



## **Appendix D**

# **Support for essential elementary content subjects**





Source of support	ELA	Elementary math	Social studies	Science
CAEP K-6 Elementary Teacher Preparation Standards <sup>1</sup>	●	●	●	●
NAEP <sup>2</sup>	●	●	●	●
Common Core <sup>3</sup>	●	●	●	●
Core Knowledge Foundation <sup>4</sup>	●	●	●	●
State standards for elementary teachers' content knowledge <sup>5</sup>	●	●	●	●
Massachusetts state standards <sup>6</sup>	●	●	●	●
National Council of Teachers of English <sup>7</sup>	●	N/A	N/A	N/A
TIMSS <sup>8</sup>	N/A	●	N/A	●
National Council for the Social Studies <sup>9</sup>	N/A	N/A	●	N/A
National Council for History Education <sup>10</sup>	N/A	N/A	●	N/A
Road Map Project <sup>11</sup>	N/A	N/A	●	N/A
Next Gen Science Standards <sup>12</sup>	N/A	N/A	N/A	●
National Academies of Sciences report <sup>13</sup>	N/A	N/A	N/A	●

**Notes**

- = Subject is fully supported.
- = Subject is partially supported.



# Endnotes

- 1 CAEP's elementary standards address literacy but not literature. CAEP. (2018). *CAEP 2018 K-6 Elementary teacher preparation standards: A summary*. Washington, DC: Council for the Accreditation of Educator Preparation.
- 2 Note that NAEP focuses on reading and writing but not literature, generally. U.S. Department of Education, & National Assessment Governing Board. (2017). *Writing framework for the 2017 National Assessment of Educational Progress*. Retrieved January 27, 2019, from <https://nagb.gov/content/nagb/assets/documents/publications/frameworks/writing/2017-writing-framework.pdf>; U.S. Department of Education, & National Assessment Governing Board. (2017). *Mathematics framework for the 2017 National Assessment of Educational Progress*. Retrieved January 27, 2019, from <https://nagb.gov/content/nagb/assets/documents/publications/frameworks/mathematics/2017-math-framework.pdf>; U.S. Department of Education, & National Assessment Governing Board. (2014). *U.S. history framework for the 2014 National Assessment of Educational Progress*. Retrieved January 27, 2019, from <https://nagb.gov/content/nagb/assets/documents/publications/frameworks/history/2014-history-framework.pdf>; U.S. Department of Education, & National Assessment Governing Board. (2018). *Civics framework for the 2018 National Assessment of Educational Progress*. Retrieved January 27, 2019 from <https://nagb.gov/naep-frameworks/civics.html>; U.S. Department of Education, & National Assessment Governing Board. (2014). *Geography framework for the 2014 National Assessment of Educational Progress*. Retrieved January 27, 2019 from <https://nagb.gov/content/nagb/assets/documents/publications/frameworks/geography/2014-geography-framework.pdf>; U.S. Department of Education, & National Assessment Governing Board. (2014). *Science framework for the 2015 National Assessment of Educational Progress*. Retrieved January 27, 2019, from <https://nagb.gov/content/nagb/assets/documents/publications/frameworks/science/2015-science-framework.pdf>
- 3 While Common Core State Standards only exist for English language arts and mathematics, the standards emphasize the importance of building knowledge and reading across the content areas, stating that for kindergarten through grade 5 students, "Informational reading includes content-rich nonfiction in history/ social studies, sciences, technical studies, and the arts. The K-5 standards strongly recommend that texts – both within and across grades – be selected to support students in systematically developing knowledge about the world." Common Core State Standards Initiative. (ND). *Key shifts in English language arts*. Retrieved January 18, 2019, from <http://www.corestandards.org/other-resources/key-shifts-in-english-language-arts/>. The full standards are available from Common Core State Standards Initiative. (ND). *Read the standards*. Retrieved January 18, 2019, from <http://www.corestandards.org/read-the-standards/>; National Governors Association Center for Best Practices, & Council of Chief State School Officers. (2010). *Common Core State Standards: College and Career Readiness Anchor Standards for Reading*. Retrieved January 27, 2019, from <http://www.corestandards.org/ELA-Literacy/CCRA/R/>
- 4 Core Knowledge Foundation developed sample syllabi for teacher preparation programs detailing the content elementary teacher candidates need to learn, which was a core foundation for NCTQ's elementary content analysis, and the topics closely mirror the 11 topics addressed in this report.
- 5 NCTQ analyzed whether states required that their approved teacher preparation programs deliver a comprehensive program of study in broad liberal arts coursework. This analysis found that 33 states require preparation in English, most commonly in writing and composition (N=33 states), but 12 also require preparation in one or more areas of literature. In science, 38 states have requirements in science, most commonly in physics and earth sciences, and in biology (38 states require coverage of each). Forty-one states have requirements for preparation in social studies, including 31 states addressing American history and government, 24 requiring coverage of world history, and 16 requiring geography. National Council on Teacher Quality. (2014). *2013 State teacher policy yearbook: National summary*. Retrieved January 18, 2019, from <https://www.nctq.org/publications/2013-State-Teacher-Policy-Yearbook>. For states' requirements in elementary mathematics, we examined only licensure test requirements and not requirements for preparation programs. Nearly all states (N=47) require a test on elementary mathematics for licensure. Thirty states require a strong mathematics test and another 17 require a weaker test that does not score a mathematics performance separately from other subjects. National Council on Teacher Quality. (2017). *Teaching mathematics national results*. State Teacher Policy Database. [Data set]. Retrieved January 23, 2019, from: <https://www.nctq.org/yearbook/national/Teaching-Mathematics-75>



6 Massachusetts Department of Elementary & Secondary Education. (1999-2014). *Massachusetts Curriculum Frameworks*. Retrieved January 27, 2019, from <http://www.doe.mass.edu/frameworks/?section=math-grg> Massachusetts has the top scores in NAEP. Note that Massachusetts standards do not address world history until grade 7.

7 These standards address writing and composition, as well as American and world literature. The standards address literature for adolescents and young adults but not children's literature. See National Council of Teachers of English, & NCTE Standing Committee on Teacher Preparation and Certification. (2006). *Guidelines for the preparation of teachers of English language arts*. Retrieved April 4, 2018, from [http://www.ncte.org/library/NCTEFiles/Groups/CEE/NCATE/Guidelines for Teacher Prep 2006.pdf](http://www.ncte.org/library/NCTEFiles/Groups/CEE/NCATE/Guidelines%20for%20Teacher%20Prep%202006.pdf)

8 The Trends in International Mathematics and Science Study (TIMSS), an international test that includes grade 4 math and science, has a rough alignment with the categories listed here. Science categories include life science, physical science, and earth science. Mathematics topics include number (e.g., fractions), geometric shapes and measures and data display. Mullis, I. V., & Martin, M. O. (2014). *TIMSS Advanced 2015 Assessment Frameworks*. International Association for the Evaluation of Educational Achievement. Herengracht 487, Amsterdam, 1017 BT, The Netherlands. Retrieved August 6, 2018, from [https://timssandpirls.bc.edu/timss2015/downloads/T15\\_Frameworks\\_Full\\_Book.pdf](https://timssandpirls.bc.edu/timss2015/downloads/T15_Frameworks_Full_Book.pdf)

9 While much of the National Council for the Social Studies' standards focuses on general skills rather than specific content knowledge, The College, Career, and Civic Life (C3) Framework for Social Studies State Standards: Guidance for Enhancing the Rigor of K-12 Civics, Economics, Geography, and History document refers to specific understandings of world geography that elementary school children need to learn. See National Council for the Social Studies. (2014). *College, career, and civic life (C3) framework for social studies state standards: Guidance for enhancing the rigor of K-12 civics, economics, geography, and history*. National Council for the Social Studies. Retrieved April 4, 2018, from <https://www.socialstudies.org/sites/default/files/2017/Jun/c3-framework-for-social-studies-rev0617.pdf> The NCSS also details standards for the preparation of social studies teachers and states that "social studies teachers must possess rich content knowledge. Understanding the unique disciplinary concepts, facts, and tools that animate social studies, including the core areas of civics, economics, geography, and history, and the social/behavioral sciences, enables the intellectual capacity to examine interdisciplinary complexities of our social world." However, this document does not detail

the specific content within those areas. See Cuenca, A., Castro, A. J., Benton, B., Hostetler, A., Heafner, T., & Thacker, E. (2018). *National Council for the Social Studies: National Standards for the Preparation of Social Studies Teachers*. Retrieved April 17, 2018 from [https://www.socialstudies.org/sites/default/files/media/2017/Nov/ncss\\_teacher\\_standards\\_2017-rev9-6-17.pdf](https://www.socialstudies.org/sites/default/files/media/2017/Nov/ncss_teacher_standards_2017-rev9-6-17.pdf). The National Council for the Social Studies' position statement on elementary school social studies also states that "Successful early childhood/ elementary teachers possess...a command of the subject matter" in addition to pedagogy. National Council for the Social Studies. (2018). *Powerful, purposeful pedagogy in elementary school social studies: A position statement of the National Council for the Social Studies*. Retrieved August 9, 2018, from <https://www.socialstudies.org/positions/powerfulandpurposeful>.

10 National Council for History Education. (2006). *Statement on teacher qualifications*. Retrieved April 17, 2018, from <http://www.nche.net/content.asp?contentid=159>

11 This project is a collaboration of National Geographic Society, the Association of American Geographers, the National Council for Geographic Education, and the American Geographical Society. Association of American Geographers, American Geographical Society, National Council for Geographic Education, & National Geographic Society. (2013). *Charting the course: A road map for the 21st century geography education: Executive overview*. Retrieved January 23, 2019, from [http://media.nationalgeographic.org/assets/file/Executive\\_Overview\\_Charting-the-Course.pdf](http://media.nationalgeographic.org/assets/file/Executive_Overview_Charting-the-Course.pdf)

12 Next Generation Science Standards have been adopted by 19 states and the District of Columbia. These standards identify the content, skills, and cross-cutting concepts that elementary (as well as middle and high school) students should learn in the sciences: "Students in kindergarten through fifth grade begin to develop an understanding of the four disciplinary core ideas: physical sciences; life sciences; earth and space sciences; and engineering, technology, and applications of science." Next Generation Science Standards. (2017). *Topic arrangements of the next generation science standards*. Retrieved August 7, 2018, from <https://www.nextgenscience.org/sites/default/files/AllTopic.pdf>

13 National Research Council. (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/13165>