



Implementing the Next Generation Science Standards

Early Evidence from California

March 8, 2018



Niu Gao, Sara Adan, Lunna Lopes, Grace Lee

Supported with funding from the S. D. Bechtel, Jr. Foundation



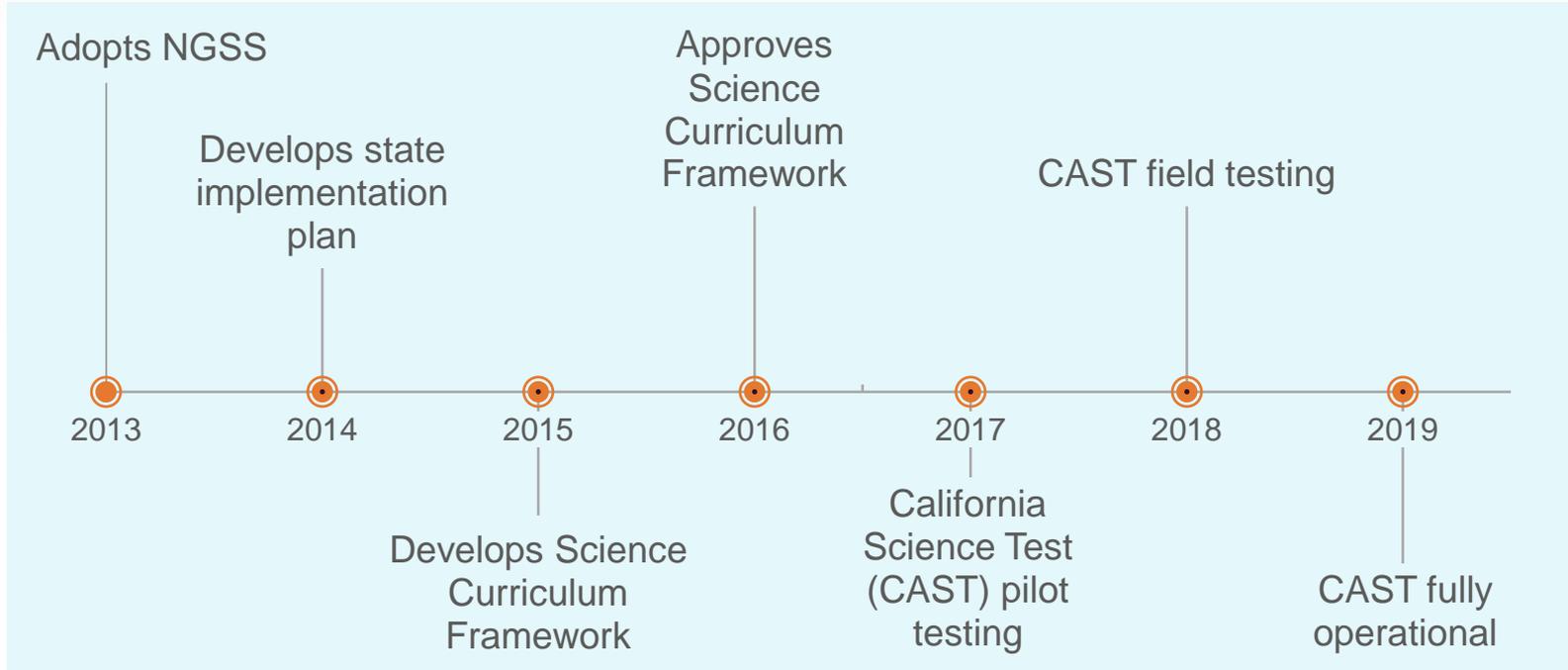
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California is redesigning K–12 science education

- California is at the bottom of the National Assessment of Educational Progress (NAEP) rankings in science
- The State Board of Education adopted the Next Generation Science Standards (NGSS) in 2013
 - Internationally benchmarked
 - Applied to all students and all science disciplines
 - Fully integrated with Common Core math and English standards
 - Three-dimensional learning

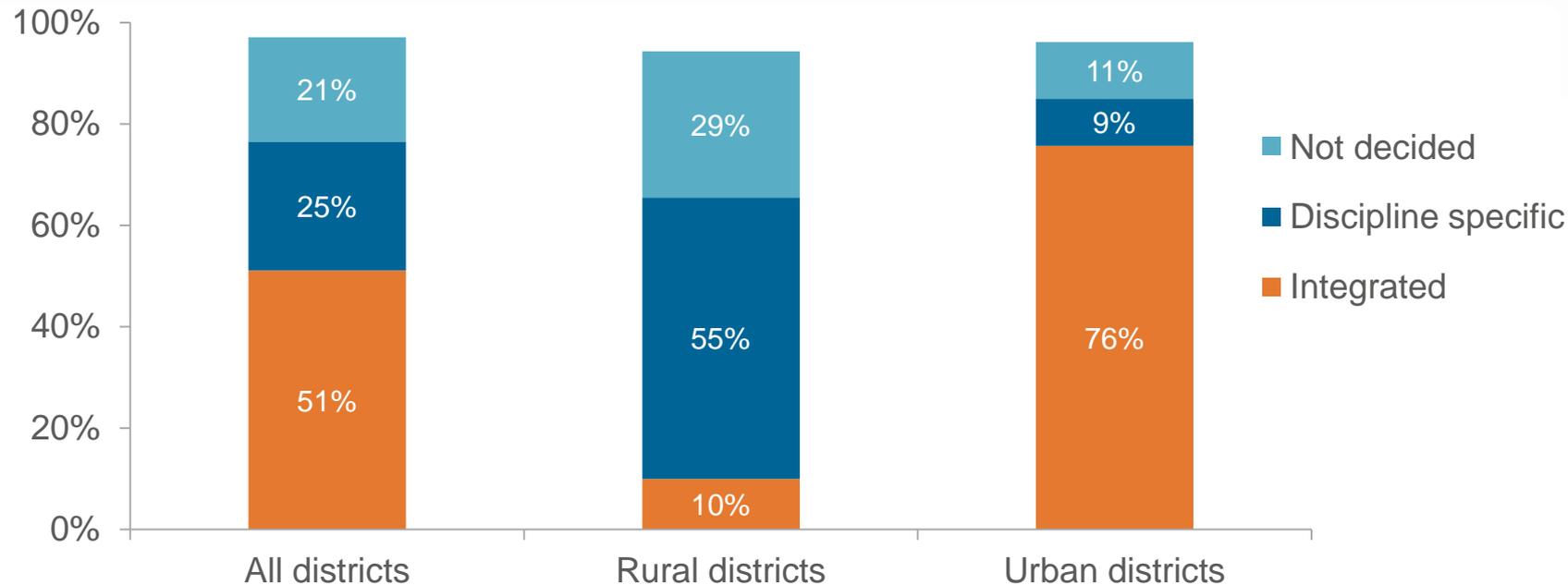
California has a timeline for NGSS implementation



PPIC surveyed districts about NGSS implementation

- The survey was administered in spring 2017
 - 49% of districts responded
- Awareness and implementation is uneven across districts
 - 25% of low-performance districts are **not** familiar with NGSS
 - 94% of urban districts are implementing NGSS

Most districts have chosen the integrated model for middle schools



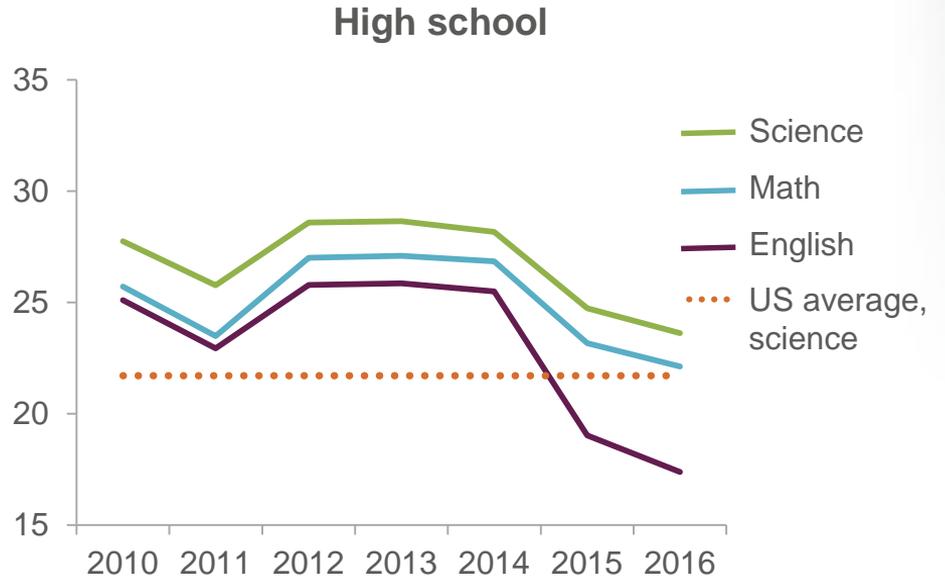
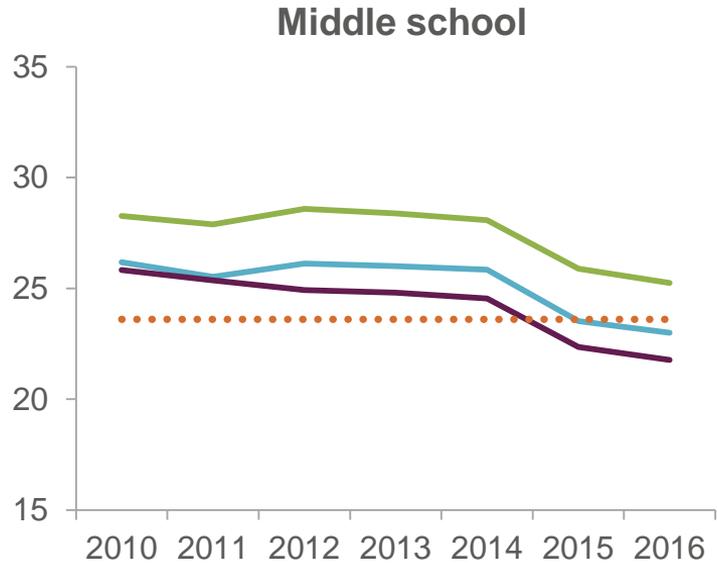
About half chose three-course model for high schools

	All districts	Rural districts	Urban districts	High school districts
3 course (Earth science covered in biology, chemistry, physics)	47%	52%	50%	41%
4 course (Earth science covered as separate course)	17%	26%	5%	17%
Undecided	23%	18%	29%	33%

Districts report instructional and equipment challenges

- Most districts are having difficulty selecting NGSS-aligned instructional materials
 - The state is scheduled to adopt textbooks and other instructional materials in 2018
- Science labs are also a big challenge
- Three in four districts report teacher training gaps

Teacher shortages lead to larger class sizes in science



Challenges beyond NGSS

- The statewide graduation requirement is not aligned with NGSS
 - The state requires two years of science instruction
 - The NGSS require at least three years—as do 40% of districts
 - UC and CSU are discussing three-year area “d” requirements
- Science has taken a back seat to math and English
 - Science is not a priority in most districts
- Most students do not get quality science education in early grades

Policy recommendations

- Raise NGSS awareness in low-performance districts
- Release approved K–8 instructional materials on schedule
- Provide more guidance on new course sequences
- Update statewide science graduation requirements
- Leverage NGSS to make science a priority in schools
- Add more science-specific indicators to LCAPs



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Notes on the use of these slides

These slides were created to accompany a presentation. They do not include full documentation of sources, data samples, methods, and interpretations. To avoid misinterpretations, please contact:

Niu Gao (gao@ppic.org; 415-291-4491)

Thank you for your interest in this work.