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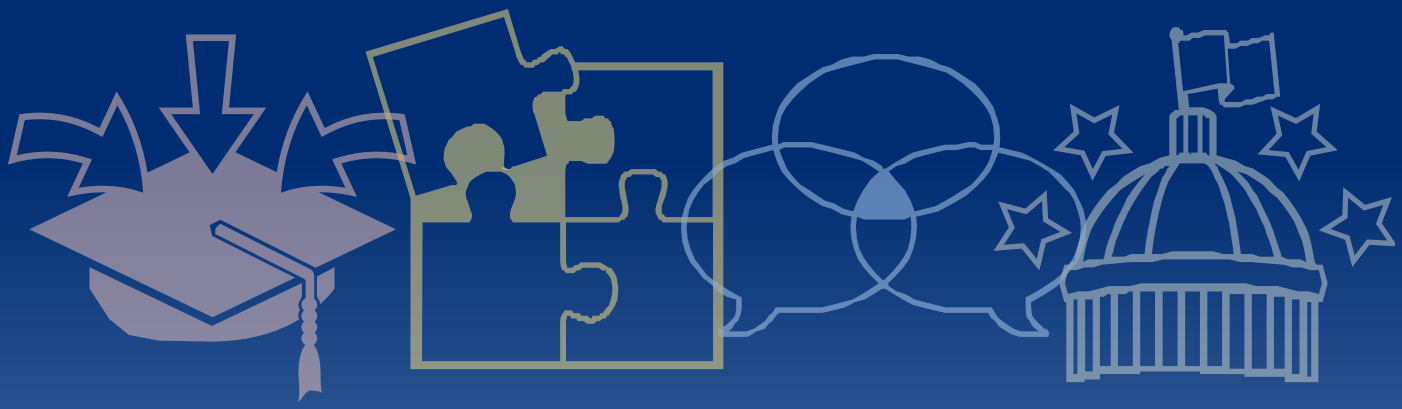


ELA Knowledge Map™

LUCY CALKINS & TCRWP COLLEAGUES
UNITS OF STUDY
Reading•Writing•Phonics

A unique analytic resource enabling policymakers, school leaders, and parents to better understand the strengths and weaknesses of the Units of Study Grades K-5 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.

PROJECT DESCRIPTION

The following report explores the Units of Study K-5 Reading curriculum through a knowledge-based lens. Developed by Lucy Calkins and her coauthors at the Teachers College Reading and Writing Project (TCRWP), Units of Study is designed as a skills-based curriculum with the aim of supporting students in becoming confident and independent readers and writers. The curriculum focuses more on *how* to teach the materials rather than *what* materials to teach; instructor choice is a major aspect of the curriculum, and teachers are presented with methods to introduce their own resources into the classroom. As a knowledge-based analysis, this Knowledge Map™ report looks at Units of Study through a new lens and explores how the materials set forth by the published curriculum contribute to a knowledge build.

As a curriculum with significant teacher choice, the analysis in this report is based the trade books and online resources recommended by Units of Study and available through Heinemann Publishing. This does not account for the fact that other texts could be used, especially during student independent reading or book clubs; however, analysis of the recommended materials provides strong insight into how the recommended resources contribute to both content knowledge and to the Units of Study curriculum's aims.

As previously mentioned, this analysis focuses in on the Units of Study K-5 Reading curriculum and does not include findings on the K-5 Writing, K-2 Phonics, or middle school programs. This is especially important context when considering the results of the heat map exercise: it is certainly possible that particular gaps in topical coverage might be addressed in one of these programs, most likely in the Phonics program (for elements of language) and the middle school curriculum for other domains of knowledge.

HIGH-LEVEL FINDINGS

As a whole, the Units of Study K-5 Reading curriculum utilizes strong materials to create high-quality units; however, knowledge reinforcement is generally light, as is the coherence within units. As a program that prioritizes skills-building, this assessment may align with the curriculum's goals; however, it also reveals that instructors may benefit from utilizing the curriculum in tandem with topically

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

focused materials during whole class instruction and independent reading times in order to offer students a full breadth of both knowledge and skills development.

The curriculum's text quality is its strongest point, especially in the later grades. All grade levels and most individual units fall within the Institute's percentage ranges for either strong or acceptable quality. Additionally, quality scores are generally consistent across both units within grades and across grades themselves. This evaluation was based on the trade books and online resources available to the Institute, meaning that instructors who choose to use that resource set will be utilizing strong texts in their classroom.

While this curriculum does use high-quality texts, it should be noted that at times the texts fall below grade level, creating a lack of rigor in the curriculum. One example is *Frogs!* by Elizabeth Carney. This Level 1 reader, usually reserved for beginning readers in Grades K or 1, is used in Grade 3 Unit 2.

The results of the Institute's heat map analysis reveal that Units of Study addresses the Social-Emotional knowledge domain meaningfully and offers more specialized topical coverage regarding other domains as well. In general, the curriculum's upper elementary grades (3-5) are the strongest performers on all evaluated metrics. In particular, Grades 4 and 5 are equipped with a variety of texts that cover domains such as Communities, Science, and World Geography.

This stronger coverage at higher grades contrasts with weaker coverage at earlier levels. Grade K is the curriculum's weakest in terms of topical coverage, with few tags within most domains. Though this certainly occurs as a result of progression decisions made by the developers, it may be worth noting areas where considerable absences could be reasonably remedied.

Aside from the aforementioned strong areas of knowledge building, the heat map exercise reveals generally limited coverage throughout the curriculum. Twelve of the fifteen evaluated domains scored for minimal coverage at all grade levels and regarding all topics. One of those domains – Music & Performing Arts – contained no texts at any grade level. Gaps in knowledge also exist across grade levels and topics; for instance, the Asian-American Experience is not addressed at any point. Additional analysis reveals that certain topics are introduced without any prior knowledge. For example, Grade 4 introduces the topic of World Wars & Dictatorships, but this is the only exposure to the topic that students receive in the elementary curriculum. The inclusion of additional materials that address a wide variety of topics in an age-sensitive way would set the groundwork for building both knowledge and skills as students progress through the course.

We found that the curriculum's unit coherence is an especially weak design element. Most individual units' materials share no topics with the anchor texts. Though outliers to this pattern, like Unit 3 of Grade 4, are scattered throughout the curriculum and could provide insight on making important topical connections within a unit, the inconsistency in the relevance of supporting texts to the anchor texts suggests a weak knowledge-building curriculum.

INSTITUTE RECOMMENDATIONS

The Units of Study K-5 curriculum for ELA provides a research-based curriculum intended to improve student achievement through strong teacher preparedness, student choice of high-quality material, and time to read. The Knowledge Map™ analysis highlights the crucial areas of knowledge building and assesses associated strengths and weaknesses as well as text quality. While philosophically different in

approach, the Units of Study can maintain its pedagogy and structure while increasing knowledge building. Therefore, the Institute recommends that the curriculum:

- Ensures proper coverage and quality in key knowledge domains by creating more constrained choices for teachers. For example, if using Home of the Brave as the anchor text, have students read 90 Miles to Havana, Esperanza Rising, They Call Me Guero, The Old Brown Suitcase, Before We Were Free, or The Sun Is Also A Star to provide opportunities to compare and contrast perspectives on the immigrant experience during book clubs or independent reading sessions.

- Increases the reinforcement of knowledge building within and between grade levels. For example, with strong coverage of the 'American Revolution & Founding' and 'Colonial America' topics of the American History domain in 4th grade, determine supporting topics, such as 'Governments Around the World' or 'Age of Exploration & Colonialism,' and introduce them in Grade 3. This provides background context and hooks for students to draw on and pull out more meaning from Grade 4's unit.

- Uses the coherency charts to substitute texts low in both quality and coherence for higher-quality texts to support topical coverage. For example, in Grade K, Unit 3, using Pete the Cat and His Four Groovy Buttons as the anchor text, incorporate higher-quality sources to support the Mathematical Concepts topic, while continuing with the focus on building skills (potential supporting resources include The Very Hungry Caterpillar or Zin! Zin! Zin! A Violin).

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

UNITS OF STUDY 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 text or no texts, while darker blue squares represent more knowledge-building texts, such as eight or more. The results for each of the fifteen 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; results of that tagging system can also be found below.

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.

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.

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.

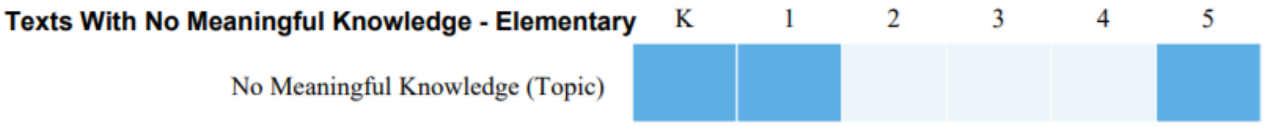


Figure 2. Heat map representing texts tagged for no meaningful knowledge build in Grades K-5.

Strong Knowledge-Building Domains

The curriculum presents robust knowledge building in several domains and additional topics, shown below alphabetically when similarly rated. Strong knowledge-building domains appear in the heat maps as dark blue, indicating that many texts address the topic (for instance, the heat map categories of 8+ Texts or 5-7 Texts).

One domain scores strongly for overall knowledge building – the Social-Emotional domain (Figure 3). As the heat map below demonstrates visually, topics within this domain are meaningfully covered at all grade levels, revealing that students accessing this curriculum have the domain's main themes reinforced throughout their elementary education.

Additional knowledge domains exhibit patterns of strength in specific topics and across grade bands. One pattern appears as large numbers of texts on a particular topic across all grades. This pattern can be found in the Science domain (Figure 4); though it scored moderately for overall coverage, the 'Animals' topic is solidly addressed across all elementary grade levels. A second pattern presents larger numbers of texts across domain topics within an individual grade band. For instance, the 4th and 5th grade bands present strong coverage, with two or more texts, in at least half of the topics in the World Geography domain (Figure 5), which scores moderately for overall coverage. The presence of these patterns within the curriculum reveals additional areas of strength in terms of exposing students to various topics.

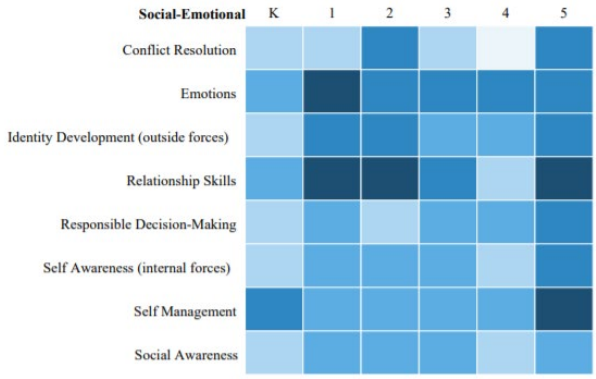


Figure 3. Heat map analysis of the Social-Emotional knowledge domain in Grades K-5.

Moderate Knowledge-Building Domains

The curriculum presents two moderate knowledge-building domains: Science (Figure 4) and World Geography (Figure 5). Moderate knowledge-building domains appear in the heat maps as mixed blue, indicating that only a modest number of texts address the topics within them (for instance, the heat map category of 2-4 Texts).

As the heat maps below demonstrate, these domains contain more sporadic or specific coverage than a strong domain would; however, they do contribute to knowledge reinforcement.

Beyond these generally moderate domains, other domains contain patterns of moderate knowledge building. One pattern appears as moderate coverage of a specific topic across multiple grade levels. The Visual Arts domain (Figure 16) scores minimally overall for knowledge building; however, moderate coverage appears in the 'Art Forms & Genres' topic, indicating more meaningful reinforcement there. A second pattern appears as moderate coverage within a certain grade band. The Communities domain (Figure 7), for example, presents weakly for overall coverage but, in Grade 4, there is at least one text in four of the six topics.

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

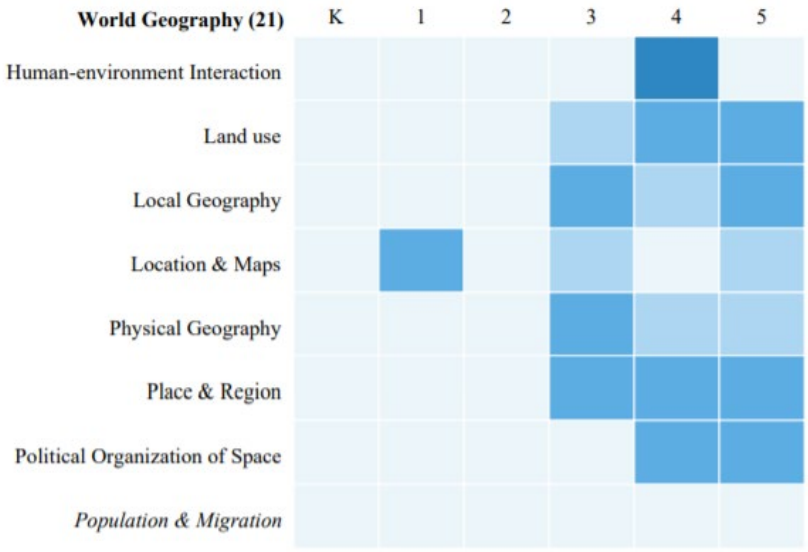


Figure 5. Heat map analysis of the World Geography knowledge domain in Grades K-5.

Minimal Knowledge-Building Domains

The curriculum presents minimal knowledge building in several knowledge domains and topics. Weak knowledge-building domains appear in heat maps as primarily light blue or gray, indicating that one or no texts address the topic. As previously mentioned, full topical coverage is not expected, and absences should be considered in the curriculum's broader context in order to determine where potential missed opportunities for knowledge building exist.

The remaining domains – a total of twelve– present minimal knowledge building overall. These domains include American History (Figure 6); Communities (Figure 7); Concepts & Language (Figure 8); Diversity, Equity, & Inclusion (Figure 9); Economics (Figure 10), Government, Civics, & Citizenship (Figure 11), Mathematics & Reason (Figure 12), Music & Performing Arts (Figure 13); Regional Literature (Figure 14); Religion & Philosophy (Figure 15), Visual Arts (Figure 16), and World History (Figure 17). One domain (Music & Performing Arts) is not addressed at all throughout the curriculum.

As previously mentioned, Units of Study offers a separate K-2 program that focuses on phonics, which potentially explains the weak coverage in the Concepts & Language domain. Absences in this domain are unusual for an elementary ELA curriculum; in this case, however, the absences are potentially explained by the decision to teach phonics in a separate course.

Other domains present specific patterns of absences throughout the curriculum. One pattern of absence appears as a lack of coverage regarding particular topics across all grade levels. For instance, the Science domain (Figure 4) achieves moderate coverage overall, but topics such as Physical Sciences and the Human Body are addressed less frequently. An additional pattern 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. The World Geography domain (Figure 5), for example, presents moderate overall coverage, but has minimal texts regarding its topics in Grades K and 2.

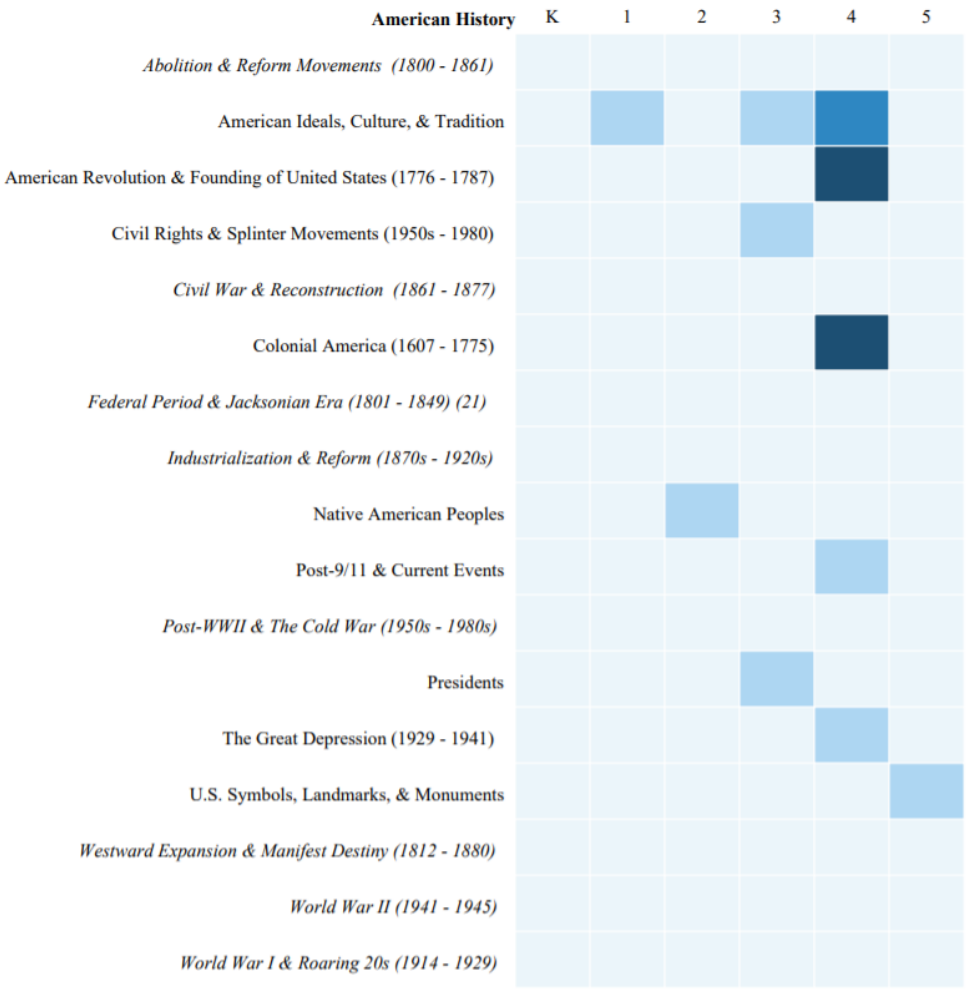


Figure 6. Heat map analysis of the American History knowledge domain in Grades K-5.

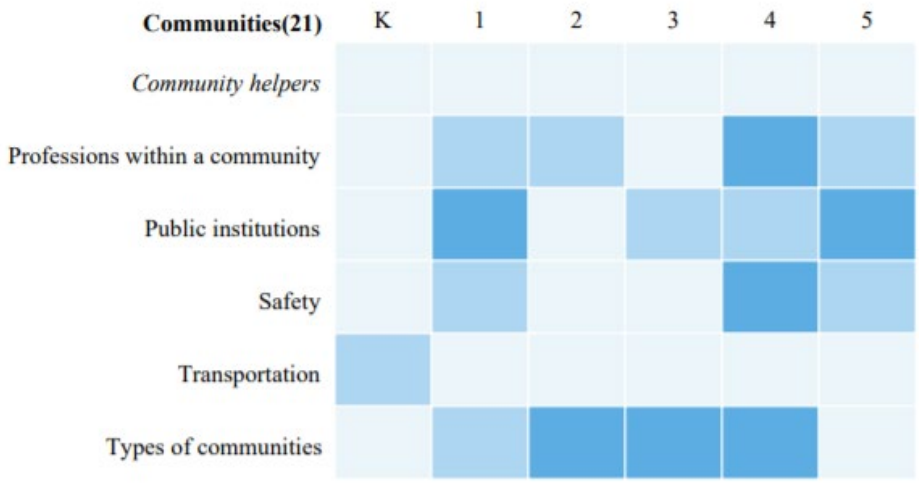


Figure 7. Heat map analysis of the Communities knowledge domain in Grades K-5.

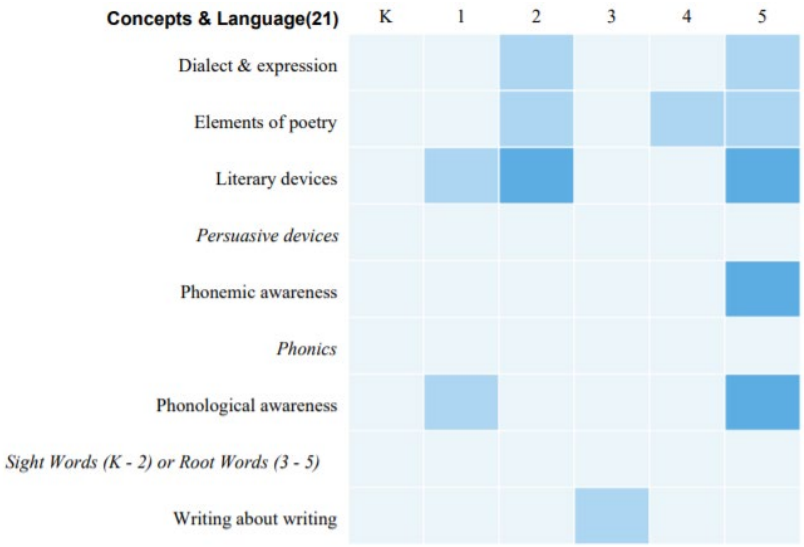


Figure 8. Heat map analysis of the Concepts & Language knowledge domain in Grades K-5.

Figure 9. Heat map analysis of the Diversity, Equity, & Inclusion knowledge domain in Grades K-5.

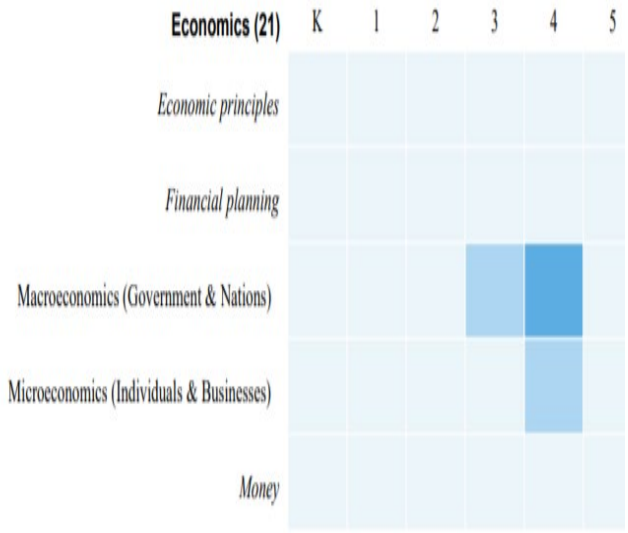


Figure 10. Heat map analysis of the Economics knowledge domain in Grades K-5.

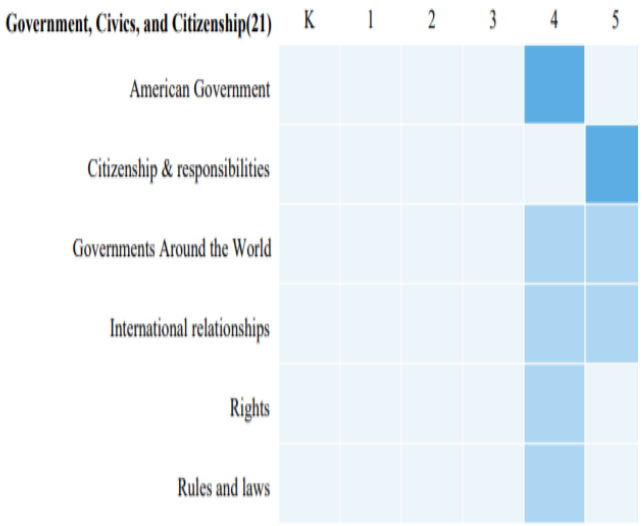


Figure 11. Heat map analysis of the Government, Civics, & Citizenship knowledge domain in Grades K-5.

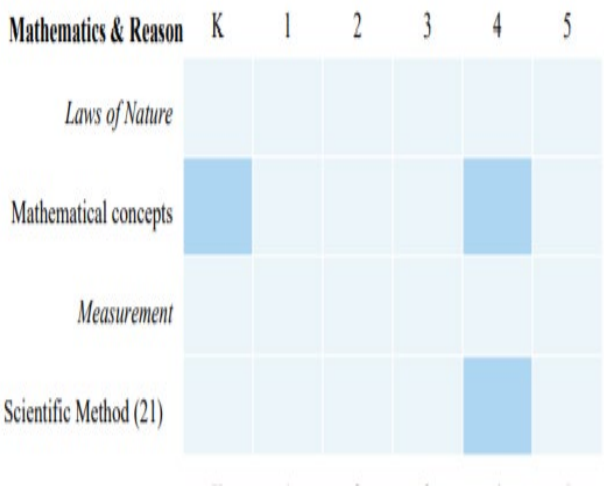


Figure 12. Heat Map analysis of the Mathematics & Reason knowledge domain in Grades K-5.

Figure 13. Heat map analysis of the Music & Performing Arts knowledge domain in Grades K-5.

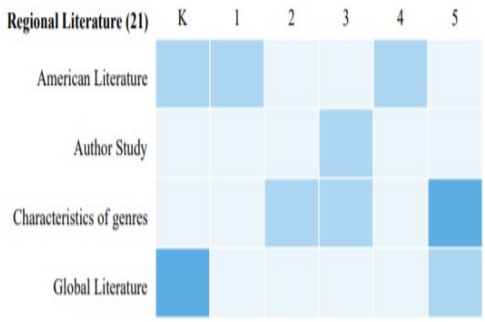


Figure 14. Heat Map analysis of the Regional Literature knowledge domain in Grades K-5.

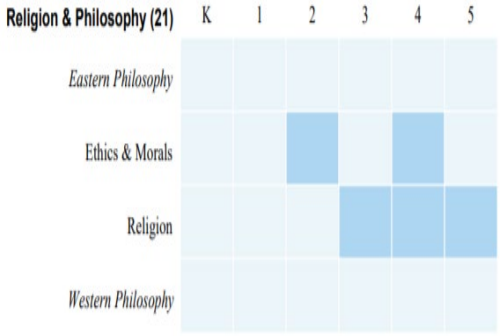


Figure 15. Heat map analysis of the Religion & Philosophy knowledge domain in Grades K-5.

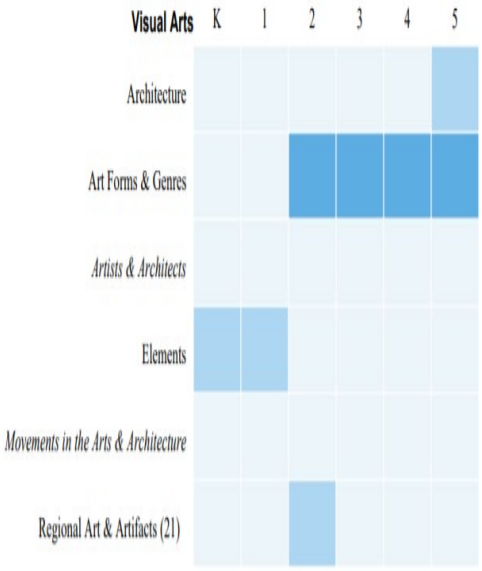


Figure 16. Heat map analysis of the Visual Arts knowledge domain in Grades K-5.

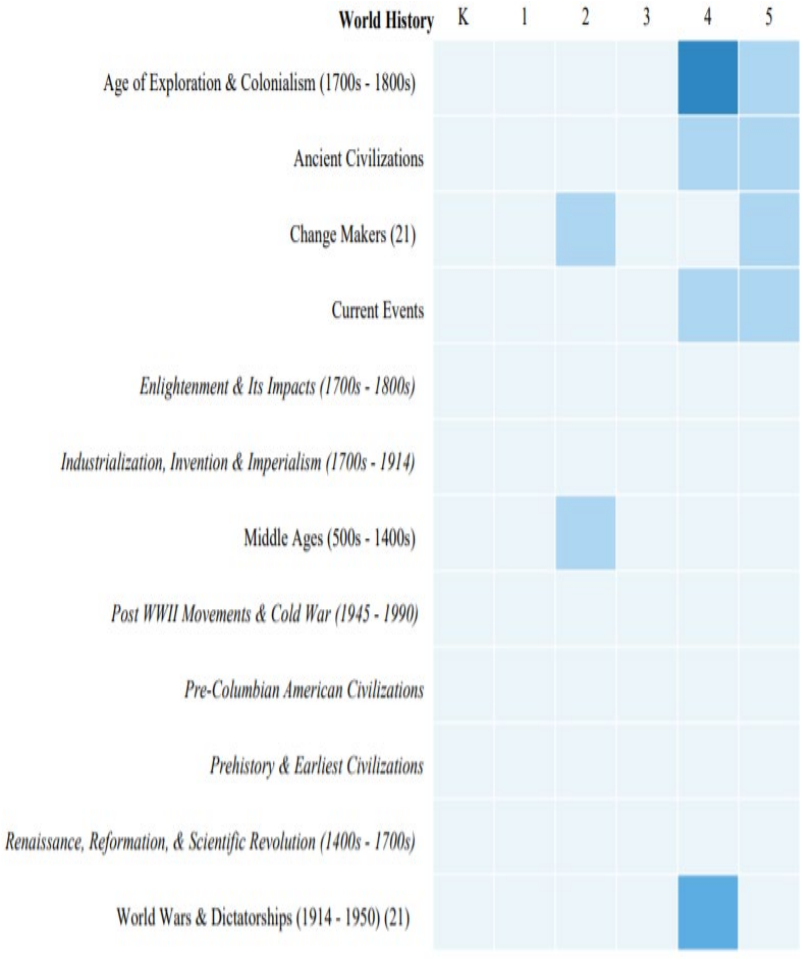


Figure 17. Heat map analysis of the World History knowledge domain in Grades K-5.

UNITS OF STUDY QUALITY AND COHERENCE

The Knowledge Map™ project enables a unit-level analysis of quality and coherence. As introduced previously, the Institute's analysis includes tagging each text for the knowledge domains, topics, and subtopics that the particular text reinforces. The tagging of each text is then evaluated within the unit it appears to determine how well the unit builds knowledge. Finally, the evaluation also rates each individual text for quality according to the rubric below.

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 (Jame 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.

Unit Quality & Coherence Analysis

The Institute generates *Unit Coherence Maps* that illustrate the extent to which the supplemental materials reinforce the knowledge built by the anchor text (as measured through assigned topic tags).

The *Unit Coherence Map* utilizes a ball-and-spoke visual, where the central ball represents the anchor, and the surrounding balls represent the supporting materials. The numerator 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.

Quality and coherence findings vary and are not linked to each other. A unit may score highly for overall quality, shown as a percentage, but have a low coherence rating in terms of how well the supplemental texts reinforce the knowledge built in the anchor text. In other words, units with high overall quality scores may only weakly reinforce central themes through the inclusion of additional materials, and vice versa.

The quality and coherence findings for each grade level follow in the sections below. For each unit, the provided trade books were set as the anchor text, while all other resources were set as supplementary; though instructors are given the opportunity to use other materials as they wish, the units are designed to support teaching around the trade books if they are used. 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 60%. Any lower score indicates that a unit or text scored poorly overall.

UNITS OF STUDY QUALITY & COHERENCE FINDINGS: GRADES K-5

Kindergarten

Highest-Rated Unit

Unit 1 is the highest-quality unit within this grade, with an average text quality score of 80.70%. All texts within this unit score at or above the Institute's range for high-quality materials. By contrast, the Institute's coherence analysis reveals weak topical reinforcement, as demonstrated visually below. The texts do not relate to each other thematically, and no supplementary resources shared topic tags with the designated anchor texts. Below, the graph indicates *Three Billy Goats Gruff* as the anchor. However, using other anchors, like *The Carrot Seed,* did not improve the unit's coherency.

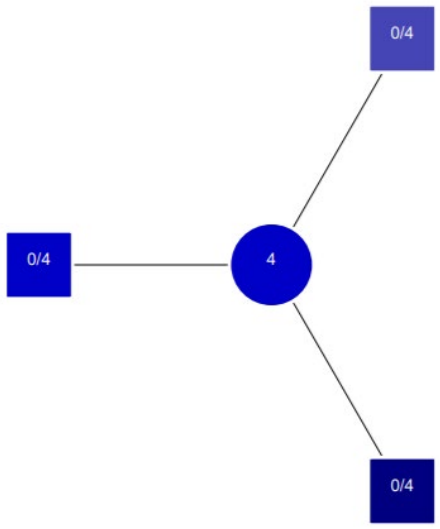


Figure 18. Coherence map of Grade K, Unit 1, The Three Billy Goats Gruff and related texts. Supporting materials weakly reinforce the anchor text.

Lowest-Rated Unit

Unit 3 is the lowest-quality unit at this grade level, with an average text quality score of 60.47%. Coherence analysis indicates weak knowledge reinforcement within this unit. The three anchors used within this unit share few topical connections with the supporting materials, revealing potential missed opportunities to expand upon the ideas presented in the core texts. Both the weak coherence and the dip in quality compared to the grade's other units suggest potential areas for improvement.

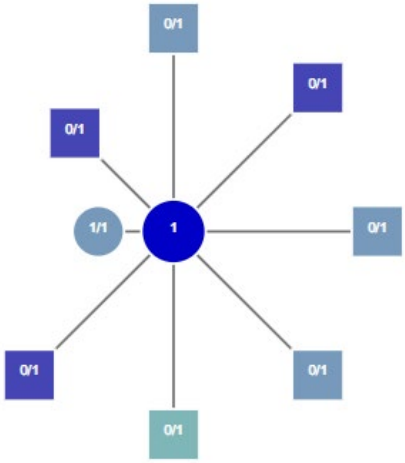


Figure 19. Coherence map of Grade K, Unit 3, Dragonflies and related texts. Supporting materials weakly reinforce the anchor text.

Grade 1

Highest-Rated Unit

Unit 4 is the highest-quality unit within this grade, with an average text quality score of 67.88%. Coherence analysis indicates that weak-to-moderate knowledge reinforcement occurs at this level. In most cases, the anchor texts are partially supported in knowledge building by the topics covered in the supplementary materials, allowing for further topical reinforcement across the resources available. However, the level of coverage varies from trade book to trade book; *Mr. Putter and Tabby Drop the Ball* is not reinforced at all by the unit's materials, while *Iris and Walter and the Field Trip* is more meaningfully reinforced. This suggests a variance in the students' ability to connect ideas across all texts in this unit.

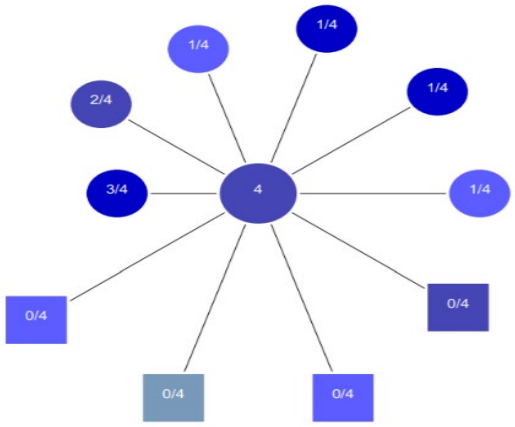


Figure 20. Coherence map of Grade 1, Unit 4, Iris and Walter and the Field Trip and related texts. Supporting materials weakly-to-moderately reinforce the anchor text.

Lowest-Rated Unit

Unit 1 is the lowest-quality unit at this level, with an average text quality score of 52.78%. This score falls below the Institute's range for acceptable quality and represents the presence of lower quality scores across the unit's texts. Additionally, coherence analysis performed on this unit reveals weak coherence across all texts, regardless of which trade book is selected as the anchor. However, *Ollie the Stomper* does share the topic of Relationship Skills in the Social-Emotional domain with *Gossie and Gertie*.

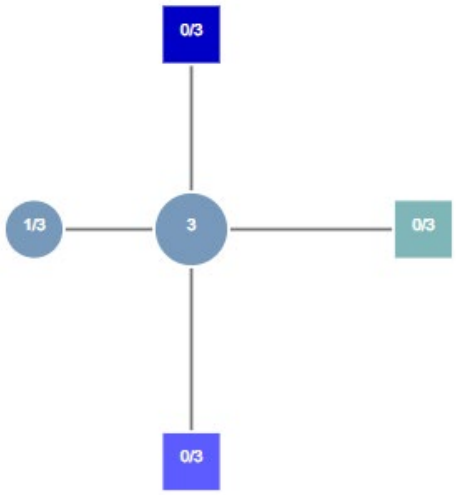


Figure 21. Coherence map of Grade 1, Unit 1, Ollie the Stomper and related texts. Supporting materials weakly reinforce the anchor text.

Grade 2

Grade 2 achieves an overall quality score of 73.87%, placing it in the high-quality range.

Highest-Rated Unit

Unit 4 is the highest-quality unit at this grade level, with an average text quality score of 77.33%. All texts within this unit achieve high-quality scores when measured against the Institute's rubrics. Coherence analysis performed on the unit indicates moderate knowledge reinforcement. Texts vary in their topical connections to each other, but the number of shared topic tags reveals an acceptable level of knowledge building within the unit. Using the anchor, Days with Frog and Toad, topics like 'Identity Development' and 'Conflict Resolution' of the Social-Emotional domain are addressed in other texts. This indicates that students read materials that allow them to develop an understanding of the anchor's main themes throughout the unit and from different perspectives.

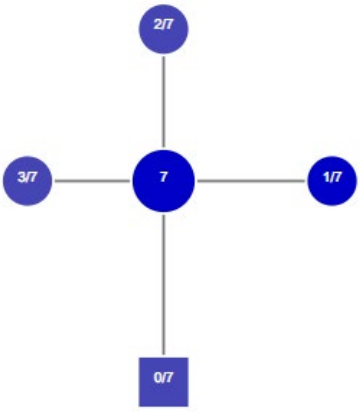


Figure 22. Coherence map of Grade 2, Unit 4, Days with Frog and Toad and related texts. Supporting materials moderately reinforce the anchor text.

Unit 1 is the lowest-quality unit within the grade, with an average text quality score of 63.33%. Texts vary considerably in their quality scores; however, all but one of them still fall within the acceptable range or higher. The Institute's coherence analysis suggests weak knowledge reinforcement within the unit. Regardless of the anchor used, the texts found within this unit rarely relate to each other in terms of the topics they cover, leading to low overall coherence across the unit.

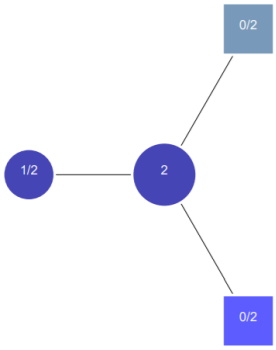


Figure 23. Coherence map of Grade 2, Unit 1, Kate Woo Has the Flu and related texts. Supporting materials weakly reinforce the anchor text.

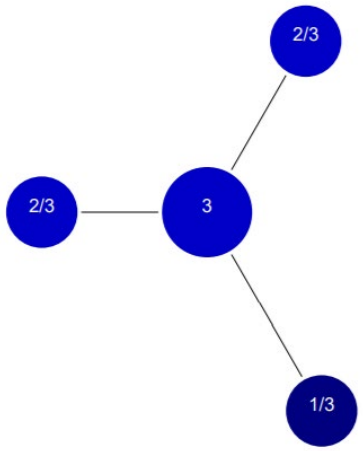
Grade 3

Grade 3 achieves an overall quality score of 79.37%, placing it in the high-quality range.

Highest-Rated Unit

Unit 3 is the highest-quality unit within this grade, with an average text quality score of 84.21%. The Institute's coherence analysis reveals strong knowledge reinforcement within the unit. All three of the topics addressed in the anchor text, *Because of Winn-Dixie*, are supported in the supplementary

materials. This indicates that resources available at this level contribute to a strong knowledge build overall, as students receive repeated instruction on overlapping content.



Lowest-Rated Unit

Unit 1 is the lowest-quality unit at this grade level, with an average text quality score of 68.33%. Though this score still falls within the Institute's range for acceptable quality, the presence of one low-quality resource brings the average down considerably, and its inclusion should be reevaluated. Coherence analysis suggests weak knowledge reinforcement within the unit. Only the Emotions topic of the Social-Emotional domain is shared by *Each Kindness* with the anchor text, *Stone Fox*, revealing potential missed opportunities to build upon these ideas with students.

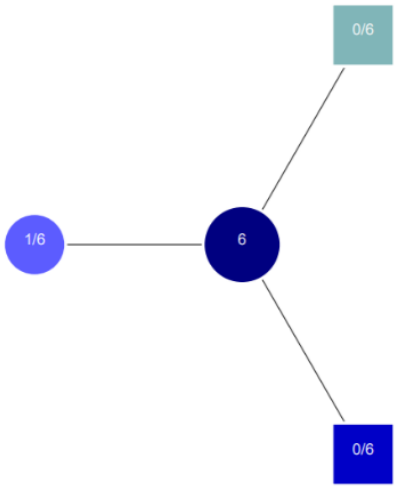


Figure 25. Coherence map of Grade 3, Unit 1, Stone Fox and related texts. Supporting materials weakly reinforce the anchor text.

Grade 4 achieves an overall quality score of 79.65%, placing it in the high-quality range.

Highest-Rated Unit

Unit 1 is the highest-quality unit at this grade level, with a text quality score of 93.33%. This score is based upon the inclusion of one high-quality text, *The Tiger Rising*, which students study in depth at this level. As such, the Institute did not perform coherence analysis on this unit, as there are no supplementary materials to measure against the anchor.

Lowest-Rated Unit

Unit 3 is the lowest-quality unit at this grade level, with an average text quality score of 75.63%. Despite this being the grade's lowest-quality unit, the quality score still falls within the Institute's range for high quality, speaking to the strength of resources available in Grade 4. Coherence analysis reveals strong knowledge reinforcement, most notably for the American Revolution & Founding of the United States topic in the American History domain. All four of the anchor's topic tags are represented across the supplementary resources, but these resources vary considerably in their level of topical connection. As a whole, however, both the quality and the general coherence of this unit contribute to a meaningful knowledge build within this grade.

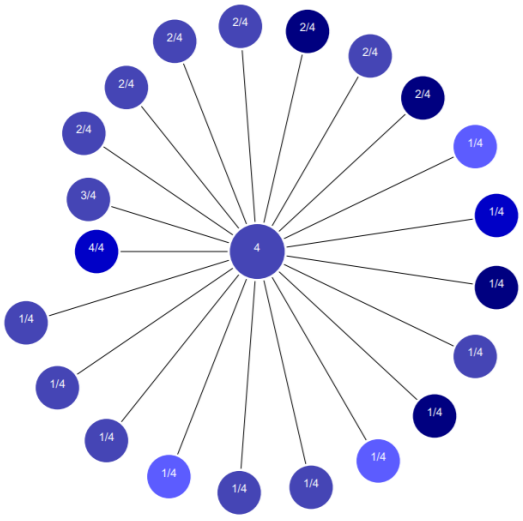
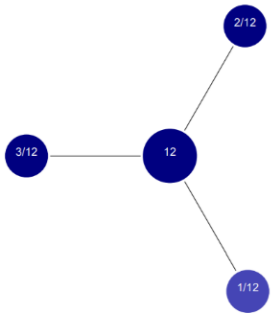


Figure 27. Coherence map of Grade 4, Unit 3, Liberty! How the Revolutionary War Began and related texts. Supporting materials strongly reinforce the anchor text.

Grade 5 achieves an overall quality score of 75.67%, placing it in the high-quality range.

Highest-Rated Unit

Unit 1 is the highest-quality unit at this grade level, with an average text quality score of 88.89%. This is a very strong score for a unit with multiple texts and stems from the generally high quality of each resource. However, the Institute's coherence analysis reveals weak knowledge reinforcement at this level. Though each of the supporting materials partially connect to the anchor's topics, nine of the twelve anchor tags do not appear again in the unit, leading to missed opportunities for knowledge building.



Lowest-Rated Unit

Unit 4 is the lowest-quality unit at this grade level, with an average text quality score of 70.11%. Individual texts vary vastly in their quality scores, leading to a score on the cusp of strong and moderate. Coherence analysis reveals weak knowledge reinforcement within the unit. The majority of supporting materials share none of the anchor's tags, indicating minimal connections between those materials and the unit's core themes. However, all four of the anchor's topic tags are represented in at least one other supplemental material, meaning that some level of reinforcement does occur.

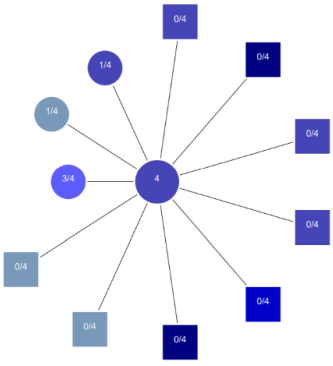


Figure 29. Coherence map of Grade 5, Unit 4, The Thieves of Always and related texts. Supporting materials weakly reinforce the anchor text.

UNITS OF STUDY QUALITY ASSESSMENT

The Units of Study Reading curriculum's quality varies, but generally falls into the Institute's range for acceptable or high quality. As the table below demonstrates, no grade fell below sixty percent for overall quality, and only one grade (Grade 1) contained units that fell below that threshold. This reveals strong materials within the curriculum as a whole, especially in Grades 2 and above. Grades 3 through 5 scored extremely similarly for quality, revealing a level of consistency in the upper elementary years; additionally, both Grades 4 and 5 achieved high-quality scores across all units. Grade 4 is the curriculum's highest performer in terms of quality, while Grade 1 was the lowest.

The rightmost column in the table below reveals the percentage difference between each grade's highest- and lowest-quality units. With the exception of Grade K, all grades scored between ten and twenty percent for these differences. The difference essentially represents the grade's quality consistency; larger differences indicate a wider variety in quality from unit to unit, resulting in discrepancies across the materials. The percentage differences presented here are generally acceptable, but lower percentages in that regard are always preferred.

Grade	Overall Quality Score	Unit High Score	Unit Low Score	Difference (High – Low)
K	69.57%	80.70%	60.47%	20.23%
1	63.10%	67.88%	52.78%	15.10%
2	73.87%	77.33%	63.33%	14.00%
3	79.37%	84.21%	68.33%	15.88%
4	79.65%	93.33%	75.63%	17.70%
5	75.67%	88.89%	70.11%	18.78%

Figure 30. Summary of unit quality scores in Grades K-5.

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 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 Units of Study

The Units of Study K-5 Reading curriculum for Kindergarten–Grade 5 helps teachers provide their students with instruction, opportunities for practice, and concrete doable goals to help them meet and exceed any set of high standards.

It is an understatement to say these units have been piloted many times. The teaching in these books has been planned, taught, revised, and retaught, through a cycle of improvement involving literally thousands of classrooms in schools dotting the globe.

Each reading unit represents about five to six weeks of teaching, structured into three or four "bends in the road." Rather than tackling the entire journey all at once, it's easier to embark on this series of shorter, focused bends, pausing between each to regroup and prepare for the next.

[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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