year of implementation.
- 92% have implemented all or most of the standards outlined in the Utah Mathematics Core.
- Teachers are moderately confident (3.2 on a scale of 1-4) about teaching the standards.
- Elementary were more positive overall about their experience with implementation than secondary math teachers.

- Materials and resources seem to be the greatest concern to a smooth transition during implementation. However, many express needing time with the materials they have and want more time to develop lesson plans with peers.

- Teachers have identified holes in instruction and gaps in student knowledge. They express confidence in these gaps closing over time. Many still need help with interventions for students who struggle.

- Teachers are savvy about district/school adopted materials not being aligned and are frustrated when they are required to teach the adopted text with fidelity.

# Commentary from Teachers

- Teachers who are positive about the standards and confident about student learning talk about higher levels of engagement, deeper understanding, more fun teaching mathematics, have plenty of resources to draw from, and speak of district/school support. Negative opinions, of course, express just the opposite. Leadership appears to be a significant factor in attitudes and successful implementation.
- Teachers working in schools serving high numbers of students living in poverty are finding success with higher standards. Of course, there were also quite a number of teachers in these same schools saying this is too hard for their students. Effective instruction is happening in many settings and teachers are finding that their students are capable of more rigor than they thought possible. Teacher attitudes and beliefs about student capacity is very telling in how they responded to all questions
- Teachers are confident that the standards are the right move and want to stay the course. Many specifically said, "Stay the course…it will take time…give us time to practice and get better". Only a handful of teachers expressed a desire to go back to the 2007 standards.

# Implications for USOE

- Communication gap exists with classroom teachers, parents, etc. We need to refocus support for schools with basic information about standards, resources, etc.
- Websites and social media must be clear, concise, and organized about where teachers and parents can find good, aligned, materials. Specific requests were made for more aligned lesson plans on UEN as well as one place to find everything. We need to rethink our website and reorganize for better access.
- Secondary courses (I,II,III) need to be revisited and revised where needed.
- Unfamiliar vocabulary in standards needs to be clarified in ways that are more understandable for teachers and parents.
- Provide digital exemplars of effective classroom instruction so teachers can see the standards in practice (in progress).