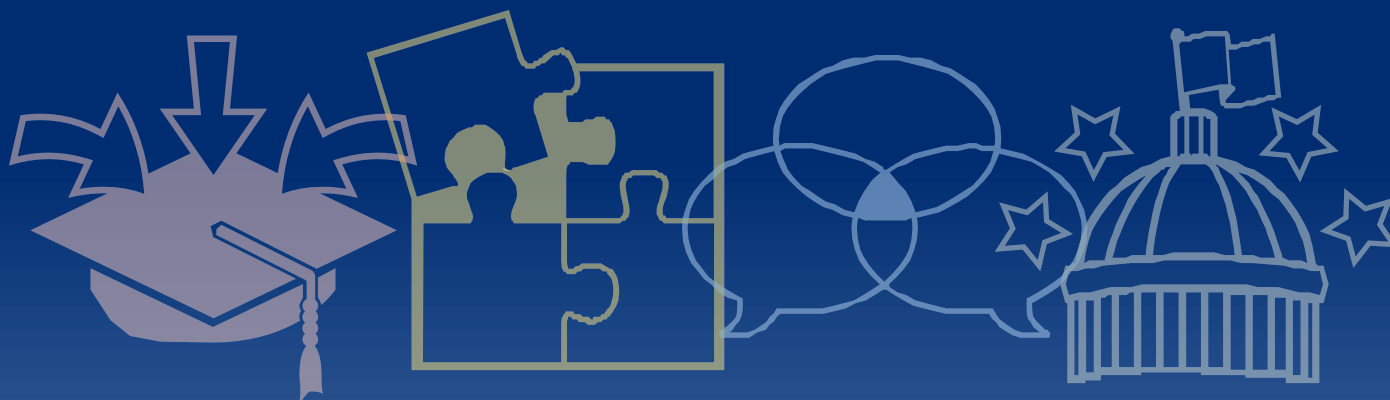




JOHNS HOPKINS
SCHOOL of EDUCATION

Institute for Education Policy



ELA Knowledge Map™



*A unique analytic resource enabling
policymakers, school leaders, and parents to
better understand the strengths and weaknesses
of Core Knowledge Language Arts (CKLA) Grades K-6
English language arts curriculum.*

Winter 2022



The achievement gap is, in large part, a knowledge gap. Compelling research strongly affirms that students' reading levels – particularly from fifth grade onwards – relate deeply to their level of background content knowledge.ⁱ Students in more affluent systems demonstrate more success in skill-based English language arts (ELA) assessments not only because they are better at “recognizing main ideas,” but also because they are far more likely to know more about the subject matter discussed in any given text. Research from around the world shows the same: [Most democracies around](#) the world require all schools to teach a standard body of knowledge; and a comprehensive, content-rich curriculum is a signature feature of [high-performing education systems](#). Despite the research record, a large number of the United States' ELA curricula treat texts not as a source of building knowledge, but merely as a site for attempting to hone abstract reading skills.

Determining whether a particular ELA curriculum is “standards aligned” is a helpful step, but it does not tell us about the knowledge-building capacity of that curriculum.ⁱⁱ For example: Instructional materials may use publisher-written texts that satisfy the standards-based requirement for “textual complexity,” but if the materials fail to offer students a sequenced, knowledge-rich learning experience they miss a critical opportunity to build reading fluency. Merely drilling students on “finding the main idea” will never help them become better readers. Instead, they need to understand what the text is really about - something that can only be achieved by acquiring the background knowledge.

The Johns Hopkins Institute for Education Policy (Institute) has developed the ELA Knowledge Map™, a tool with which to evaluate an ELA curriculum in terms of the knowledge it offers students, both about the world (mainly through nonfiction texts) and about psychology and the human condition (through both nonfiction and fiction texts). The Institute conducts this analysis by “mapping” the knowledge domains implicit in the selection of the documents to be read, while also evaluating each text's quality and the coherence of the unit in which is taught. To measure coherence, we assess the degree to

which supporting materials in a unit amplify and deepen the specific knowledge offered in the anchor text.

Each review generates two visual reports: *Knowledge Heat Maps* and *Unit Coherency Maps*.¹ The maps depict the fields of knowledge opened and those missed, in each grade and cumulatively, and with what quality of texts.

The Knowledge Map™ is a one-of-a-kind analytic resource that enables policymakers, school leaders, and parents to better understand the overall strengths and weaknesses of a given curriculum; instructional leaders to “fill in gaps” that might exist; and publishers to continuously improve the materials they offer the public.

For the following report, the Institute evaluated the Core Knowledge Language Arts (CKLA) curriculum, developed by the Core Knowledge Foundation, for Grades K-6. This analysis covers a representative sample based on materials provided by the system and does not account for more specific variety in the selected texts.

METHODOLOGY

- The Institute maps all items in the evaluated grades on three initial dimensions and at different grain sizes of coverage. For example, a letter by abolitionist Thomas Garrett about Harriet Tubman would be categorized like so:
 - **Domain:** U.S. History to 1865
 - **Topic:** Slavery/Abolition
 - **Subtopics:** Harriet Tubman; Underground Railroad
- The Institute evaluates the quality of every student-facing resource both individually and in the broader context of the unit.
- The Institute constructs a vertical mapping of the knowledge domains at each level, first by grade and then across multiple grades.
- The Institute creates a coverage report that visually illustrates the depth of emphasis a given domain receives across the grades.

HIGH-LEVEL FINDINGS

The heat maps indicate that the CKLA K-6 curriculum exposes students to a wide breadth of knowledge domains and topics. The curriculum includes some topics that are addressed continuously throughout grade levels. For example, the topics of Native American Peoples, Colonial America, Discovery & Exploration, and Seasons, Weather, & Meteorology are addressed through at least 30 texts spanning at least four years of the K – 5 curriculum. The sixth-grade curriculum, tagged under the Institute’s topics and domains for the secondary level, shows strong coverage of the Government & Political Science, World History since 1600, and the Emotions, Being, & Personal Psychology domains. In addition to these specific areas of depth, the curriculum provides strong to moderate coverage across most of the knowledge domains, indicating a rich knowledge build across many subject areas.

¹ Unit coherency maps will only be generated if the curriculum materials enable that form of analysis.

The curriculum also includes areas of concentrated attention, so the students experience depth in certain domains within a given year. For example, students in Grade 1 are presented with eight or more materials for half of the topics within the Science domain, and students in Grade 5 are presented with three or more materials in all but two topics in the Visual Arts domain.

Many curricular units also engage a high degree of knowledge reinforcement by including texts with related key content areas. For example, in a unit on Westward Expansion in Grade 2, texts are also tagged with the related topic of Place & Region from the Geography domain. In addition, there is reinforcement of knowledge across units within grades. For example, sixth grade has a unit on *The Iliad* and *The Odyssey*, followed by a unit on Ancient Greece and Rome, and finally a unit on *The Tragedy of Julius Caesar*, all of which work together to enhance understanding of the Ancient Civilizations topic in the World History Since 1600 domain.

However, units in several grades do not perform as strongly in terms of knowledge reinforcement. For instance, Units 2 and 6 in Grade 5 present weak or low-moderate opportunities for knowledge reinforcement, with the exception of the single-text units.

The heat maps do indicate that the CKLA curriculum presents very few texts in grades K – 6 that address the domains of Economics and Mathematics, with one or zero texts covering most topics in those domains. In Grades K-5, the curriculum also includes very few texts addressing the domains of Communities; Diversity, Inclusion & Equity; and Visual Art. For sixth grade, the domains of Earth Science and Global Literature have few texts to support knowledge builds.

Many of the specific units within the curriculum contain texts of consistently high quality. For example, in Grade 4, the lowest-quality score appears in Unit 3 at 74.4%, well within the Institute's high-quality range. A number of units in Grades 2 and 4 have an average text quality score in the highest-scoring band, with scores above 89%: Units 6, 7, 10, and 12 in Grade 2, and Units 1 and 2 in Grade 4.

However, these quality reports also indicate that there are inconsistencies in text quality in certain grades in the CKLA curriculum. Average text quality scores in the units found in Grades 1 and 5 span across all quality bands, with the difference between the lowest scoring and highest scoring units being over 40 percentage points in both of these grades. This indicates a great range in instructional quality within these grade levels.

INSTITUTE RECOMMENDATIONS

The CKLA ELA curriculum contributes to substantial knowledge reinforcement through its use of diverse topical coverage and its inclusion of high-quality texts that address the focus of its units. The Knowledge Map™ analysis highlights these crucial areas of knowledge building and assesses associated strengths and weaknesses as well as text quality. Based on this analysis, the Institute recommends the following strategies for improvement:

- Evaluate units for the presence of low-quality and/or low-coherence texts and consider the introduction of additional high-quality materials with more relevant information. For example, in Unit 10 of Grade K, the reading “The Sense of Smell” explores tongue mapping which has been debunked. In Unit 10 of Grade 1, the reading “The New World” incorrectly states that Columbus landed in North America. Efforts should be made to ensure that students understand that these ideas are outdated.
- Incorporate strong, supplementary materials that develop the knowledge build for novels. These materials could include poetry, non-fiction articles, artwork, and so on. For example, in Grade 4, additional materials on the Civil Rights Movement could enrich student knowledge of the text and time period.
- Increase the diversity in authorship, content, and presentation of materials for Grades K - 5 by including more voices within the units of study. Examples of this strategy include incorporating authentic texts from Native American writers or introducing films, podcasts or webpages by or about scientists of various ethnicities.

The report will now elaborate on the specific findings of the Knowledge Map™ exercises.

CKLA KNOWLEDGE /HEAT MAPS: GRADES K-5

One of the Institute’s critical gateway questions addresses the level of exposure children receive to each important domain of knowledge and to the topics within those domains. Each Heat Map expresses the findings visually using a color-coding scheme, as shown in Figure 1 below. Lighter blue squares represent fewer knowledge-building texts, such as one or no text, while darker blue squares represent more knowledge-building texts, such as eight or more. The results for each of the topical domains in Grades K-5 appear in the figures below. Additionally, texts that do not provide robust exposure to any topic are marked with the “No Meaningful Knowledge” tag.

A mere mention of a topic does not necessarily indicate exposure to that topic. The Institute tags a topic only when the text’s presentation of it is robust enough for a student to convey specific facts about it. This metric considers the context of age and grade level.



Figure 1. Heat map color-coded rating scheme of knowledge building, where lighter blue indicates fewer texts and darker blue indicates a larger number of texts.

Strong Knowledge-Building Domains

Strong knowledge-building areas in the curriculum appear in the Heat Maps as dark blue, indicating that many texts address the topic (for instance, the categories of 8+ Texts or 5-7 Texts).

The CKLA curriculum presents robust knowledge building in four overall domains and in a large number of additional topics. The strongest overall domains were Concepts & Language (Figure 2), Science (Figure 3), Social-Emotional (Figure 4), and World Geography (Figure 5). These areas demonstrate an

exemplary knowledge build both across topics and throughout all elementary grades.

One additional pattern of strength in the curriculum appears as large numbers of texts on a particular topic across all grades. This pattern can be found in the moderately-rated Regional Literature domain (Figure 8), which presents strong coverage of the 'Characteristics of Genres' topic throughout the curriculum. A second pattern of strength presents large numbers of texts across a domain's topics within an individual grade band. For example, the Visual Arts domain (Figure 16) scores minimally for overall topic coverage but has strong coverage in Grade 5. This pattern in particular often reflects specializations in courses or units at particular grade levels and is frequently tied to curricular progression decisions made by the developer.

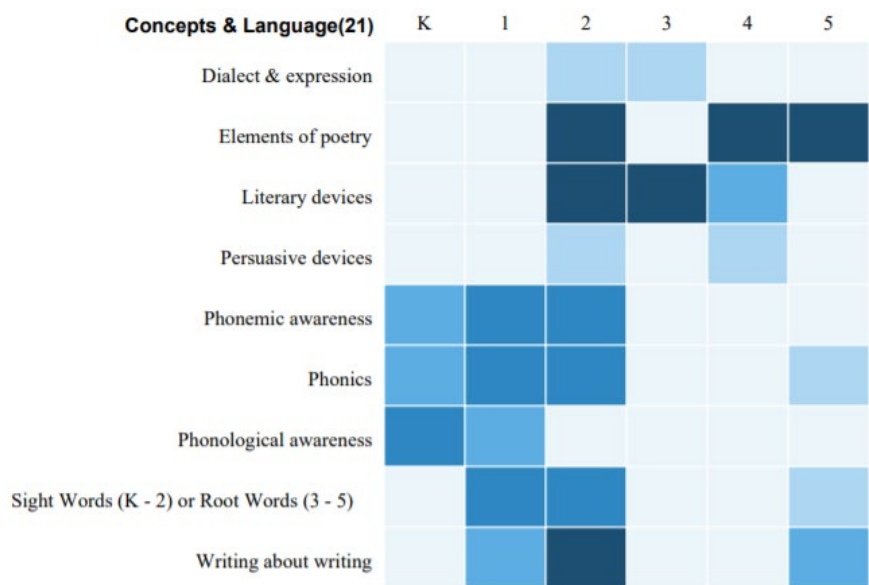


Figure 2. Heat map analysis of the Concepts & Language domain in Grades K-5.



Figure 3. Heat map analysis of the Science knowledge domain in Grades K-5.

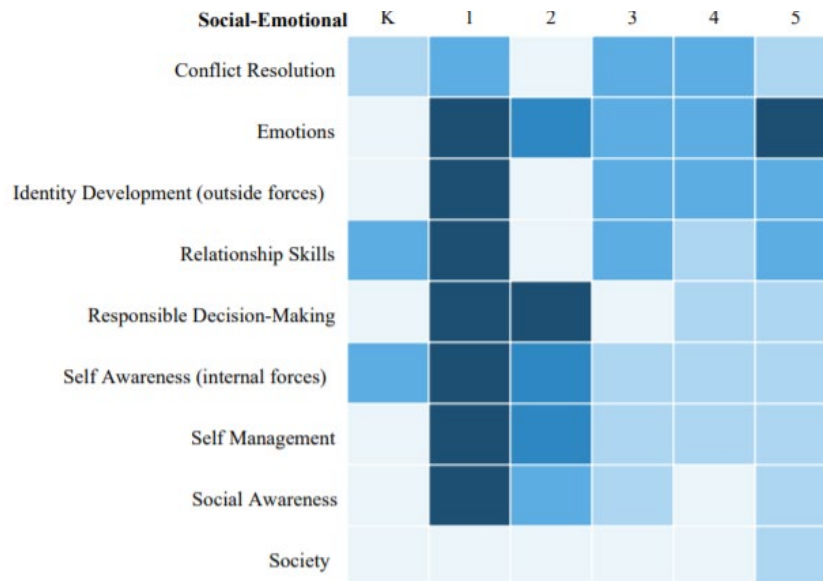


Figure 4. Heat map analysis of the Social-Emotional knowledge domain in Grades K-5.

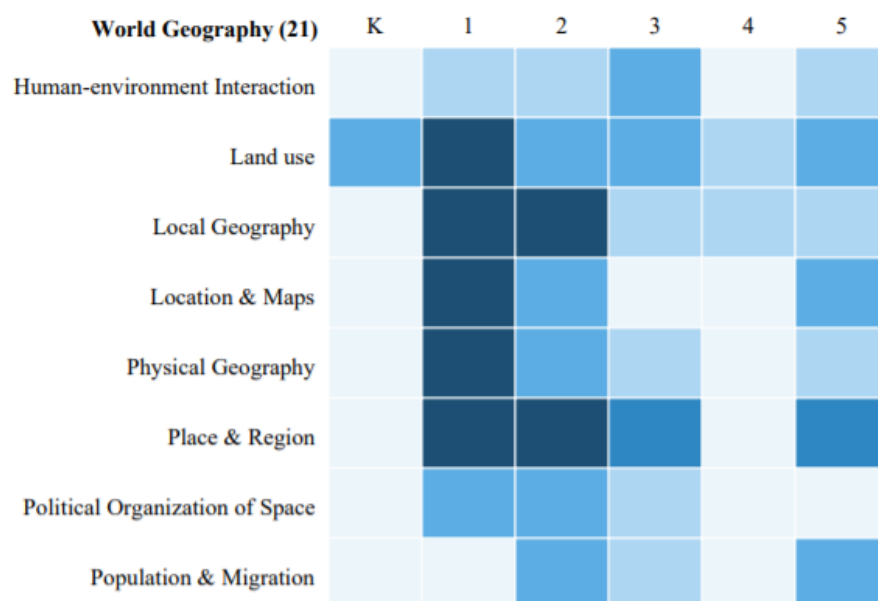


Figure 5. Heat map analysis of the World Geography knowledge domain in Grades K-5.

Moderate Knowledge-Building Domains

The curriculum presents several moderate knowledge-building domains and topics. Moderate knowledge-building domains appear in the Heat Maps as mixed blue, indicating that few or some texts address the topics within them (for instance, the heat map category of 2-4 Texts).

The majority of the domains in the CKLA curriculum score moderately, including the moderately-covered domains with particular areas of strength that are listed above. Specifically, this includes the following domains: American History (Figure 6); Government, Civics, & Citizenship (Figure 7); Regional Literature (Figure 8); Religion & Philosophy (Figure 9); and World History (Figure 10).

Other domains present specific patterns of moderate knowledge building. One pattern appears as moderate coverage in particular topics across grade levels. For example, the Communities domain scores weakly overall, but contains moderate coverage in the Public Institutions and Types of Communities topics. A second pattern appears as moderate numbers of texts across a domain's topics at individual grade levels. This pattern appears in the Religion & Philosophy domain, which presents weak overall coverage but which produces more moderate coverage at the Grade 2 band.

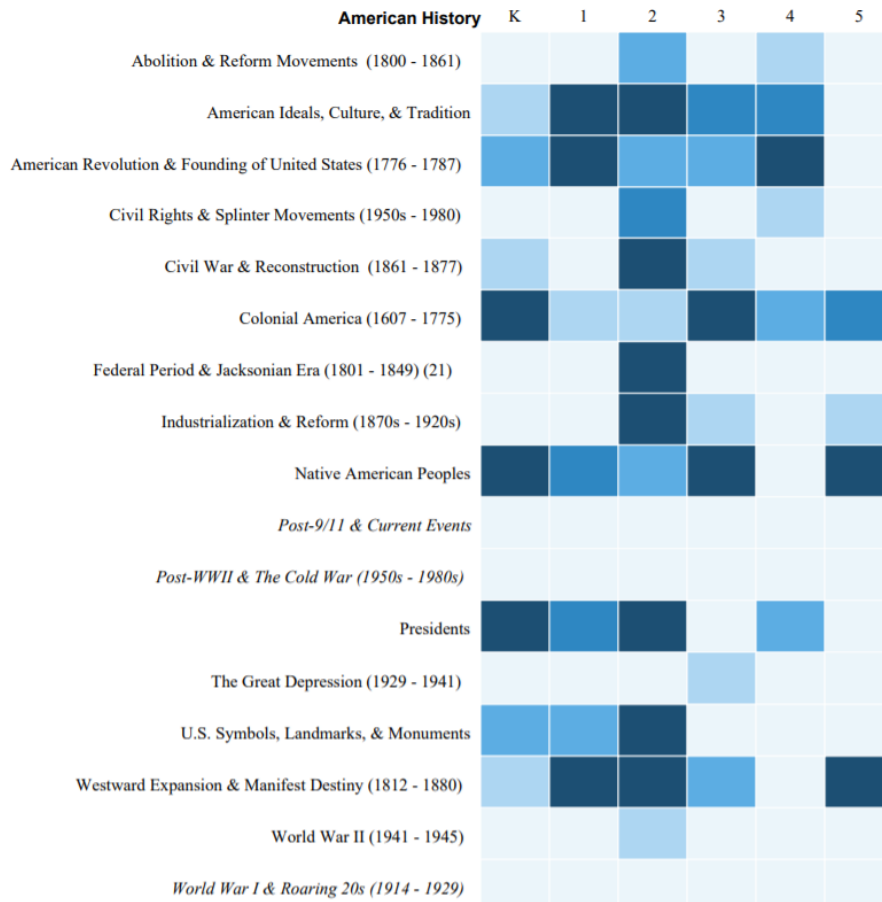


Figure 6. Heat map analysis of the American History knowledge domain in Grades K-5.

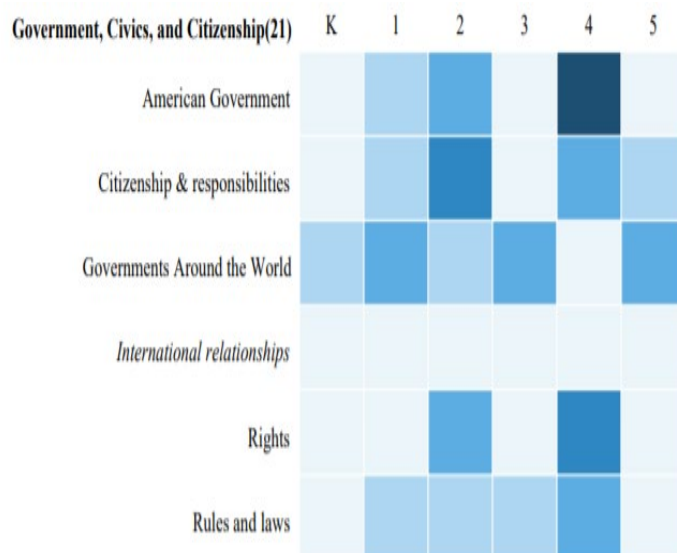


Figure 7. Heat map analysis of the Government, Civics, & Citizenship knowledge domain in Grades K-5.



Figure 8. Heat map analysis of the Regional Literature knowledge domain in Grades K-5.

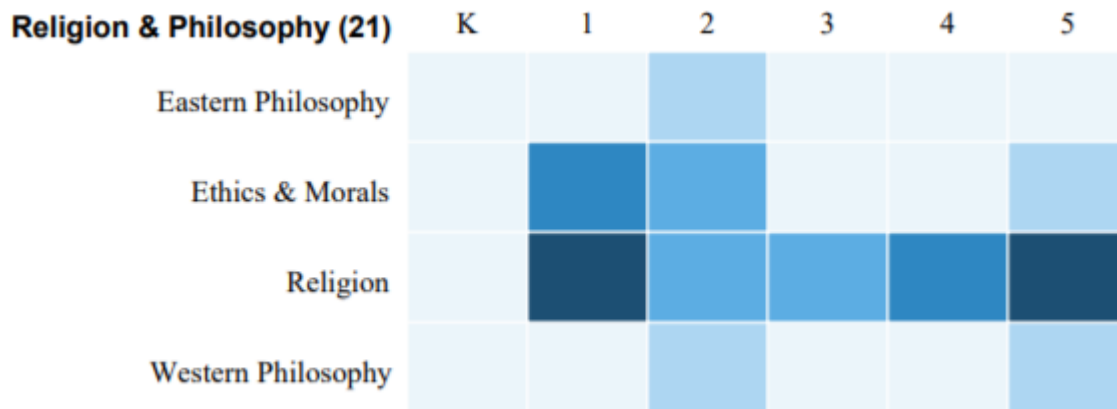


Figure 9. Heat map analysis of the Religion & Philosophy knowledge domain in Grades K-5.

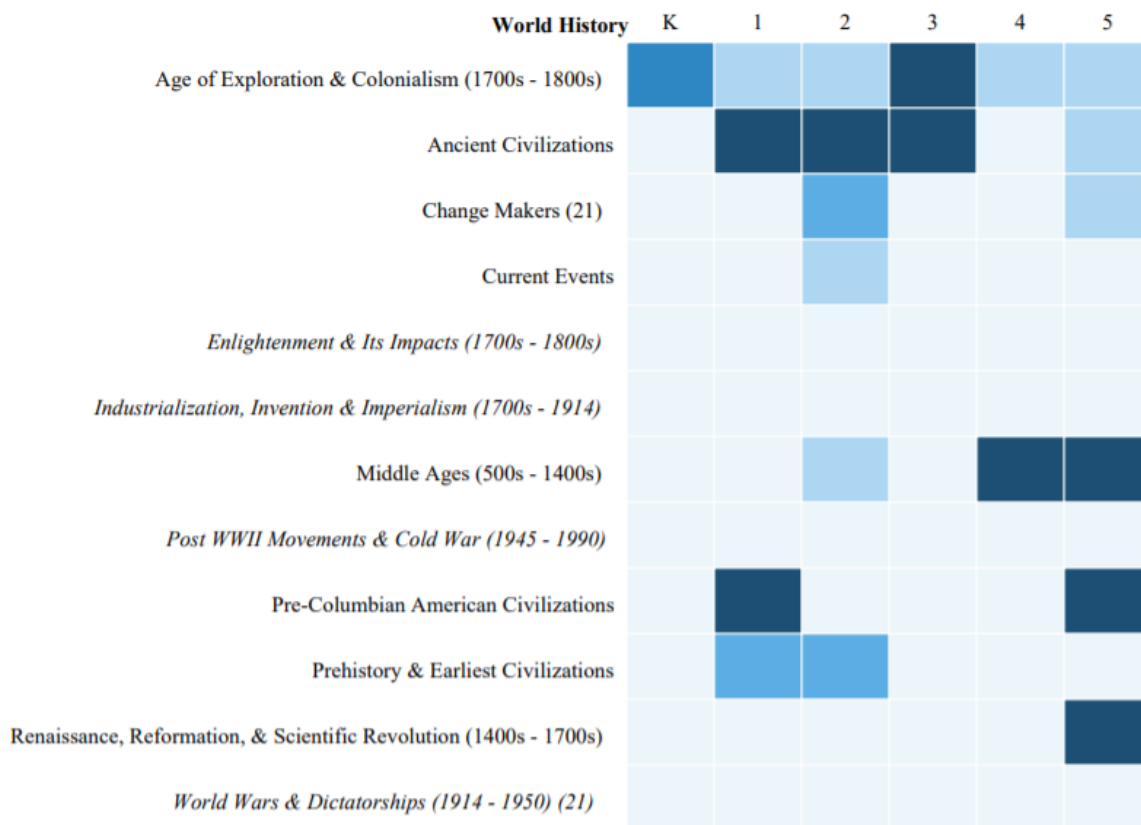


Figure 10. Heat map analysis of the World History knowledge domain in Grades K-5.

Minimal Knowledge-Building Domains

The curriculum presents minimal knowledge building in several knowledge domains and topics. Minimal knowledge-building domains appear in Heat Maps as primarily light blue or gray, indicating that one or

no texts address the topic. It is important to note that absences at certain levels may reflect curricular progression decisions and other factors, and that the Heat Maps should be considered in the context of the evaluated system. However, significant gaps may be worth examining in order to further develop knowledge reinforcement within the curriculum.

The remaining knowledge domains – a total of six – scored minimally for overall topical coverage. Specifically, these domains include Communities (Figure 11); Diversity, Equity & Inclusion (Figure 12); Economics (Figure 13); Mathematics & Reason (Figure 14); Music & Performing Arts (Figure 15); and Visual Arts (Figure 16). Economics receives minimal coverage in Grades K, 3, 4 and 5, and is addressed through 4-6 texts in Grades 1 and 2. Mathematics & Reasoning is covered with few texts in grade 4 and moderately in grade 5, and Music & Performing Arts is addressed with few texts in Grades 3 and 5; otherwise, these domains are not covered in the CKLA curriculum. The Visual Arts and Communities domains are at the cusp of weak and moderate coverage, depending on the grade level and topic. The Visual Arts domain is covered with a few texts in Grades 2 through 4, including a significant address of Art Forms and Genres in Grade 2, and at moderate depth in Grade 5, but not in the other grades. Communities, meanwhile, is covered with a few texts in all years except Grades 2 and 5, where it is covered moderately. Diversity, Equity, & Inclusion scored weakly overall, but with notable areas of moderate coverage, which will be addressed below.

Besides these generally weak domains, other knowledge domains present specific weaknesses. One pattern appears as an absence of texts regarding particular topics across grade levels. This pattern can be found in the American History domain (Figure 6), which scored moderately overall but which does not cover topics after the World War II era. An additional pattern of weakness presents itself as a lack of domain coverage within a grade band. Visually, this appears in the Knowledge Map™ as empty columns beneath individual grade levels. An instance of this pattern appears in the World Geography domain (Figure 5), which scored strongly overall but which has minimal coverage in the Grade K band.

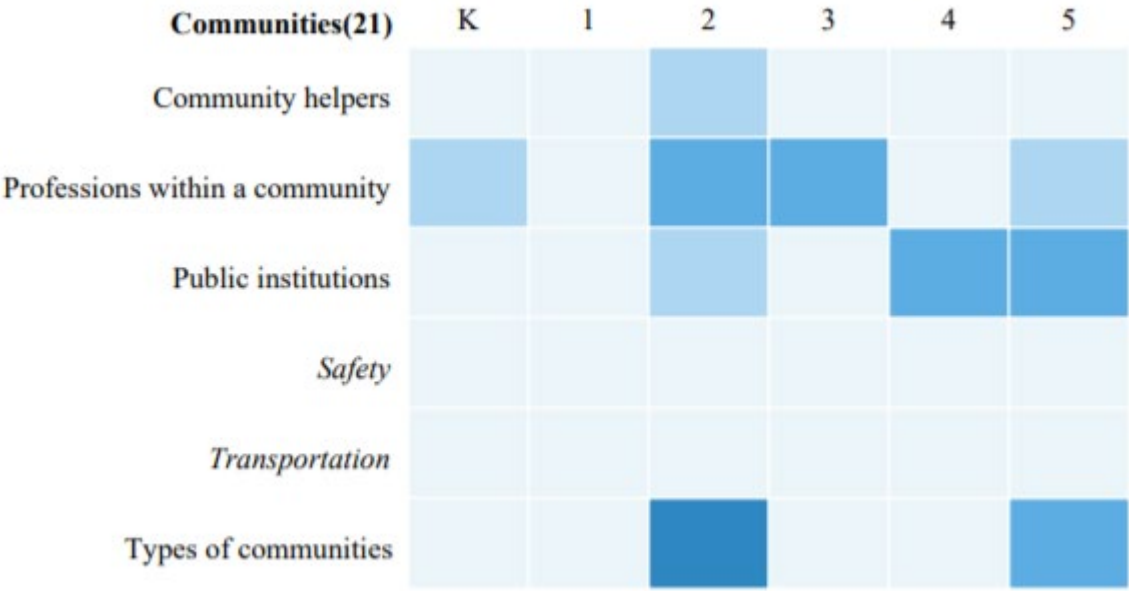


Figure 11. Heat map analysis of the Communities knowledge domain in Grades K-5.



Figure 12. Heat map analysis of the Diversity, Equity, & Inclusion knowledge domain in Grades K-5.

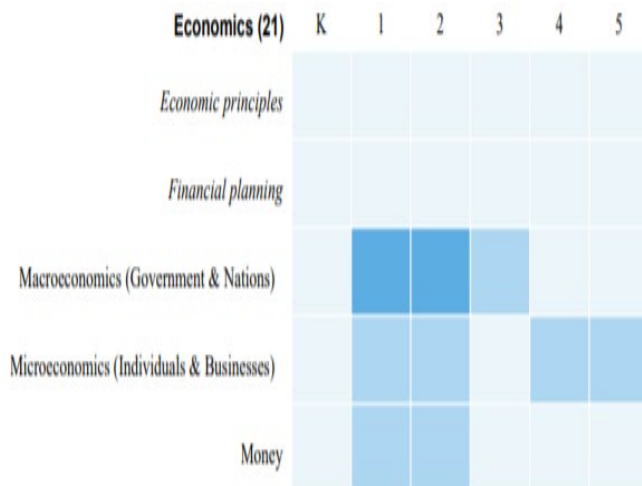


Figure 13. Heat map analysis of the Economics knowledge domain in Grades K-5.

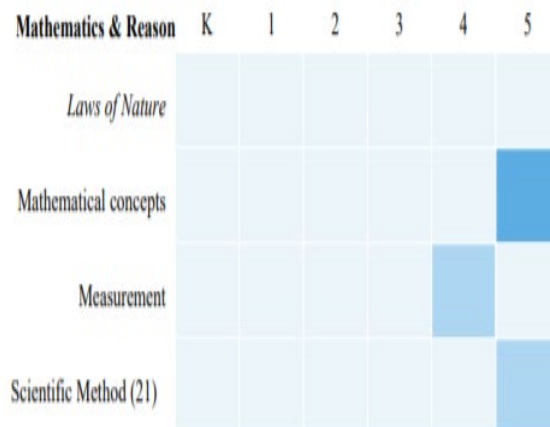


Figure 14. Heat map analysis of the Mathematics & Reason knowledge domain in Grades K-5.

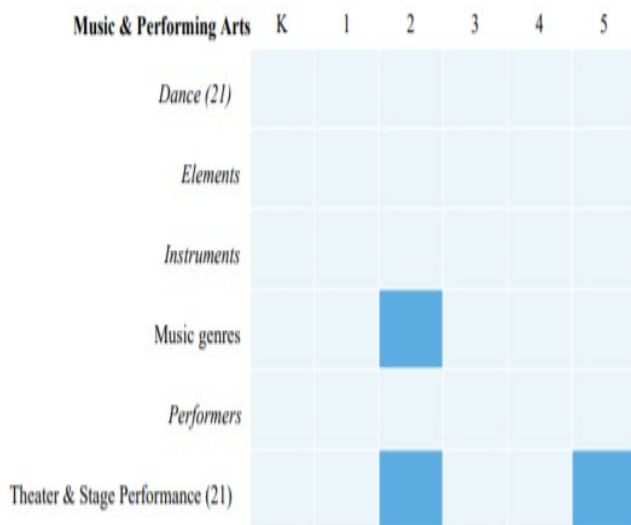


Figure 15. Heat map analysis of the Music & Performing Arts knowledge domain in Grades K-5.

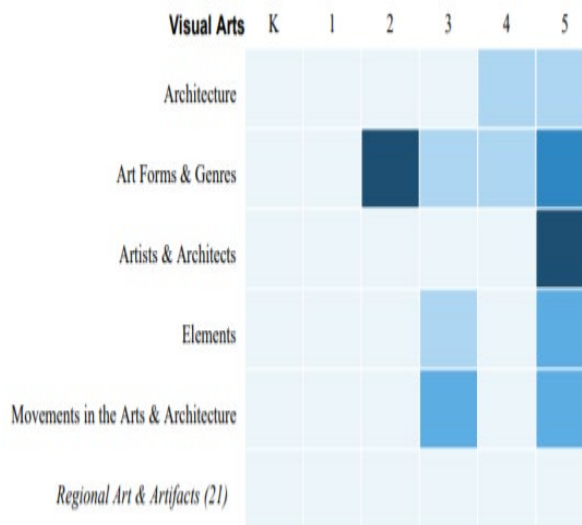


Figure 16. Heat map analysis of the Visual Arts knowledge domain in Grades K-5.

CKLA KNOWLEDGE/HEAT MAPS: GRADE 6

The Institute's heat map analysis of the CKLA curriculum continues into Grade 6. Since secondary education is evaluated for a separate set of topical domains, the findings of this grade level are presented below.

Strong Knowledge-Building Domains

Five domains scored strongly for knowledge building in the Grade 6 curriculum – Concepts & Language

(Figure 17), Diversity, Equity & Inclusion (Figure 18), Emotions, Being, & Personal Psychology (Figure 19), Government & Political Science (Figure 20), and World History Since 1600 (Figure 21). All five of these domains presented strong topical coverage across the entire domain, suggesting a wide variety of sources on relevant topics.

Beyond these four domains, other domains presented topic-specific strengths. For instance, the World History To 1600 domain (Figure 28) scored moderately for overall coverage but presented strong coverage regarding Ancient Civilizations. This reveals that beyond the generally strong domains present in the curriculum, other more situational strengths appear throughout the curriculum.

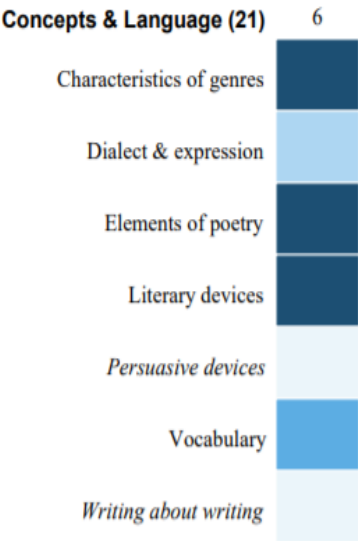


Figure 17. Heat map analysis of the Concepts & Language domain in Grade 6.

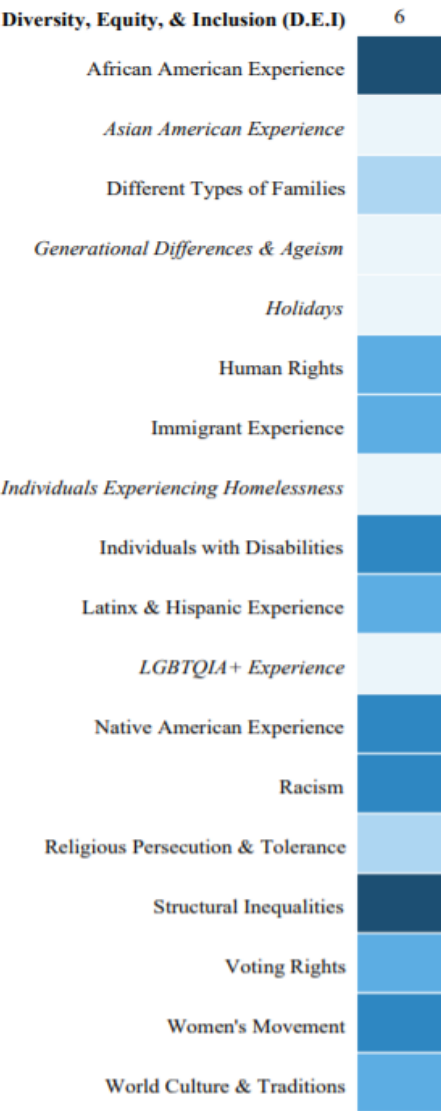


Figure 18. Heat map analysis of the Diversity, Equity, & Inclusion knowledge domain in Grade 6.

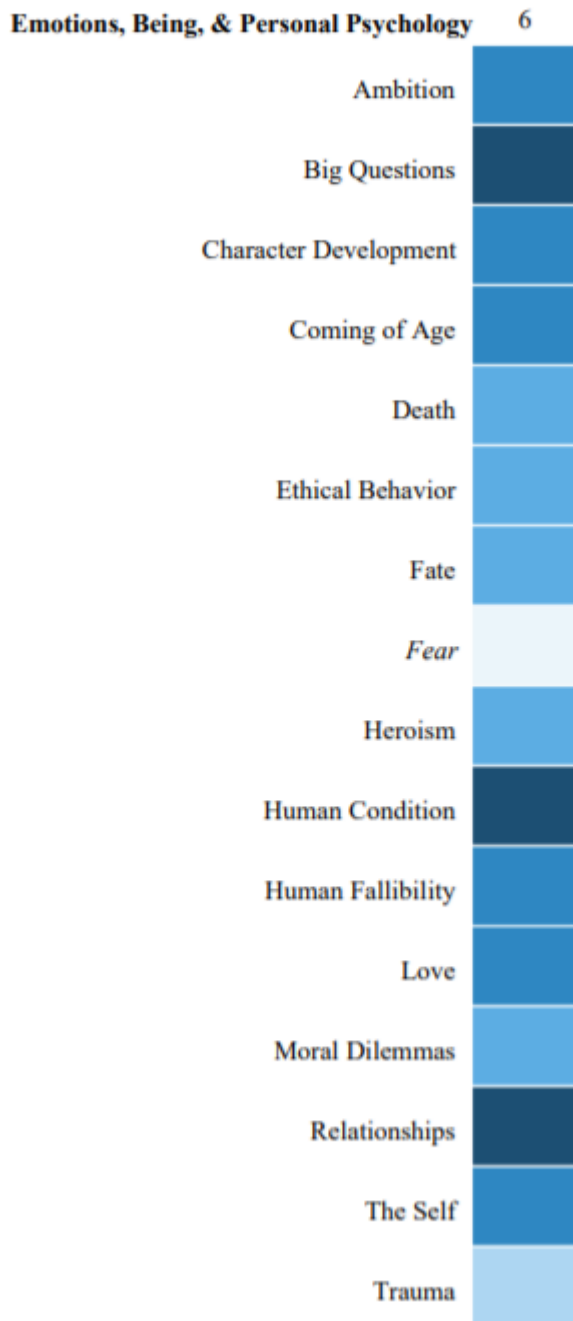


Figure 19. Heat map analysis of the Emotions, Being, & Personal Psychology knowledge domain in Grade 6.

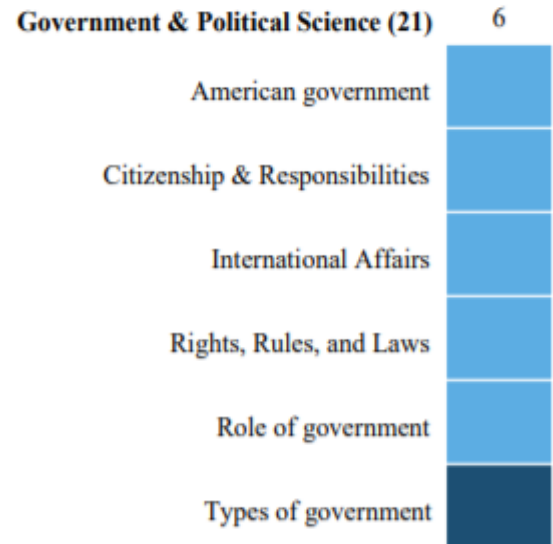


Figure 20. Heat map analysis of the Government & Political Science knowledge domain in Grade 6.

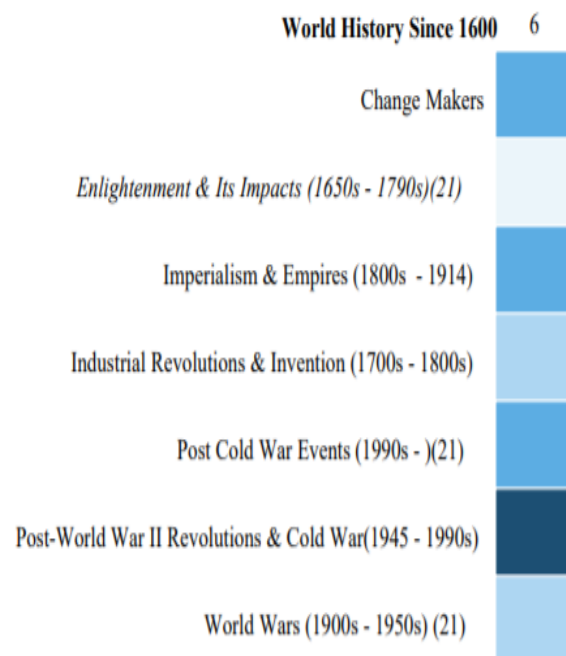


Figure 21. Heat map analysis of the World History Since 1600 knowledge domain in Grade 6.

Moderate Knowledge-Building Domains

Seven domains scored for moderate knowledge building within the CKLA curriculum. Specifically, these domains include Music, Arts, & Architecture (Figure 22); Physical Sciences (Figure 23); Religion (Figure 24); Social Sciences (Figure 25); Technology (Figure 26); US History Since 1865 (Figure 27); and World History To 1600 (Figure 28). These domains present more sporadic or specific coverage than a strong domain would; however, they still meaningfully cover many of the topics included within their domains.

Besides these generally moderate domains, other domains presented topic-specific levels of moderate coverage. An instance of this occurs within the US History to 1865 domain (Figure 38), which scored weakly overall but which includes moderate coverage regarding the nation’s founding.

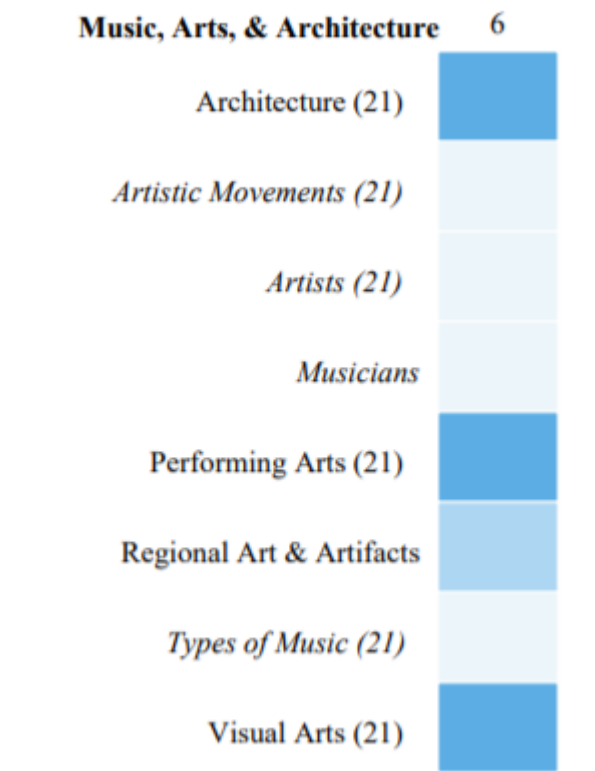


Figure 22. Heat map analysis of the Music, Arts, & Architecture knowledge domain in Grade 6.

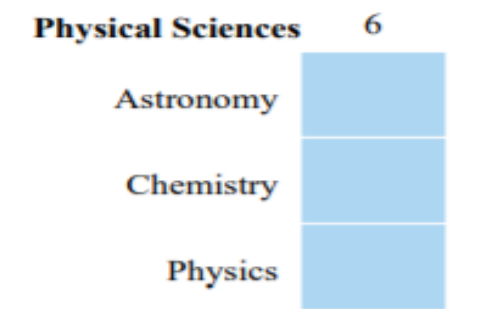


Figure 23. Heat map analysis of the Physical Sciences knowledge domain in Grade 6.

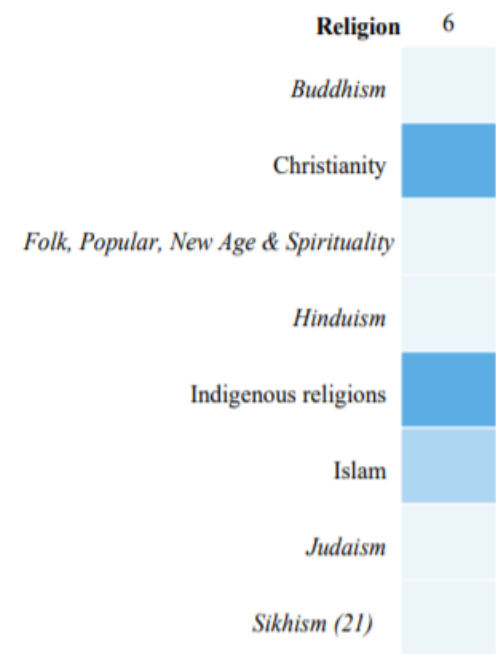


Figure 24. Heat map analysis of the Religion knowledge domain in Grade 6.



Figure 25. Heat map analysis of the Social Sciences knowledge domain in Grade 6.

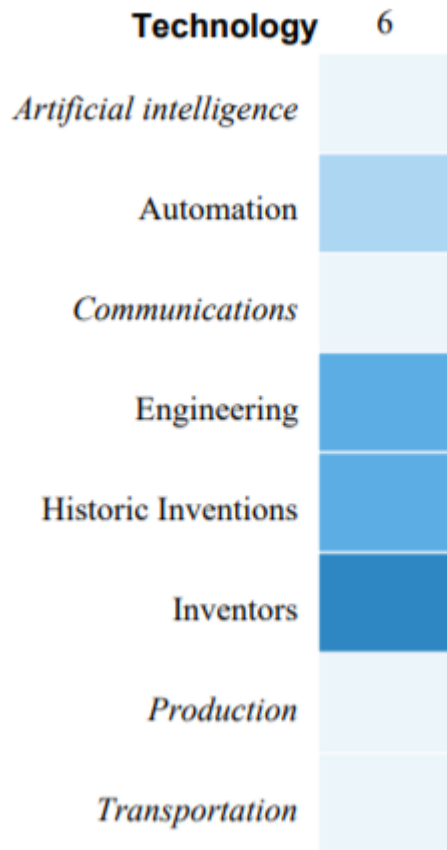


Figure 26. Heat map analysis of the Technology knowledge domain in Grade 6.

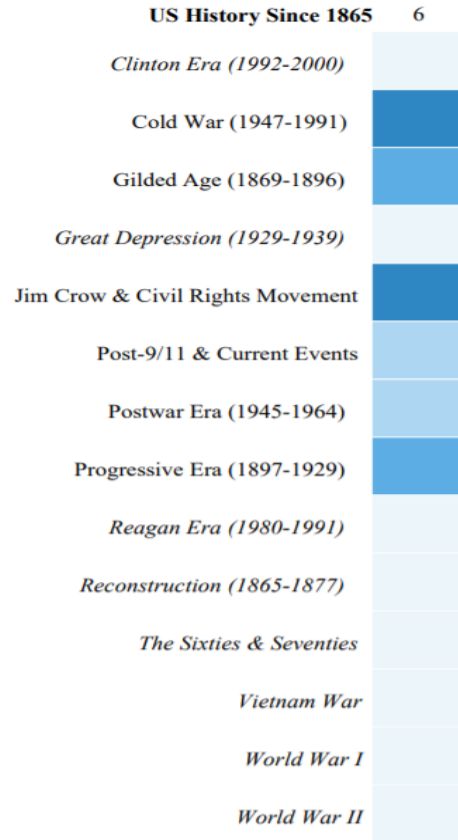


Figure 27. Heat map analysis of the US History Since 1865 knowledge domain in Grade 6.

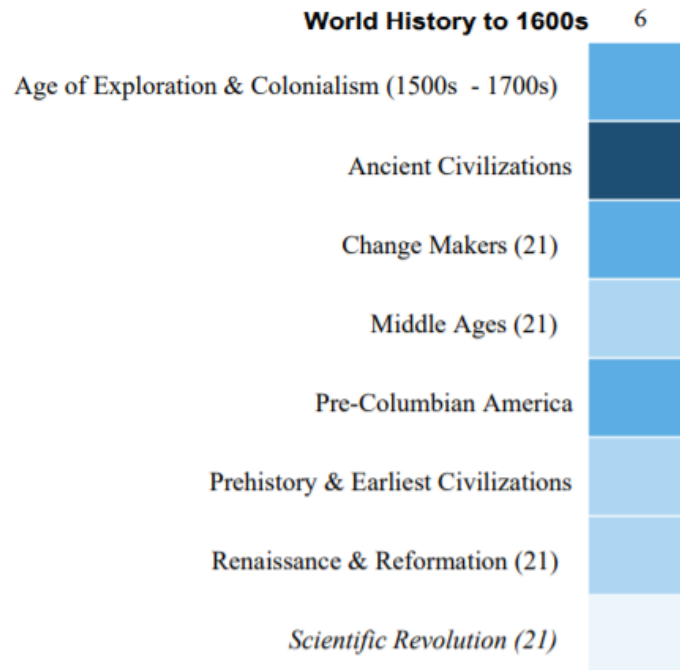


Figure 28. Heat map analysis of the World History to 1600s knowledge domain in Grade 6.

Minimal Knowledge-Building Domains

The remainder of the knowledge domains for Grade 6 – a total of eleven – scored for minimal topical coverage. These domains include American Literature (Figure 29); British Literature (Figure 30); Earth Sciences (Figure 31); Economics (Figure 32); Global Literature (Figure 33); Life Sciences (Figure 34); Mathematics & Reasoning (Figure 35); Media & Entertainment (Figure 36); Philosophy Proper (Figure 37); US History to 1865 (Figure 38); and World Geography (Figure 39). As previously mentioned, absences within these domains may reflect curricular progression decisions or other intentional factors, and absences should be considered within the broader context of the system’s educational goals.

In addition to generally minimal coverage in these domains, other domains present several topical weaknesses. For example, the Diversity, Equity & Inclusion domain (Figure 17) achieved a strong score for overall coverage but presents notable absences in topics such as the Asian-American and LGBTQIA+ experiences.



Figure 29. Heat map analysis of the American Literature knowledge domain in Grade 6.

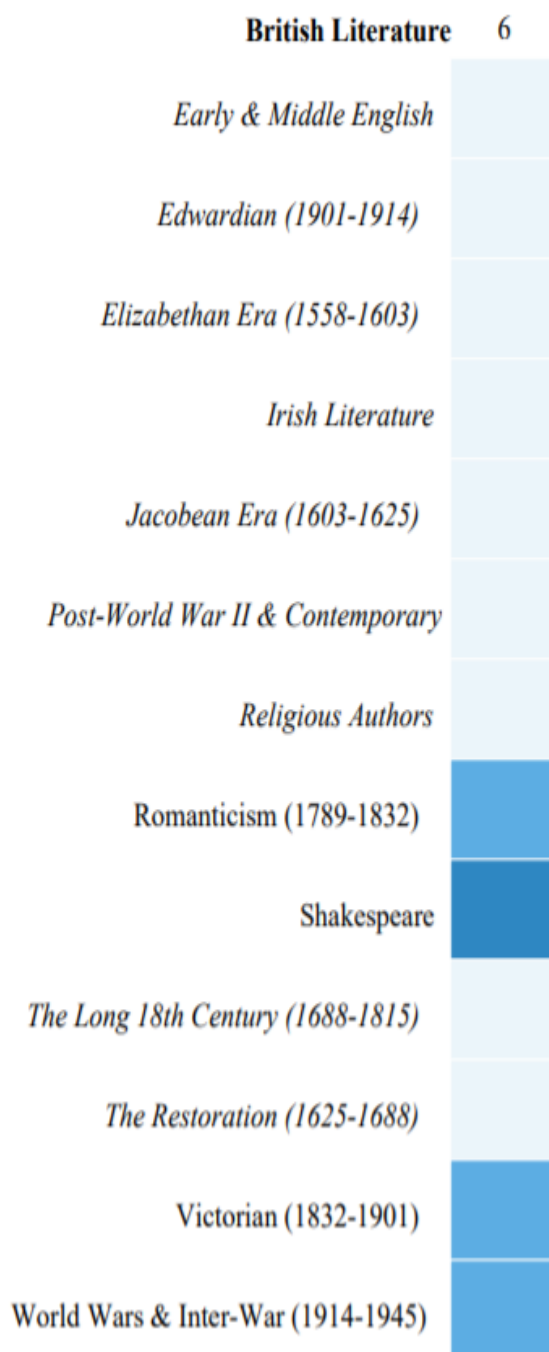


Figure 30. Heat map analysis of the British Literature knowledge domain in Grade 6.

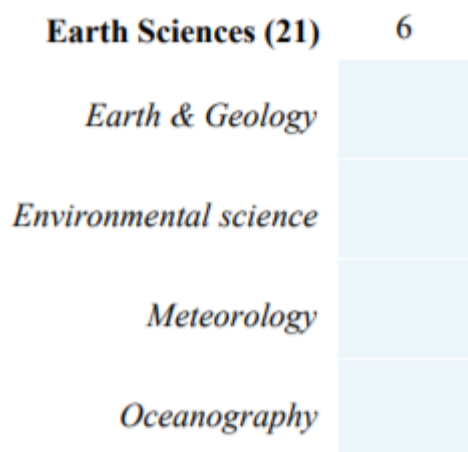


Figure 31. Heat map analysis of the Earth Sciences knowledge domain in Grade 6.

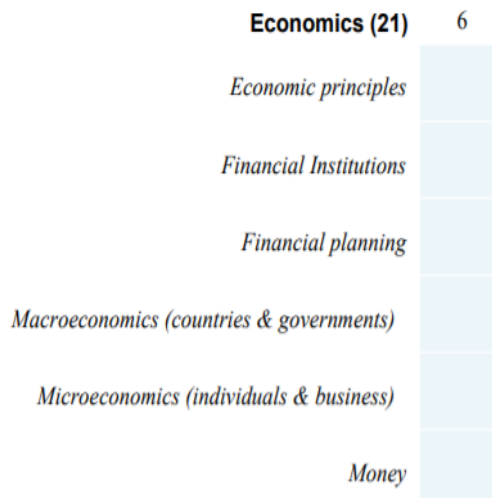


Figure 32. Heat map analysis of the Economics knowledge domain in Grade 6.

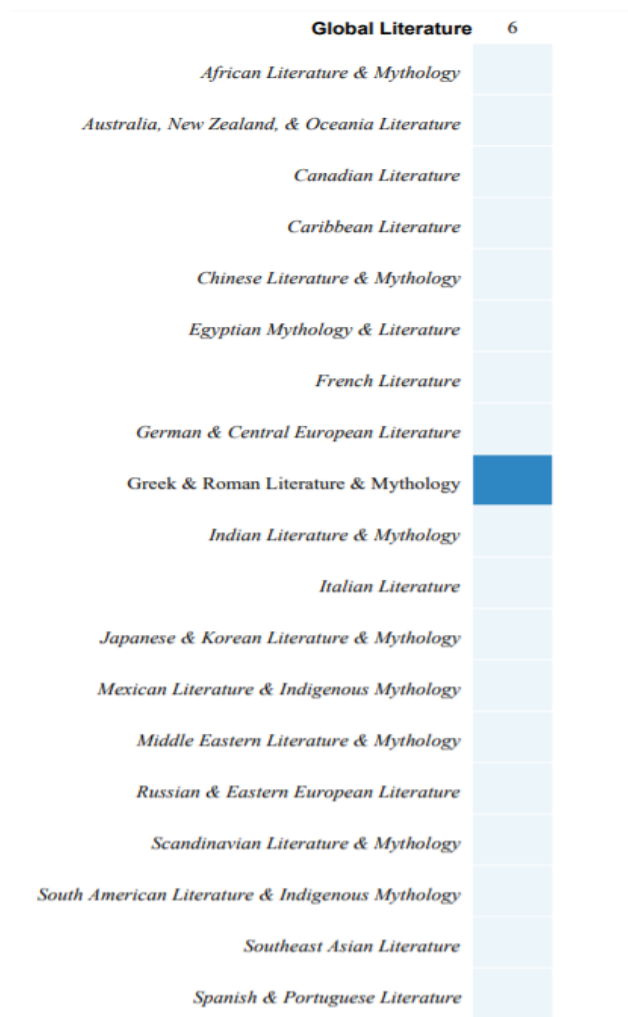


Figure 33. Heat map analysis of the Global Literature knowledge domain in Grade 6.

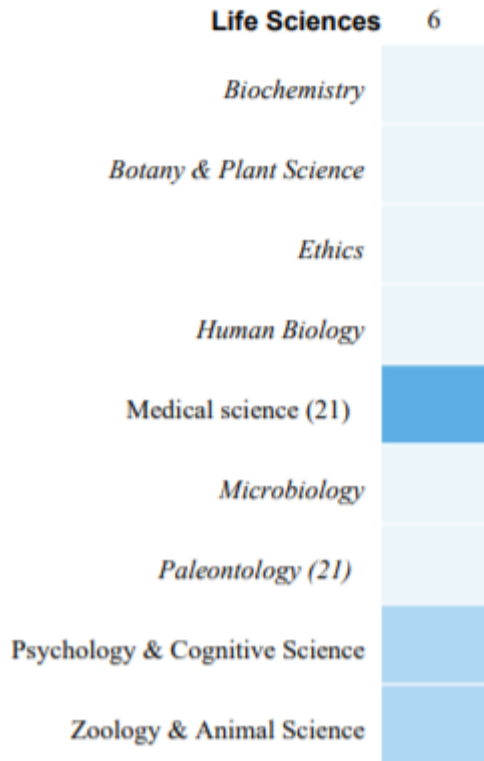


Figure 34. Heat map analysis of the Life Sciences knowledge domain in Grade 6.

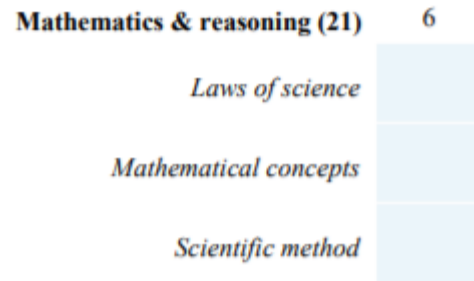


Figure 35. Heat map analysis of the Mathematics & Reasoning knowledge domain in Grade 6.



Figure 36. Heat map analysis of the Media & Entertainment knowledge domain in Grade 6.

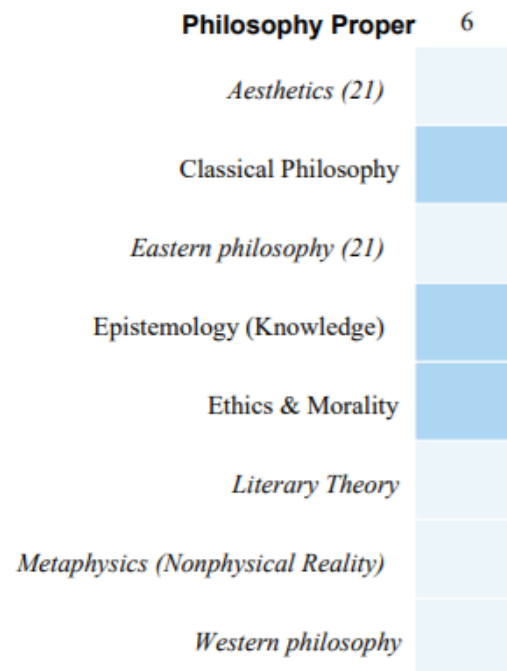


Figure 37. Heat map analysis of the Philosophy Proper knowledge domain in Grade 6.

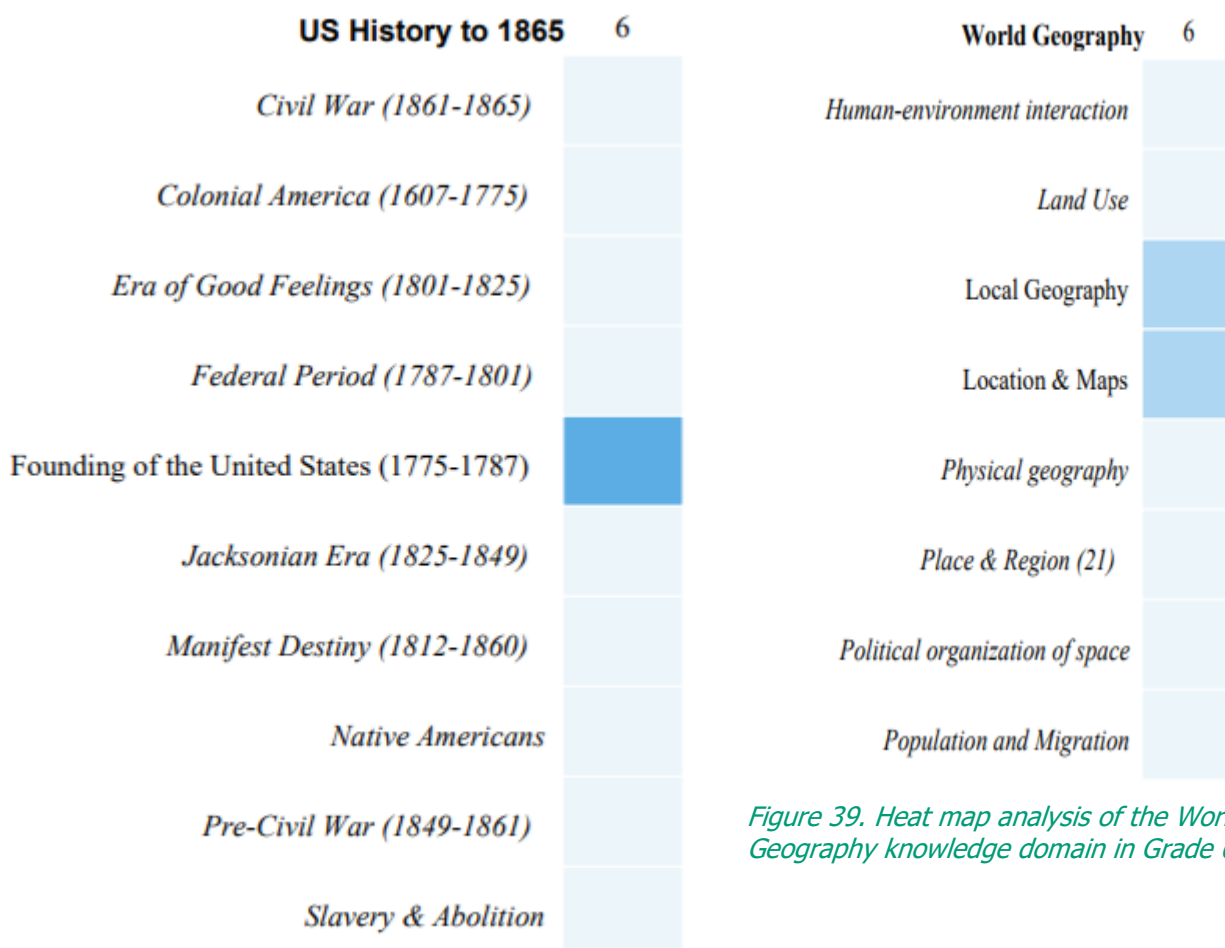


Figure 38. Heat map analysis of the US History to 1865 knowledge domain in Grade 6.

Figure 39. Heat map analysis of the World Geography knowledge domain in Grade 6.

Diversity, Equity, & Inclusion Domains

Among the domains evaluated as part of the Heat Map exercise, the Diversity, Equity, & Inclusion domain measures the presence of texts addressing the experiences of specific cultural groups. Ideally, culturally responsive texts should represent a spectrum of positive, neutral, and negative aspects of a group's experience in the United States. Heat Maps with strong results for the Diversity, Equity, & Inclusion domain indicate that students receive meaningful instruction related to these experiences. Many academic materials can be rated for cultural responsiveness, including everything from picture books to documentary films. The Institute reviewed the CKLA materials for cultural responsiveness across the evaluated grade levels.

Overall, the CKLA curriculum is inconsistent in its coverage of the Diversity, Equity, & Inclusion domain (see Figures 12 and 17). In total, Grades 2 and 6 include between 35 and 54 texts addressing the domain, while Grade 5 has between 20 and 29, indicating that these grades cover the domain strongly. In contrast, Grade 3 includes only 2 texts addressing the domain, and Grade K has between 3 and 5 relevant texts. Grades 1 and 4 are closer to the low-moderate cusp with 12-17 texts and 9-14 texts, respectively.

African American Experience is strongly covered in Grades 2 and 6, and Native American Experience is strongly covered in Grades 5, with 8-11 texts on these topics. Other topics that are covered well during some grade levels within the curriculum include Immigrant Experience, Women's Experience, and World Cultures & Traditions. Topics not covered in the CKLA curriculum include Bias & Implicit Bias, Generational Differences & Ageism, and Individuals Experiencing Homelessness.

CKLA QUALITY AND COHERENCE

As mentioned previously, the Institute's analysis includes tagging each text for the knowledge domains, topics, and subtopics that it reinforces. The evaluation also rates each individual text for quality according to the rubrics below. And finally, the Institute also applies a Coherency Score that rates how well the materials within a unit reinforce the knowledge builds, described in more detail below.

Quality and coherence findings vary and are not linked to each other. For example, a unit may score highly for overall quality but have a low Coherence Score in terms of how well the texts reinforce the knowledge builds. The converse is also possible, where a unit scoring low in overall quality may have moderate or strong reinforcement of unit topic.

Rubrics for Quality

The Institute applies three rubrics for text quality analysis – a fiction rubric, nonfiction rubric, and literary nonfiction rubric. All rubrics consider content knowledge and language. Rubrics for fiction and literary nonfiction (nonfiction material presented in a narrative format) include additional factors relevant to the genres, such as emotion and prominence. The nonfiction rubric omits these factors in favor of focusing on the source's accuracy and quality.

Fiction and Literary Nonfiction (Total of 15 possible Points)

Evocation of Emotion: The degree to which the text is memorable due to its impact upon the reader's affect. Works that may achieve high emotion scores include Shakespeare's *Romeo & Juliet* and Morrison's *The Bluest Eye*.

Language: The degree to which the text contains outstanding language and derives effect from several factors, including:

- Clarity (James Baldwin's *The Fire Next Time*, Austen's *Emma*)
- Appeal to the imagination (Tolkien's *Lord of the Rings*)
- Sophisticated capacity at multiple levels, including cultural, social, metaphorical, and/or theological (Chinua Achebe's *Things Fall Apart*, Dante's *Divine Comedy*, de Cervantes' *Don Quixote*, Toni Morrison's *The Bluest Eye*).

Timeless and Profound Questions: The degree to which a text addresses perpetual issues of the human condition, such as private or public ethics, obedience to the state, family allegiance, meaning, and purpose. Works that may achieve high scores on this metric include Sophocles' *Antigone* and Camus's *The Stranger*.

Content Knowledge: The degree to which text builds students' background knowledge about the world. Strong examples on this metric include Erdrich's *Birchbark House* for elementary students or Austen's *Pride & Prejudice* for secondary students.

Prominence: The degree to which a text is widely known. Several factors determine a text's prominence, including:

- Longevity: The degree to which the text has entered the American literary canon, meaning that the text remains widely read for at least fifty years since its publication (Steinbeck's *The Grapes of Wrath*, Thoreau's *Walden*).
- Current prominence: The degree to which the text is a contemporary classic, meaning that it appears widely in American schools in recent years (Cisneros's *Last House on Mango Street*, Satrapi's *Persepolis*).
- Awards: The degree to which the text has been recognized as outstanding by critics or through awards. Notable literary awards include the Nobel Prize in Literature, Booker Prize, John Newberry, Man Booker Award, [PEN/Faulkner Award for Fiction](#), Pulitzer Prize, the [Coretta Scott King Awards](#), or [Pura Belpre Awards](#). More examples of critical literary acclaim appear [here](#).
- Accuracy & Source (literary nonfiction only): The verifiable factual basis for the information and the bias profile of the source.

Nonfiction (Total of 12 Possible Points)

Accuracy: The degree to which the text is empirically accurate.

Source Quality: The degree to which the text comes from a high-caliber source. The Institute assigned an initial numerical value to news sources and added quality scores upon encountering new sources. Relevant links can be found [here](#).

Language: The degree to which the text is well written and presents its subject matter effectively.

Content Knowledge: The degree to which the text effectively builds background knowledge of the topic or subtopic at hand.

Coherence Analysis

The Knowledge Map™ project allows for a unit-level analysis of quality and coherence. The Institute begins its analysis with Heat Maps, which illustrate coverage by grade bands of crucial knowledge domains and topics. It then builds upon that analysis through a quality scoring system that reflects the review of each individual text, outlined in the above rubrics and averaged across the entire text set. Finally, the Institute generates *Unit Coherence Maps* that illustrate the extent to which the materials reinforce the knowledge built within that unit, measured through shared topical tags.

These maps utilize a ball-and-spoke visual, where the central ball represents the anchor, and the surrounding balls represent the supporting materials. The numbers shown on each ball represent the number of topics in each supplemental material that correlate to the topics assigned to the anchor. The anchor always reinforces itself entirely; as such, the number on the central ball always equates to the total number of tags. The proximity of each spoke to the central ball visually conveys this relationship.

CKLA QUALITY & COHERENCE FINDINGS: GRADES K-6

The quality and coherence findings for each grade level follow in the sections below. This report highlights the highest- and lowest-quality units for each grade and provides a discussion of knowledge

reinforcement within those units. The caption below each graph provides an average quality score for all texts within that unit. The Institute considers a unit or text high-quality if it scores 70% or above. A unit or text is acceptable as low as 61%. Any lower score indicates that a unit or text scored poorly overall.

Kindergarten

Kindergarten receives an overall quality score of 70.55%, placing it in the high-quality band.

Highest-Quality Unit

Unit 1 is the highest-quality unit at this grade level, with an average text quality score of 81.11%. The Institute’s analysis for coherence indicates strong knowledge reinforcement, as seen in the figure below. The anchor text, *Nursery Rhymes and Fables*, has multiple stories, each tagged separately for content. The figure below illustrates the shared topics against the first story, “Roses Are Red,” which shares the ‘Characteristics of Genres’ topic with all the materials in this unit. Other commonly shared topics include ‘Relationship Skills’ in the Social-Emotional domain and ‘Phonics’ in the Concepts and Language domain.

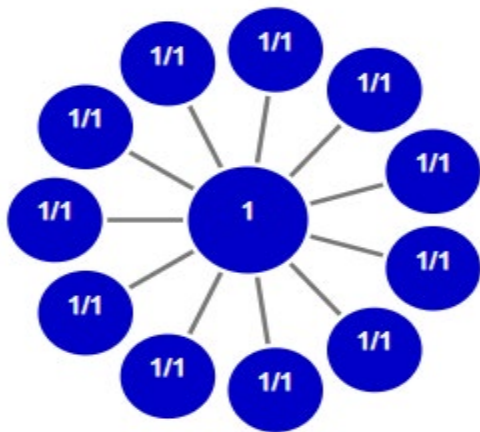


Figure 40. Coherence map of Grade K, Unit 1, *Roses are Red/Ring Around the Rosie* and related texts. Supporting materials strongly reinforce the anchor text. The average unit score for text quality is 81.11%.

Lowest-Quality Unit

Unit 9 is the lowest-quality unit at this grade level, with an average text quality score of 64.91%. The figure below shows the shared topics with the first chapter, “The Spice Seekers” in the anchor text, *Columbus and the Pilgrims*. This text explores the ‘Age of Exploration & Colonialism’ of the World History domain. The other texts that do not share a topic with “The Spice Seekers” are texts like “The Voyage of the Mayflower,” which explores the Colonial America topic in the American History domain.

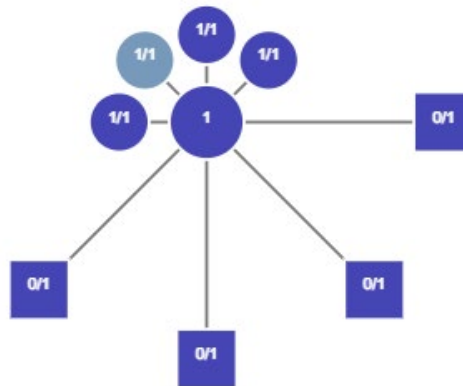


Figure 41. Coherence map of Grade K, Unit 9. *The Spice Seekers and related texts. Supporting materials moderately reinforce the anchor text. The average unit score for text quality is 64.91%.*

Grade 1

Grade 1 receives an overall quality score of 66.06%, placing it in the acceptable quality band.

Highest-Quality Unit

Unit 6 is the highest-quality unit at this grade level, with an average text quality score of 93.52%. Additionally, all resources achieve quality scores of 78% or above, suggesting consistently strong materials at this level. The Institute’s analysis for coherence indicates strong knowledge reinforcement. Nearly all materials present in the unit share the anchor’s topic tag, Astronomy, indicating a high level of knowledge development throughout the unit. While “The History of Space Exploration and Astronauts,” the square in the figure below, does not provide content on the topic of Astronomy, it does support related topics shared in other texts such as ‘Technology & Invention’ and ‘Discovery & Exploration.’

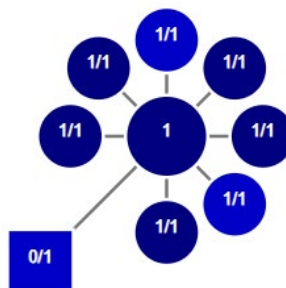


Figure 42. Coherence map of Grade 1, Unit 6, *Introduction to the Sun and Space and related texts. Supporting materials strongly reinforce the anchor text. The average unit score for text quality is 93.52%.*

Lowest-Quality Unit

Unit 10 is the lowest-quality unit at this grade level, with an average text quality score of 44.44%. The Institute's analysis for coherence indicates strong knowledge reinforcement. Though all texts within the unit achieve lower scores for quality, they do relate to each other topically, indicating that students are still having themes and ideas developed through the resources they read at this level.



Figure 43. Coherence map of Grade 1, Unit 10, The New World and related texts. Supporting materials strongly reinforce the anchor text. The average unit score for text quality is 44.44%.

Grade 2

Grade 2 receives an overall quality score of 82.48%, placing it in the high-quality band.

Highest-Quality Unit

Unit 2 is the highest-quality unit at this grade level, with an average text quality score of 94.35%. This unit uses one text, *Early Asian Civilization*, with multiple chapters on civilizations along the Indus, Yellow, and Yangtze Rivers. Each chapter was tagged individually; the coherence graphic below uses the first chapter, "The Indus River Valley Part I." Though the diversity in topics within the grade suggests a weak coherency, there are multiple shared topics within this unit. Among the most commonly shared are 'Prehistory & Earliest Civilizations' and 'Ancient Civilizations' from the World History to 1600 domain; 'World Cultures' and 'Traditions' from the Diversity, Equity, & Inclusion domain; and 'Literary Devices' from the Concepts & Language domain. When examined under shared topics among all the chapters versus only the first chapter, there is a stronger coherency overall.

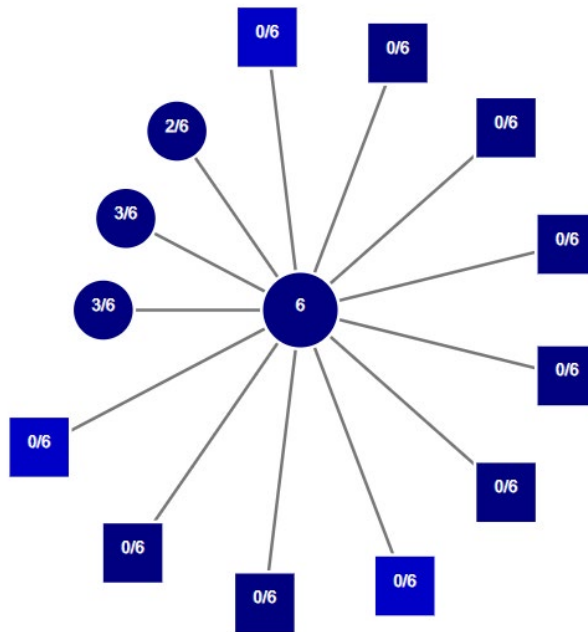


Figure 44. Coherence map of Grade 2, Unit 2, *The Indus River Valley, Part 1* and related texts. Supporting materials weakly reinforce the anchor text. The average unit score for text quality is 94.35%.

Lowest-Quality Unit

Unit 1 is the lowest-quality unit at this grade level, with an average text quality score of 61.67%. The Institute’s analysis for coherence indicates strong knowledge reinforcement. Despite the wide variety of folktales and fairy tales presented in this unit, the curriculum does an excellent job topically connecting these stories, contributing to a meaningful knowledge build.

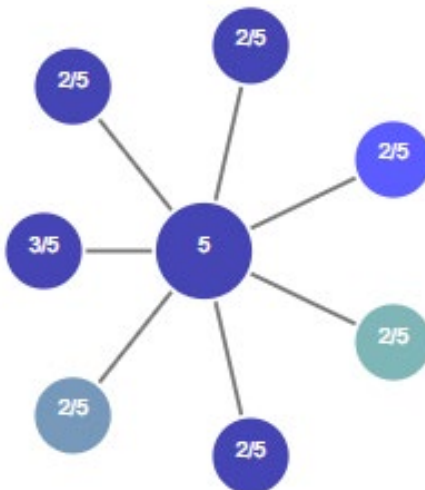


Figure 45. Coherence map of Grade 2, Unit 1, *The Fisherman and His Wife* and related texts. Supporting materials strongly reinforce the anchor text. The average unit score for text quality is 61.67%.

Grade 3

Grade 3 receives an overall quality score of 72.68%, placing it in the high-quality band.

Highest-Quality Unit

Unit 1 is the highest-quality unit at this grade level, with an average text quality score of 83.33%. The Institute's analysis for coherence indicates moderate knowledge reinforcement. The anchor text was tagged for ten prominent topics, of which five appear in the supporting resource. Though quality at this level remains strong, the inclusion of additional high-quality materials may support a further knowledge build.



Figure 46. Coherence map of Grade 3, Unit 1, The Wind in the Willows and related text. The supporting material moderately reinforces the anchor text. The average unit score for text quality is 83.33%.

Lowest-Quality Unit

Unit 4 is the lowest-quality unit at this grade level, with an average text quality score of 67.42%, which is still in the Institute's acceptable range for quality. The anchor text, *Light and Sound*, has multiple chapters that all support the Physical Sciences topic in the Science domain. Additionally, this unit meaningfully covers supporting topics such as the 'Human Body' (also found in the Science domain) and 'Literary Devices' of the Concepts & Language domain.

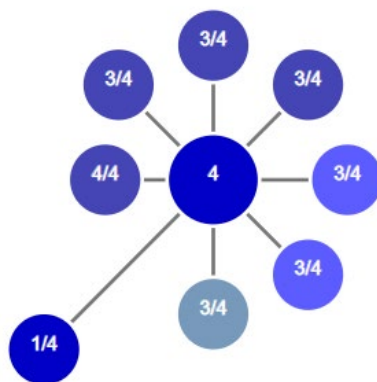


Figure 47. Coherence map of Grade 3, Unit 5, What is Light? and related texts. The average unit score of text quality is 67.42%.

Grade 4

Grade 4 receives an overall quality score of 82.38%, placing it in the high-quality band.

Highest-Quality Unit

Unit 1 is the highest-quality unit at this grade level, with an average text quality score of 100%. This score is based on the inclusion of a singular text, *Brown Girl Dreaming*, which serves as the focus for the unit and is extremely strong when measured against the Institute's rubrics for quality.



Figure 48. Coherence map of Grade 4, Unit 1, *Brown Girl Dreaming*, a single-text unit. The average unit score for text quality is 100%.

Lowest-Quality Unit

Unit 3 is the lowest-quality unit at this grade level, with an average text quality score of 73.33%. This score is also based on the inclusion of a singular text for students to focus on - *King Arthur and the Round Table*. Despite earning the grade's lowest quality score, the text still falls within the Institute's range for a high-quality resource, which speaks to the strength of materials presented to students in this grade.



Figure 49. Coherence map of Grade 4, Unit 3, *King Arthur and the Round Table*, a single-text unit. The average unit score for text quality is 73.33%.

Grade 5

Grade 5 receives an overall quality score of 70.12%, placing it in the high-quality band.

Highest-Quality Unit

Unit 9 is the highest-quality unit at this grade level, with an average text quality score of 86.67%. This score is based on the use of one highly-rated text, *The Science of Breakable Things*, the novel study for this unit.



Figure 50. Coherence map of Grade 5, Unit 9, *The Science of Breakable Things*, a single-text unit. The average unit score for text quality is 86.67%.

Lowest-Quality Unit

Unit 3 is the lowest-quality unit at this grade level, with an average text quality score of 45.45%. The Institute’s analysis for coherence indicates weak knowledge reinforcement. All supporting texts had 0 out of 5 topics in common with the anchor text, *Adventures of Don Quixote*. Most of the supplemental materials support the ‘Middle Ages’ topic of the World History domain, indicating a level of coherence across them, but further connections to the anchor would be beneficial.

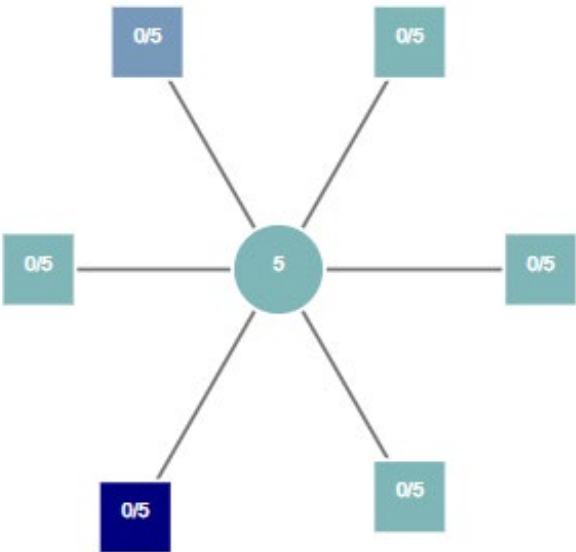


Figure 51. Coherence map of Grade 5, Unit 3, *Adventures of Don Quixote* and related texts. Supporting materials weakly reinforce the anchor text. The average unit score for text quality is 45.45%.

Grade 6

Grade 6 receives an overall quality score of 80.74%, placing it in the high-quality band.

Highest-Rated Unit

Unit 5 is the highest-quality unit at this grade level, with an average text quality score of 88.60%. The Institute's coherence analysis reveals moderate knowledge reinforcement within the unit. The most shared topic between the anchor and supplementary texts is 'Shakespeare' from the British Literature domain. The supplemental texts that do not share a topic with the anchor do share the 'Ancient Civilizations' topic from the World History to 1600s domain.

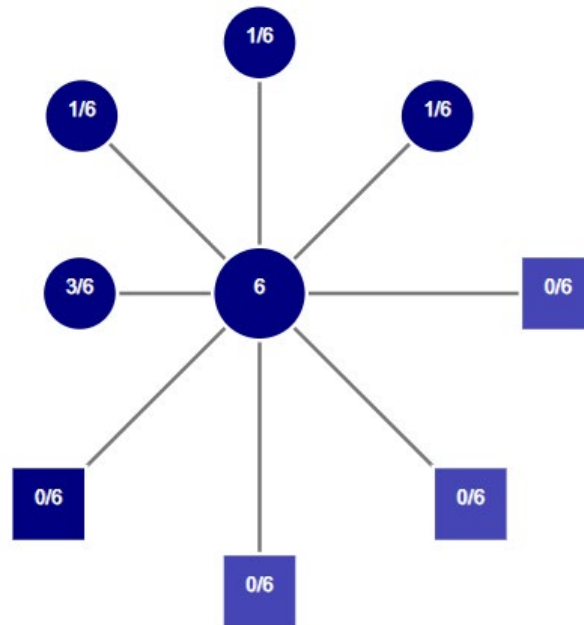


Figure 52. Coherence map of Grade 6, Unit 5, The Tragedy of Julius Caesar and related texts. Supporting materials weakly reinforce the anchor text. The average unit score for text quality is 88.60%.

Lowest-Rated Unit

Unit 2 is the lowest-quality unit at this grade level, with an average text quality score of 66.67%. Despite this lower score, most texts within the unit are still of an acceptable quality. Coherence analysis suggests weak-to-moderate knowledge reinforcement within the unit. Supporting texts vary vastly in their topical relation to the anchor. While most text support the Inventors, Historic Inventions, or Engineering topics from the Science domain, *Temple Grandin on Her Search Engine* focuses on the life of Temple Grandin and covers topics such as 'Ambition' from the Emotions, Being, & Personal Psychology domain and 'Individuals with Disabilities' from the Diversity, Equity, & Inclusion domain.

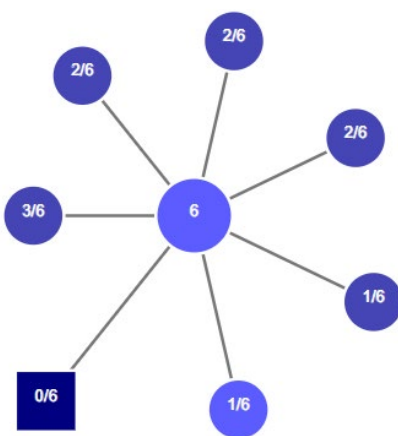


Figure 53. Coherence map of Grade 6, Unit 2, *Calling All Minds* and related texts. Supporting materials weakly-to-moderately reinforce the anchor text. The average unit score for text quality is 66.67%.

CKLA EDUCATION QUALITY ASSESSMENT

In general, the CKLA curriculum is high quality overall but presents a large range of quality across each grade's individual units. presents a large range of unit quality within each the grades. With the exception of Grade 1, all grades achieved overall quality scores that fell within the Institute's range for strong quality; Grade 1's score of 66.06% still falls within the acceptable range. However, looking closer at each individual grade reveals a wide range of quality scores in certain units. The table below includes a section for the difference in percentage between the grade's highest- and lowest-quality units. Higher differences represent a larger level of inconsistency across the grade, which can lead to a dip in effectiveness as students do not receive the same level of quality across all units. Differences within individual grades are often high, indicating a wide level of variance in the quality of instructional texts and units.

Grade	Overall Quality Score	Unit High Score	Unit Low Score	Difference (High-Low)
K	70.55	81.11	64.91	16.20
1	66.06	93.52	44.44	49.08
2	82.48	94.35	61.67	32.68
3	72.68	83.33	63.27	20.06
4	82.38	100	73.33	26.67
5	70.12	86.67	45.45	41.22
6	80.74	88.60	66.67	21.93

Figure 54. Summary of unit quality scores in Grades K-6.

LEARN MORE

This report is one of twelve ELA Knowledge Map™ reports released in Winter 2022 by the Johns Hopkins Institute for Education Policy. The release of these reports was accompanied by a Findings Summary, outlining the overarching themes across all ELA curricula analyzed. View the other ELA Knowledge Map™ reports and learn more about the importance of high-quality curriculum at edpolicy.education.jhu.edu.

About the Institute

The [Johns Hopkins University Institute for Education Policy](https://edpolicy.education.jhu.edu) is dedicated to integrating research, policy, and practice to achieve educational excellence for all of America's students. Specifically, we connect research to the policies and practices that will ensure all children have access to intellectually challenging curricula, highly-effective educators, and school models that meet students' diverse needs. By delivering the strongest evidence to the policymakers who set the course and the practitioners who teach and lead, we hope to serve the American children who enter our classrooms every day.

About the Core Knowledge Foundation

The [Core Knowledge Foundation](https://www.coreknowledge.org) is an independent, nonprofit, nonpartisan organization based in Charlottesville, Virginia, and founded in 1986 by E. D. Hirsch, Jr., professor emeritus at the University of Virginia and author of many acclaimed books on education.

The mission of the Core Knowledge Foundation is to advance excellence and equity in education for all children. To achieve this mission, we offer detailed curricular guidance and materials to schools, teachers, parents, and policy makers—to anyone who believes, as we do, that every child in a diverse democracy deserves access to enabling knowledge.

ⁱ Reid Smith et al., "[The Role of Background Knowledge in Reading Comprehension: A Critical Review](#)," *Reading Psychology* 42, no. 3 (April 3, 2021): 214–40). Sonia Q. Cabell and Hyejin Hwang, "Building Content Knowledge to Boost Comprehension in the Primary Grades," *Reading Research Quarterly* 55, no. S1 (2020): S99–107, <https://ila.onlinelibrary.wiley.com/doi/full/10.1002/rrq.338> and also Kathryn S. McCarthy and Danielle S. McNamara, "The Multidimensional Knowledge in Text Comprehension Framework," *Educational Psychologist* 56, no. 3 (July 3, 2021): 196–214, <https://doi.org/10.1080/00461520.2021.1872379>.

ⁱⁱ "Standards aligned" generally refers to the Common Core State Standards.



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