




# Implementing the Next Generation Science Standards

Early Evidence from California

March 8, 2018



Niu Gao, Sara Adan, Lunna Lopes, Grace Lee

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



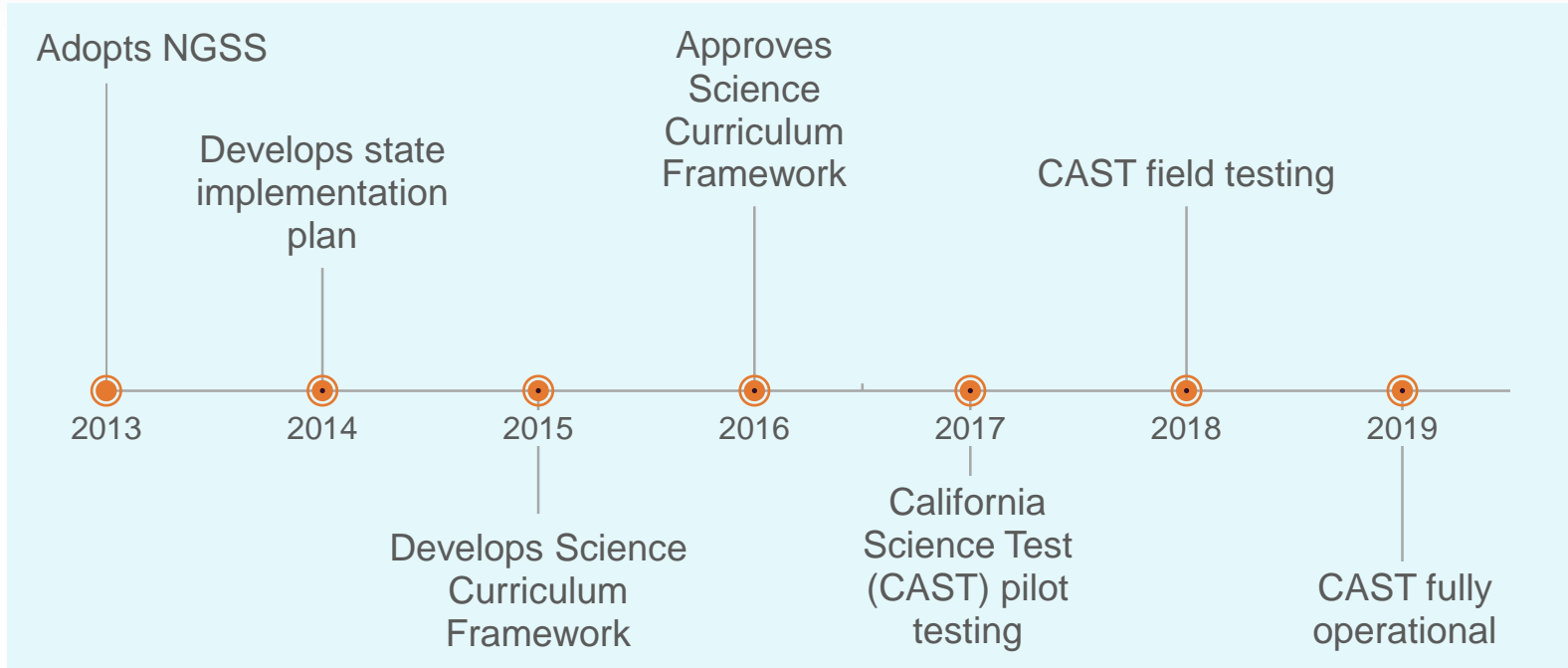
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# California is redesigning K–12 science education

- 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

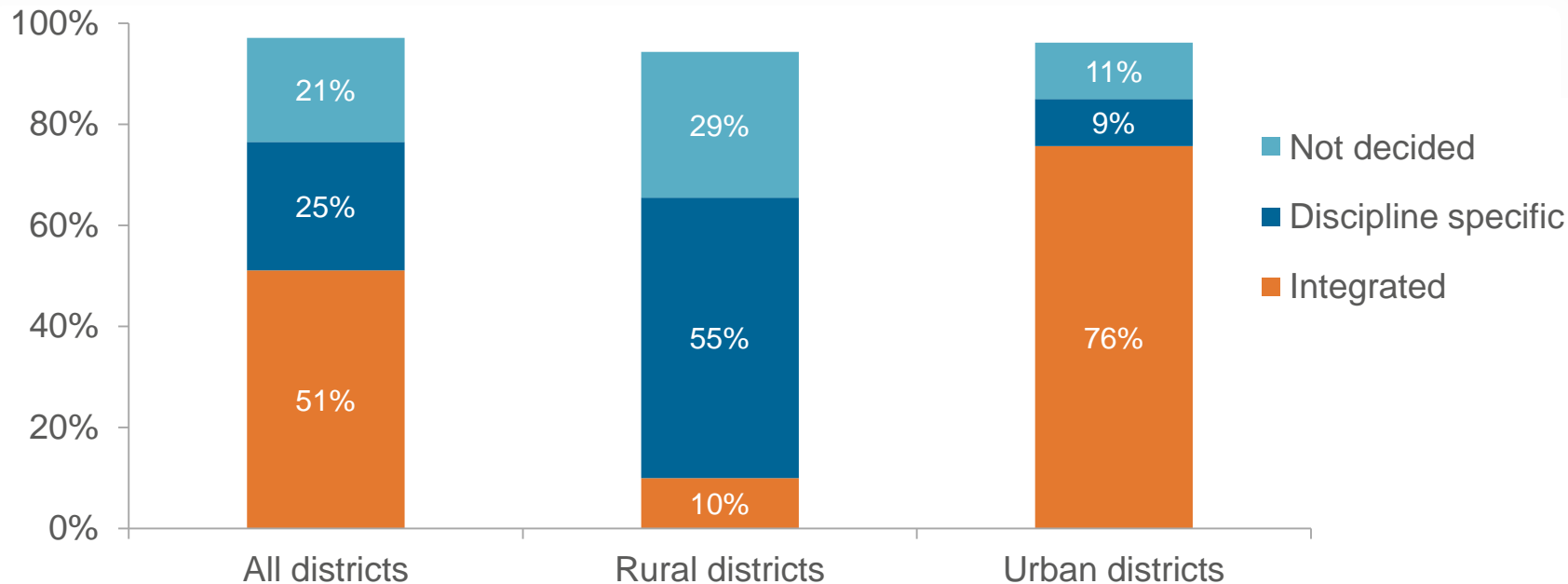
# California has a timeline for NGSS implementation



# 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



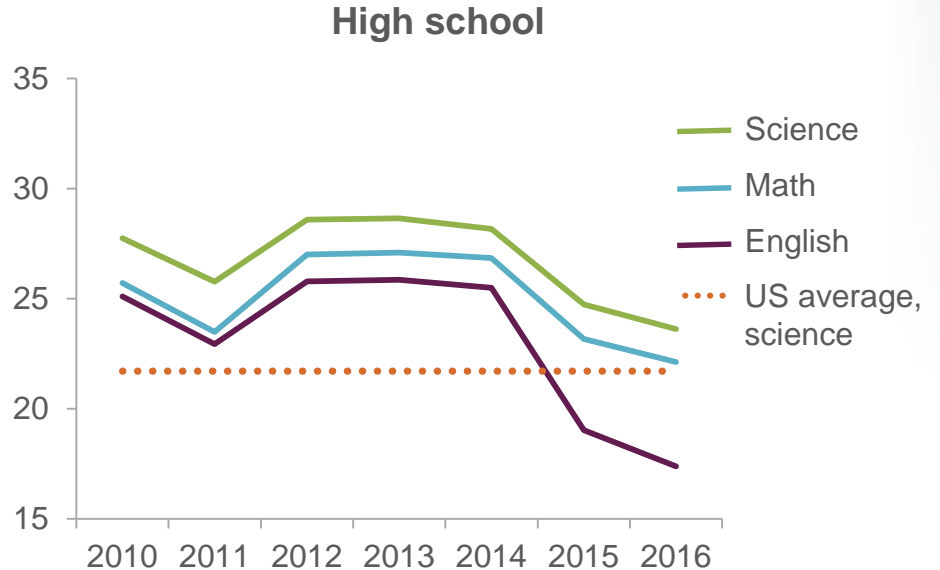
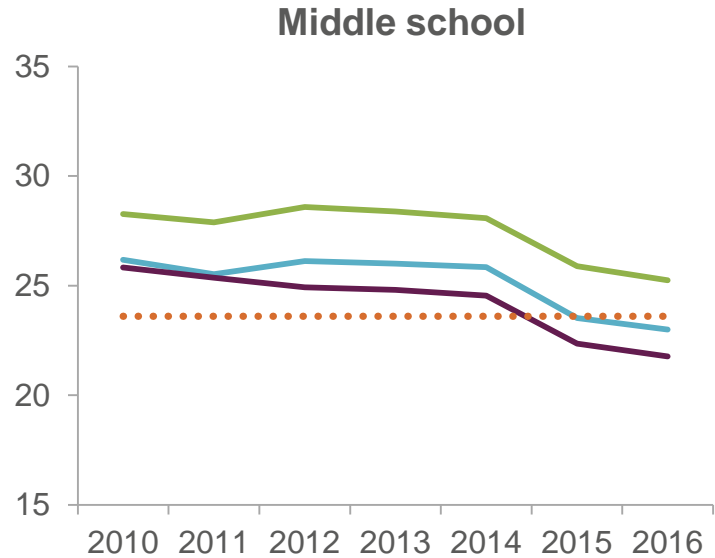
# About half chose three-course model for high schools

	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:

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Thank you for your interest in this work.